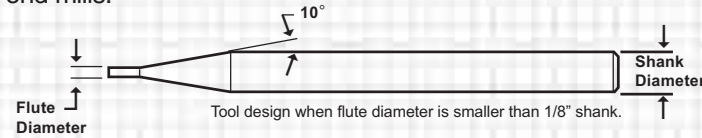


# NEW! "DG" DIAMONDGRAPHITE coating, specifically designed for GRAPHITE

## Niagara Cutter

CVD Polycrystalline Diamond Coated Solid Carbide End Mills offer maximum performance. Tool life can be extended 10 to 20 times and in some cases up to 50 times over uncoated carbide end mills.



### 30° Helix CVD Diamond Coated End Mills

September 2006 Pricing

#### 2 or 4 Flute Square or Ball-End Regular Length

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	DIA230		DIAB230		DIA430		DIAB430	
				2 FL Square-End Diamond Coated EDP	List	2 FL Ball-End Diamond Coated EDP	List	4 FL Square-End Diamond Coated EDP	List	4 FL Ball-End Diamond Coated EDP	List
1/64	1/8	3/64	1 1/2	77898	\$81.09	77931	\$99.68	77790	\$81.09	77823	\$99.68
1/32	1/8	3/32	1 1/2	77901	\$61.82	77934	\$77.95	77793	\$61.82	77826	\$77.95
1/16	1/8	3/16	1 1/2	77904	\$57.12	77937	\$74.48	77796	\$57.12	77829	\$74.48
3/32	1/8	3/8	1 1/2	77907	\$57.12	77940	\$74.48	77799	\$57.12	77832	\$74.48
1/8	1/8	1/2	1 1/2	77910	\$57.12	77943	\$74.48	77802	\$57.12	77835	\$74.48
3/16	3/16	5/8	2	77913	\$70.00	77946	\$85.12	77805	\$70.00	77838	\$85.12
1/4	1/4	3/4	2 1/2	77916	\$85.34	77949	\$105.28	77808	\$85.34	77841	\$105.28
5/16	5/16	13/16	2 1/2	77919	\$115.58	77952	\$137.76	77811	\$115.58	77844	\$137.76
3/8	3/8	7/8	2 1/2	77922	\$146.50	77955	\$168.00	77814	\$146.50	77847	\$168.00
7/16	7/16	1	2 3/4	77925	\$150.64	77958	\$173.04	77817	\$150.64	77850	\$173.04
1/2	1/2	1	3	77928	\$193.20	77961	\$207.20	77820	\$193.20	77853	\$207.20

September 2006 Pricing

#### 2 or 4 Flute Square or Ball-End Long Length

Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	DIAL230		DIALB230		DIAL430		DIALB430	
				2 FL Square-End Diamond Coated EDP	List	2 FL Ball-End Diamond Coated EDP	List	4 FL Square-End Diamond Coated EDP	List	4 FL Ball-End Diamond Coated EDP	List
1/8	1/8	1	3	77964	\$94.08	77985	\$109.20	77856	\$94.08	77877	\$109.20
3/16	3/16	1 1/8	3	77967	\$103.60	77988	\$123.20	77859	\$103.60	77880	\$123.20
3/16	3/16	1	4	72651	\$115.36	72654	\$132.16	72693	\$115.36	72696	\$132.16
1/4	1/4	1 1/4	3	77970	\$120.96	77991	\$142.24	77862	\$120.96	77883	\$142.24
1/4	1/4	1 3/8	4	72657	\$127.68	72660	\$150.08	72699	\$127.68	72702	\$150.08
1/4	1/4	1 3/8	6	72663	\$137.98	72666	\$154.56	72705	\$137.98	72708	\$154.56
5/16	5/16	1 3/8	3 1/8	77973	\$149.52	77994	\$168.00	77865	\$149.52	77886	\$168.00
5/16	5/16	1 3/8	4	72669	\$159.04	72672	\$172.48	72711	\$159.04	72714	\$172.48
3/8	3/8	1 3/8	3 1/4	77976	\$174.72	77997	\$185.92	77868	\$174.72	77889	\$185.92
3/8	3/8	1 3/8	4	72675	\$178.08	72678	\$190.40	72717	\$178.08	72720	\$190.40
3/8	3/8	1 3/8	6	72681	\$193.76	72684	\$207.20	72723	\$193.76	72726	\$207.20
7/16	7/16	1 3/4	3 3/4	77979	\$208.32	78000	\$218.40	77871	\$208.32	77892	\$218.40
1/2	1/2	1 3/8	4	18691	\$201.60	18693	\$212.80	18695	\$201.60	18697	\$212.80
1/2	1/2	2	4	77982	\$235.76	78003	\$249.76	77874	\$235.76	77895	\$249.76
1/2	1/2	1 3/8	6	18692	\$207.20	18694	\$218.40	18696	\$207.20	18698	\$218.40
1/2	1/2	3	6	72687	\$245.28	72690	\$259.28	72729	\$245.28	72732	\$259.28

Diameter Tolerances +/- 0.001" Shank Tolerances - 0.0001" / 0.0004"

### 4 Flute 30° Helix with Radius Diamond Coated End Mills

September 2006 Pricing



Price Code E

Flute Dia	Shank Dia	Length of Cut	Overall Length	No. of FL.	DIACR430 Square-End with Radius Diamond Coated				
					Radius	EDP	Radius	EDP	List
1/16	1/8	3/16	1 1/2	4	.010	18415	.015	18416	\$74.48
1/8	1/8	1/2	1 1/2	4	.015	18417	.020	18418	\$74.48
3/16	3/16	5/8	2	4	.020	18419	.030	18420	\$85.12
1/4	1/4	3/4	2 1/2	4	.020	18421	.030	18422	\$105.28
3/8	3/8	7/8	2 1/2	4	.020	18423	.030	18424	\$168.00
1/2	1/2	1	3	4	.030	18425	.060	18426	\$207.20

### 4 Flute 30° Helix Extended Reach Diamond Coated End Mills

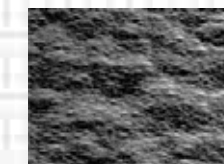
September 2006 Pricing



Price Code E

	Flute Dia	Shank Dia	Length of Cut	Overall Length	Reach	Neck Dia	No. of FL	DIAXR430 Square-End with Radius Diamond Coated			DIAXR430 Ball-End Diamond Coated	
								Radius	EDP	List	EDP	List
Short Reach	1/32	1/8	3/32	3	3/8	.028	4	.005	18671	\$109.20	18681	\$109.20
	3/64	1/8	9/64	3	9/16	.043	4	.010	18672	\$109.20	18682	\$109.20
	1/16	1/8	3/16	3	3/4	.057	4	.010	18673	\$109.20	18683	\$109.20
	3/32	1/8	9/32	3	1	.086	4	.010	18674	\$109.20	18684	\$109.20
Long Reach	1/8	1/8	3/8	3	1 1/2	.115	4	.010	18675	\$109.20	18685	\$109.20
	1/32	1/8	3/32	3	1/2	.028	4	.005	18676	\$109.20	18686	\$109.20
	3/64	1/8	9/64	3	3/4	.043	4	.010	18677	\$109.20	18687	\$109.20
	1/16	1/8	3/16	3	1	.057	4	.010	18678	\$109.20	18688	\$109.20
	3/32	1/8	9/32	3	1 1/2	.086	4	.010	18679	\$109.20	18689	\$109.20
	1/8	1/8	3/8	3	2	.115	4	.010	18680	\$109.20	18690	\$109.20

Niagara Cutter's new line of DIAMONDGRAPHITE Coated Solid Carbide End Mills are designed for graphite and green ceramics. Our Diamond coating features a .01 - 1.0<sub>um</sub> (micron) grain size, for maximum wear resistance.

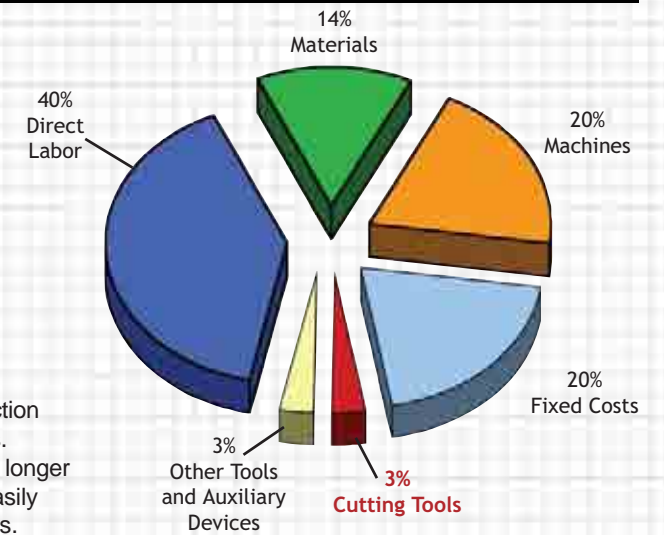


Ultra Fine Grain Submicron Diamond

#### Application Parameters for Graphite

<b>Speed / SFM: 200 to 3000</b> In many applications maximum spindle speed can be used.	
Tool Size	Feed Rates Per Tooth / CPT
1/64"	.0002 - .0005"
1/8"	.0005 - .002"
1/4"	.001 - .004"
3/8"	.001 - .005"
1/2"	.001 - .005"

CVD Diamond Coatings offer maximum lubricity, wear protection and thermal transfer properties. Diamond Coated end mills last longer and machine Graphite more easily than uncoated carbide end mills.



Diamond Coated end mills may cost more than uncoated solid carbide, but they can deliver much greater value. The tooling cost (3%) which is relatively small has a direct impact on production costs of direct labor and machines.

CAUTION: In spindle speeds faster than 10,000 RPM balanced holders should be used.

*DiamondPlus DiamondPlus DiamondPlus DiamondPlus*  
*DiamondPlus DiamondPlus DiamondPlus DiamondPlus*  
*DiamondPlus DiamondPlus DiamondPlus DiamondPlus*  
*DiamondPlus DiamondPlus DiamondPlus DiamondPlus*

## Multilayer CVD Diamond Coating

Designed for difficult composites and non-ferrous materials **September 2006 Pricing**

2 or 4 Flute Square or Ball-End Regular Length

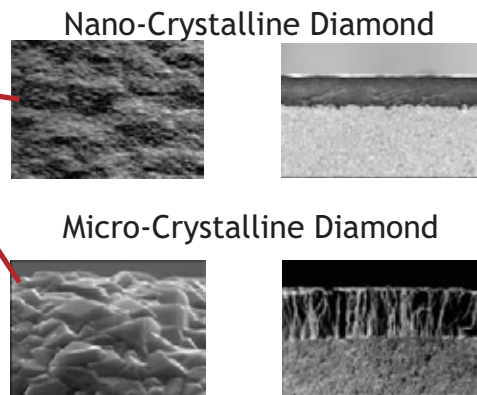
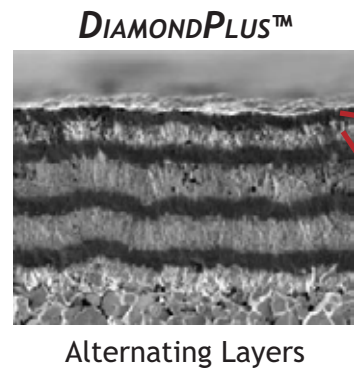
Price Code E				DP230		DPB230		DP430		DPB430	
Flute Dia	Shank Dia	Length of Cut	Overall Length	2 FL Square-End Diamond Coated		2 FL Ball-End Diamond Coated		4 FL Square-End Diamond Coated		4 FL Ball-End Diamond Coated	
				EDP	List	EDP	List	EDP	List	EDP	List
1/16	1/8	3/16	1 1/2	18427	\$68.21	18433	\$85.57	18439	\$68.21	18445	\$85.57
1/8	1/8	1/2	1 1/2	18428	\$68.21	18434	\$85.57	18440	\$68.21	18446	\$85.57
3/16	3/16	5/8	2	18429	\$81.09	18435	\$96.21	18441	\$81.09	18447	\$96.21
1/4	1/4	3/4	2 1/2	18430	\$99.12	18436	\$119.06	18442	\$99.12	18448	\$119.06
3/8	3/8	7/8	2 1/2	18431	\$170.24	18437	\$191.74	18443	\$170.24	18449	\$191.74
1/2	1/2	1	3	18432	\$218.74	18438	\$232.74	18444	\$218.74	18450	\$232.74

**NEW "DP" DIAMONDPLUS™** CVD Diamond coating offers a new level of wear protection and performance. **DIAMONDPLUS™** coating combines micro and nano-crystalline diamond coatings into one super hard layer.

**Flexibility!**

**Niagara Cutter** can manufacture Solid Carbide **DIAMONDPLUS™** end mills in a wide selection of specials.

- Custom Lengths
- Radius
- Custom Diameters
- Shapes/Angles



**DIAMONDPLUS™ Advantages**

- Highest Wear Protection
- Smoothest Surface
- Toughness and Increased Resistance to Chipping and Cracking

**DIAMONDPLUS™ Applications**

- Hard Carbon
- MMC: Metal Matrix Composites
- High Silicon Aluminum
- Filled Composites and Plastics

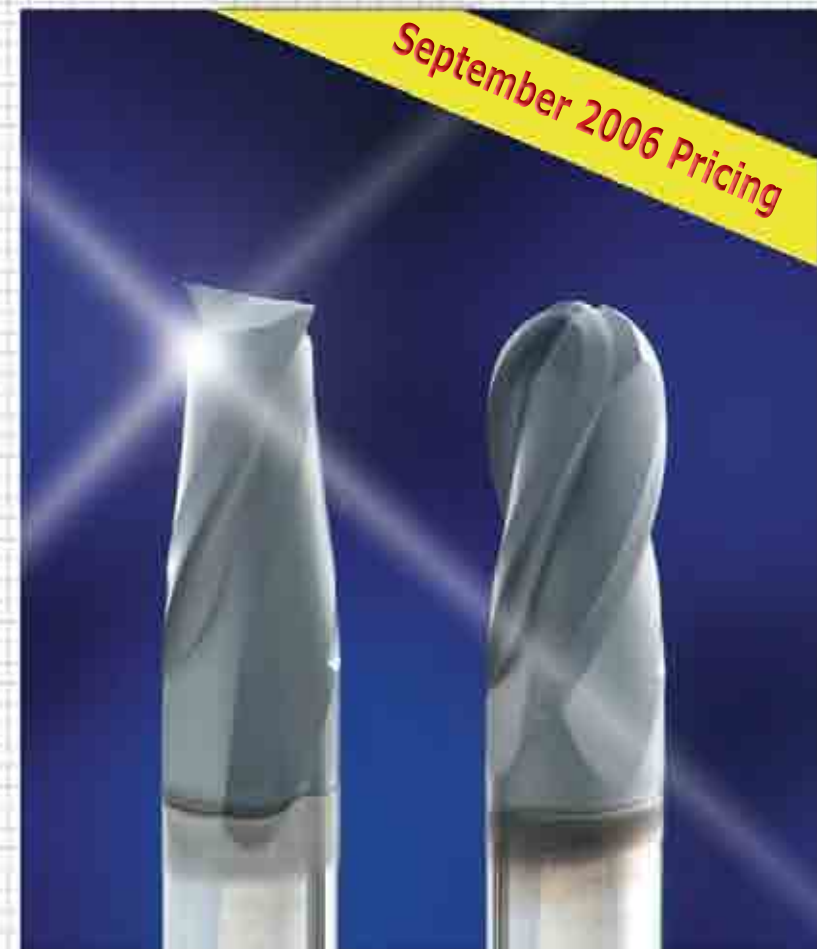
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# Niagara Cutter

**DIAMONDGRAPHITE / DIAMONDPLUS**



**DIAMOND COATED**  
**SOLID CARBIDE END MILLS**