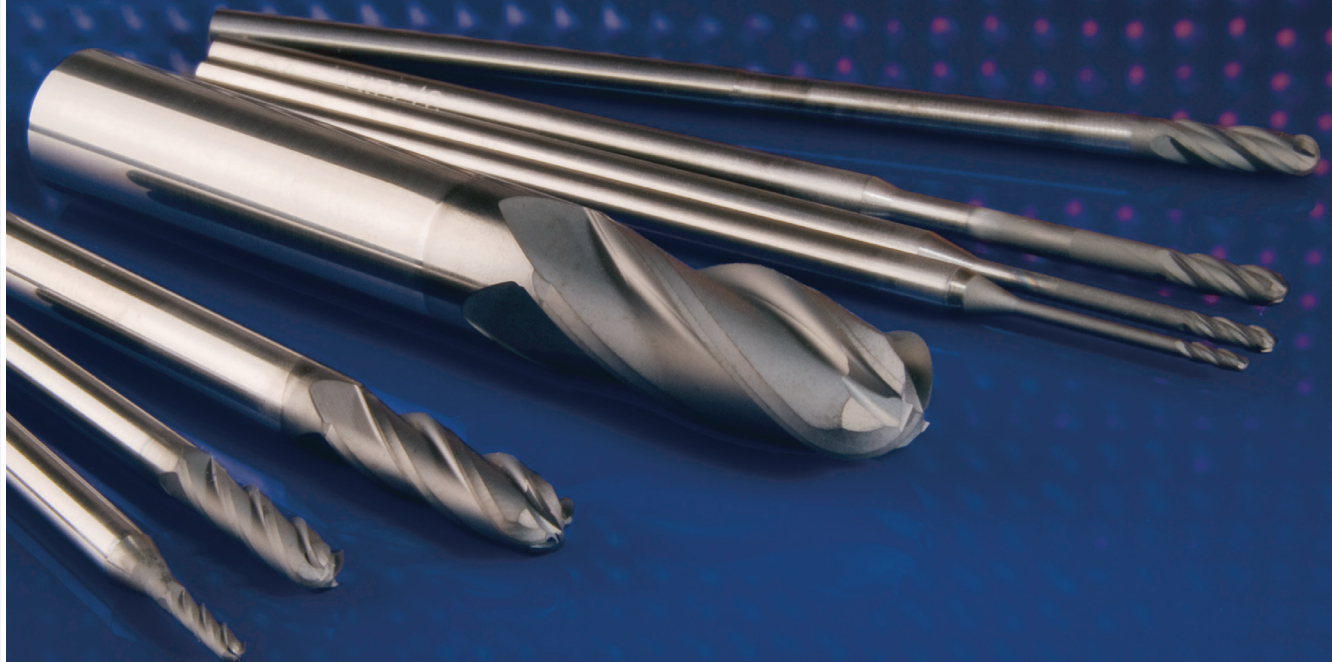


Diamond Coated Carbide End Mills

Diamond Coated Carbide End Mills



Applications

- Machining of graphite, non-ferrous metals and other highly abrasive materials
- Machining of deep pockets in the above materials where maximum rigidity and surface finish are essential

Availability

- Inch & metric sizes
- Two, three and four flute mills
- Ball nose, standard end mill, regular length, long reach and corner radius with neck

Features

- High hardness, excellent wear resistance to maximize tool life
- Ultra-fine diamond coated film over the carbide yields a highly bonded smooth surface for superior surface finishes
- Manufactured to precision dimensional accuracies for minimum tool to tool variations



Ohio Carbon Blank, Inc.

38403 Pelton Road
Willoughby, OH 44094

800-448-8887 toll free

www.ohiocarbonblank.com
info@ohiocarbonblank.com

440-953-9302 local
440-953-5829 fax

Your Way—Always!

Diamond Coated Carbide End Mills

OCB PRODUCT NO.	ENGLISH / METRIC	MILL DIA.	NO. OF FLUTES	TYPE OF END MILL	TYPE OF LENGTH	SHANK DIA.	LENGTH OF CUT	OVERALL LENGTH	LENGTH BELOW THE SHANK
RL-S4-08I	INCH	1/8"	4 FLUTE	STANDARD	REGULAR LENGTH	1/8"	1/2"	1-1/2"	N/A
RL-S4-12I	INCH	3/16"	4 FLUTE	STANDARD	REGULAR LENGTH	3/16"	5/8"	2"	N/A
RL-S4-16I	INCH	1/4"	4 FLUTE	STANDARD	REGULAR LENGTH	1/4"	3/4"	2-1/2"	N/A
RL-S4-20I	INCH	5/16"	4 FLUTE	STANDARD	REGULAR LENGTH	5/16"	13/16"	2-1/2"	N/A
RL-S4-24I	INCH	3/8"	4 FLUTE	STANDARD	REGULAR LENGTH	3/8"	7/8"	2-1/2"	N/A
RL-S4-32I	INCH	1/2"	4 FLUTE	STANDARD	REGULAR LENGTH	1/2"	1"	3"	N/A
RL-B2-05I	INCH	5/64"	2 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	1/4"	1-1/2"	N/A
RL-B2-06I	INCH	3/32"	2 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	3/8"	1-1/2"	N/A
RL-B2-08I	INCH	1/8"	2 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	1/2"	1-1/2"	N/A
RL-B2-12I	INCH	3/16"	2 FLUTE	BALL NOSE	REGULAR LENGTH	3/16"	5/8"	2"	N/A
RL-B2-16I	INCH	1/4"	2 FLUTE	BALL NOSE	REGULAR LENGTH	1/4"	3/4"	2-1/2"	N/A
RL-B2-20I	INCH	5/16"	2 FLUTE	BALL NOSE	REGULAR LENGTH	5/16"	13/16"	2-1/2"	N/A
RL-B2-24I	INCH	3/8"	2 FLUTE	BALL NOSE	REGULAR LENGTH	3/8"	7/8"	2-1/2"	N/A
RL-B2-32I	INCH	1/2"	2 FLUTE	BALL NOSE	REGULAR LENGTH	1/2"	1"	3"	N/A
RL-B4-05I	INCH	5/64"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	1/4"	1-1/2"	N/A
RL-B4-06I	INCH	3/32"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	3/8"	1-1/2"	N/A
RL-B4-08I	INCH	1/8"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	1/2"	1-1/2"	N/A
RL-B4-12I	INCH	3/16"	4 FLUTE	BALL NOSE	REGULAR LENGTH	3/16"	5/8"	2"	N/A
RL-B4-16I	INCH	1/4"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/4"	3/4"	2-1/2"	N/A
RL-B4-20I	INCH	5/16"	4 FLUTE	BALL NOSE	REGULAR LENGTH	5/16"	13/16"	2-1/2"	N/A
RL-B4-24I	INCH	3/8"	4 FLUTE	BALL NOSE	REGULAR LENGTH	3/8"	7/8"	2-1/2"	N/A
RL-B4-32I	INCH	1/2"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/2"	1"	3"	N/A
LL-B2-05I	INCH	5/64"	2 FLUTE	BALL NOSE	LONG LENGTH	1/8"	3/8"	3-1/4"	3/4"
LL-B2-08I	INCH	1/8"	2 FLUTE	BALL NOSE	LONG LENGTH	1/8"	5/8"	3-1/4"	1"
LL-B2-12I	INCH	3/16"	2 FLUTE	BALL NOSE	LONG LENGTH	1/4"	1-1/8"	4"	2"
LL-B2-16I	INCH	1/4"	2 FLUTE	BALL NOSE	LONG LENGTH	1/4"	1-1/8"	4"	2"
LL-B2-20I	INCH	5/16"	2 FLUTE	BALL NOSE	LONG LENGTH	5/16"	1-1/2"	4-1/2"	2-3/8"
LL-B2-24I	INCH	3/8"	2 FLUTE	BALL NOSE	LONG LENGTH	3/8"	2"	4-3/4"	2-3/4"
LL-B2-32I	INCH	1/2"	2 FLUTE	BALL NOSE	LONG LENGTH	1/2"	2-1/8"	5-1/8"	3"
LR-B2-05I	INCH	5/64"	2 FLUTE	BALL NOSE	LONG REACH	1/8"	3/8"	4"	3/4"
LR-B2-08I	INCH	1/8"	2 FLUTE	BALL NOSE	LONG REACH	1/8"	5/8"	4"	1"
LR-B2-12I	INCH	3/16"	2 FLUTE	BALL NOSE	LONG REACH	1/4"	1-1/8"	4-3/4"	2"
LR-B2-16I	INCH	1/4"	2 FLUTE	BALL NOSE	LONG REACH	1/4"	1-1/8"	6"	2"
LR-B2-20I	INCH	5/16"	2 FLUTE	BALL NOSE	LONG REACH	5/16"	1-1/2"	6"	2-3/8"
RLN-B4A-02I	INCH	1/32"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	3/32"	3"	3/8"
RLN-B4B-02I	INCH	1/32"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	3/32"	3"	1/2"
RLN-B4A-03I	INCH	3/64"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	9/64"	3"	9/16"
RLN-B4B-03I	INCH	3/64"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	9/64"	3"	3/4"
RLN-B4A-04I	INCH	1/16"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	3/16"	3"	3/4"

- ENGLISH TOLERANCE (RUNOUT) — .0002" MAXIMUM
- ENGLISH TOLERANCE (MILL DIAMETER) — [+ .0000/- .0012"]
- ENGLISH TOLERANCE (SHANK DIAMETER) — [+ .0000/- .0003"]

- METRIC TOLERANCE (RUNOUT) — .005 MM
- METRIC TOLERANCE (MILL DIAMETER) — [+ .000/- .003 MM]
- METRIC TOLERANCE (SHANK DIAMETER) — H6

NOTE: END RADIUS = 1/2 OF THE MILL DIAMETER (FOR ALL BALL NOSE END MILLS)

OCB PRODUCT NO.	ENGLISH / METRIC	MILL DIA.	NO. OF FLUTES	TYPE OF END MILL	TYPE OF LENGTH	SHANK DIA.	LENGTH OF CUT	OVERALL LENGTH	LENGTH BELOW THE SHANK
RLN-B4B-04I	INCH	1/16"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	3/16"	3"	1"
RLN-B4A-06I	INCH	3/32"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	9/32"	3"	1"
RLN-B4B-06I	INCH	3/32"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	9/32"	3"	1-1/2"
RLN-B4A-08I	INCH	1/8"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	3/8"	3"	1-1/2"
RLN-B4B-08I	INCH	1/8"	4 FLUTE	BALL NOSE	REGULAR LENGTH	1/8"	3/8"	3"	2"
SL-B2-020M	METRIC	2.0	2 FLUTE	BALL NOSE	SHORT LENGTH	6.0	3.0	60.0	5.0
SL-B2-025M	METRIC	2.5	2 FLUTE	BALL NOSE	SHORT LENGTH	6.0	4.0	60.0	6.0
SL-B2-030M	METRIC	3.0	2 FLUTE	BALL NOSE	SHORT LENGTH	6.0	4.5	60.0	6.5
SL-B2-035M	METRIC	3.5	2 FLUTE	BALL NOSE	SHORT LENGTH	6.0	5.0	65.0	7.0
SL-B2-040M	METRIC	4.0	2 FLUTE	BALL NOSE	SHORT LENGTH	6.0	6.0	65.0	8.0
SL-B2-050M	METRIC	5.0	2 FLUTE	BALL NOSE	SHORT LENGTH	6.0	7.5	65.0	10.0
SL-B2-060M	METRIC	6.0	2 FLUTE	BALL NOSE	SHORT LENGTH	6.0	9.0	75.0	12.0
SL-B2-080M	METRIC	8.0	2 FLUTE	BALL NOSE	SHORT LENGTH	8.0	12.0	75.0	25.0
SL-B2-100M	METRIC	10.0	2 FLUTE	BALL NOSE	SHORT LENGTH	10.0	15.0	80.0	30.0
SL-B2-120M	METRIC	12.0	2 FLUTE	BALL NOSE	SHORT LENGTH	12.0	18.0	90.0	36.0
SL-B3-020M	METRIC	2.0	3 FLUTE	BALL NOSE	SHORT LENGTH	6.0	3.0	60.0	5.0
SL-B3-025M	METRIC	2.5	3 FLUTE	BALL NOSE	SHORT LENGTH	6.0	4.0	60.0	6.0
SL-B3-030M	METRIC	3.0	3 FLUTE	BALL NOSE	SHORT LENGTH	6.0	4.5	60.0	6.5
SL-B3-035M	METRIC	3.5	3 FLUTE	BALL NOSE	SHORT LENGTH	6.0	5.0	65.0	7.0
SL-B3-040M	METRIC	4.0	3 FLUTE	BALL NOSE	SHORT LENGTH	6.0	6.0	65.0	8.0
SL-B3-050M	METRIC	5.0	3 FLUTE	BALL NOSE	SHORT LENGTH	6.0	7.5	65.0	10.0
SL-B3-060M	METRIC	6.0	3 FLUTE	BALL NOSE	SHORT LENGTH	6.0	9.0	75.0	12.0
SL-B3-080M	METRIC	8.0	3 FLUTE	BALL NOSE	SHORT LENGTH	8.0	12.0	75.0	25.0
SL-B3-100M	METRIC	10.0	3 FLUTE	BALL NOSE	SHORT LENGTH	10.0	15.0	80.0	30.0
SL-B3-120M	METRIC	12.0	3 FLUTE	BALL NOSE	SHORT LENGTH	12.0	18.0	90.0	36.0
LL-B2-020M	METRIC	2.0	2 FLUTE	BALL NOSE	LONG LENGTH	4.0	10.0	80.0	20.0
LL-B2-030M	METRIC	3.0	2 FLUTE	BALL NOSE	LONG LENGTH	4.0	15.0	80.0	25.0
LL-B2-040M	METRIC	4.0	2 FLUTE	BALL NOSE	LONG LENGTH	4.0	20.0	80.0	30.0
LL-B2-050M	METRIC	5.0	2 FLUTE	BALL NOSE	LONG LENGTH	6.0	30.0	100.0	50.0
LL-B2-060M	METRIC	6.0	2 FLUTE	BALL NOSE	LONG LENGTH	6.0	30.0	100.0	50.0
LL-B2-080M	METRIC	8.0	2 FLUTE	BALL NOSE	LONG LENGTH	8.0	40.0	110.0	60.0
LL-B2-100M	METRIC	10.0	2 FLUTE	BALL NOSE	LONG LENGTH	10.0	50.0	120.0	70.0
LL-B2-120M	METRIC	12.0	2 FLUTE	BALL NOSE	LONG LENGTH	12.0	55.0	130.0	75.0
LR-B2-020M	METRIC	2.0	2 FLUTE	BALL NOSE	LONG REACH	4.0	10.0	100.0	20.0
LR-B2-030M	METRIC	3.0	2 FLUTE	BALL NOSE	LONG REACH	4.0	15.0	100.0	25.0
LR-B2-040M	METRIC	4.0	2 FLUTE	BALL NOSE	LONG REACH	4.0	20.0	100.0	30.0
LR-B2-050M	METRIC	5.0	2 FLUTE	BALL NOSE	LONG REACH	6.0	30.0	120.0	50.0
LR-B2-060M	METRIC	6.0	2 FLUTE	BALL NOSE	LONG REACH	6.0	30.0	150.0	50.0
LR-B2-080M	METRIC	8.0	2 FLUTE	BALL NOSE	LONG REACH	8.0	40.0	150.0	60.0

- ENGLISH TOLERANCE (RUNOUT) — .0002" MAXIMUM
- ENGLISH TOLERANCE (MILL DIAMETER) — [+ .0000/- .0012"]
- ENGLISH TOLERANCE (SHANK DIAMETER) — [+ .0000/- .0003"]

- METRIC TOLERANCE (RUNOUT) — .005 MM
- METRIC TOLERANCE (MILL DIAMETER) — [+ .000/- .003 MM]
- METRIC TOLERANCE (SHANK DIAMETER) — H6

NOTE: END RADIUS = 1/2 OF THE MILL DIAMETER (FOR ALL BALL NOSE END MILLS)

Recommended Parameters for Graphite Machining

(When Using Diamond Coated Tools)

Graphite is a material that is relatively easy to machine, but it is very abrasive which makes it very hard on tungsten carbide. This makes it a perfect candidate to machine with diamond. In fact, diamond coated end mills last 12–20 times as long as tungsten carbide when machining graphite — sometimes even longer.

Diamond coated cutting tools have a very wide operating range from 200 to over 2,000 surface feet per minute. This provides an opportunity for significant productivity increases.

You will see from the chart below that in machining graphite, it is not necessary to have a “high

speed” mill to derive benefits from diamond, but generally speaking the higher the speed, the more the benefit. We usually suggest keeping the feeds and speeds the same as what you are currently using for comparison purposes, then increasing the speeds to realize productivity gains.

END MILL DIAMETER	MACHINE SPEED	CUTTING SPEED	FEED RATE	OPERATION
(inches)	(rpm)	(sfm)	(fpt)	(general / finish)
1/64	20,000 – 60,000	80 – 245	.0002 – .0005	FINISH
1/32	16,000 – 60,000	130 – 500	.0005 – .0010	FINISH
1/16	10,000 – 60,000	160 – 1,000	.0010 – .0020	GENERAL
			.0005 – .0010	FINISH
1/8	6,000 – 60,000	200 – 2,000	.0010 – .0020	GENERAL
			.0005 – .0010	FINISH
3/16	4,000 – 60,000	200 – 3,000	.0010 – .0020	GENERAL
			.0005 – .0010	FINISH
1/4	3,000 – 50,000	200 – 3,300	.0020 – .0040	GENERAL
			.0010 – .0020	FINISH
5/16	2,500 – 42,000	200 – 3,400	.0020 – .0040	GENERAL
			.0010 – .0020	FINISH
3/8	2,000 – 36,000	200 – 3,500	.0030 – .0050	GENERAL
			.0010 – .0030	FINISH
1/2	1,500 – 30,000	200 – 4,000	.0030 – .0050	GENERAL
			.0010 – .0030	FINISH

The information contained on this page was provided by CVD Diamond Corporation.

For pricing, call toll free: **800-448-8887**
or email: info@ohiocarbonblank.com