

2013

HIGH PERFORMANCE MILLING

Titanium • Aluminum • Stainless Steel



YG YG-1 TOOL CO.

BEST VALUE IN THE WORLD OF CUTTING TOOLS

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POWDERED METAL AND CARBIDE END MILLS... FOR HIGH PERFORMANCE MAXIMUM RIGIDITY

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TANK POWER

POWDERED METALLURGY: FINE PITCH, ROUGHING, REDUCED SHANK, EXTENDED REACH

MAXIMUM RIGIDITY LONG REACH FOR TITANIUM.



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➔ This TANK-POWER rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths.

CENTER CUT

Mill Diameter	Shank Diameter	Length of Cut	Reach Extended Neck	Overall Length	No. of Flute	Uncoated		TiAIN Coated	
						EDP No.	List Price	EDP No.	List Price
1/2	1/2	1-1/4	3	5	5	EP20322	\$95.07	EP20322F	\$105.43
5/8	5/8	1-5/8	4	6-1/8	5	EP20402	\$126.97	EP20402F	\$147.77
3/4	3/4	1-5/8	4	6-1/4	5	EP20482	\$150.87	EP20482F	\$175.40
3/4	3/4	1-5/8	6	8-1/4	5	EP20484	\$184.47	EP20484F	\$209.03
1	1	2	4	6-1/2	6	EP20642	\$219.83	EP20642F	\$264.60
1	1	2	6	8-1/2	6	EP20643	\$263.03	EP20643F	\$326.73
1-1/4	1-1/4	2	4	6-1/2	6	EP21161	\$416.43	EP21161F	\$480.13
1-1/4	1-1/4	2	6	8-1/2	6	EP21162	\$489.43	EP21162F	\$553.13

TANK POWER

6 FLUTE, 35° HELIX, REGULAR LENGTH



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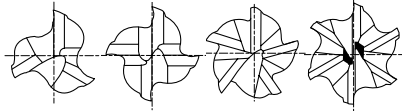
➔ Designed to machine low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steel, inconel, nimonic, etc.

➔ High velocity milling operation and good surface finishes.

EH882 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	EDP No.	List Price
3/4	3/4	1-5/8	3-7/8	95094	\$113.57
7/8	7/8	1-7/8	4-1/8	95095	\$146.87
1	1	2	4-1/2	95096	\$190.37
1-1/4	1-1/4	2	4-1/2	95097	\$235.17
1-1/2	1-1/4	2	4-1/2	95098	\$323.60

TOLERANCE OF MILL DIA.	+ .0010 0
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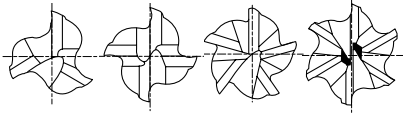
► This TANK-POWER rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths.

CENTER CUT – E9991, E9991TF Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Uncoated		Tank-Power Coated	
					EDP No.	List Price	EDP No.	List Price
1/4	3/8	5/8	2-7/16	3	E9991016	\$34.27	E9991016TF	\$46.70
1/4	3/8	1-1/8	2-15/16	3	E9991902	\$41.13	E9991902TF	\$56.03
5/16	3/8	3/4	2-1/2	3	E9991020	\$34.27	E9991020TF	\$46.70
3/8	3/8	3/4	2-1/2	4	E9991024	\$34.27	E9991024TF	\$46.70
7/16	3/8	1"	2-11/16	4	E9991028	\$47.77	E9991028TF	\$67.97
1/2	1/2	1-1/4	3-1/4	4	E9991032	\$47.77	E9991032TF	\$67.97
1/2	1/2	1-5/8	3-5/8	4	E9991903	\$55.30	E9991903TF	\$73.57
9/16	1/2	1-3/8	3-3/8	4	E9991036	\$60.63	E9991036TF	\$80.67
5/8	5/8	1-5/8	3-3/4	4	E9991040	\$60.63	E9991040TF	\$80.67
3/4	3/4	1-5/8	3-7/8	4	E9991048	\$75.40	E9991048TF	\$93.70
3/4	5/8	1-5/8	3-7/8	4	E9991948	\$75.40	E9991948TF	\$93.70
3/4	3/4	2-1/2	4-3/4	4	E9991904	\$91.27	E9991904TF	\$117.27
7/8	7/8	1-7/8	4-1/8	5	E9991056	\$96.97	E9991056TF	\$124.53
7/8	3/4	1-7/8	4-1/8	5	E9991901	\$96.97	E9991901TF	\$124.53
1	1	2	4-1/2	5	E9991064	\$109.10	E9991064TF	\$150.13
1	1	3	5-1/2	5	E9991905	\$131.53	E9991905TF	\$164.43
1-1/8	1	2	4-1/2	6	E9991108	\$140.83	E9991108TF	\$176.10
1-1/4	1-1/4	2	4-1/2	6	E9991116	\$182.13	E9991116TF	\$227.67
1-1/4	1-1/4	3	5-1/2	6	E9991906	\$202.93	E9991906TF	\$253.67

TOLERANCE
OF MILL DIA.

+ .0030
0

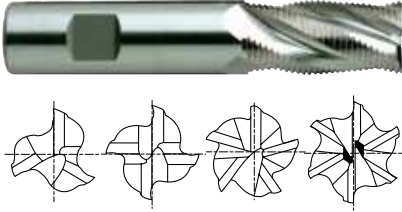


➤ This TANK-POWER rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths.

CENTER CUT – E9A87, E9A87TF Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Uncoated		Tank-Power Coated	
					EDP No.	List Price	EDP No.	List Price
5/16	3/8	1-3/8	3-3/16	3	E9A87020	\$53.50	E9A87020TF	\$64.20
3/8	3/8	1-1/2	3-1/4	4	E9A87024	\$53.50	E9A87024TF	\$64.20
3/8	3/8	1-1/2	4	4	E9A87924	\$53.50	E9A87924TF	\$64.20
1/2	1/2	2	4	4	E9A87032	\$60.77	E9A87032TF	\$75.97
5/8	5/8	2-1/2	4-5/8	4	E9A87040	\$86.93	E9A87040TF	\$104.33
3/4	5/8	3	5-1/8	4	E9A87048	\$97.17	E9A87048TF	\$121.43
3/4	3/4	3	5-1/4	4	E9A87948	\$97.17	E9A87948TF	\$121.43
7/8	3/4	3-1/2	5-3/4	5	E9A87056	\$118.00	E9A87056TF	\$141.57
7/8	7/8	3-1/2	5-3/4	5	E9A87956	\$118.00	E9A87956TF	\$141.57
1	1	4	6-1/2	5	E9A87064	\$139.80	E9A87064TF	\$160.80
1-1/4	3/4	4	6-1/4	6	E9A87116	\$248.23	E9A87116TF	\$285.47
1-1/4	1-1/4	4	6-1/2	6	E9A87917	\$248.23	E9A87917TF	\$285.47

TOLERANCE OF MILL DIA.	+ .0030 0
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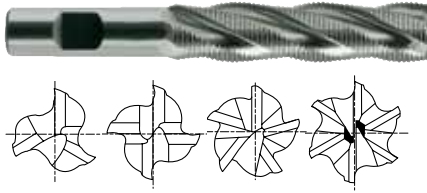
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CENTER CUT – E9990, E9990TF Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Uncoated		Tank-Power Coated	
					EDP No.	List Price	EDP No.	List Price
1/4	3/8	5/8	2-7/16	3	E9990016	\$40.70	E9990016TF	\$49.87
1/4	3/8	1-1/8	2-15/16	3	E9990907	\$48.93	E9990907TF	\$59.93
5/16	3/8	3/4	2-1/2	3	E9990020	\$40.70	E9990020TF	\$49.87
3/8	3/8	3/4	2-1/2	4	E9990024	\$40.70	E9990024TF	\$49.87
7/16	3/8	1	2-11/16	4	E9990028	\$56.00	E9990028TF	\$71.70
1/2	1/2	1-1/4	3-1/4	4	E9990032	\$56.00	E9990032TF	\$71.70
1/2	1/2	1-5/8	3-5/8	4	E9990908	\$65.80	E9990908TF	\$78.53
9/16	1/2	1-3/8	3-3/8	4	E9990036	\$72.07	E9990036TF	\$86.03
5/8	5/8	1-5/8	3-3/4	4	E9990040	\$72.07	E9990040TF	\$86.03
3/4	3/4	1-5/8	3-7/8	4	E9990048	\$89.63	E9990048TF	\$105.07
3/4	5/8	1-5/8	3-7/8	4	E9990948	\$89.63	E9990948TF	\$105.07
3/4	3/4	2-1/2	4-3/4	4	E9990909	\$108.63	E9990909TF	\$127.37
7/8	7/8	1-7/8	4-1/8	5	E9990056	\$115.27	E9990056TF	\$133.10
7/8	3/4	1-7/8	4-1/8	5	E9990901	\$115.27	E9990901TF	\$133.10
1	1	2	4-1/2	5	E9990064	\$129.63	E9990064TF	\$159.77
1	1	3	5-1/2	5	E9990905	\$142.70	E9990905TF	\$171.23
1-1/8	1	2	4-1/2	6	E9990108	\$171.10	E9990108TF	\$205.33
1-1/4	1-1/4	2	4-1/2	6	E9990116	\$196.07	E9990116TF	\$241.87
1-1/4	1-1/4	3	5-1/2	6	E9990906	\$218.47	E9990906TF	\$269.43

TOLERANCE OF MILL DIA.

up to 1"	+ .0030 0
over 1"	+ .0060 0



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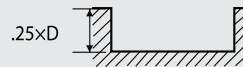
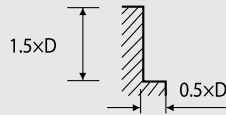
CENTER CUT – E9A86, E9A86TF Series

Mill Diameter	Shank Diameter	Length Of Cut	Overall Length	No. of Flute	Uncoated		Tank-Power Coated	
					EDP No.	List Price	EDP No.	List Price
5/16	3/8	1-3/8	3-3/16	3	E9A86020	\$64.07	E9A86020TF	\$76.87
3/8	3/8	1-1/2	3-1/4	4	E9A86024	\$64.07	E9A86024TF	\$76.87
3/8	3/8	1-1/2	4	4	E9A86924	\$64.07	E9A86924TF	\$76.87
1/2	1/2	2	4	4	E9A86032	\$72.73	E9A86032TF	\$87.27
5/8	5/8	2-1/2	4-5/8	4	E9A86040	\$104.00	E9A86040TF	\$124.80
3/4	5/8	3	5-1/8	4	E9A86048	\$116.27	E9A86048TF	\$133.70
3/4	3/4	3	5-1/4	4	E9990902	\$116.27	E9990902TF	\$133.70
7/8	3/4	3-1/2	5-3/4	5	E9A86056	\$141.17	E9A86056TF	\$162.33
7/8	7/8	3-1/2	5-3/4	5	E9A86956	\$141.17	E9A86956TF	\$162.33
1	1	4	6-1/2	5	E9990903	\$147.17	E9990903TF	\$169.23
1-1/4	3/4	4	6-1/4	6	E9A86116	\$254.53	E9A86116TF	\$293.90
1-1/4	1-1/4	4	6-1/2	6	E9990904	\$254.53	E9990904TF	\$293.90

TOLERANCE OF MILL DIA.	+ .0030 0
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E9990, E9991, E9A86, E9A87 Series

MATERIAL	Stainless Steels Carbon Steels,		Stainless Steels, Carbon Steels, Cast Irons		Carbon Steels, Alloy Steels, Tool Steels		Prehardened Steels, Alloy Steels, Tool Steels	
HARDNESS	~HRc20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/4	2650	7.81	2050	6.25	1450	4.38	1200	3.44
3/8	1900	13.14	1500	10.13	1050	6.41	885	5.23
1/2	1450	14.17	1100	11.42	805	7.87	665	6.10
5/8	1150	14.17	905	11.42	630	7.87	525	6.10
3/4	960	14.38	780	11.42	540	7.87	445	6.10
7/8	845	14.54	615	11.37	445	7.84	375	6.10
1	740	13.98	560	10.64	395	7.39	315	6.01



The FEED, in long & extra long types, should be reduced by around 50%.

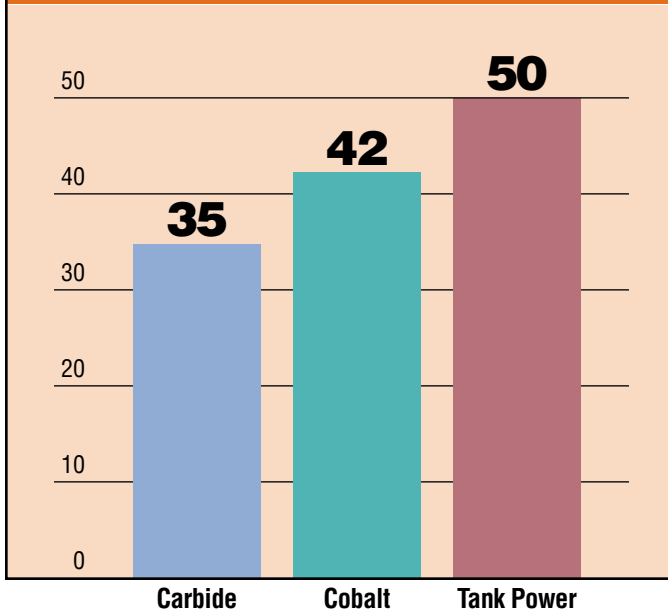
RPM=REVOLUTION PER MIN.
FEED=inch/min.

EXTENDED REACH FOR TITANIUM TECHNICAL INFORMATION

Material	Application		Application	fz - feed per tooth inch D- Diameter in InchTiAIN						
	Side Milling	Slotting	SFM	1/2	5/8	3/4	1	1-3/16	1-1/4	
Titanium	ap >40	ae 1.0 x D	ap 0.25 x D	TiAIN 50-65	0.00197	0.00276	0.0035	0.004	0.004	0.0041

For slotting: Multiply by 0.8 the feed per tooth (fz) in the table.

TOUGHNESS VALUE AND EDGE STRENGTH



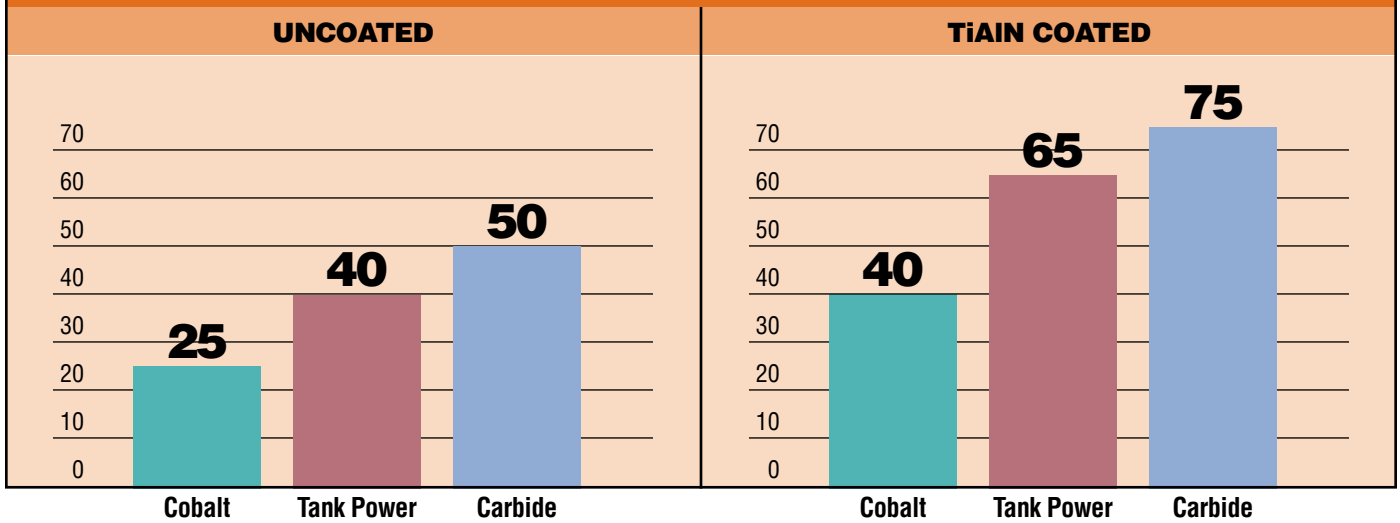
WHEN TO USE TANK POWER

- Cobalt Tools Wear Rapidly
- Carbide Tools Chip or Break
- Higher Feed Rates Desired

MATERIALS SUCCESSFULLY MACHINED UP TO 45RC

- Alloy and Tool Steels
- Stainless Steels
- Titanium
- Nickel Based Alloys

APPROXIMATE WEAR VALUES





- High performance metal removal in aluminum alloys.
- Corner radius against chipping.

CENTER CUT

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	w/o Corner Radius				w/ .120 Corner Radius			
				Uncoated		TICN-Coated		Uncoated		TICN-Coated	
				EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price
1/2	1/2	1-1/4	3-1/4	EP10323	\$42.07	EP10323C	\$47.07	EP10321	\$47.87	EP10321C	\$55.17
1/2	1/2	2	4	EP10324	\$60.10	EP10324C	\$67.37	EP10322	\$68.93	EP10322C	\$76.23
5/8	5/8	1-5/8	3-3/4	EP10403	\$79.80	EP10403C	\$90.37	EP10401	\$91.03	EP10401C	\$101.67
5/8	5/8	2-1/2	4-5/8	EP10404	\$111.47	EP10404C	\$122.10	EP10402	\$127.93	EP10402C	\$138.57
3/4	3/4	1-5/8	3-7/8	EP10484	\$102.77	EP10484C	\$115.30	EP10481	\$116.40	EP10481C	\$128.97
3/4	3/4	2-1/4	4-5/8	EP10485	\$122.13	EP10485C	\$134.67	EP10482	\$138.27	EP10482C	\$150.83
3/4	3/4	3	5-1/4	EP10486	\$147.77	EP10486C	\$160.30	EP10483	\$167.87	EP10483C	\$180.43
1	1	2	4-1/2	EP10644	\$153.73	EP10644C	\$172.73	EP10641	\$170.40	EP10641C	\$193.23
1	1	3	5-1/2	EP10645	\$198.80	EP10645C	\$221.67	EP10642	\$221.33	EP10642C	\$244.20
1	1	4	6-1/2	EP10646	\$238.17	EP10646C	\$261.03	EP10643	\$265.47	EP10643C	\$288.33
1-1/4	1-1/4	2	4-1/2	EP11165	\$260.87	EP11165C	\$293.40	EP11162	\$291.10	EP11162C	\$323.60
1-1/4	1-1/4	3	5-1/2	EP11166	\$282.87	EP11166C	\$315.40	EP11163	\$312.67	EP11163C	\$345.17
1-1/4	1-1/4	4	6-1/2	EP11167	\$341.43	EP11167C	\$373.97	EP11164	\$378.07	EP11164C	\$410.60
1-1/2	1-1/4	2	4-1/2	EP11324	\$375.67	EP11324C	\$416.77	EP11321	\$419.43	EP11321C	\$460.53
1-1/2	1-1/4	3	5-1/2	EP11325	\$407.40	EP11325C	\$448.47	EP11322	\$450.57	EP11322C	\$491.67
1-1/2	1-1/4	4	6-1/2	EP11326	\$507.90	EP11326C	\$548.97	EP11323	\$564.27	EP11323C	\$605.37

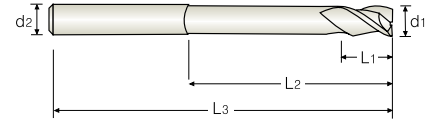
POWDER T15
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Page 15



High performance metal removal in aluminum alloys.

Reduced Neck, Finishing

Mill Diameter $\phi 1$	Shank Diameter $\phi 2$	Length of Cut L1	Length Below Shank L2	Overall Length L3	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
3/4	3/4	1-1/2	3	5-1/4	EK13210	\$120.67	EK13210C	\$149.90
3/4	3/4	1-1/2	4	6-1/4	EK13211	\$129.00	EK13211C	\$158.27
1	1	1-1/2	3	5-1/2	EK13212	\$174.40	EK13212C	\$207.23
1	1	2	4	6-1/2	EK13213	\$189.07	EK13213C	\$221.93
1	1	2	6	8-1/2	EK13214	\$226.10	EK13214C	\$258.90
1-1/4	1-1/4	2	4	6-1/2	EK13215	\$318.43	EK13215C	\$368.37
1-1/4	1-1/4	2	6	8-1/2	EK13216	\$378.10	EK13216C	\$428.03



Reduced Neck, Roughing

Mill Diameter $\phi 1$	Shank Diameter $\phi 2$	Length of Cut L1	Length Below Shank L2	Overall Length L3	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
3/4	3/4	1-1/2	3	5-1/4	EK10482	\$161.70	EK10482C	\$190.97
3/4	3/4	1-1/2	4	6-1/4	EK10483	\$175.37	EK10483C	\$204.63
1	1	1-1/2	3	5-1/2	EK10642	\$266.90	EK10642C	\$299.70
1	1	2	4	6-1/2	EK10643	\$283.67	EK10643C	\$316.50
1	1	2	6	8-1/2	EK10644	\$330.03	EK10644C	\$362.87
1-1/4	1-1/4	2	4	6-1/2	EK11601	\$386.50	EK11601C	\$436.43
1-1/4	1-1/4	2	6	8-1/2	EK11602	\$455.13	EK11602C	\$505.07



Ball Nose, Center cut, Regular Length, Roughing

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Uncoated		TiCN Coated	
				EDP No.	List Price	EDP No.	List Price
1/2	1/2	1-1/4	3-1/4	EP12032	\$123.73	EP12032C	\$132.47
5/8	5/8	1-5/8	3-3/4	EP12040	\$149.63	EP12040C	\$162.37
3/4	3/4	1-5/8	3-7/8	EP12048	\$172.27	EP12048C	\$187.30
1	1	2	4-1/2	EP12064	\$286.87	EP12064C	\$314.27
1-1/4	1-1/4	2	4-1/2	EP12110	\$381.20	EP12110C	\$412.37

Other radiuses available on request – available in 1 week for Uncoated tools.



High performance metal removal in aluminum alloys.

CENTER CUT – EK191 Series, REGULAR LENGTH -“Speed freek”

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Uncoated		TiCN Coated	
				EDP No.	List Price	EDP No.	List Price
1/2	1/2	1-1/4	3-1/4	66515	\$67.03	66515PC	\$85.57
5/8	5/8	1-5/8	3-3/4	66519	\$95.40	66519PC	\$123.50
3/4	3/4	1-5/8	3-7/8	66524	\$102.83	66524PC	\$131.33
1	1	2	4-1/2	66540	\$174.70	66540PC	\$222.93
1-1/4	1-1/4	2	4-1/2	66541	\$231.93	66541PC	\$291.40
1-1/2	1-1/4	2	4-1/2	66542	\$344.37	66542PC	\$438.20
2	2	2	5-3/4	66543	\$595.30	66543PC	\$740.77



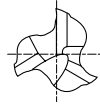
High performance metal removal in aluminum alloys.
Corner radius against chipping.

CENTER CUT – EK191 Series, REGULAR LENGTH -“Speed freek”

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
3/4	3/4	1-5/8	3-7/8	R .060	66903	\$131.03	66903PC	\$163.40
3/4	3/4	1-5/8	3-7/8	R .090	66904	\$131.30	66904PC	\$163.40
3/4	3/4	1-5/8	3-7/8	R .120	66905	\$131.03	66905PC	\$163.40
1	1	2	4-1/2	R .060	66906	\$202.90	66906PC	\$239.87
1	1	2	4-1/2	R .090	66907	\$202.90	66907PC	\$239.87
1	1	2	4-1/2	R .120	66908	\$202.90	66908PC	\$239.87
1-1/4	1-1/4	2	4-1/2	R .060	66909	\$260.13	66909PC	\$307.83
1-1/4	1-1/4	2	4-1/2	R .090	66910	\$260.13	66910PC	\$307.83
1-1/4	1-1/4	2	4-1/2	R .120	66911	\$260.13	66911PC	\$307.83

TOLERANCE OF MILL DIA.

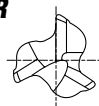
up to 1"	+ .0030 0
over 1"	+ .0060 0



CENTER CUT – EK226 Series, MEDIUM LENGTH -“Speed freek”

➤ High performance metal removal in aluminum alloys.

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Uncoated		TiCN Coated	
				EDP No.	List Price	EDP No.	List Price
3/4	3/4	2-1/4	4-5/8	80524	\$125.07	80524PC	\$160.07
1	1	3	5-1/2	80540	\$195.10	80540PC	\$249.03
1-1/4	1-1/4	3	5-1/2	80541	\$252.93	80541PC	\$320.13
1-1/2	1-1/4	3	5-1/2	80542	\$358.40	80542PC	\$464.13
2	2	3	6-3/4	80543	\$632.50	80543PC	\$795.53



CENTER CUT – EK226 Series, MEDIUM LENGTH -“Speed freek”

➤ High performance metal removal in aluminum alloys.
➤ Corner radius against chipping.

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
3/4	3/4	2-1/4	4-5/8	R .060	80901	\$153.30	80901PC	\$185.53
3/4	3/4	2-1/4	4-5/8	R .090	80902	\$153.30	80902PC	\$185.53
3/4	3/4	2-1/4	4-5/8	R .120	80903	\$153.30	80903PC	\$185.53
1	1	3	5-1/2	R .060	80904	\$223.30	80904PC	\$259.97
1	1	3	5-1/2	R .090	80905	\$223.30	80905PC	\$259.97
1	1	3	5-1/2	R .120	80906	\$223.30	80906PC	\$259.97
1-1/4	1-1/4	3	5-1/2	R .060	80907	\$281.17	80907PC	\$336.00
1-1/4	1-1/4	3	5-1/2	R .090	80908	\$281.17	80908PC	\$336.00
1-1/4	1-1/4	3	5-1/2	R .120	80909	\$281.17	80909PC	\$336.00

TOLERANCE OF MILL DIA.

up to 1"	+ .0030 0
over 1"	+ .0060 0

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High performance metal removal in aluminum alloys.

CENTER CUT – REGULAR LENGTH - “Speed freek”

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Uncoated		TiCN Coated	
				EDP No.	List Price	EDP No.	List Price
1/2	1/2	1-1/4	3-1/4	EP12032	\$123.73	EP12032C	\$132.47
5/8	5/8	1-5/8	3-3/4	EP12040	\$149.63	EP12040C	\$162.37
3/4	3/4	1-5/8	3-7/8	EP12048	\$172.27	EP12048C	\$187.30
1	1	2	4-1/2	EP12064	\$286.87	EP12064C	\$314.27
1-1/4	1-1/4	2	4-1/2	EP12110	\$381.20	EP12110C	\$412.37

TOLERANCE OF MILL DIA.

up to 1"	+ .0030 0
over 1"	+ .0060 0

SPEEDS AND FEEDS

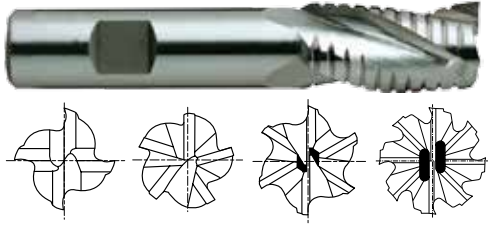
Material	Uncoated	TiCN	Chip Load Per Tooth & Cutting Diameter				
	SFM	SFM	1/2	3/4	1.00	1.25	2.00
ALUMINUM [Soft]	250-500	400-2,500	.005	.007	.010	.012	.015
AIRCRAFT ALUMINUM [Under 10% Silicon]	250-750	500-3,250	.005	.007	.010	.012	.015

3/4 DIA. / TiCN Coated

10,186 RPM [2,000 SFM] @ 213 IPM

SFM	$0.262 \times \text{CUTTER DIA} \times \text{RPM}$
RPM	$3.82 \times \frac{\text{SFM}}{\text{CUTTER DIA}}$
IPM	$\text{FPT} \times \text{N} \times \text{RPM}$
FPT	$\frac{\text{IPM}}{\text{N} \times \text{RPM}}$
IPR	$\frac{\text{IPM}}{\text{RPM}}$
CUTTING TIME	$\frac{\text{LENGTH OF CUT}}{\text{IPM}}$

SFM = Surface Feet Per Minute
 RPM = Revolutions Per Minute
 N = Number of Teeth
 IPR = Inches Per Revolution
 IPM = Inches Per Minute
 FPT = Feed Per Tooth



- This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths. In many cases, the milled surfaces are of acceptable quality.
- **Hardslick coating has been known to significantly lower frictional heat, thereby increasing tool life.**

CENTER CUT – E2248 Series, REGULAR LENGTH, FLAT SHANK

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	8% Cobalt (M42)	
					EDP No.	List Price
1/4	3/8	5/8	2-7/16	4	73297	\$34.27
5/16	3/8	3/4	2-1/2	4	73301	\$34.27
3/8	3/8	3/4	2-1/2	4	73305	\$34.27
7/16	3/8	1	2-11/16	4	73312	\$47.07
1/2	1/2	1-1/4	3-1/4	4	73321	\$47.07
9/16	1/2	1-3/8	3-3/8	4	73328	\$58.20
5/8	5/8	1-5/8	3-3/4	4	73337	\$58.20
11/16	5/8	1-5/8	3-3/4	4	73348	\$72.40
3/4	5/8	1-5/8	3-3/4	4	73358	\$72.40
3/4	3/4	1-5/8	3-3/4	4	73359	\$72.40
7/8	3/4	1-7/8	4-1/8	5	73391	\$93.10
7/8	7/8	1-7/8	4-1/8	5	73394	\$93.10
1	3/4	2	4-1/4	5	73422	\$104.77
1	1	2	4-1/2	5	73426	\$104.77
1-1/8	3/4	2	4-1/4	6	73431	\$138.27
1-1/8	1	2	4-1/2	6	73435	\$138.27
1-1/4	3/4	2	4-1/4	6	73439	\$160.03
1-1/4	1-1/4	2	4-1/2	6	73445	\$160.03
1-1/2	3/4	2	4-1/4	6	73457	\$214.40
1-1/2	1-1/4	2	4-1/2	6	73461	\$214.40
1-3/4	3/4	2	4-1/4	6	73467	\$242.40
1-3/4	1-1/4	2	4-1/2	6	73469	\$242.40
2	3/4	2	4-1/4	6	73475	\$283.87
2	1-1/4	2	4-1/2	6	73477	\$283.87
2	2	2	5-3/4	8	73480	\$463.00
2	2	3	6-3/4	8	73482	\$497.17
2	2	4	7-3/4	8	73484	\$548.43

TOLERANCE OF MILL DIA. + .0025
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The TiN coated, TiCN coated or TiAlN coated is available on your request.
Coating Codes for Cobalt
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)

HSSCO8, MULTI FLUTE REGULAR LENGTH ROUGHING & FINISHING

ALUMINUM ALLOYS	RPM	FEED (I.P.M.)
1/4 – 5/16	7,500	90.00
3/8 – 9/16	5,000	80.00
5/8 – 3/4	3,000	60.00
7/8 – 1.00	2,000	60.00
1-1/8 – 1-1/2	1,300	54.00
1-3/4 – 2.00	1,000	48.00

TITANIUM ALLOYS	RPM	FEED (I.P.M.)
1/4 – 5/16	1,000	12.00
3/8 – 9/16	600	9.60
5/8 – 3/4	400	8.00
7/8 – 1.00	300	9.00
1-1/8 – 1-1/2	200	8.40
1-3/4 – 2.00	150	7.20

STAINLESS ALLOYS L28Rc	RPM	FEED (I.P.M.)
1/4 – 5/16	2,500	30.00
3/8 – 9/16	1,500	18.00
5/8 – 3/4	1,000	16.00
7/8 – 1.00	750	18.75
1-1/8 – 1-1/2	500	18.00
1-3/4 – 2.00	382	13.75



- High velocity milling of aluminum & other non ferrous materials.
- Excellent plunging capabilities.
- Improved surface roughness-cylindrical margin which is controlled tightly.
- Maximum-stock removal, chip ejection, stability.

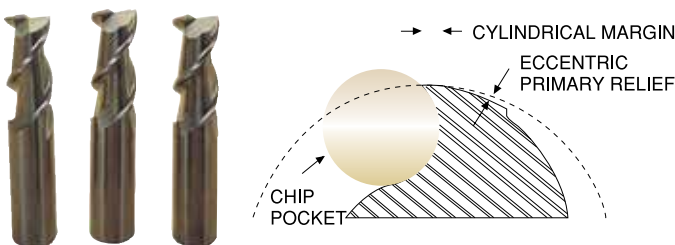
E5253 Series, Flat

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Uncoated		TiCN Coated	
				EDP No.	List Price	EDP No.	List Price
1/4	3/8	3/4	2-1/2	17574	\$48.23	17574TC	\$64.80
5/16	3/8	13/16	2-1/2	17580	\$52.10	17580TC	\$68.73
3/8	3/8	1	2-1/2	17584	\$60.50	17584TC	\$77.10
1/2	1/2	1	3	17593	\$97.97	17593TC	\$118.53
1/2	1/2	2	4	18593	\$154.40	18593TC	\$181.20
5/8	5/8	1-1/4	3-1/2	17595	\$187.37	17595TC	\$217.10
3/4	3/4	1-1/2	4	17598	\$262.93	17598TC	\$298.13
3/4	3/4	3	5-1/2	18598	\$346.60	18598TC	\$400.60
1	1	1-1/2	4	17600	\$475.23	17600TC	\$527.00
1	1	3	5-1/2	18600	\$511.27	18600TC	\$574.10

- High performance in machining aluminum and nonferrous materials.
- Special designed geometry with high rigidity cutting edge.
- Improved surface roughness - cylindrical margin which is controlled tightly.
- Excellent chip removal - higher rake angle, higher helix angle(42°), bigger chip pocket.

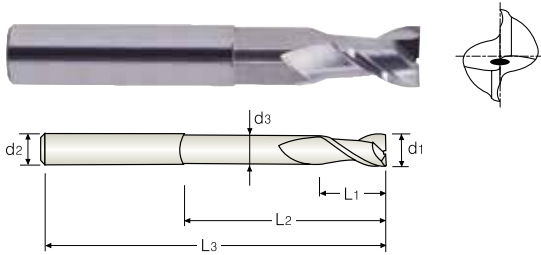
E5254 Series, without Flat

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Uncoated		TiCN Coated	
				EDP No.	List Price	EDP No.	List Price
1/16	1/8	1/8	1-1/2	21554	\$30.07	21554TC	\$33.53
3/32	1/8	1/4	1-1/2	21556	\$30.07	21556TC	\$33.53
1/8	1/4	5/16	1-3/4	21601	\$30.07	21601TC	\$33.53
3/16	1/4	7/16	2	21566	\$34.93	21566TC	\$41.73
1/4	3/8	3/4	2-1/2	21574	\$48.23	21574TC	\$64.80
5/16	3/8	13/16	2-1/2	21580	\$52.10	21580TC	\$68.73
3/8	3/8	1	2-1/2	21584	\$60.50	21584TC	\$77.10
7/16	7/16	1	2-3/4	21588	\$88.60	21588TC	\$101.77
1/2	1/2	1	3	21593	\$97.97	21593TC	\$118.53
1/2	1/2	2	4	21901	\$154.40	21901TC	\$181.20
5/8	5/8	1-1/4	3-1/2	21595	\$187.37	21595TC	\$217.10
3/4	3/4	1-1/2	4	21598	\$262.93	21598TC	\$298.13
3/4	3/4	3	5-1/2	21902	\$346.60	21902TC	\$397.70
1	1	1-1/2	4	21600	\$475.23	21600TC	\$527.00
1	1	3	5-1/2	21903	\$511.27	21903TC	\$577.73



TOLERANCE OF MILL DIA. 0
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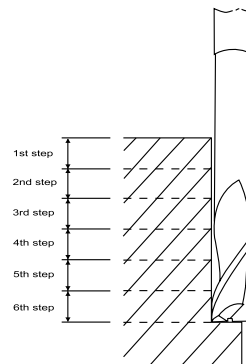
ALUMINUM MACHINING DATA		
Diameter	Speed(RPM)	Feed(inch/tooth)
1/4	10,000	.002 ~ .006
5/16	8,000	.002 ~ .006
3/8	8,000	.002 ~ .008
1/2	8,000	.002 ~ .008
5/8	6,000	.002 ~ .010
1/4	4,000	.002 ~ .010
1	4,000	.002 ~ .010



- High velocity milling of aluminum & other non ferrous materials.
- Excellent plunging capabilities.
- Improved surface roughness-cylindrical margin which is controlled tightly. (See page 15.)
- Maximum-stock removal, chip ejection, stability.

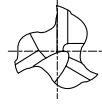
E5976 Series

Mill Diameter d_1	Shank Diameter d_2	Length of Cut L_1	Length Below Shank L_2	Overall Length L_3	Neck Diameter d_3	Uncoated		TiCN Coated	
						EDP No.	List Price	EDP No.	List Price
1/4	1/4	3/8	2-1/4	4	.220	39573	\$49.53	39573TC	\$58.60
3/8	3/8	1/2	2-1/4	4	.345	39584	\$88.33	39584TC	\$101.90
1/2	1/2	5/8	2-1/4	5	.470	39593	\$139.47	39593TC	\$156.10
1/2	1/2	5/8	3-1/4	6	.470	39908	\$156.87	39908TC	\$178.43
1/2	1/2	5/8	4	6	.470	39901	\$159.97	39901TC	\$181.57
5/8	5/8	3/4	2-1/4	5	.585	39595	\$200.70	39595TC	\$220.07
5/8	5/8	3/4	3-1/4	6	.585	39902	\$226.70	39902TC	\$250.83
5/8	5/8	3/4	4-1/4	7	.585	39903	\$249.17	39903TC	\$279.37
3/4	3/4	1	2-1/4	5	.710	39598	\$250.90	39598TC	\$274.07
3/4	3/4	1	3-1/4	6	.710	39904	\$285.30	39904TC	\$308.43
3/4	3/4	1	4-1/4	7	.710	39905	\$312.57	39905TC	\$347.60
1	1	1-1/8	2-1/4	5	.960	39600	\$525.63	39600TC	\$550.07
1	1	1-1/8	3-1/4	6	.960	39906	\$596.77	39906TC	\$638.87
1	1	1-1/8	4-1/4	7	.960	39907	\$646.27	39907TC	\$694.57



STEP MILLING

TOLERANCE OF MILL DIA. 0
- .0005

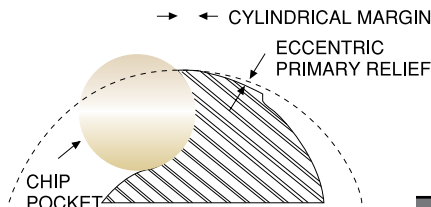


- Designed to machine aluminum at high speed condition.
- Improved surface roughness-cylindrical margin which is controlled tightly.

E5980 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Uncoated		TiCN Coated	
				EDP No.	List Price	EDP No.	List Price
1/8	1/8	1/4	1-1/2	25558	\$21.30	25558TC	\$24.77
3/16	3/16	5/16	2	25565	\$23.37	25565TC	\$27.80
1/4	1/4	3/8	2	25573	\$25.63	25573TC	\$32.50
5/16	5/16	7/16	2	25579	\$31.60	25579TC	\$39.80
3/8	3/8	1/2	2	25584	\$33.43	25584TC	\$43.23
7/16	7/16	9/16	2-1/2	25588	\$55.93	25588TC	\$67.67
1/2	1/2	5/8	2-1/2	25593	\$59.10	25593TC	\$75.80
5/8	5/8	3/4	3	25595	\$123.83	25595TC	\$143.20
3/4	3/4	1	3	25598	\$147.47	25598TC	\$170.63
1	1	1-1/4	3	25600	\$320.90	25600TC	\$354.23

- High performance in machining aluminum and nonferrous materials.
- Special designed geometry with high rigidity cutting edge.
- Improved surface roughness - cylindrical margin which is controlled tightly.
- Excellent chip removal - higher rake angle, higher helix angle (45°), bigger chip pocket.



TOLERANCE OF MILL DIA.	0 - .0005
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ALU-POWER

CARBIDE: 3 FLUTE, 45° HELIX, LONG LENGTH



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- ➔ High velocity milling of aluminum & other non-ferrous materials.
- ➔ 3 flute and 45° helix allow harmonic balance at high speed condition and smooth cutting.
- ➔ Improved surface roughness-cylindrical margin which is controlled tightly.
- ➔ Maximum-stock removal, chip ejection, stability.

E5981 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Uncoated		TiCN Coated	
				EDP No.	List Price	EDP No.	List Price
1/8	1/8	3/8	1-1/2	28558	\$25.63	28558TC	\$29.10
3/16	3/16	9/16	2	28565	\$27.70	28565TC	\$32.13
1/4	1/4	5/8	2-1/2	28573	\$31.20	28573TC	\$40.23
5/16	5/16	5/8	2-1/2	28579	\$34.73	28579TC	\$45.57
3/8	3/8	1	2-1/2	28584	\$40.57	28584TC	\$54.10
7/16	7/16	1-1/4	2-3/4	28588	\$68.90	28588TC	\$85.17
1/2	1/2	1-1/4	3	28593	\$72.93	28593TC	\$89.60
5/8	5/8	1-5/8	3-1/2	28595	\$157.17	28595TC	\$181.33
3/4	3/4	1-5/8	4	28598	\$187.97	28598TC	\$216.50
1	1	2	5	28600	\$446.03	28600TC	\$494.37

ALU-POWER

CARBIDE: 3 FLUTE, 45° HELIX, EXTRA LONG LENGTH



Page 30



E5982 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Uncoated		TiCN Coated	
				EDP No.	List Price	EDP No.	List Price
1/4	1/4	1-1/4	3-1/4	36573	\$43.87	36573TC	\$54.50
5/16	5/16	1-1/4	3-1/2	36579	\$50.80	36579TC	\$63.67
3/8	3/8	1-1/2	3-1/2	36584	\$60.23	36584TC	\$77.47
7/16	7/16	2	4	36588	\$92.53	36588TC	\$113.17
1/2	1/2	2	4	36593	\$98.30	36593TC	\$119.90
5/8	5/8	2-1/2	5	36595	\$225.00	36595TC	\$255.20
3/4	3/4	3-1/4	6	36598	\$281.33	36598TC	\$322.87
1	1	3-1/4	6	36600	\$520.80	36600TC	\$574.77

TOLERANCE OF MILL DIA.	0 - .0005
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High velocity milling of Aluminum.

LONG LENGTH SQUARE E/M FOR ALUMINUM WITH .060 CORNER RADIUS

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
1/2	1/2	1-1/4	3	R. 060	EA50321	\$86.67	EA50321C	\$96.27
5/8	5/8	1-5/8	3-1/2	R. 060	EA50401	\$187.37	EA50401C	\$201.33
3/4	3/4	1-5/8	4	R. 060	EA50481	\$229.50	EA50481C	\$246.03
1	1	2	5	R. 060	EA50641	\$537.73	EA50641C	\$567.90

LONG LENGTH SQUARE E/M FOR ALUMINUM WITH .120 CORNER RADIUS

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
1/2	1/2	1-1/4	3	R. 120	EA20321	\$86.67	EA20321C	\$96.27
5/8	5/8	1-5/8	3-1/2	R. 120	EA20401	\$187.37	EA20401C	\$201.33
3/4	3/4	1-5/8	4	R. 120	EA20481	\$229.50	EA20481C	\$246.03
1	1	2	5	R. 120	EA20641	\$537.73	EA20641C	\$567.90



High velocity milling of Aluminum.

EXTRA LONG LENGTH SQUARE E/M FOR ALUMINUM WITH .060 CORNER RADIUS

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
1/2	1/2	2	4	R. 060	EA60321	\$99.27	EA60321C	\$108.90
5/8	5/8	2-1/2	5	R. 060	EA60401	\$227.10	EA60401C	\$241.07
3/4	3/4	3-1/4	6	R. 060	EA60481	\$283.90	EA60481C	\$300.43
1	1	3-1/4	6	R. 060	EA60641	\$545.03	EA60641C	\$575.17

EXTRA LONG LENGTH SQUARE E/M FOR ALUMINUM WITH .120 CORNER RADIUS

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
1/2	1/2	2	4	R. 120	EA30321	\$99.27	EA30321C	\$108.90
5/8	5/8	2-1/2	5	R. 120	EA30401	\$227.10	EA30401C	\$241.07
3/4	3/4	3-1/4	6	R. 120	EA30481	\$283.90	EA30481C	\$300.43
1	1	3-1/4	6	R. 120	EA30641	\$545.03	EA30641C	\$575.17



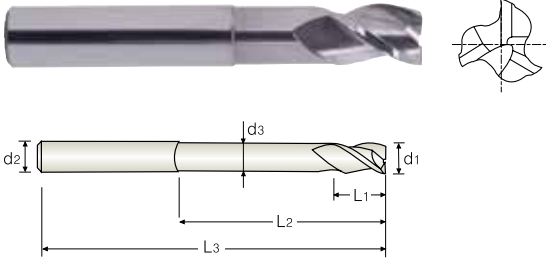
High velocity milling of Aluminum.

.060 CORNER RADIUS

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	LBS	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
1/2	1/2	5/8	6	3-1/4	EA40321	\$139.00	EA40321C	\$148.63
1/2	1/2	5/8	6	4	EA40322	\$142.07	EA40322C	\$151.70
5/8	5/8	3/4	2-1/4	5	EA40401	\$188.83	EA40401C	\$202.70
5/8	5/8	3/4	3-1/4	6	EA40402	\$212.53	EA40402C	\$226.53
5/8	5/8	3/4	4-1/4	7	EA40403	\$232.53	EA40403C	\$246.53
3/4	3/4	1	2-1/4	5	EA40481	\$235.17	EA40481C	\$251.67
3/4	3/4	1	3-1/4	6	EA40482	\$267.30	EA40482C	\$283.80
3/4	3/4	1	4-1/4	7	EA40483	\$292.40	EA40483C	\$308.90
1	1	1-1/8	2-1/4	5	EA40641	\$524.70	EA40641C	\$554.87
1	1	1-1/8	3-1/4	6	EA40642	\$596.17	EA40642C	\$626.33
1	1	1-1/8	4-1/4	7	EA40643	\$646.60	EA40643C	\$676.73

.120 CORNER RADIUS

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	LBS	Uncoated		TiCN Coated	
					EDP No.	List Price	EDP No.	List Price
1/2	1/2	5/8	6	3-1/4	EA10321	\$139.00	EA10321C	\$148.63
1/2	1/2	5/8	6	4	EA10322	\$142.07	EA10322C	\$151.70
5/8	5/8	3/4	2-1/4	5	EA10401	\$188.83	EA10401C	\$202.70
5/8	5/8	3/4	3-1/4	6	EA10402	\$212.53	EA10402C	\$226.53
5/8	5/8	3/4	4-1/4	7	EA10403	\$232.53	EA10403C	\$246.53
3/4	3/4	1	2-1/4	5	EA10481	\$235.17	EA10481C	\$251.67
3/4	3/4	1	3-1/4	6	EA10482	\$267.30	EA10482C	\$283.80
3/4	3/4	1	4-1/4	7	EA10483	\$292.40	EA10483C	\$308.90
1	1	1-1/8	2-1/4	5	EA10641	\$524.70	EA10641C	\$554.87
1	1	1-1/8	3-1/4	6	EA10642	\$596.17	EA10642C	\$626.33
1	1	1-1/8	4-1/4	7	EA10643	\$646.60	EA10643C	\$676.73



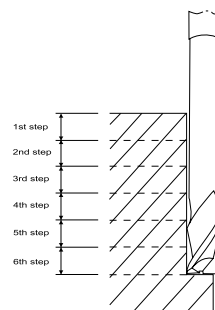
- High velocity milling of aluminum & other non ferrous materials.
- 3 flute and 37° helix allow harmonic balance at high speed condition and smooth cutting.
- Maximum-stock removal, chip ejection, stability.

E5977 Series

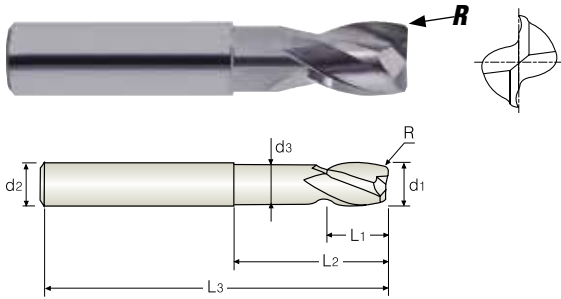
Mill Diameter d_1	Shank Diameter d_2	Length of Cut L_1	Length Below Shank L_2	Overall Length L_3	Neck Diameter d_3	Uncoated		TiCN Coated	
						EDP No.	List Price	EDP No.	List Price
1/4	1/4	3/8	2-1/4	4	.220	40573	\$49.53	40573TC	\$58.60
3/8	3/8	1/2	2-1/4	4	.345	40584	\$88.33	40584TC	\$101.90
1/2	1/2	5/8	2-1/4	5	.470	40593	\$139.47	40593TC	\$156.10
1/2	1/2	5/8	3-1/4	6	.470	40901	\$156.87	40901TC	\$178.43
1/2	1/2	5/8	4	6	.470	40902	\$159.97	40902TC	\$181.57
5/8	5/8	3/4	2-1/4	5	.585	40595	\$200.70	40595TC	\$220.07
5/8	5/8	3/4	3-1/4	6	.585	40903	\$226.70	40903TC	\$250.83
5/8	5/8	3/4	4-1/4	7	.585	40904	\$249.17	40904TC	\$279.37
3/4	3/4	1	2-1/4	5	.710	40598	\$250.90	40598TC	\$274.07
3/4	3/4	1	3-1/4	6	.710	40905	\$285.30	40905TC	\$308.43
3/4	3/4	1	4-1/4	7	.710	40906	\$312.57	40906TC	\$347.60
1	1	1-1/8	2-1/4	5	.960	40600	\$525.63	40600TC	\$550.07
1	1	1-1/8	3-1/4	6	.960	40907	\$596.77	40907TC	\$638.87
1	1	1-1/8	4-1/4	7	.960	40908	\$646.27	40908TC	\$694.57

TOLERANCE
OF MILL DIA.

0
- .0005



STEP MILLING

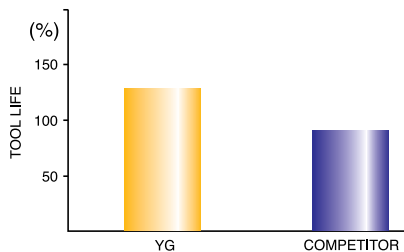


- Excellent cutting qualities on aluminum, copper.
- Increased tool life and higher cutting accuracy.

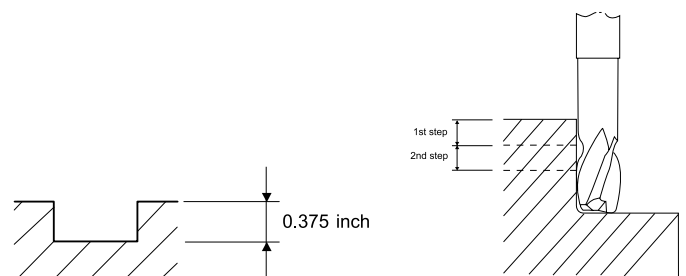
E5973 Series

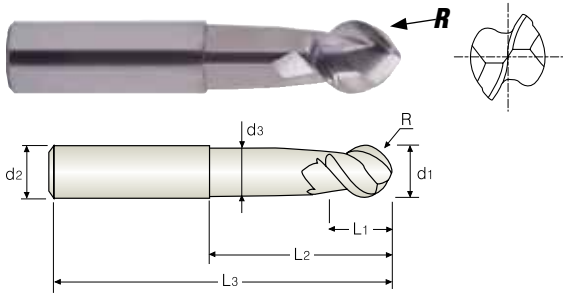
Mill Diameter d_1	Shank Diameter d_2	Length of Cut L_1	Length Below Shank L_2	Overall Length L_3	Neck Diameter d_3	Corner Radius R	Uncoated		TiCN Coated	
							EDP No.	List Price	EDP No.	List Price
5/32	1/4	3/16	3/8	2	.140	R.012	24562	\$51.13	24562TC	\$57.97
1/4	1/4	5/16	3/4	2-3/8	.226	R.020	24573	\$51.13	24573TC	\$60.17
5/16	5/16	3/8	1-1/8	2-3/4	.282	R.024	24579	\$64.43	24579TC	\$75.30
3/8	3/8	1/2	1-1/2	3-1/8	.336	R.031	24584	\$77.93	24584TC	\$95.17
1/2	1/2	9/16	1-1/2	3-1/2	.460	R.040	24593	\$132.27	24593TC	\$153.87
5/8	5/8	3/4	1-3/4	4	.566	R.051	24595	\$209.10	24595TC	\$233.27
3/4	3/4	1	1-3/4	4	.670	R.063	24598	\$291.07	24598TC	\$319.57

TOOL;YG: 24598, Ø3/4 (2FL. UNCOATING)
 COMPETITOR: Ø3/4 (2FL. SPECIAL COATING)
 MATERIAL: ALUMINUM 6061
 RPM = 10,000 rev./min
 FEED = 240 inch/min
 COOLANT: WATER SOLUBLE OIL



TOLERANCE OF MILL DIA.	0 - .0012
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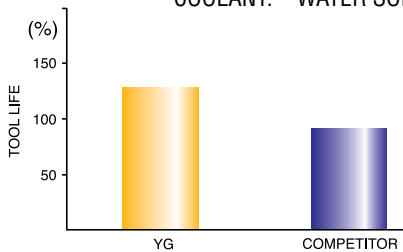


- Excellant cutting qualities on stainless steel, aluminum, copper.
- Increased tool life and higher cutting accuracy.

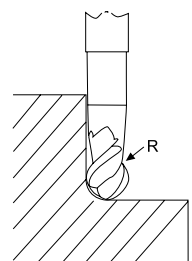
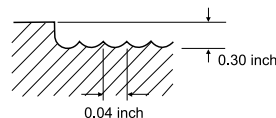
E5974 Series

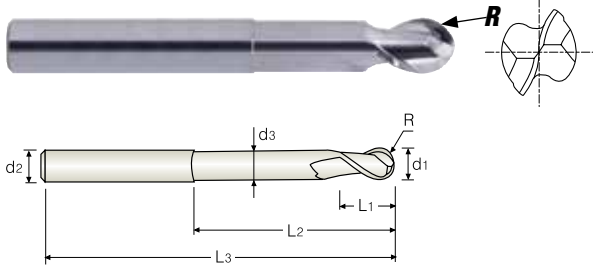
Mill Diameter d_1	Shank Diameter d_2	Length of Cut L_1	Length Below Shank L_2	Overall Length L_3	Neck Diameter d_3	Radius of Ball Nose R	Uncoated		TiCN Coated	
							EDP No.	List Price	EDP No.	List Price
1/4	1/4	7/32	1	2-1/4	.226	R1/8	37573	\$32.93	37573TC	\$41.93
5/16	5/16	9/32	1-1/8	2-1/2	.280	R5/32	37579	\$36.13	37579TC	\$46.97
3/8	3/8	11/32	1-3/8	3	.335	R3/16	37584	\$50.33	37584TC	\$63.87
1/2	1/2	13/32	1-1/2	3	.460	R1/4	37593	\$68.67	37593TC	\$85.30
5/8	5/8	9/16	2	3-1/2	.566	R5/16	37595	\$130.27	37595TC	\$154.40
3/4	3/4	11/16	2	4	.671	R3/8	37598	\$179.87	37598TC	\$203.07

TOOL;YG: 37593TC, Ø1/2, 2FL. BALL NOSE, TiCN COATING
 COMPETITOR: Ø1/2, 2FL. BALL NOSE, TiCN COATING
 MATERIAL: ALUMINUM 6061
 RPM = 10,000 rev./min
 FEED = 45 inch/min
 COOLANT: WATER SOLUBLE OIL



TOLERANCE OF MILL DIA.	0 - .0010
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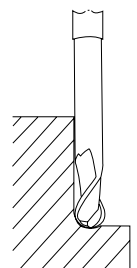


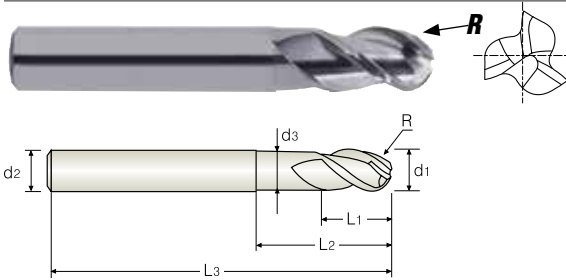
- High velocity milling of aluminum & other non-ferrous materials.
- Extended neck design which is suitable for step milling.
- Improved surface roughness-cylindrical margin which is controlled tightly
- Maximum-stock removal, chip ejection, stability.

E5978 Series

Mill Diameter d_1	Shank Diameter d_2	Length of Cut L_1	Length Below Shank L_2	Overall Length L_3	Neck Diameter d_3	Radius of Ball Nose R	Uncoated		TiCN Coated	
							EDP No.	List Price	EDP No.	List Price
1/4	1/4	3/8	2-1/4	4	.220	R1/8	89573	\$58.40	89573TC	\$67.40
3/8	3/8	1/2	2-1/4	4	.345	R3/16	89584	\$103.47	89584TC	\$117.03
1/2	1/2	5/8	2-1/4	5	.470	R1/4	89593	\$160.33	89593TC	\$176.97
1/2	1/2	5/8	3-1/4	6	.470	R1/4	89901	\$178.67	89901TC	\$200.23
1/2	1/2	5/8	4	6	.470	R1/4	89902	\$182.73	89902TC	\$204.33
5/8	5/8	3/4	2-1/4	5	.585	R5/16	89595	\$236.90	89595TC	\$256.23
5/8	5/8	3/4	3-1/4	6	.585	R5/16	89903	\$265.10	89903TC	\$289.27
5/8	5/8	3/4	4-1/4	7	.585	R5/16	89904	\$289.70	89904TC	\$319.90
3/4	3/4	1	2-1/4	5	.710	R3/8	89598	\$282.83	89598TC	\$306.00
3/4	3/4	1	3-1/4	6	.710	R3/8	89905	\$318.60	89905TC	\$347.17
3/4	3/4	1	4-1/4	7	.710	R3/8	89906	\$347.37	89906TC	\$382.37
1	1	1-1/8	2-1/4	5	.960	R1/2	89600	\$610.47	89600TC	\$643.83
1	1	1-1/8	3-1/4	6	.960	R1/2	89907	\$688.73	89907TC	\$730.80
1	1	1-1/8	4-1/4	7	.960	R1/2	89908	\$741.73	89908TC	\$790.03

TOLERANCE OF MILL DIA.	0 - .0012
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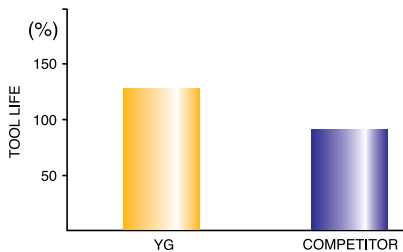


- Excellent cutting qualities on stainless steel, aluminum, copper.
- Increased tool life and higher cutting accuracy.

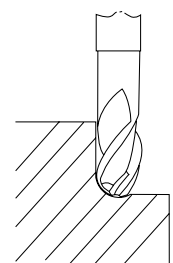
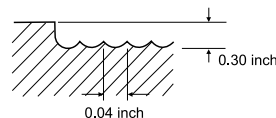
E5975 Series

Mill Diameter d_1	Shank Diameter d_2	Length of Cut L_1	Length Below Shank L_2	Overall Length L_3	Neck Diameter d_3	Radius of Ball Nose R	Uncoated		TiCN Coated	
							EDP No.	List Price	EDP No.	List Price
3/32	1/4	1/8	3/16	2-3/8	.090	R3/64	38602	\$26.90	38602TC	\$35.90
1/8	1/4	3/16	1/4	2-3/8	.117	R1/16	38601	\$26.00	38601TC	\$35.07
3/16	1/4	1/4	3/8	2-1/2	.172	R3/32	38566	\$30.90	38566TC	\$39.93
1/4	1/4	3/8	1/2	3	.235	R1/8	38573	\$34.57	38573TC	\$43.60
5/16	5/16	1/2	1	3	.289	R5/32	38579	\$40.37	38579TC	\$51.23
3/8	3/8	5/8	1-1/4	3-1/8	.351	R3/16	38584	\$51.13	38584TC	\$68.37
1/2	1/2	3/4	1-3/8	3-1/2	.476	R1/4	38593	\$80.90	38593TC	\$102.50
5/8	5/8	1	1-1/2	4	.601	R5/16	38595	\$129.00	38595TC	\$153.20

TOOL;YG: 37593TC, Ø1/2, 3FL. BALL NOSE, TiCN COATING
 COMPETITOR: Ø1/2, 3FL. BALL NOSE, TiCN COATING
 MATERIAL: ALUMINUM 6061
 RPM = 10,000 rev./min
 FEED = 45 inch/min
 COOLANT: WATER SOLUBLE OIL



TOLERANCE OF MILL DIA.	0 - .0012
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- Excellent cutting qualities on aluminum, copper.
- Increased tool life and higher cutting accuracy.

Roughing with Neck

Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	No. of Flute	EDP No.	List Price
1/4	1/4	3/4	1	2-1/2	3	98016	\$49.87
3/8	3/8	7/8	1-1/4	3	3	98024	\$90.60
1/2	1/2	1	1-3/8	3-1/4	3	98032	\$151.83
5/8	5/8	1-1/4	1-3/4	3-3/4	3	98040	\$225.00
3/4	3/4	1-5/8	2-1/4	4-1/2	3	98048	\$400.00
1	1	1-3/4	2-1/2	5	3	98064	\$660.87



Roughing

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	EDP No.	List Price
1/4	1/4	3/4	2-1/2	3	44016	\$45.53
3/8	3/8	7/8	2-1/2	3	44024	\$70.70
1/2	1/2	1	3	3	44032	\$115.43
5/8	5/8	1-1/4	3-1/2	3	44040	\$204.93
3/4	3/4	1-5/8	4	3	44048	\$284.63
1	1	1-3/4	4	3	44064	\$466.23



Roughing Ball Nose

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	EDP No.	List Price
1/4	1/4	3/4	2-1/2	3	45016	\$60.97
3/8	3/8	7/8	2-1/2	3	45024	\$95.60
1/2	1/2	1	3	3	45032	\$156.03
5/8	5/8	1-1/4	3-1/2	3	45040	\$286.87
3/4	3/4	1-5/8	4	3	45048	\$388.40
1	1	1-3/4	4	3	45064	\$636.20

ALU-POWER

CARBIDE: 2 FLUTE, 42° HELIX – “BANSHEE”

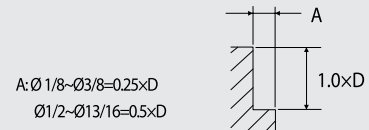
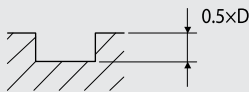
E5253, E5254 Series

Slotting

Side Cutting

Material	Aluminum – Nonferrous Metals	
	Diameter	Feed
1/8	10000	27.56
5/32	10000	35.43
3/16	10000	39.37
1/4	10000	47.24
5/16	8000	55.12
3/8	8000	66.93
1/2	8000	82.68
9/16	6000	70.87
5/8	6000	74.80
11/16	4000	55.12
13/16	4000	62.99

Material	Aluminum – Nonferrous Metals	
	Diameter	Feed
1/8	10000	35.43
5/32	10000	43.31
3/16	10000	51.18
1/4	10000	59.06
5/16	8000	70.87
3/8	8000	82.68
1/2	8000	102.40
9/16	6000	86.61
5/8	6000	94.49
11/16	4000	70.87
13/16	4000	74.80



The FEED, in long & extra long types, should be reduced by around 50%.

RPM=Revolution Per Minute
FEED=inch/minute

ALU-POWER

CARBIDE: 3 FLUTE, 45° HELIX, FINISH

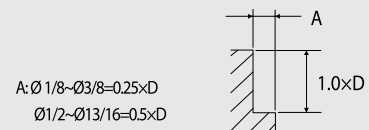
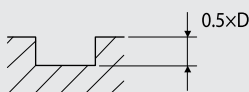
E5980, E5981, E5982 Series

Slotting

Side Cutting

Material	Aluminum – Nonferrous Metals	
	Diameter	Feed
1/8	10000	33.05
5/32	10000	42.50
3/16	10000	47.25
1/4	10000	56.70
5/16	8000	66.15
3/8	8000	80.30
1/2	8000	99.15
9/16	6000	85.05
5/8	6000	89.75
11/16	4000	66.15
13/16	4000	75.60

Material	Aluminum – Nonferrous Metals	
	Diameter	Feed
1/8	10000	42.50
5/32	10000	52.00
3/16	10000	61.40
1/4	10000	70.90
5/16	8000	85.05
3/8	8000	99.20
1/2	8000	122.90
9/16	6000	103.95
5/8	6000	113.40
11/16	4000	85.05
13/16	4000	89.75



The FEED, in long & extra long types, should be reduced by around 50%.

RPM=Revolution Per Minute
FEED=inch/minute

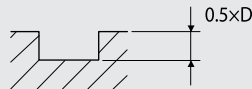
E5977 Series

Slotting

Side Cutting

Material	Aluminum – Nonferrous Metals	
Diameter	RPM	Feed
1/4	8000	45.35
3/8	6400	64.25
1/2	6400	79.40
5/8	4800	71.80
3/4	3200	70.85
1	2600	63.80

Material	Aluminum – Nonferrous Metals	
Diameter	RPM	Feed
1/4	8000	56.70
3/8	6400	79.40
1/2	6400	98.25
5/8	4800	90.70
3/4	3200	87.40
1	2600	78.65



The FEED, in long & extra long types, should be reduced by around 50%.

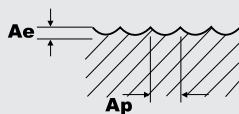


RPM=Revolution Per Minute
FEED=inch/minute

E5978 Series

Material	Aluminum – Nonferrous Metals	
Diameter	RPM	Feed
R1/8×1/4	11200	55.10
R5/32×5/16	8600	63.00
R3/16×3/8	8600	74.00
R1/4×1/2	8600	94.50
R5/16×5/8	6800	85.00
R3/8×3/4	4300	69.30

$Ae = 0.2 \times D$
 $Ap = 0.5 \times D$



The FEED, in long & extra long types, should be reduced by around 50%.

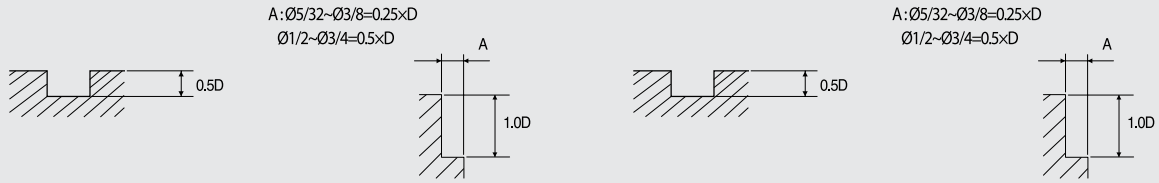
RPM=Revolution Per Minute
FEED=inch/minute

ALU-POWER

CARBIDE: 2 FLUTE, CORNER RADIUS with REDUCED NECK

E5973 Series

Material	Aluminum – Aluminum Alloy				Copper Alloy				
	Diameter	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
R.012×5/32	10000	36.35	10000	42.40	3000	9.10	3000	10.60	
R.020×1/4	10000	45.40	10000	60.60	3000	11.50	3000	15.15	
R.024×5/16	8000	54.50	8000	69.60	2300	13.62	3000	17.55	
R.031×3/8	8000	66.60	8000	81.75	2300	16.62	3005	20.60	
R.040×1/2	8000	81.75	8000	103.00	2300	20.52	3005	25.75	
R.051×5/8	6000	75.70	6000	93.90	1800	19.05	1800	23.60	
R.063×3/4	4000	60.60	4000	75.70	1150	15.15	1150	19.10	



The FEED, in long & extra long types, should be reduced by around 50%.

RPM=Revolution Per Minute
FEED=inch/minute

ALU-POWER

CARBIDE: 2 FLUTE, 37° HELIX, with EXTENDED NECK

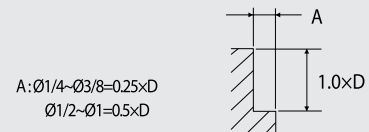
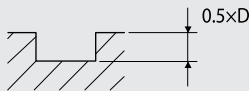
E5976 Series

Slotting

Side Cutting

Material	Aluminum – Nonferrous Metals	
	Diameter	Feed
1/4	37.80	
3/8	53.55	
1/2	66.15	
5/8	59.85	
3/4	59.05	
1	53.15	

Material	Aluminum – Nonferrous Metals	
	Diameter	Feed
1/4	47.25	
3/8	66.15	
1/2	81.90	
5/8	75.60	
3/4	72.85	
1	65.55	



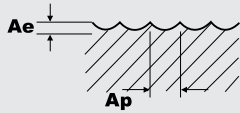
The FEED, in long & extra long types, should be reduced by around 50%.

RPM=Revolution Per Minute
FEED=inch/minute

E5974 Series

Material	Aluminum – Aluminum Alloy		Copper Alloy		
	Diameter	RPM	Feed	RPM	Feed
R1/8x1/4		14000	53.00	4200	13.30
R5/32x5/16		10800	60.50	3200	15.10
R3/16x3/8		10800	71.20	3200	17.50
R1/4x1/2		10800	90.80	3200	22.70
R5/16x5/8		8500	81.80	2500	20.30
R3/8x3/4		5400	66.60	1600	16.70

$Ae=0.2 \times D$
 $Ap=0.5 \times D$



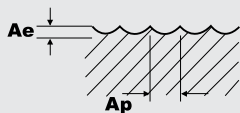
RPM=Revolution Per Minute
FEED=inch/minute

The FEED, in long & extra long types, should be reduced by around 50%.

E5975 Series

Material	Aluminum – Aluminum Alloy			
	AluPower Finishers		AluPower Roughers	
Diameter	RPM	Feed	RPM	Feed
R3/64x3/32	20700	28.80	20700	46
R1/16x1/8	13800	28.80	13800	46
R3/32x3/16	13800	40.90	13800	65
R1/8x1/4	13800	53.00	13800	85
R5/32x5/16	10800	60.55	10800	96
R3/16x3/8	10800	71.15	10800	113
R1/4x1/2	10800	90.85	10800	145
R5/16x5/8	8500	81.75	8500	130

$Ae=0.2 \times D$
 $Ap=0.5 \times D$



RPM=Revolution Per Minute
FEED=inch/minute

The FEED, in long & extra long types, should be reduced by around 50%.



- Designed to machine stainless steels, inconels and other alloys.
- 5 Flute and 45° medium helix allow harmonic balance and smooth cutting.

TIALN-FUTURA COATED CARBIDE

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	EDP No.	List Price
1/4	1/4	3/4	2-1/2	R.030	86573TF-030R	\$58.30
3/8	3/8	1	2-1/2	R.030	86584TF-030R	\$79.80
3/8	3/8	1	2-1/2	R.060	86584TF-060R	\$79.80
1/2	1/2	1-1/4	3	R.060	86593TF-030R	\$106.47
1/2	1/2	1-1/4	3	R.060	86593TF-060R	\$106.47
1/2	1/2	1-1/4	3	R.090	86593TF-090R	\$106.47
5/8	5/8	1-5/8	3-1/2	R.030	86595TF-030R	\$193.77
5/8	5/8	1-5/8	3-1/2	R.060	86595TF-060R	\$193.77
5/8	5/8	1-5/8	3-1/2	R.090	86595TF-090R	\$193.77
5/8	5/8	1-5/8	3-1/2	R.125	86595TF-125R	\$193.77
3/4	3/4	1-5/8	4	R.030	86598TF-030R	\$242.03
3/4	3/4	1-5/8	4	R.060	86598TF-060R	\$242.03
3/4	3/4	1-5/8	4	R.090	86598TF-090R	\$242.03
3/4	3/4	1-5/8	4	R.125	86598TF-125R	\$242.03
3/4	3/4	1-5/8	4	R.156	86598TF-156R	\$243.27
3/4	3/4	1-5/8	4	R.187	86598TF-187R	\$243.27
1	1	2	4	R.030	86600TF-030R	\$375.53
1	1	2	4	R.060	86600TF-060R	\$375.53
1	1	2	4	R.090	86600TF-090R	\$375.53
1	1	2	4	R.125	86600TF-125R	\$375.53
1	1	2	4	R.156	86600TF-156R	\$376.77
1	1	2	4	R.187	86600TF-187R	\$376.77

TOLERANCE
OF MILL DIA.

0
- .0012



E5066 Series

- Designed to machine stainless steels, inconels and other alloys.
- The new design of stub length allows cutting at maximum speeds and feeds with minimum deflection.
- 5 Flute and 45° medium helix allow harmonic balance and smooth cutting.

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	Uncoated		TiN Coated		TiCN Coated		TiAIN F		TiAIN E	
				EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price
1/8	1/8	1/4	1-1/2	85558	\$23.00	85558TN	\$25.50	85558TC	\$26.40	85558TF	\$26.40	85558TE	\$26.77
5/32	3/16	5/16	2	85561	\$27.73	85561TN	\$30.93	85561TC	\$32.03	85561TF	\$32.03	85561TE	\$32.53
3/16	3/16	5/16	2	85565	\$24.90	85565TN	\$28.07	85565TC	\$29.17	85565TF	\$29.17	85565TE	\$29.63
7/32	1/4	3/8	2	85570	\$34.17	85570TN	\$39.07	85570TC	\$40.80	85570TF	\$40.80	85570TE	\$41.50
1/4	1/4	3/8	2	85573	\$31.07	85573TN	\$36.00	85573TC	\$37.70	85573TF	\$37.70	85573TE	\$38.43
5/16	5/16	7/16	2	85579	\$45.70	85579TN	\$52.70	85579TC	\$55.17	85579TF	\$55.17	85579TE	\$56.20
3/8	3/8	1/2	2	85584	\$47.47	85584TN	\$54.50	85584TC	\$56.97	85584TF	\$56.97	85584TE	\$58.03
7/16	7/16	9/16	2-1/2	85588	\$59.83	85588TN	\$71.87	85588TC	\$76.03	85588TF	\$75.87	85588TE	\$77.87
1/2	1/2	5/8	2-1/2	85593	\$73.77	85593TN	\$85.77	85593TC	\$89.97	85593TF	\$89.97	85593TE	\$91.73
5/8	5/8	3/4	3	85595	\$152.97	85595TN	\$166.83	85595TC	\$171.70	85595TF	\$171.70	85595TE	\$175.57
3/4	3/4	1	3	85598	\$199.00	85598TN	\$215.57	85598TC	\$221.37	85598TF	\$221.37	85598TE	\$223.87
1	1	1-1/4	3	85600	\$294.00	85600TN	\$318.00	85600TC	\$326.40	85600TF	\$326.40	85600TE	\$330.00



E5067 Series

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	Uncoated		TiN Coated		TiCN Coated		TiAIN F		TiAIN E	
				EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price
1/8	1/8	1/2	1-1/2	86558	\$25.17	86558TN	\$27.67	86558TC	\$28.57	86558TF	\$28.57	86558TE	\$28.97
5/32	3/16	9/16	2	86561	\$30.47	86561TN	\$33.63	86561TC	\$34.73	86561TF	\$34.73	86561TE	\$35.20
3/16	3/16	9/16	2	86565	\$27.73	86565TN	\$30.93	86565TC	\$32.03	86565TF	\$32.03	86565TE	\$32.53
7/32	1/4	3/4	2-1/2	86570	\$37.93	86570TN	\$44.43	86570TC	\$46.73	86570TF	\$46.73	86570TE	\$47.73
1/4	1/4	3/4	2-1/2	86573	\$34.53	86573TN	\$41.07	86573TC	\$43.30	86573TF	\$43.30	86573TE	\$44.30
5/16	5/16	13/16	2-1/2	86579	\$47.10	86579TN	\$59.10	86579TC	\$63.30	86579TF	\$63.30	86579TE	\$65.13
3/8	3/8	1	2-1/2	86584	\$52.77	86584TN	\$64.73	86584TC	\$68.93	86584TF	\$68.93	86584TE	\$70.73
7/16	7/16	1	2-3/4	86588	\$70.77	86588TN	\$79.93	86588TC	\$83.17	86588TF	\$83.17	86588TE	\$84.53
1/2	1/2	1-1/4	3	86593	\$77.40	86593TN	\$89.37	86593TC	\$93.57	86593TF	\$93.57	86593TE	\$95.37
5/8	5/8	1-5/8	3-1/2	86595	\$160.50	86595TN	\$177.83	86595TC	\$183.90	86595TF	\$183.90	86595TE	\$186.50
3/4	3/4	1-5/8	4	86598	\$206.30	86598TN	\$226.80	86598TC	\$234.00	86598TF	\$234.00	86598TE	\$237.07
7/8	7/8	2	4	86599	\$288.47	86599TN	\$308.97	86599TC	\$316.13	86599TF	\$316.13	86599TE	\$319.27
1	1	2	4	86600	\$326.80	86600TN	\$357.00	86600TC	\$367.53	86600TF	\$367.53	86600TE	\$372.10

TOLERANCE OF MILL DIA.	0 -.0012
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- Designed to machine stainless steels, inconels and other alloys.
- 5 Flute and 45° medium helix allow harmonic balance and smooth cutting.

E5068 Series – Medium & Long Length

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	Uncoated		TiN Coated		TiCN Coated		TiAlN F		TiAlN E	
				EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price
1/4	1/4	1-1/4	4	58573	\$54.30	58573TN	\$61.93	58573TC	\$64.60	58573TF	\$64.60	58573TE	\$65.70
5/16	5/16	1-1/4	4	58579	\$71.13	58579TN	\$83.53	58579TC	\$87.87	58579TF	\$87.87	58579TE	\$89.73
3/8	3/8	1-1/2	4	58584	\$118.40	58584TN	\$130.83	58584TC	\$135.17	58584TF	\$135.17	58584TE	\$137.07
7/16	7/16	2	4	58588	\$132.93	58588TN	\$148.57	58588TC	\$154.00	58588TF	\$154.00	58588TE	\$156.33
1/2	1/2	2	4	58593	\$149.07	58593TN	\$164.67	58593TC	\$170.13	58593TF	\$170.13	58593TE	\$172.43
5/8	5/8	2-1/2	5	58595	\$267.57	58595TN	\$289.23	58595TC	\$296.83	58595TF	\$296.83	58595TE	\$300.07
3/4	3/4	3-1/4	6	58598	\$306.77	58598TN	\$336.50	58598TC	\$346.93	58598TF	\$346.93	58598TE	\$351.40
3/4	3/4	2-1/4	5	58901	\$271.20	58901TN	\$296.33	58901TC	\$305.13	58901TF	\$305.13	58901TE	\$308.87
1	1	3-1/4	6	58600	\$486.87	58600TN	\$525.53	58600TC	\$539.13	58600TF	\$539.13	58600TE	\$544.90
1	1	2-5/8	6	58902	\$392.70	58902TN	\$431.43	58902TC	\$444.97	58902TF	\$444.97	58902TE	\$450.77



E5073 Series – Extra Long Length

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	Uncoated		TiN Coated		TiCN Coated		TiAlN F		TiAlN E	
				EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price
5/16	5/16	2-1/8	4	59579	\$96.17	59579TN	\$108.57	59579TC	\$112.93	59579TF	\$112.93	59579TE	\$114.77
3/8	3/8	2-1/2	6	59584	\$127.37	59584TN	\$144.27	59584TC	\$150.20	59584TF	\$150.20	59584TE	\$152.73
1/2	1/2	3-1/8	6	59593	\$217.07	59593TN	\$238.90	59593TC	\$246.53	59593TF	\$246.53	59593TE	\$249.80
5/8	5/8	4	6	59595	\$330.70	59595TN	\$356.43	59595TC	\$365.40	59595TF	\$365.40	59595TE	\$369.27
3/4	3/4	4	6	59598	\$489.57	59598TN	\$519.33	59598TC	\$529.77	59598TF	\$529.77	59598TE	\$534.20
1	1	4-1/8	7	59600	\$691.53	59600TN	\$734.60	59600TC	\$749.63	59600TF	\$749.63	59600TE	\$756.10

TOLERANCE OF MILL DIA. 0
- .0012






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E5068 Series – Regular Length

- Designed to machine stainless steels, inconels and other alloys.
- 20 – 40% increase in inches per minute over 4 flute tools.
- 6 Flute and 40° medium helix allow harmonic balance and smooth cutting.

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	Uncoated		TiN Coated		TiCN Coated		TiAlN F		TiAlN E	
				EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price
3/16	3/16	5/8	2	84565	\$20.50	84565TN	\$25.57	84565TC	\$27.37	84565TF	\$27.37	84565TE	\$31.27
1/4	1/4	3/4	2-1/2	84573	\$24.77	84573TN	\$35.10	84573TC	\$38.70	84573TF	\$38.70	84573TE	\$46.77
5/16	5/16	7/8	2-1/2	84579	\$34.70	84579TN	\$50.03	84579TC	\$55.47	84579TF	\$55.47	84579TE	\$67.77
3/8	3/8	7/8	2-1/2	84584	\$43.27	84584TN	\$58.63	84584TC	\$64.07	84584TF	\$64.07	84584TE	\$76.37
7/16	7/16	1	2-1/2	84588	\$52.77	84588TN	\$71.83	84588TC	\$78.47	84588TF	\$78.47	84588TE	\$93.37
1/2	1/2	1	3	84593	\$69.20	84593TN	\$88.27	84593TC	\$94.90	84593TF	\$94.90	84593TE	\$109.83
5/8	5/8	1-1/4	3-1/2	84595	\$133.57	84595TN	\$161.10	84595TC	\$170.73	84595TF	\$170.73	84595TE	\$180.70
3/4	3/4	1-1/2	4	84598	\$195.80	84598TN	\$228.40	84598TC	\$239.83	84598TF	\$239.83	84598TE	\$265.37

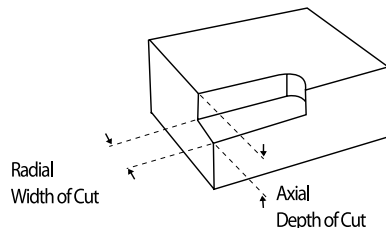
MATERIAL HARDNESS

Recommended Coating	Under 45 Rc F	Over 45 Rc E

TOLERANCE OF MILL DIA. (inch)	TOLERANCE OF SHANK DIA.
0~-.0012	0~-.0005

Material	Speed	Chip Load per Tooth by End Mill Diameter			Recommended Coating
		Up to 1/4"	Up to 1/2"	Up to 1"	
Carbon + Alloy Steel <45Rc	100-700	.0002-.002	.001-.003	.003-.007	TiAlN F
Carbon + Alloy Steel >45Rc	50-400	.0002-.001	.0005-.0015	.001-.003	TiAlN E
Stainless Steels Non-Hardenable 200-300 Series	150-500	.0002-.001	.001-.002	.002-.006	TiAlN F
Stainless Steels Hardenable 400 Series Martensitic and PH Series	100-450	.0002-.0005	.0005-.001	.001-.005	TiAlN F
Cast+Ductile Iron	100-800	.0002-.0015	.002-.003	.003-.008	TiAlN F or E
Nickel+Cobalt Based Alloys	20-200	.0003-.0008	.0008-.001	.001-.002	TiAlN F or E
Titanium	30-200	.0002-.0008	.0008-.002	.002-.004	TiAlN F or E
Aluminum	600-2000	.0002-.002	.002-.004	.004-.008	TiCN
Copper	300-1000	.0005-.002	.002-.003	.003-.006	CrN
Brass+ Bronze Alloys	600-1000	.0005-.002	.002-.003	.003-.006	TiCN
Plastic	600-1200	.0006-.003	.003-.006	.006-.012	TiAlN F

TF = TiAlN F
TE = TiAlN E
D = DIAMOND
CrN = CHROME NITRIDE



SPEED & FEED DETERMINANTS

1. MATERIAL HARDNESS
2. MACHINE RIGIDITY
3. TYPE OF COATING
4. TOOL GEOMETRY
5. FINISH REQUIREMENTS
6. DEPTH & WIDTH OF CUT



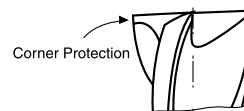
➤ Suitable for low hardness materials (under HRc 45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, inconel, nimonic, etc.

➤ Corner Protection against chipping.

EH108 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Number of Flute	Plain		Flat	
					EDP No.	List Price	EDP No.	List Price
1/8	1/8	1/2	1-1/2	3	95063	\$31.13	—	—
3/16	3/16	5/8	2	3	95064	\$34.37	—	—
1/4	1/4	3/4	2-1/2	3	95065	\$40.73	—	—
5/16	5/16	13/16	2-1/2	3	95066	\$55.73	—	—
3/8	3/8	1	2-1/2	3	—	—	95067	\$65.00
7/16	7/16	1	2-3/4	3	95115	\$91.67	—	—
1/2	1/2	1	3	3	—	—	95068	\$101.10
5/8	5/8	1-1/4	3-1/2	3	—	—	95069	\$175.07
3/4	3/4	1-1/2	4	4	—	—	95070	\$244.37
1	1	1-1/2	4	4	—	—	95071	\$394.33

TOLERANCE OF MILL DIA.	0 - .0012
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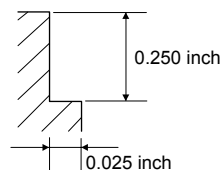
- ▶ #1 Choice for slotting and pocket work on stainless, monel and other alloys up to HRC35.
- ▶ Dry milling is recommended on steel alloys to reduce thermal shock and increase the life (TiAlN F or E COATING)

E5075(~5/16), E5105(11/32~1") Series

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	Corner Radius	Uncoated		TiN Coated		TiCN Coated		TiAlN F		TiAlN E	
					EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price
1/8	1/8	1/4	1-1/2	.008~.010	57558	\$28.70	57558TN	\$31.77	57558TC	\$32.83	57558TF	\$32.83	57558TE	\$33.30
5/32	3/16	5/16	2	.008~.010	57561	\$38.07	57561TN	\$41.93	57561TC	\$43.30	57561TF	\$43.30	57561TE	\$43.90
3/16	3/16	5/16	2	.008~.010	57565	\$34.03	57565TN	\$37.90	57565TC	\$39.27	57565TF	\$39.27	57565TE	\$39.83
7/32	1/4	3/8	2	.015~.020	57570	\$47.10	57570TN	\$53.13	57570TC	\$55.20	57570TF	\$55.20	57570TE	\$56.13
1/4	1/4	3/8	2	.015~.020	57573	\$42.40	57573TN	\$48.43	57573TC	\$50.53	57573TF	\$50.53	57573TE	\$51.43
9/32	5/16	7/16	2	.015~.020	57576	\$59.40	57576TN	\$67.97	57576TC	\$71.00	57576TF	\$71.00	57576TE	\$72.30
5/16	5/16	7/16	2	.015~.020	57579	\$54.37	57579TN	\$62.97	57579TC	\$65.93	57579TF	\$65.93	57579TE	\$67.23
11/32	3/8	1/2	2	.015~.020	57582	\$71.50	57582TN	\$80.10	57582TC	\$83.10	57582TF	\$83.10	57582TE	\$84.40
3/8	3/8	1/2	2	.015~.020	57584	\$62.60	57584TN	\$71.20	57584TC	\$74.20	57584TF	\$74.20	57584TE	\$75.47
7/16	7/16	9/16	2-1/2	.015~.020	57588	\$70.03	57588TN	\$82.57	57588TC	\$86.97	57588TF	\$86.97	57588TE	\$88.83
1/2	1/2	5/8	2-1/2	.030~.035	57593	\$101.00	57593TN	\$115.67	57593TC	\$120.80	57593TF	\$120.80	57593TE	\$123.00
5/8	5/8	3/4	3	.030~.035	57595	\$193.27	57595TN	\$210.23	57595TC	\$216.17	57595TF	\$216.17	57595TE	\$218.70
3/4	3/4	1	3	.030~.035	57598	\$268.33	57598TN	\$288.60	57598TC	\$295.73	57598TF	\$295.73	57598TE	\$298.77
1	1	1-1/4	3	.030~.035	57600	\$437.63	57600TN	\$466.93	57600TC	\$477.20	57600TF	\$477.20	57600TE	\$481.60

TOLERANCE OF MILL DIA.

0
- .0012





- #1 Choice for slotting and pocket work on stainless, monel and other alloys up to HRC35.
- Dry milling is recommended on steel alloys to reduce thermal shock and increase the life (TiAIN F or E COATING)

E5074(~5/16), E5104(11/32~1") Series

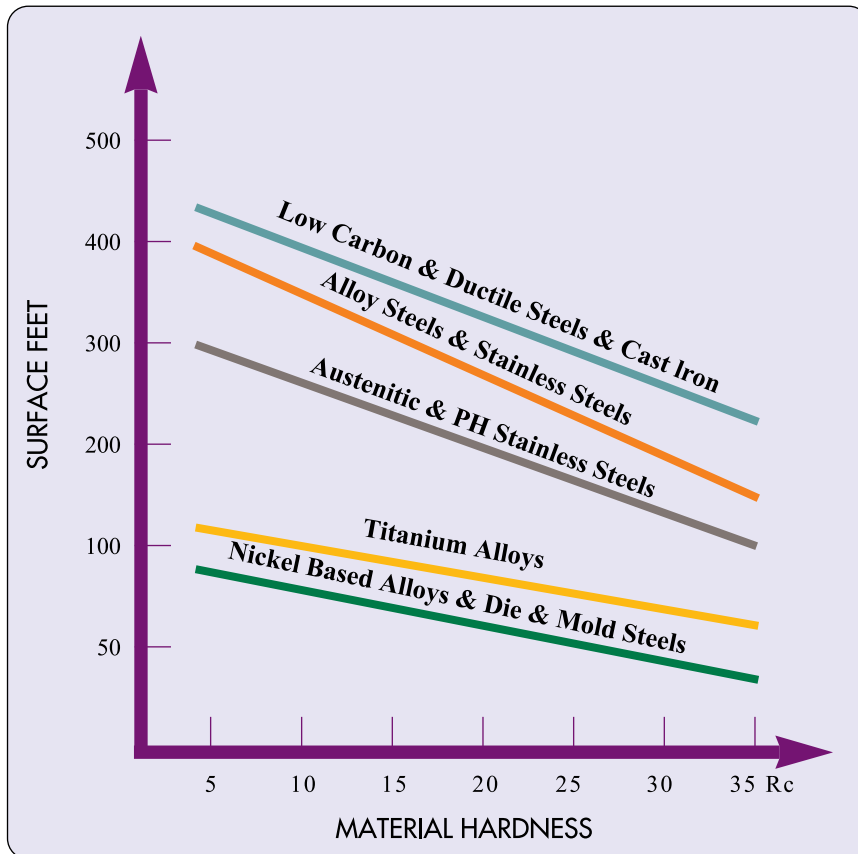
Mill Dia.	Shank Dia.	Length of Cut	Overall Length	Corner Radius	Uncoated		TiN Coated		TiCN Coated		TiAIN F		TiAIN E	
					EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price	EDP No.	List Price
1/8	1/8	1/2	1-1/2	.008~.010	56558	\$31.43	56558TN	\$34.50	56558TC	\$35.57	56558TF	\$35.57	56558TE	\$36.03
5/32	3/16	9/16	2	.008~.010	56561	\$41.20	56561TN	\$45.07	56561TC	\$46.43	56561TF	\$46.43	56561TE	\$47.00
3/16	3/16	9/16	2	.008~.010	56565	\$37.27	56565TN	\$41.17	56565TC	\$42.47	56565TF	\$42.47	56565TE	\$43.10
7/32	1/4	3/4	2-1/2	.015~.020	56570	\$49.10	56570TN	\$57.07	56570TC	\$59.80	56570TF	\$59.80	56570TE	\$61.04
1/4	1/4	3/4	2-1/2	.015~.020	56573	\$45.97	56573TN	\$53.93	56573TC	\$56.70	56573TF	\$56.70	56573TE	\$57.93
9/32	5/16	13/16	2-1/2	.015~.020	56576	\$64.40	56576TN	\$76.27	56576TC	\$80.40	56576TF	\$80.40	56576TE	\$82.17
5/16	5/16	13/16	2-1/2	.015~.020	56579	\$59.23	56579TN	\$71.03	56579TC	\$75.20	56579TF	\$75.20	56579TE	\$76.97
11/32	3/8	1	2-1/2	.015~.020	56582	\$78.03	56582TN	\$89.87	56582TC	\$94.03	56582TF	\$94.03	56582TE	\$95.80
3/8	3/8	1	2-1/2	.015~.020	56584	\$69.60	56584TN	\$81.43	56584TC	\$85.57	56584TF	\$85.57	56584TE	\$87.33
7/16	7/16	1	2-3/4	.015~.020	56588	\$86.17	56588TN	\$100.83	56588TC	\$105.97	56588TF	\$105.97	56588TE	\$108.13
1/2	1/2	1-1/4	3	.030~.035	56593	\$106.90	56593TN	\$121.57	56593TC	\$126.67	56593TF	\$126.67	56593TE	\$128.87
5/8	5/8	1-5/8	3-1/2	.030~.035	56595	\$204.93	56595TN	\$226.13	56595TC	\$233.53	56595TF	\$233.53	56595TE	\$236.73
3/4	3/4	1-5/8	4	.030~.035	56598	\$290.77	56598TN	\$315.83	56598TC	\$324.60	56598TF	\$324.60	56598TE	\$328.33
1	1	2	4	.030~.035	56600	\$482.90	56600TN	\$519.80	56600TC	\$532.73	56600TF	\$532.73	56600TE	\$538.23

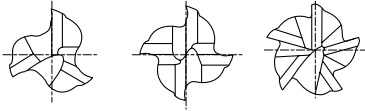
TOLERANCE OF MILL DIA.	0 -.0012
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RECOMMENDED CUTTING CONDITIONS

- ➔ Use stub length whenever possible.
- ➔ Hardslick coating is recommended on soft gummy material. Especially on tools 3/16 and under.
- ➔ Feed Rates can be adjusted for required surface finishes.

CUTTING TOOL DIAMETER									
1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1.00
.0003-.0015	.0004-.002	.001-.0025	.0015-.003	.0015-.0035	.002-.004	.0025-.0045	.0025-.005	.003-.006	.003-.007

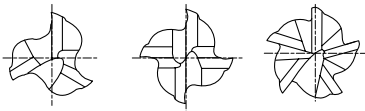




EH094 Series

- Designed to machine low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steel, inconel, nimonic.
- High velocity milling operation.
- Fast chip ejection.

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Number of Flute	EDP No.	List Price
1/4	1/4	5/16	2-1/8	3	95072	\$37.83
5/16	5/16	3/8	2-1/4	3	95073	\$52.70
3/8	3/8	9/16	2-1/2	3	95074	\$62.37
1/2	1/2	5/8	3	4	95075	\$99.47
5/8	5/8	7/8	3-1/4	4	95076	\$175.23
3/4	3/4	1	3-3/4	4	95077	\$247.90
1	1	1	4	5	95078	\$384.63



EH095 Series

- Designed to machine low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steel, inconel, nimonic.
- High velocity milling operation.
- Fast chip ejection.

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Number of Flute	EDP No.	List Price
1/4	1/4	3/4	2-1/2	3	95079	\$51.43
5/16	5/16	3/4	2-1/2	3	95080	\$69.13
3/8	3/8	7/8	2-1/2	3	95081	\$80.53
1/2	1/2	1	3	4	95082	\$124.47
5/8	5/8	1-1/4	3-1/2	4	95083	\$221.43
3/4	3/4	1-5/8	4	4	95084	\$281.37
1	1	1-3/4	4	5	95085	\$433.30

O.D RANGE	1/4 ~ 3/8	1/2 ~ 5/8	3/4 ~ 1
TOLERANCE	0 ~ -.0022	0 ~ -.0027	0 ~ -.0033

MG

3-6

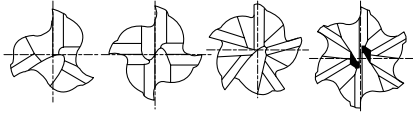
45°

PLAIN

FINE

DATA

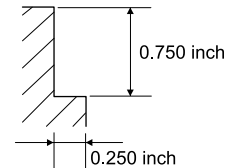
Page 46



- ▀ Suitable for low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steel, titanium, inconel, nimonic, etc.
- ▀ High chip removed and minimizing breakages of cutting edges.
- ▀ Corner Protection against chipping.

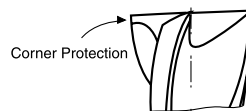
EH969 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Number of Flutes	EDP No.	List Price
3/16	1/4	1/2	2-1/4	3	95107	\$44.83
1/4	1/4	3/4	2-1/2	4	95108	\$44.83
5/16	5/16	3/4	2-1/2	4	95109	\$62.47
3/8	3/8	7/8	2-1/2	4	95110	\$78.23
1/2	1/2	1	3	4	95111	\$125.00
5/8	5/8	1-1/4	3-1/2	5	95112	\$202.63
3/4	3/4	1-5/8	4	6	95113	\$293.13
1	1	1-3/4	4	6	95114	\$449.90

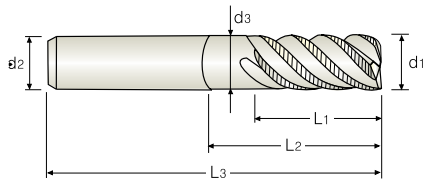
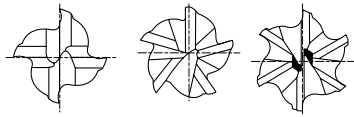


TOOL; YG: Ø3/4, 95113 (6FL. Jet-Power COATING)
 COMPETITOR: Ø3/4 (6FL. 45° HELIX ROUGHING & FINISHING
 END MILL, TiAIN COATING)
 MATERIAL: STAINLESS STEEL, SUS304
 RPM = 4,000 rev./min
 FEED = 60 inch/min
 COOLANT: WATER SOLUBLE OIL

O. D RANGE	1/4 ~ 3/8	1/2 ~ 5/8	3/4 ~ 1
TOLERANCE	0 ~ -.0022	0 ~ -.0027	0 ~ -.0033



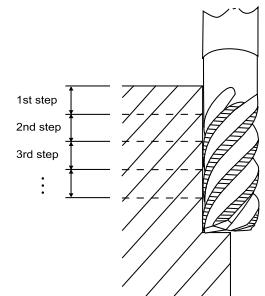
MG
4-6
45°
PLAIN
FINE
DATA
Page 46



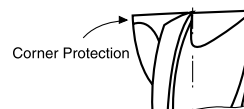
- Suitable for low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steel, titanium, inconel, nimonic, etc.
- High chip removed and minimizing breakages of cutting edges.
- Corner Protection against chipping.

EH970 Series

Mill Diameter d_1	Shank Diameter d_2	Length of Cut L_1	Length Below Shank L_2	Overall Length L_3	Neck Dia. d_3	Number of Flutes	EDP No.	List Price
1/4	1/4	3/4	7/8	2-1/2	.230	4	95101	\$50.80
5/16	5/16	3/4	1	2-1/2	.292	4	95102	\$69.97
3/8	3/8	7/8	1-1/4	2-1/2	.355	4	95103	\$86.93
1/2	1/2	1	1-1/2	3	.480	4	95104	\$138.20
5/8	5/8	1-1/4	2	4	.605	5	95105	\$224.70
3/4	3/4	1-5/8	2-3/8	4-3/8	.719	6	95106	\$345.80



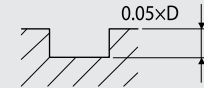
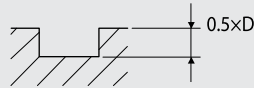
O. D RANGE	1/4 ~ 3/8	1/2 ~ 5/8	3/4 ~ 1
TOLERANCE	0 ~ -.0022	0 ~ -.0027	0 ~ -.0033



EH094, EH095, EH969, EH970 Series

Material	Carbon Steels Alloy Steels Tool Steels		Carbon Steels Alloy Steels Tool Steels		Stainless Steels		Titanium Alloy		Inconel	
Hardness	~HRc30		HRc30 ~ HRc45							
Strength	~1000N/mm ²		1000 ~ 1500N/mm ²							
Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/4	15600	91.35	12400	33.10	8400	22.45	3150	10.60	2400	7.50
5/16	11600	91.35	9200	33.10	6300	22.45	2350	9.80	1800	7.10
3/8	9200	91.35	7600	33.10	5100	22.45	1700	10.20	1300	7.50
1/2	8000	94.50	6000	31.50	4200	22.45	1560	10.20	1200	7.50
5/8	6000	94.50	4800	29.90	3300	20.10	1040	5.80	800	4.30
3/4	5200	91.35	4400	28.35	2500	16.55	910	5.50	675	4.00
1	4300	84.65	3200	24.40	2160	16.15	780	5.10	600	4.30

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D1/2-D5/8:0.15×D
D3/4-D1:0.10×D



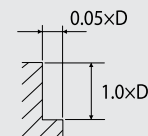
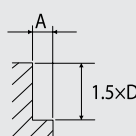
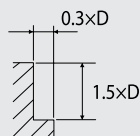
The FEED, in long & extra long types, should be reduced by around 50%.

RPM=Revolution Per Minute
FEED=inch/minute

EH094, EH095, EH969, EH970 Series

Material	Carbon Steels Alloy Steels Tool Steels		Carbon Steels Alloy Steels Tool Steels		Stainless Steels		Titanium Alloy		Inconel	
Hardness	~HRc30		HRc30 ~ HRc45							
Strength	~1000N/mm ²		1000 ~ 1500N/mm ²							
Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/4	15600	91.35	12400	33.10	8400	22.45	3150	10.60	2400	7.50
5/16	11600	91.35	9200	33.10	6300	22.45	2350	9.80	1800	7.10
3/8	9200	91.35	7600	33.10	5100	22.45	1700	10.20	1300	7.50
1/2	8000	94.50	6000	31.50	4200	22.45	1560	10.20	1200	7.50
5/8	6000	94.50	4800	29.90	3300	20.10	1040	5.90	800	4.30
3/4	5200	91.35	4400	28.35	2500	16.55	910	5.50	675	4.00
1	4300	84.65	3200	24.40	2160	16.15	780	5.10	600	4.30

A:D1/4-D3/8:0.15× D
D1/2-D5/8:0.10× D
D3/4-D1:0.05× D



The FEED, in long & extra long types, should be reduced by around 50%.

RPM=Revolution Per Minute
FEED=inch/minute



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

EMC75, EMD60 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	EDP No.	List Price
1/8	1/8	1/8	1-1/2	EMC75008	\$20.79
5/32	3/16	3/16	2	EMC75010	\$30.69
3/16	3/16	3/16	2	EMC75012	\$30.69
7/32	1/4	1/4	2	EMC75014	\$37.13
1/4	1/4	1/4	2	EMC75016	\$37.13
5/16	5/16	5/16	2	EMC75020	\$46.81
3/8	3/8	3/8	2	EMD60024	\$55.50
7/16	7/16	7/16	2-1/2	EMD60028	\$74.42
1/2	1/2	1/2	2-1/2	EMD60032	\$88.33
5/8	5/8	5/8	3	EMD60040	\$150.75
3/4	3/4	3/4	3	EMD60048	\$218.09
1	1	1	4	EMD60064	\$404.56

Shanks 3/8" and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -0.0012	h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

EMC76, EMD61 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	EDP No.	List Price
1/8	1/8	1/8	1-1/2	R.015	EMC76008	\$21.78
5/32	3/16	3/16	2	R.015	EMC76010	\$32.12
3/16	3/16	3/16	2	R.015	EMC76012	\$32.12
7/32	1/4	1/4	2	R.020	EMC76014	\$39.16
1/4	1/4	1/4	2	R.020	EMC76016	\$39.16
5/16	5/16	5/16	2	R.020	EMC76020	\$49.34
3/8	3/8	3/8	2	R.020	EMD61024	\$58.52
7/16	7/16	7/16	2-1/2	R.020	EMD61028	\$78.43
1/2	1/2	1/2	2-1/2	R.030	EMD61032	\$93.17
5/8	5/8	5/8	3	R.040	EMD61040	\$159.02
3/4	3/4	3/4	3	R.040	EMD61048	\$230.67
1	1	1	4	R.040	EMD61064	\$424.48

Shanks 3/8" and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -0.0012	h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

EMB12, EMB37 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	EDP No.	List Price
1/8	1/8	3/8	1-1/2	EMB12008	\$20.27
5/32	3/16	7/16	2	EMB12010	\$29.93
3/16	3/16	7/16	2	EMB12012	\$28.33
7/32	1/4	7/16	2-1/2	EMB12014	\$34.60
1/4	1/4	1/2	2-1/2	EMB12016	\$34.60
9/32	5/16	5/8	2-1/2	EMB12018	\$47.43
5/16	5/16	13/16	2-1/2	EMB12020	\$47.43
11/32	3/8	13/16	2-1/2	EMB12022	\$57.00
3/8	3/8	7/8	2-1/2	EMB37024	\$57.00
13/32	7/16	15/16	2-3/4	EMB37026	\$77.77
7/16	7/16	1	2-3/4	EMB37028	\$77.77
15/32	1/2	1	3	EMB37030	\$93.30
1/2	1/2	1	3	EMB37032	\$93.30
9/16	9/16	1-1/8	3-1/2	EMB37036	\$163.40
5/8	5/8	1-1/4	3-1/2	EMB37040	\$174.87
3/4	3/4	1-1/2	4	EMB37048	\$257.60
1	1	1-1/2	4	EMB37064	\$404.60

Shanks 3/8" and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -.0012	h6



- ▀ Higher speeds, deeper cuts and metal removal rates.
- ▀ Improved surface finishes.
- ▀ New "NANO" AlTiN coating.
- ▀ Machining of most materials under 40Rc.

EMB13, EMB38 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	EDP No.	List Price
1/8	1/8	3/8	1-1/2	.010~.015	EMB13008	\$21.27
3/16	3/16	7/16	2	.010~.015	EMB13012	\$29.73
1/4	1/4	1/2	2-1/2	.015~.020	EMB13016	\$36.37
5/16	5/16	13/16	2-1/2	.015~.020	EMB13020	\$49.93
3/8	3/8	7/8	2-1/2	.015~.020	EMB38024	\$60.00
7/16	7/16	1	2-3/4	.015~.020	EMB38028	\$81.83
1/2	1/2	1	3	.025~.030	EMB38032	\$98.20
9/16	9/16	1-1/8	3-1/2	.025~.030	EMB38036	\$172.00
5/8	5/8	1-1/4	3-1/2	.035~.040	EMB38040	\$184.07
3/4	3/4	1-1/2	4	.035~.040	EMB38048	\$271.13
1	1	1-1/2	4	.035~.040	EMB38064	\$425.90

Shanks 3/8" and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -.0012	h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

SQUARE END WITH CHAMFER AND SPECIFIC NECK CLEARANCE RELIEF

Mill Diameter	Shank Diameter	Length of Cut	Reach Length	Overall Length	EDP No.	List Price
1/4	1/4	3/8	1-1/4	4	EMB20160	\$44.50
3/8	3/8	1/2	1-7/8	4	EMB20240	\$69.30
1/2	1/2	5/8	2-1/4	4	EMB20320	\$112.57
5/8	5/8	3/4	2-1/4	4-1/8	EMB20400	\$178.47
5/8	5/8	3/4	3-1/4	5	EMB20401	\$240.77
3/4	3/4	1	2-1/4	4-1/4	EMB20480	\$338.40
3/4	3/4	1	3-1/4	5-1/2	EMB20481	\$353.13
1	1	1-1/8	2-1/4	4-1/2	EMB20640	\$542.03
1	1	1-1/8	3-1/4	5-1/2	EMB20641	\$555.10
1	1	1-1/8	4-1/4	6-1/2	EMB20642	\$613.33

On all new V7 products make sure that 3/8 and over diameter have flats on shanks.

Shanks 3/8" and over come standard with Flats.



- ▄ Higher speeds, deeper cuts and metal removal rates.
- ▄ Improved surface finishes.
- ▄ New "NANO" AITiN coating.
- ▄ Machining of most materials under 40Rc.

EMC78, EMD79 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Radius of Ball Nose	EDP No.	List Price
1/8	1/8	3/8	1-1/2	R1/16	EMB78008	\$25.43
5/32	3/16	7/16	2	R5/64	EMB78010	\$38.17
3/16	3/16	7/16	2	R3/32	EMB78012	\$38.17
1/4	1/4	1/2	2-1/2	R1/8	EMB78016	\$42.20
5/16	5/16	13/16	2-1/2	R5/32	EMB78020	\$56.57
3/8	3/8	7/8	2-1/2	R3/16	EMB79024	\$67.40
1/2	1/2	1	3	R1/4	EMB79032	\$112.07
5/8	5/8	1-1/4	3-1/2	R5/16	EMB79040	\$209.40
3/4	3/4	1-1/2	4	R3/8	EMB79048	\$310.73
1	1	1-1/2	4	R1/2	EMB79064	\$482.30

Shanks 3/8" and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -0012	h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

EMB76, EMB77 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	EDP No.	List Price
1/4	1/4	1/2	2-1/2	EMB76016	\$43.70
5/16	5/16	13/16	2-1/2	EMB76020	\$57.90
3/8	3/8	7/8	2-1/2	EMB76024	\$61.87
3/8	3/8	7/8	2-1/2	EMB77024	\$68.73
1/2	1/2	1	3	EMB77032	\$115.00
9/16	9/16	1-1/8	3-1/2	EMB77036	\$204.50
5/8	5/8	1-1/4	3-1/2	EMB77040	\$214.60
3/4	3/4	1-1/2	4	EMB77048	\$319.50
1	1	1-1/2	4	EMB77064	\$493.27

Shanks 3/8" and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -.0012	h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

METRIC

EMB41, EMB42 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	EDP No.			
				Plain	List Price	Flat	List Price
3	6	7	54	EMB41030	\$20.06	EMB42030	\$20.06
4	6	8	54	EMB41040	\$27.94	EMB42040	\$27.94
5	6	10	54	EMB41050	\$29.58	EMB42050	\$29.58
6	6	10	54	EMB41060	\$33.83	EMB42060	\$33.83
8	8	12	58	EMB41080	\$41.95	EMB42080	\$41.95
10	10	14	66	EMB41100	\$48.85	EMB42100	\$48.85
12	12	16	73	EMB41120	\$82.47	EMB42120	\$82.47
14	14	18	75	EMB41140	\$131.52	EMB42140	\$131.52
16	16	22	82	EMB41160	\$142.44	EMB42160	\$142.44
18	18	24	84	EMB41180	\$218.54	EMB42180	\$218.54
20	20	26	92	EMB41200	\$253.62	EMB42200	\$253.62

Shanks 12mm and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -0.0012	h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

METRIC

EMB43, EMB44 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	EDP No.			
					Plain	List Price	Flat	List Price
3	6	7	54	R0.3	EMB43030	\$21.12	EMB44030	\$21.12
4	6	8	54	R0.3	EMB43040	\$29.48	EMB44040	\$29.48
5	6	10	54	R0.3	EMB43050	\$31.32	EMB44050	\$31.32
6	6	10	54	R0.5	EMB43060	\$36.01	EMB44060	\$36.01
8	8	12	58	R0.5	EMB43080	\$44.54	EMB44080	\$44.54
10	10	14	66	R0.5	EMB43100	\$50.03	EMB44100	\$50.03
12	12	16	73	R0.7	EMB43120	\$85.95	EMB44120	\$85.95
14	14	18	75	R0.7	EMB43140	\$138.72	EMB44140	\$138.72
16	16	22	82	R1.0	EMB43160	\$146.12	EMB44160	\$146.12
18	18	24	84	R1.0	EMB43180	\$227.65	EMB44180	\$227.65
20	20	26	92	R1.0	EMB43200	\$262.44	EMB44200	\$262.44

Shanks 12mm and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -0.030	h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

METRIC

EMB14, EMB39 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	EDP No.	List Price
3	6	8	57	EMB14030	\$20.27
4	6	11	57	EMB14040	\$28.33
5	6	13	57	EMB14050	\$30.13
6	6	13	57	EMB14060	\$34.57
8	8	19	63	EMB14080	\$47.43
10	10	22	72	EMB14100	\$57.00
12	12	26	83	EMB39120	\$93.30
14	14	26	83	EMB39140	\$163.40
16	16	32	92	EMB39160	\$174.87
18	18	32	92	EMB39180	\$257.60
20	20	38	104	EMB39200	\$319.17
25	25	38	104	EMB39250	\$404.60

Shanks 12mm and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -0.0012	h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

METRIC

EMB15, EMB40 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Corner Radius	EDP No.	List Price
3	6	8	57	0.25~0.38	EMB15030	\$21.27
4	6	11	57	0.25~0.38	EMB15040	\$29.73
5	6	13	57	0.25~0.38	EMB15050	\$31.63
6	6	13	57	0.38~0.51	EMB15060	\$36.37
8	8	19	63	0.38~0.51	EMB15080	\$49.93
10	10	22	72	0.38~0.51	EMB15100	\$60.00
12	12	26	83	0.64~0.76	EMB40120	\$98.20
14	14	26	83	0.64~0.76	EMB40140	\$172.00
16	16	32	92	0.89~1.02	EMB40160	\$184.07
18	18	32	92	0.89~1.02	EMB40180	\$271.13
20	20	38	104	0.89~1.02	EMB40200	\$336.00
25	25	38	104	0.89~1.02	EMB40250	\$425.90

Shanks 12mm and over come standard with Flats.

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -0.030	h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

METRIC

EMB74, EMB75 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Radius of Ball Nose	EDP No.			
					Plain	List Price	Flat	List Price
3	6	8	57	R1.5	EMB74030	\$34.30	EMB75030	\$34.30
4	6	11	57	R2.0	EMB74040	\$34.30	EMB75040	\$34.30
5	6	13	57	R2.5	EMB74050	\$36.77	EMB75050	\$36.77
6	6	13	57	R3.0	EMB74060	\$42.77	EMB75060	\$42.77
8	8	19	63	R4.0	EMB74080	\$56.17	EMB75080	\$56.17
10	10	22	72	R5.0	EMB74100	\$66.23	EMB75100	\$66.23
12	12	26	83	R6.0	EMB74120	\$107.67	EMB75120	\$107.67
16	16	32	92	R8.0	EMB74160	\$207.53	EMB75160	\$207.53
20	20	38	104	R10.0	EMB74200	\$386.00	EMB75200	\$386.00
25	25	38	104	R12.5	EMB74250	\$474.03	EMB75250	\$474.03

TOLERANCE
OF MILL DIA.

0
-0.012

TOLERANCE
OF SHANK DIA.

h6



- Higher speeds, deeper cuts and metal removal rates.
- Improved surface finishes.
- New "NANO" AlTiN coating.
- Machining of most materials under 40Rc.

METRIC

EMB72, EMB73 Series

Mill Diameter	Shank Diameter	Length of Cut	Overall Length	EDP No.			
				Plain	List Price	Flat	List Price
6	6	13	57	EMB72060	\$43.37	EMB73060	\$43.37
8	8	19	63	EMB72080	\$55.87	EMB73080	\$55.87
10	10	22	72	EMB72100	\$65.20	EMB73100	\$65.20
12	12	26	83	EMB72120	\$105.60	EMB73120	\$105.60
14	14	26	83	EMB72140	\$198.80	EMB73140	\$198.80
16	16	32	92	EMB72160	\$206.40	EMB73160	\$206.40
18	18	32	92	EMB72180	\$313.53	EMB73180	\$313.53
20	20	38	104	EMB72200	\$387.00	EMB73200	\$387.00
25	25	38	104	EMB72250	\$468.53	EMB73250	\$468.53

TOLERANCE OF MILL DIA.	TOLERANCE OF SHANK DIA.
0 -.0012	h6

MATERIAL	ALLOY STEELS CAST IRON		STAINLESS STEELS 300SERIES		STAINLESS STEELS 400SERIES		TITANIUM		INCONEL	
HARDNESS	~ HB 230									
STRENGTH	~ 1000N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	13475	10.83	8700	7.48	10400	9.45	8700	7.48	3080	1.69
4	10105	12.99	6525	9.84	7800	12.20	6525	9.84	2305	2.20
5	8085	14.57	5220	12.01	6240	14.96	5220	12.01	1850	2.68
6	6735	17.13	4355	13.98	5170	17.32	4355	13.98	1540	3.15
8	5050	21.85	3265	18.11	3900	22.44	3260	17.91	1155	4.06
10	4455	27.17	2665	20.28	2880	21.85	2665	20.28	890	2.72
12	3710	27.36	2230	20.47	2335	21.42	2230	20.47	745	2.72
14	3180	24.41	1910	18.90	2000	19.88	1910	18.90	640	2.52
16	2785	23.23	1670	17.32	1750	18.11	1670	17.32	555	2.32
18	2475	23.03	1485	17.20	1555	18.11	1485	17.32	495	2.28
20	2225	22.83	1340	17.13	1400	17.91	1340	17.13	445	2.28
25	1780	17.72	1070	13.78	1120	14.57	1070	13.78	355	1.85

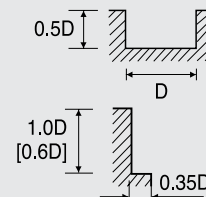
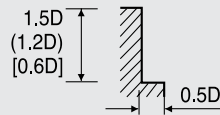
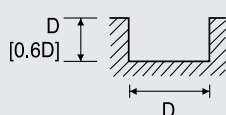
- ➡ Alloy steels cast iron / stainless steels 300, 400series / titanium
- ➡ Inconel

RPM=Revolution Per Minute
FEED=inch/minute

* Titanium Machining

- ➡ On full slot cuts, Reduce R.P.M and I.P.M by 35%.
- ➡ Speeds and feeds subject to coolant quality, quantity and pressure.

MATERIAL	ALLOY STEELS CAST IRON		STAINLESS STEELS 300SERIES		STAINLESS STEELS 400SERIES		TITANIUM		INCONEL	
HARDNESS	~ HRc 20									
STRENGTH	~ 1000N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/8	12735	10.23	9625	7.25	13475	7.63	8320	7.63	2565	2.05
3/16	8490	10.91	6385	8.27	12000	8.43	5550	8.43	1685	1.82
1/4	6370	11.46	4810	9.60	6815	9.60	4160	9.61	1285	2.48
5/16	5100	12.95	3850	10.71	5390	10.71	3330	10.71	1025	2.83
3/8	4245	18.35	3210	15.38	4490	15.38	2770	15.38	855	4.13
7/16	4010	24.45	2750	20.90	3850	20.90	2380	20.73	735	5.49
1/2	3500	25.85	2400	21.02	3370	21.02	2080	21.02	640	5.58
9/16	3110	26.01	2140	21.16	2990	21.16	1850	21.16	570	5.73
5/8	2800	26.11	1925	21.20	2700	21.20	1660	21.20	510	5.58
3/4	2340	23.96	1600	19.43	2250	19.43	1390	19.43	425	5.17
1	1755	17.44	1200	14.73	1685	15.11	1040	15.11	315	4.26

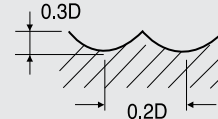
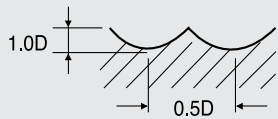


*1.2 x D Axial cutting depth should be applied for Short length series DIA over 5/16mm
*0.6 x D Axial cutting depth should be applied for Stub length series.

RPM=Revolution Per Minute
FEED=inch/minute

4 Flute Ball Nose

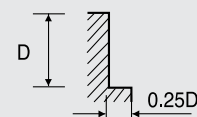
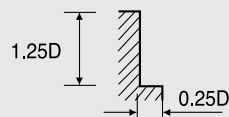
MATERIAL	ALLOY STEELS CAST IRON		STAINLESS STEELS 300SERIES		STAINLESS STEELS 400SERIES		TITANIUM		INCONEL	
	HARDNESS									
	STRENGTH									
	~ HRC 20									
	~ 1000N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/8	13530	53.20	7770	24.19	7020	16.38	5510	10.42	3010	5.21
3/16	9020	42.59	5180	20.27	4680	18.21	3680	8.69	2010	3.31
1/4	6770	40.71	3880	24.93	3510	16.38	2760	8.58	1500	3.73
5/16	5410	50.80	3110	21.85	2810	17.49	2210	10.36	1200	4.77
3/8	4510	42.64	2590	20.31	2340	16.60	1840	8.69	1000	4.16
7/16	3870	39.54	2220	18.30	2010	15.01	1580	8.64	860	4.35
1/2	3380	37.21	1940	16.79	1750	13.82	1380	8.61	750	4.49
9/16	3010	34.21	1730	15.63	1560	12.77	1230	8.03	670	4.45
5/8	2710	31.82	1550	14.70	1400	11.93	1100	7.57	600	4.41
3/4	2260	31.95	1290	13.27	1170	10.79	920	8.74	500	4.20
1	1690	26.49	970	10.73	880	8.15	690	7.37	380	3.12



RPM=Revolution Per Minute
FEED=inch/minute

5 Flute End Mill

MATERIAL	ALLOY STEELS CAST IRON		STAINLESS STEELS 300SERIES		STAINLESS STEELS 400SERIES		TITANIUM		INCONEL	
	HARDNESS									
	STRENGTH									
	~ HRC 20									
	~ 1000N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/4	6870	46.12	5710	34.16	5310	31.79	4200	24.93	1350	4.41
5/16	5490	41.27	4570	28.55	4250	26.45	3360	20.63	1080	4.30
3/8	4580	45.47	3810	28.51	3540	26.33	2800	20.70	900	4.49
7/16	3920	43.96	3270	32.59	3040	23.93	2400	20.78	770	4.67
1/2	3430	42.83	2860	35.65	2660	22.14	2100	20.84	680	4.81
9/16	3050	41.73	2540	32.69	2360	29.58	1860	20.87	600	5.35
5/8	2750	41.35	2290	30.92	2130	28.42	1680	20.70	540	5.13
3/4	2290	39.63	1900	28.59	1770	26.41	1400	20.70	450	5.37
1	1720	34.19	1430	24.83	1330	23.24	1050	18.31	340	5.10



RPM=Revolution Per Minute
FEED=inch/minute



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