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How to Place an Order for Graphite

Simply call our 800 number, Fax your order to 1-800-325-7584, or visit our Web Site at www.intech-edm.com to order on-line. Please provide:

- Your company name and customer account number, if available.
- Name of person placing order, and telephone number.
- Catalog number, quantity and description – include configuration (round, square, etc.), size, and grade.
- Shipping method and any special instructions.
- Purchase order number.

Please note that we accept American Express, Discover, MasterCard and Visa as payment for purchases.

Important Note: Special prices are available on large-size orders and for graphite purchased on a blanket or contract order basis. Blanket orders can be scheduled on an anticipated release basis, which can be later modified as needed. Call for more detailed information.

Then enjoy Intech's **60 Day Return Policy*** and **95% Same-day Service Level***

** See Ordering Information, page 1.3, for details.*

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How to Use the Catalog

The graphite product section of this catalog has been divided into three sections. Each brand section begins with technical specifications and grade selection information for that brand.

The products available from stock within each brand section are organized by shape – rounds, flat plates, squares, etc. The shapes are then listed in a corresponding table (see sample below) by size, with catalog numbers under each grade indicating that the particular size and grade is available from stock.

To select a specific product:

1. Select the brand and grade you want.

2. Decide on the configuration (square, flat plate, etc.) and size you need.
3. Go to the appropriate page and product table to determine if it is normally stocked, and to obtain the catalog number for ordering purposes.

Important Note: We try to stock all of the popular grade/shape/size configurations. *However, just because it's not listed with a catalog number does not mean that it's unavailable; we may have it or we can quickly cut it for you.* For information on items not listed, please be sure to call Customer Service and ask; we'll do our best to respond to your requirements.

Graphite - General Information

Graphite technical Information provided through the courtesy of Dr. Bernd Schumacher.

What is graphite?

Graphite is an excellent electrode material for thermal processes and, apart from coal, is technically the most important configuration of carbon. Graphite is produced synthetically in a light-arc or electro-induction furnace, and has more uniform properties than graphites extracted from nature. The structure of its crystals consists of a hexagonal ring of atoms arranged in offset layers.

Pure carbon has a density of 2.1 g/cm^3 , and a high degree of temperature resistance. For all practical purposes it does not have a melting point, but goes directly over to the gaseous phase through sublimation.

How is graphite produced?

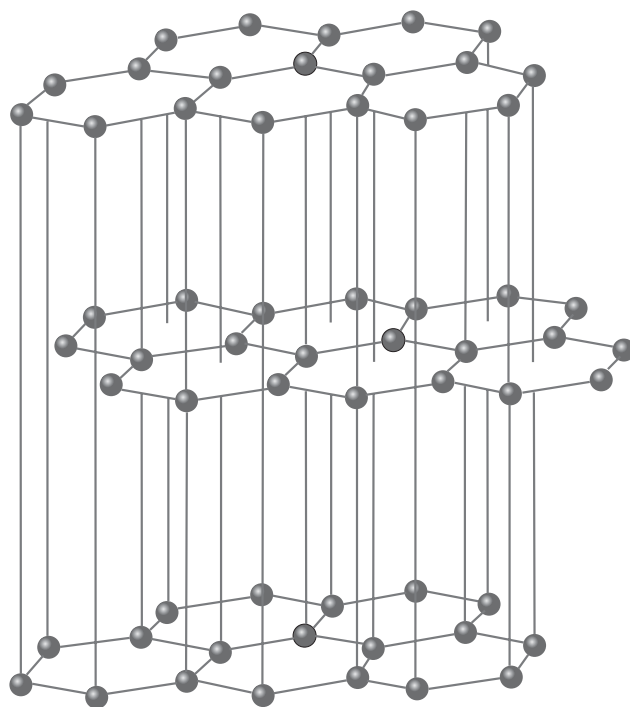
Graphite materials use a carbon powder with binders as the starting material for their manufacture – a pressing process, followed by sintering technology and a high-temperature annealing process. The graphites remain

porous, with an apparent density is of 1.5 to 1.95 g/cm^3 . This porosity can be calculated from the difference between apparent density and the ideal figure of 2.1 g/cm^3 .

Graphite density - which grade is best?

For electrodes used for EDM, greater density is usually better because of the lower rate of wear of the electrodes. However, as density increases, the material becomes harder to machine. These types are also expensive, and in practice, densities actually used range between 1.7 and 1.9 g/cm^3 , according to the application.

High densities can be achieved with high-pressure processes, combined with the use of very fine-grain powder as the base material, with no foreign inclusions. This also results in electrical conductivity and mechanical elasticity in the sintered, almost ceramic graphite, which offers the best properties for EDM work and for the preparatory processes leading up to it. As the electrical current can run via many different routes to the point where the spark is discharged, acceptable conductivity values are in the range of $1.2 \text{ to } 1.4 \cdot 10^3 \text{ S/cm}$.



Crystalline structure of pure graphite

– continued

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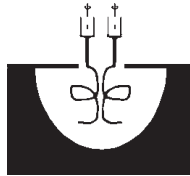
Diagrammatic Description of the Production of Electro-graphite

Sequence of Operations

Important Considerations

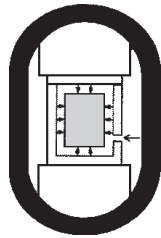
Selected fine and ultra-fine cokes, natural graphite and soot, plus organic binders, pitch and resin

The selection of grades and the mixture of grain sizes determine the density and the quality of the finished graphite product.



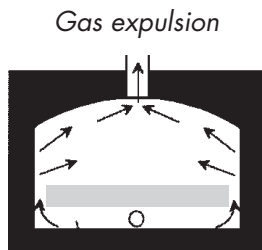
Mixing & kneading to homogenize

Very important for the homogenous properties of electrode graphites.



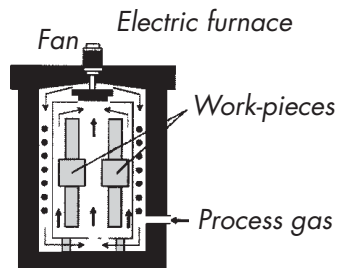
Isostatic pressure

Pressure must be uniform in all dimensions.



Furnace carbonization (gas expelled through the minimum number of pores)

All binders must be totally carbonized right through to the inside of the block. The duration of the annealing process is important. The smallest possible pores must be distributed as homogeneously as possible.



Graphitizing annealing in the atmosphere

Thermally initiated 100% conversion of coal into graphite. For electrical-discharge machining (EDM) users, a particularly good electrical conductivity must be achieved.

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Uses of graphite

The manufacture of graphite is a highly technical process, requiring a considerable amount of knowledge and specialized technology. As such, it is recommended that users work only with technically competent suppliers, particularly if they desire predictability and uniformity of the graphite grades they select.

From a practical standpoint, understanding and exploiting the unique technical properties of graphite is most important, and to aid the user, we offer the following information on these properties.

Machining graphite

This material can be worked like wood (see technology of machining - next page) and can be quickly cut to size, machined, die-sunk, glued, clamped, or mounted in any other way.

Handling graphite

Graphite is easy to handle and is low in weight, making it ideal for use on die-sinking equipment, especially for large-volume electrodes. Its dimensional stability and imperviousness to heat permit precise production to tight tolerances, with stability over a long period of time. End cuts and scrap can be saved for fabrication into smaller electrodes.

Graphite for die-sinking

The dimensional stability of graphite in the thermal erosion process is excellent, and the

absence of any melting point makes it resistant to heat, an advantage when it is being used on high-performance machines. It takes very high levels of discharge energy to cause any thermal damage to the graphite structure. Relative wear of the workpiece is very small in volumetric terms, and also small in linear terms and at the corners, despite the porosity of graphite. The only limitation the porosity imposes is a minimal amount of roughness in the finish, but with higher-density grades this can be minimized.

Graphite availability

Our price, range of products, and speed of delivery are a match for any of the competitive electrode materials. Requirements can be discussed in detail, the graphite can be delivered machined to your "specs", and fastened to your tool holder.

Grades are highly universal, and only a few users will need to keep a complete range in stock. Graphite can be cut and glued, reducing waste and increasing dimensions of the semi-finished block (beyond maximum block size, if required).

Toxicity of graphite

Graphite properly produced is nontoxic, and even if graphite dust is inhaled it causes no physiological problems.

Working with Graphite

There can be little dispute over the advantages of graphite as an electrode material. Graphite is very easy to machine and shows a high degree of dimensional stability, both while it is being worked on and afterwards.

When working with graphite, two major points need to be considered: 1) the workplace environment in electrode manufacture; and 2) the technology of machining.

The workplace environment in electrode manufacture

When graphite is being machined, it does not produce swarf or chips in the way metal does,

but rather grains of graphite up to 2 mm in size, this being determined by the depth of cut of the milling/grinding machine. In order to prevent these grains of dust from penetrating into moving parts such as the spindle, ways or the ball screws of the machine tool, they must be removed by a powerful suction system.

We recommend dry working, i.e. without any coolant or lubricant. Attention must definitely be paid to ensuring that the graphite dust does not come into contact with oil or grease, as this produces a paste that has an abrasive, grinding effect.

– continued

Incidentally, graphite dust is not classified as toxic waste and can be disposed of in the normal way. Larger quantities, however, should be discussed with the local waste collection contractor.

The technology of machining

Sawing

Depending on material thickness, it is generally preferable to use a coarse-toothed saw made of carbon steel, with 4 to 5 teeth per inch. The cutting speed should be 2000-2300 SFM, and a rate of feed of 12 to 20 inches per minute.

Milling

When graphite is being machined, attention must be paid to ensure that it is held firmly in position. Climb-cutting is always advisable to prevent edges from chipping.

Because of the abrasive effect of the graphite dust, the rate of wear on the machining cutter is relatively high. It is, therefore, best to use carbide cutters of "higher" grades. In order to avoid tool failure, the wear on the cutter should not be allowed to exceed .005" off the diameter. Once the .005" level is reached, the cutter should be reground or replaced.

Cutting speeds and feeds recommended are as follows:

| <u>Cutter Material</u> | <u>Speed (SFM)</u> |
|------------------------|--------------------|
| High Speed Steel | 100-300 |
| Carbide | 500-700 |
| Diamond | 500-2000 |

$$\text{SFM} = (\text{RPM} \times \text{Tool Dia.} \times \pi) \div 12$$

$$\text{RPM} = (\text{SFM} \times 12) \div (\text{Tool Dia.} \times \pi)$$

Chip Load/Tooth

$$\text{Rough: } .003\text{-.}005" \bullet \text{ Finish: } .001\text{-.}003"$$

$$\text{Feed Rate} = \text{RPM} \times \text{Chip Load per Tooth} \times \text{Number of Teeth}$$

Some newer machining centers offer spindles with speeds up to 40,000 RPM and, using high speed milling technology, can very effectively machine graphite.

Turning

Since graphite does not require great tool pressures, it is relatively easy to turn. It is preferable to use a carbide tool with a radius at its tip.

There is an unusual relationship between the depth of cut and the desired surface finish; with a depth of .008" the resultant surface is better than at .002". PVD diamond copper, vapor deposition diamond, and PCD tools are recommended for fine finishing and long wear, with wear factors of 10-15 times that of tungsten carbide not uncommon.

The same machining speeds as milling are valid for turning. Roughing and finishing feeds per revolution will vary depending on the grade of graphite being machined, size of the tool's nose radius, and the depth of cut. Here's a reference point to start:

$$\text{Rough: } .015"/\text{rev.}$$

$$\text{Finish: } .005\text{-.}007"/\text{rev.}$$

Grinding

Grinding is particularly economical, and for this reason is often preferred to turning and milling. We recommend grinding wheels made of silicon carbide, with a grain size between 36 and 200, depending on the required profile accuracy and surface quality. Please see Page 5.17 to purchase grinding wheels to our exact specifications.

Spindle speed should be in the range of 45-55 SFM, and we recommend:

$$\text{Table Speed: } 45\text{-}55 \text{ I.P.M.}$$

$$\text{Roughing: } .025" \text{ deep} \times .1" \text{ cross feed}$$

$$\text{Finishing: } .002\text{-.}005" \text{ deep} \times .25 \text{ cross feed}$$

Roughing removal rates may be increased, depending on the machine, setup, wheel, and graphite being machined; *safety should be your first priority.*

Although not as much as other materials, graphite is affected by heat. Some applications may require roughing and finishing operations to ensure straightness, flatness and parallelism.

Wire-cut EDMing

Graphite can be successfully wire-cut. When EDMing graphite, we recommend using fine-grained graphite for best results.

Because of graphite's lower wear rate, a shorter active electrode length is required than with copper electrodes.

Selection of Grades

As Intech EDM supplies graphite in various densities, the user is faced with the need to make a choice. Less dense grades are preferable as roughing graphites, as they are economical and their porosity has no negative effect on roughing work because of its low rate of wear and the coarse finish obtained in roughing. The denser and more expensive grades are preferred when greater demands are being made on surface finish, and when materials used are hard to erode, such as carbide. From the commercial point of view, it is also important to consider how much material volume is going to be needed for any given electrode production.

The user is advised to select one medium-to-fine grade on the basis of the relevant spectrum of uses, and to hold a minimum amount of it in stock. This avoids the need to bring in any complicated store-room administration for different grades. If any unusual grade is ever needed, it can be simply ordered from Intech EDM as a piece cut to size.

Production, Handling & Storage

Graphite electrodes and grades are easy to store and to cut to size. Electrodes with a direct reference to a holding system, which nowadays are often ordered in combination with electronic data that can be downloaded straight into the machine, are kept with the holder because one electrode can often be used many times over.

For production reasons it is a better idea to produce electrodes that are used several times over, including roughing and finishing versions, all to the same roughing dimensions. The degree of tolerance has to be the same in both cases for technical reasons, and the undersize difference can be compensated for in die sinkers with orbital/planetary movements.

The weight and machining speeds for graphite are very convenient. Care is needed during the process of removing the graphite dust under vacuum, but this can be done very reliably; the dust is by no means toxic, but it does make things dirty. Care is likewise called for in handling very delicate electrodes with fine ribs and cross-members. Despite its relatively good elasticity, graphite is brittle and can easily be broken if knocked, dropped or bumped.

How would you like your graphite?

The forms in which graphite manufacturers are expected to supply this material are as varied as the applications to which it is put. Please select the best form for your operation.

Graphite Blocks with Standard Dimensions

The graphite blocks listed in this catalog are blocks with standard dimensions, produced by cutting up larger blocks.

Cut-to-size Graphite Blocks

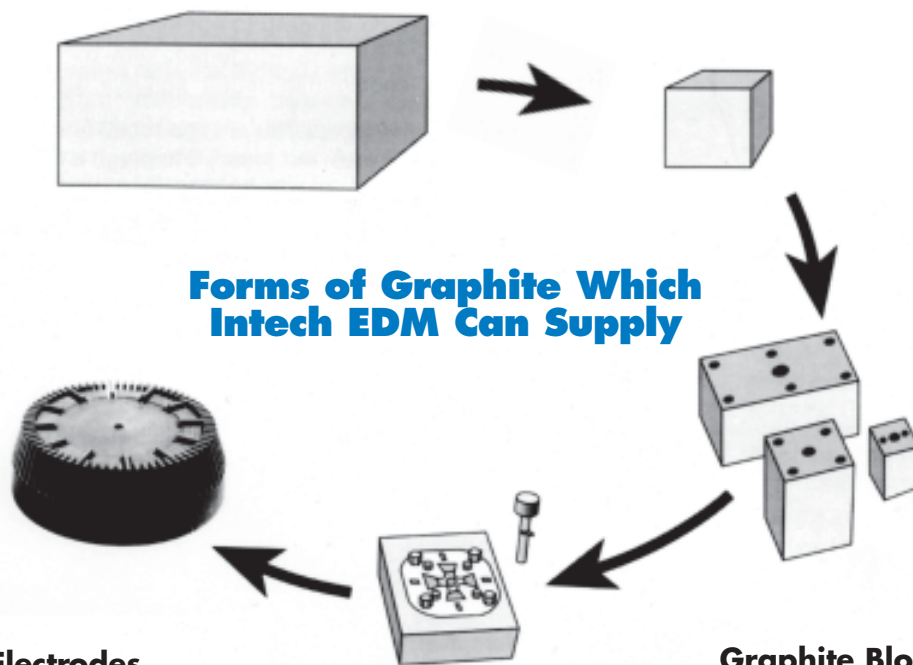
For these "cut-to-size" blocks, you give us the rough dimensions of your finished electrodes, and we cut the graphite to the size you require. This offers you the advantage of only buying the amount actually required for the job.

Precision Ground Graphite Blanks

Any block (or round or square) can also be precision ground to your exact size requirements. These are then suitable for use as precision electrodes for CNC machines or as reference blanks for further grinding or machining.

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Finished Electrodes to Customer's Specification

Our Custom Electrode Department specializes in electrode manufacture; for series production or for individual electrodes used in mold-making. The Custom Electrode Department has modern CNC machinery at its disposal. Your Intech EDM representative will be glad to give you more information. See Catalog Pages 3.19-21 for more information.

Graphite Blocks with Built-in Holder

If required, we can supply all grades of graphite with the electrode holder already built in. You send us the electrode holders for installation into the graphite blocks, or, even simpler, we buy them from the original manufacturer: just tell us your fastening system type and the exact position coordinates of the electrode holder.

Graphite Blocks Prepared for Your Tooling System

Under this variation, we cut the graphite block to your specification and fit it with the threaded holes and locating pins needed for your tooling system. All we need is for you to tell us your tooling system type and the exact designation of the electrode holder.

Micro-graph® Graphite Grade Selection

| Grade | Application |
|------------|---|
| MG3 | Isostatically molded, easily machined; suitable for "no-wear" operations and good finishes in standard polarity. Well suited for roughing and normal finishing. Recommended for large, roughing electrodes, forging dies, jobs with little detail, & high amperage cuts. Granular structure permits either negative or positive polarity. |
| MG4 | A dense, fine-grained graphite; recommended for large area eroding and large radius molds where metal removal rate is more important than surface finish. Available in large block sizes. |
| MG5 | Very popular, multi-purpose isostatically molded graphite; suitable for both roughing and finishing. Good strength, surface finish, and low wear resistance. Easily machined without flaking or chipping |
| MG6 | Isostatically molded, high density graphite. All-purpose grade for good detail, wear resistance, speed and finish. Ideal for use where roughing and finishing are done with the same electrode. |



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Micro-graph® Graphite Technical Specifications

| Grade | Identifying Color | Shore Hardness | Flexural Strength (psi) | Resistance (0.000 ohm/in.) | Particle Size (microns) |
|------------|-------------------|----------------|-------------------------|----------------------------|-------------------------|
| MG3 | Yellow / Green | 55 | 6,000 | 430 | 10 (Average) |
| MG4 | Pink | 62 | 7,400 | 500 | 8 (Average) |
| MG5 | Brown | 63 | 7,540 | 525 | 8 (Average) |
| MG6 | Brown/Pink | 62 | 11,630 | 510 | 10 |

Micro-graph® Graphite

Raw Blocks

Tolerance: All Dimensions Minimum

| Size (Inch) | | | Stock Availability & Catalog No. | | | |
|-------------|-------|--------|----------------------------------|--------|--------|--------|
| Thickness | Width | Length | MG-6 | MG-5 | MG-4 | MG-3 |
| 12 | 24 | 39 | | | GH2904 | GD2900 |
| 12 | 24 | 40 | GK2816 | | | |
| 12 | 24 | 47 | | GJ2818 | | |

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Graphite Cut "To Size"

All Intech EDM graphite can be cut to any size smaller than the raw blocks shown above. *All dimensions are minimum.* Simply specify the size needed and the finish according to the following definitions:

Sawcut – "Rough cut" by bandsaw to a tolerance of +1/8"/-0.

Sanded – Also referred to as "**surfaced**"; removes saw machining marks from top and bottom to a tolerance of +1/32"/0.

Ground Top & Bottom – Rough surface cleaned up by surface grinding, and ground parallel.

**Don't See the Size or Grade You Need? Call Us.
Special Sizes Available Quickly at Reasonable Cost.**

Micro-graph® Graphite

Graphite Electrodes

Bulk Plates

Tolerance: All Dimensions Minimum

| Size (Inch) | | | Stock Availability & Catalog No. | | | |
|-------------|-------|--------|----------------------------------|--------|--------|--------|
| Thickness | Width | Length | MG-6 | MG-5 | MG-4 | MG-3 |
| 1/4 | 12 | 12 | GK2032 | GJ2032 | GH2032 | |
| 1/2 | 12 | 12 | GK2076 | GJ2076 | GH2076 | |
| 3/4 | 12 | 12 | GK2092 | GJ2092 | GH2092 | |
| 1 | 4 | 6 | GK2140 | GJ2140 | GH2140 | |
| 1 | 12 | 12 | GK2192 | GJ2192 | GH2192 | GD2192 |
| 1 | 12 | 24 | GK2196 | GJ2196 | GH2196 | GD2196 |
| 1-1/2 | 6 | 12 | GK2260 | GJ2260 | GH2260 | |
| 1-1/2 | 12 | 12 | GK2264 | GJ2264 | GH2264 | |
| 1-1/2 | 12 | 24 | GK2268 | GJ2268 | GH2268 | GD2268 |
| 2 | 4 | 6 | | GJ2336 | GH2336 | |
| 2 | 8 | 6 | | GJ2360 | GH2360 | |
| 2 | 6 | 12 | GK2364 | GJ2364 | GH2364 | |
| 2 | 8 | 12 | GK2384 | GJ2384 | GH2384 | |
| 2 | 12 | 12 | GK2396 | GJ2396 | GH2396 | |
| 2 | 12 | 24 | GK2404 | GJ2404 | GH2404 | GD2404 |
| 2-1/2 | 12 | 12 | GK2449 | GJ2448 | GH2448 | GD2448 |
| 2-1/2 | 12 | 24 | GK2456 | GJ2456 | GH2456 | GD2456 |
| 3 | 12 | 12 | GK2520 | GJ2520 | GH2520 | GD2520 |
| 3 | 12 | 24 | | GJ2528 | GH2528 | GD2528 |
| 4 | 8 | 6 | GK2588 | GJ2588 | GH2588 | |
| 4 | 12 | 12 | GK2616 | GJ2616 | GH2616 | GD2616 |
| 5 | 12 | 12 | GK2672 | GJ2672 | GH2672 | GD2672 |
| 6 | 12 | 12 | GK2708 | GJ2708 | GH2708 | GD2708 |
| 6 | 12 | 24 | GK2712 | GJ2712 | GH2712 | GD2712 |

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Micro-graph® Graphite

Squares

Tolerance: +0.030/-0.000" (Surfaced)

| Size (Inch) | | Stock Availability & Catalog No. | | | |
|-------------|--------|----------------------------------|--------|--------|--------|
| Square | Length | MG-6 | MG-5 | MG-4 | MG-3 |
| 1/4 | 12 | GK4012 | GJ4012 | GH4012 | |
| 3/8 | 6 | GK4016 | GJ4016 | GH4016 | GD4016 |
| 3/8 | 12 | GK4020 | GJ4020 | GH4020 | GD4020 |
| 1/2 | 12 | GK4032 | GJ4032 | GH4032 | |
| 5/8 | 12 | GK4036 | GJ4036 | GH4036 | GD4036 |
| 3/4 | 12 | GK4044 | GJ4044 | GH4044 | GD4044 |
| 1 | 6 | GK4052 | GJ4052 | GH4052 | GD4052 |
| 1 | 12 | GK4056 | GJ4056 | GH4056 | GD4056 |

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Micro-graph® Graphite

Graphite Electrodes

Rounds

Diameter Tolerance: Size <.75" +0.005/-0.000"; Size ≥ .75" All Dimensions Minimum

| Size (Inch) | | Stock Availability & Catalog No. | | | |
|-------------|--------|----------------------------------|--------|--------|--------|
| Diameter | Length | MG-6 | MG-5 | MG-4 | MG-3 |
| 1/8 | 12 | GK0016 | GJ0016 | GH0016 | |
| 3/16 | 12 | GK0024 | GJ0024 | GH0024 | |
| 1/4 | 12 | GK0036 | GJ0036 | GH0036 | |
| 5/16 | 12 | GK0044 | GJ0044 | GH0044 | |
| 3/8 | 12 | GK0056 | GJ0056 | GH0056 | |
| 1/2 | 12 | GK0072 | GJ0072 | GH0072 | |
| 5/8 | 12 | GK0080 | GJ0080 | GH0080 | GD0080 |
| 3/4 | 12 | GK0088 | GJ0088 | GH0088 | GD0088 |
| 1 | 12 | GK0108 | GJ0108 | GH0108 | GD0108 |
| 1-1/2 | 12 | GK0124 | GJ0124 | GH0124 | |
| 2 | 12 | GK0140 | GJ0140 | GH0140 | |
| 3 | 12 | GK0156 | GJ0156 | GH0156 | |
| 4 | 12 | GK0176 | GJ0176 | GH0176 | |
| 5 | 12 | GK0196 | GJ0196 | GH0196 | |
| 6 | 12 | | GJ0204 | GH0204 | |

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POCO Graphite Grade Selection

Standard POCO Graphite Grades

| Grade | Application |
|----------------|---|
| EDM-100 | An isotropic, fine grain graphite with good strength, surface finish & wear resistance. Moderately priced; recommended for forging dies, large roughing electrodes and non-critical large electrodes. |
| EDM-150 | A mid-range fine grain graphite, which achieves fast metal removal rates with good wear characteristics for superior performance. Excellent consistency provides excellent repeatability from electrode to electrode and from job to job. |
| EDM-200 | An all-purpose, fine grain graphite for the majority of intermediate grade applications. Economical roughing material available in large block sizes for large molds, forgings, extrusion dies, etc. |

Fine Grain POCO Graphite Grades

| Quality | Application |
|----------------|--|
| EDM-1 | Lowest cost, ultrafine-grain POCO graphite; good resistance, speed and finish. Low fabrication cost for larger electrodes. An ideal roughing electrode material. |
| EDM-2 | An ultrafine-grain isotropic graphite with high strength and good wear; recommended where good detail, wear resistance, speed and finish are desired. Excellent all-purpose grade for super alloys. |
| EDM-3 | An ultrafine-grain isotropic graphite with high strength, outstanding wear, and fine finishing characteristics. Can effectively be machined to thicknesses of <0.005". |
| EDM-4 | A premier grade in the ultrafine category, this highly isotropic grade combines extraordinary strength with moderate hardness, and yields superior electrode fabrication characteristics. It's high degree of consistency makes it an excellent material for wire cut, intricate electrodes. |
| EDM-AF5 | The only graphite available with an average particle size of less than 1 micron; superior strength, excellent metal removal rate and high resistance to wear. Fine surface finishes (7Ra). |

Copper-impregnated POCO Graphite Grades

| Quality | Application |
|-----------------|---|
| EDM-C200 | Strong, high-density, copper-infiltrated graphite; similar to EDM 200 with improved stability of copper-graphite. Good wear resistance with excellent metal removal rate; stable in poor flushing conditions. |
| EDM-C3 | A high-density, very strong, ultrafine graphite infiltrated with copper; recommended where speed, wear and surface finish are important. Ideal for fragile electrodes or poor flushing conditions. |

POCO Graphite Technical Specifications

Graphite Electrodes

| Grade | Identifying Color | Shore Hardness | Flexural Strength (psi) | Resistance (ohm/in.) | Average Particle Size (microns) |
|-----------------|----------------------|----------------|-------------------------|----------------------|---------------------------------|
| EDM-100 | Turquoise | 58 | 6,500 | 480 | 20 |
| EDM-150 | Brown / White | 68 | 7,800 | 570 | 14 |
| EDM-200 | Purple | 64 | 9,000 | 480 | 10 |
| EDM-1 | White | 70 | 7,500 | 740 | <5 |
| EDM-2 | Yellow | 73 | 10,000 | 620 | <5 |
| EDM-3 | Red | 76 | 13,500 | 540 | <5 |
| EDM-4 | Blue | 76 | 15,800 | 500 | <4 |
| EDM-AF5 | Gold / Black Stripe | 87 | 17,000 | 680 | <1 |
| EDM-C200 | Green / White Stripe | 60 | 13,000 | 70 | 10 |
| EDM-C3 | Orange | 67 | 16,500 | 120 | <5 |

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Bulk Plates

Tolerance: All Dimensions Minimum

| Size (Inch) | | | Stock Availability & Catalog No. | | | | | | |
|-------------|-------|--------|----------------------------------|--------|--------|--------|--------|---------|---------|
| Thickness | Width | Length | EDM-AF5 | EDM-C3 | EDM-3 | EDM-2 | EDM-1 | EDM-200 | EDM-100 |
| 1 | 2 | 4 | GT2112 | | | | | | |
| 1 | 4 | 4 | GT2136 | | | | | | |
| 1 | 2 | 6 | GT2116 | GY2116 | GS2116 | GR2116 | GP2116 | | |
| 1 | 4 | 6 | GT2140 | GY2140 | GS2140 | GR2140 | GP2140 | | |
| 1 | 6 | 6 | GT2160 | GY2160 | GS2160 | GR2160 | GP2160 | | |
| 1 | 2 | 12 | | GY2120 | GS2120 | GR2120 | GP2120 | | |
| 1 | 4 | 12 | GT2144 | GY2144 | GS2144 | GR2144 | GP2144 | | |
| 1 | 6 | 12 | GT2168 | GY2168 | GS2168 | GR2168 | GP2168 | | |
| 1 | 8 | 12 | | | GS2180 | GR2180 | GP2180 | | |
| 1 | 12 | 12 | | | GS2192 | GR2192 | GP2192 | GW2192 | GV2192 |
| 1 | 2 | 24 | | | GS2128 | GR2128 | GP2128 | | |
| 1 | 4 | 24 | | | GS2152 | GR2152 | GP2152 | | |
| 1 | 6 | 24 | | | GS2172 | GR2172 | GP2172 | | |
| 1 | 12 | 24 | | | GS2196 | GR2196 | GP2196 | | |
| 1 | 2 | 40 | | | GS2132 | GR2132 | GP2132 | | |
| 1 | 4 | 40 | | | GS2156 | GR2156 | GP2156 | | |
| 1 | 6 | 40 | | | GS2176 | GR2176 | GP2176 | | |
| 1 | 12 | 40 | | | GS2200 | GR2200 | GP2200 | | |
| 1-1/2 | 2 | 6 | | GY2236 | GS2236 | | | | |
| 1-1/2 | 4 | 6 | | GY2244 | GS2244 | | | | |
| 1-1/2 | 6 | 6 | | GY2256 | GS2256 | | | | |
| 1-1/2 | 2 | 12 | | GY2240 | GS2240 | | | | |
| 1-1/2 | 4 | 12 | | GY2248 | GS2248 | | | | |
| 1-1/2 | 6 | 12 | | GY2260 | GS2260 | | | | |
| 1-1/2 | 12 | 12 | | | GS2264 | GR2264 | | GW2264 | |
| 1-1/2 | 4 | 18 | | GY2252 | GS2252 | GR2252 | | | |
| 2 | 2 | 6 | | | GS2300 | GR2300 | GP2300 | | |
| 2 | 4 | 6 | GT2336 | GY2336 | GS2336 | GR2336 | GP2336 | | |
| 2 | 6 | 6 | GT2356 | GY2356 | GS2356 | GR2356 | GP2356 | | |
| 2 | 2 | 12 | | | GS2304 | GR2304 | GP2304 | | |
| 2 | 4 | 12 | GT2340 | GY2340 | GS2340 | GR2340 | GP2340 | | |
| 2 | 6 | 12 | GT2364 | GY2364 | GS2364 | GR2364 | GP2364 | | |
| 2 | 8 | 12 | | GY2384 | GS2384 | GR2384 | GP2384 | | |
| 2 | 12 | 12 | | | GS2396 | GR2396 | GP2396 | GW2396 | GV2396 |
| 2 | 2 | 24 | | | GS2308 | GR2308 | GP2308 | | |
| 2 | 4 | 24 | | | GS2348 | GR2348 | GP2348 | | |

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POCO Graphite

Bulk Plates

Tolerance: All Dimensions Minimum

| Size (Inch) | | | Stock Availability & Catalog No | | | |
|-------------|-------|--------|---------------------------------|--------|---------|---------|
| Thickness | Width | Length | EDM-3 | EDM-2 | EDM-200 | EDM-100 |
| 2 | 6 | 24 | GS2372 | GR2372 | | |
| 2 | 12 | 24 | GS2404 | | GW2404 | |
| 2-1/2 | 12 | 12 | GS2448 | GR2448 | GW2448 | |
| 3 | 2 | 6 | GS2316 | | | |
| 3 | 4 | 6 | GS2484 | | | |
| 3 | 6 | 6 | GS2500 | GR2500 | | |
| 3 | 2 | 12 | GS2320 | | | |
| 3 | 12 | 12 | GS2520 | GR2520 | GW2520 | GV2520 |
| 4 | 6 | 12 | GS2592 | GR2592 | | |
| 4 | 8 | 12 | GS2608 | GR2608 | | |
| 4 | 12 | 12 | GS2616 | GR2616 | GW2616 | |
| 4 | 6 | 24 | GS2600 | | | |
| 4 | 12 | 24 | GS2632 | GR2632 | GW2632 | |

**Graphite
Electrodes**

EDM

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POCO Graphite

Raw Blocks

Tolerance: All Dimensions Minimum

| Size (Inch) | | | Stock Availability & Catalog No. | | | | | | | | |
|-------------|-------|--------|----------------------------------|--------|--------|--------|--------|--------|---------|---------|---------|
| Thickness | Width | Length | EDM-AF5 | EDM-C3 | EDM-4 | EDM-3 | EDM-2 | EDM-1 | EDM-200 | EDM-150 | EDM-100 |
| 2 | 8 | 12 | GT2384 | GY2384 | | | | | | | |
| 2 | 8 | 24 | GT2392 | | | | | | | | |
| 4 | 12 | 40 | | | GU2636 | GS2636 | GR2636 | GP2636 | | | |
| 6 | 24 | 60 | | | | | | | GW2738 | G15999 | GV2738 |

Graphite Cut "To Size"

All Intech EDM graphite can be cut to any size smaller than the raw blocks shown above. *All dimensions are minimum.* Simply specify the size needed and the finish according to the following definitions:

Sawcut – "Rough cut" by bandsaw to a tolerance of +1/8"/-0.

Sanded – Also referred to as "**surfaced**"; removes saw machining marks from top and bottom to a tolerance of +1/32"/0.

Ground Top & Bottom – Rough surface cleaned up by surface grinding, and ground parallel.

Flat Plates

Tolerance: Thickness +0.030/-0.000" (Surfaced)

| Size (Inch) | | | Stock Availability & Catalog No. | | | | | |
|-------------|-------|--------|----------------------------------|--------|--------|--------|---------|---------|
| Thickness | Width | Length | EDM-C3 | EDM-3 | EDM-2 | EDM-1 | EDM-200 | EDM-100 |
| 1/8 | 4 | 6 | GY2004 | GS2004 | GR2004 | GP2004 | | |
| 3/16 | 4 | 6 | GY2020 | GS2020 | GR2020 | GP2020 | | |
| 1/4 | 4 | 6 | GY2028 | GS2028 | GR2028 | GP2028 | | |
| 3/8 | 4 | 6 | GY2052 | GS2052 | GR2052 | GP2052 | | |
| 1/2 | 4 | 6 | GY2068 | GS2068 | GR2068 | GP2068 | | |
| 5/8 | 4 | 6 | GY2082 | GS2082 | GR2082 | GP2082 | | |
| 3/4 | 4 | 6 | GY2090 | GS2090 | GR2090 | GP2090 | | |
| 1/8 | 12 | 12 | | GS2008 | GR2008 | GP2008 | GW8024 | GV8024 |
| 3/16 | 12 | 12 | | GS2026 | GR2026 | GP2026 | | |
| 1/4 | 12 | 12 | | GS2032 | GR2032 | GP2032 | GW8064 | GV8064 |
| 3/8 | 12 | 12 | | GS2056 | GR2056 | GP2056 | GW8092 | GV8092 |
| 1/2 | 12 | 12 | | GS2076 | GR2076 | GP2076 | GW8124 | GV8124 |
| 5/8 | 12 | 12 | | GS2084 | GR2084 | GP2084 | GW8128 | GV8128 |
| 3/4 | 12 | 12 | | GS2092 | GR2092 | GP2092 | GW8156 | GV8156 |

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POCO Graphite

Precision Plates

Thickness Tolerance: Size <.125" +0.001/-0.000" (Ground); Size ≥ .125" +0.005/-0.000"

| Size (Inch) | | | Stock Availability & Catalog No. | | | |
|-------------|-------|--------|----------------------------------|--------|--------|--------|
| Thickness | Width | Length | EDM-C3 | EDM-3 | EDM-2 | EDM-1 |
| 0.015 | 4 | 6 | GY1008 | | | |
| 0.02 | 4 | 6 | GY1012 | GS1012 | | |
| 0.025 | 4 | 6 | GY1016 | GS1016 | | |
| 0.03 | 4 | 6 | GY1020 | GS1020 | | |
| 0.035 | 4 | 6 | GY1024 | GS1024 | | |
| 0.04 | 4 | 6 | GY1028 | | | |
| 0.045 | 4 | 6 | GY1032 | | | |
| 0.05 | 4 | 6 | GY1036 | | | |
| 0.055 | 4 | 6 | GY1040 | | | |
| 0.06 | 4 | 6 | GY1042 | | | |
| 0.065 | 4 | 6 | GY1046 | | | |
| 0.07 | 4 | 6 | GY1050 | | | |
| 0.075 | 4 | 6 | GY1054 | | | |
| 0.08 | 4 | 6 | GY1056 | | | |
| 0.085 | 4 | 6 | GY1060 | | | |
| 0.09 | 4 | 6 | GY1064 | | | |
| 0.095 | 4 | 6 | GY1068 | | | |
| 0.125 | 4 | 6 | | GS8016 | | GP8016 |
| 0.187 | 4 | 6 | | GS8036 | GR8036 | GP8036 |
| 0.25 | 4 | 6 | | GS8056 | | GP8056 |
| 0.375 | 4 | 6 | | GS8084 | GR8084 | GP8084 |
| 0.5 | 4 | 6 | | GS8108 | GR8108 | GP8108 |
| 0.75 | 4 | 6 | | GS8140 | | GP8140 |
| 0.5 | 4 | 12 | | GS8112 | GR8112 | GP8112 |
| 0.75 | 4 | 12 | | GS8144 | | GP8144 |
| 0.5 | 6 | 6 | | GS8116 | | GP8116 |
| 0.75 | 6 | 6 | | GS8148 | GR8148 | GP8148 |
| 0.5 | 6 | 12 | | GS8120 | GR8120 | GP8120 |
| 0.75 | 6 | 12 | | GS8152 | GR8152 | GP8152 |

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Rounds

Diameter Tolerance: Size <.75" +0.005/-0.000"; Size ≥ .75" All Dimensions Minimum

| Size (Inch) | | Stock Availability & Catalog No. | | | | |
|-------------|--------|----------------------------------|--------|--------|--------|--------|
| Diameter | Length | EDM -AF5 | EDM-C3 | EDM-3 | EDM-2 | EDM-1 |
| 1/16 | 6 | | GY0004 | GS0004 | GR0004 | GP0004 |
| 1/16 | 12 | | GY0008 | GS0008 | GR0008 | GP0008 |
| 1/8 | 6 | GT0012 | GY0012 | GS0012 | GR0012 | GP0012 |
| 1/8 | 12 | | GY0016 | GS0016 | GR0016 | GP0016 |
| 3/16 | 6 | | GY0020 | GS0020 | GR0020 | GP0020 |
| 3/16 | 12 | | GY0024 | GS0024 | GR0024 | GP0024 |
| 1/4 | 6 | GT0032 | GY0032 | GS0032 | GR0032 | GP0032 |
| 1/4 | 12 | | GY0036 | GS0036 | GR0036 | GP0036 |
| 5/16 | 6 | | GY0040 | GS0040 | GR0040 | GP0040 |
| 5/16 | 12 | | GY0044 | GS0044 | GR0044 | GP0044 |
| 3/8 | 6 | GT0052 | GY0052 | GS0052 | GR0052 | GP0052 |
| 3/8 | 12 | | GY0056 | GS0056 | GR0056 | GP0056 |
| 7/16 | 6 | | GY0060 | GS0060 | GR0060 | GP0060 |
| 7/16 | 12 | | GY0064 | GS0064 | GR0064 | GP0064 |
| 1/2 | 6 | GT0068 | GY0068 | GS0068 | GR0068 | GP0068 |
| 1/2 | 12 | | GY0072 | GS0072 | GR0072 | GP0072 |
| 5/8 | 6 | GT0076 | GY0076 | GS0076 | GR0076 | GP0076 |
| 5/8 | 12 | | GY0080 | GS0080 | GR0080 | GP0080 |
| 3/4 | 6 | | GY0084 | GS0084 | GR0084 | GP0084 |
| 3/4 | 12 | GT0088 | GY0088 | GS0088 | GR0088 | GP0088 |
| 1 | 6 | | GY0104 | GS0104 | GR0104 | GP0104 |
| 1 | 12 | GT0108 | GY0108 | GS0108 | GR0108 | GP0108 |
| 1-1/4 | 6 | | GY0112 | GS0112 | GR0112 | GP0112 |
| 1-1/4 | 12 | GT0116 | GY0116 | GS0116 | GR0116 | GP0116 |
| 1-1/2 | 6 | | GY0120 | GS0120 | GR0120 | GP0120 |
| 1-1/2 | 12 | GT0124 | GY0124 | GS0124 | GR0124 | GP0124 |
| 1-3/4 | 6 | | GY0128 | GS0128 | GR0128 | GP0128 |
| 1-3/4 | 12 | | GY0132 | GS0132 | GR0132 | GP0132 |
| 2 | 6 | | GY0136 | GS0136 | GR0136 | GP0136 |
| 2 | 12 | GT0140 | GY0140 | GS0140 | GR0140 | GP0140 |
| 2-1/4 | 12 | | GY0144 | GS0144 | GR0144 | GP0144 |
| 3 | 6 | | GY0152 | GS0152 | | GP0152 |
| 3 | 12 | | GY0156 | GS0156 | GR0156 | GP0156 |
| 3 | 18 | | | GS0160 | | |
| 4 | 6 | | GY0172 | GS0172 | GR0172 | GP0172 |
| 4 | 12 | GT0176 | GY0176 | GS0176 | GR0176 | GP0176 |

Note: EDM-AF5 rods, in diameters from 1/8" to and including 1/2", are sold in packs of 10. All other sizes are sold individually.

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POCO Graphite

Graphite Electrodes

Rounds

Diameter Tolerance: Size <.75" +0.005/-0.000"; Size ≥ .75" All Dimensions Minimum

| Size (Inch) | | Stock Availability & Catalog No. | | |
|-------------|--------|----------------------------------|--------|--------|
| Diameter | Length | EDM-3 | EDM-2 | EDM-1 |
| 4 | 18 | GS0180 | | |
| 5 | 6 | GS0192 | GR0192 | GP0192 |
| 5 | 12 | | GR0196 | GP0196 |
| 6 | 6 | GS0200 | GR0200 | GP0200 |
| 6 | 12 | GS0204 | GR0204 | GP0204 |

Squares

Tolerance: +0.030/-0.000" (Surfaced)

| Size (Inch) | | Stock Availability & Catalog No. | | | |
|-------------|--------|----------------------------------|--------|--------|--------|
| Square | Length | EDM-C3 | EDM-3 | EDM-2 | EDM-1 |
| 1/4 | 6 | GY4008 | GS4008 | GR4008 | GP4008 |
| 1/4 | 12 | GY4012 | GS4012 | GR4012 | GP4012 |
| 3/8 | 6 | GY4016 | GS4016 | GR4016 | GP4016 |
| 3/8 | 12 | GY4020 | GS4020 | GR4020 | GP4020 |
| 1/2 | 6 | GY4028 | GS4028 | GR4028 | GP4028 |
| 1/2 | 12 | GY4032 | GS4032 | GR4032 | GP4032 |
| 3/4 | 6 | GY4040 | GS4040 | GR4040 | GP4040 |
| 3/4 | 12 | GY4044 | GS4044 | GR4044 | GP4044 |
| 1 | 6 | GY4052 | GS4052 | GR4052 | GP4052 |
| 1 | 12 | GY4056 | GS4056 | GR4056 | GP4056 |
| 1-1/2 | 6 | GY4060 | GS4060 | GR4060 | GP4060 |
| 1-1/2 | 12 | GY4064 | GS4064 | GR4064 | GP4064 |
| 2 | 6 | GY4072 | GS4072 | GR4072 | GP4072 |
| 2 | 12 | GY4076 | GS4076 | GR4076 | GP4076 |

Tubes

Tolerance: Diameter +0.001/-0.000" (Ground)

| Size (Inch) | | | Stock Availability & Catalog No. | |
|-------------|------------|--------|----------------------------------|--------|
| Outer Dia. | Inner Dia. | Length | EDM-C3 | EDM-3 |
| 0.125 | 0.046 | 6 | GY3108 | GS3108 |
| 0.187 | 0.062 | 6 | GY3116 | |
| 0.25 | 0.125 | 6 | GY3128 | |
| 0.312 | 0.187 | 6 | GY3136 | GS3136 |
| 0.375 | 0.25 | 6 | GY3148 | GS3148 |
| 0.437 | 0.312 | 6 | GY3160 | GS3160 |
| 0.5 | 0.375 | 6 | GY3168 | GS3168 |

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POCO Graphite

Rods (POCO EDM-C3)

Tolerance: Diameter ± 0.0002 " **Note:** All sizes sold in packs of 10.

| Size (Inch) | | Stock Availability & Catalog No. |
|-------------|--------|----------------------------------|
| Diameter | Length | EDM-C3 |
| 0.012 | 12 | GY9004 |
| 0.015 | 12 | GY9008 |
| 0.016 | 12 | GY9012 |
| 0.017 | 12 | GY9016 |
| 0.018 | 12 | GY9020 |
| 0.022 | 12 | GY9024 |
| 0.025 | 12 | GY9028 |
| 0.027 | 12 | GY9032 |
| 0.028 | 12 | GY9036 |
| 0.029 | 12 | GY9040 |
| 0.030 | 12 | GY9044 |
| 0.035 | 12 | GY9048 |
| 0.040 | 12 | GY9052 |
| 0.041 | 12 | GY9056 |
| 0.043 | 12 | GY9060 |
| 0.045 | 12 | GY9064 |
| 0.047 | 12 | GY9068 |
| 0.049 | 12 | GY9072 |
| 0.050 | 12 | GY9076 |
| 0.052 | 12 | GY9080 |
| 0.053 | 12 | GY9084 |
| 0.055 | 12 | GY9088 |

| Size (Inch) | | Stock Availability & Catalog No. |
|-------------|--------|----------------------------------|
| Diameter | Length | EDM-C3 |
| 0.056 | 12 | GY9092 |
| 0.058 | 12 | GY9096 |
| 0.059 | 12 | GY9100 |
| 0.060 | 12 | GY9104 |
| 0.061 | 12 | GY9108 |
| 0.062 | 12 | GY9112 |
| 0.063 | 12 | GY9116 |
| 0.066 | 12 | GY9120 |
| 0.078 | 12 | GY9124 |
| 0.079 | 12 | GY9128 |
| 0.081 | 12 | GY9132 |
| 0.085 | 12 | GY9136 |
| 0.089 | 12 | GY9140 |
| 0.094 | 12 | GY9148 |
| 0.099 | 12 | GY9152 |
| 0.105 | 12 | GY9156 |
| 0.110 | 12 | GY9160 |
| 0.118 | 12 | GY9164 |
| 0.120 | 12 | GY9168 |
| 0.090 | 18 | GY9144 |
| 0.120 | 18 | GY9172 |

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3Ready-To-Run Electrode Blanks

Pre-Mounted on MacroJunior Holders

Save time, and money, preparing, setting-up and machining your electrodes with round and square POCO graphite blanks pre-mounted to System 3R MacroJunior Holders.

The down-time caused by the material mounting process is virtually eliminated, creating greater productivity in your shop. In addition to saving materials and labor, the inexpensive holder makes it feasible to store reference electrodes for later use.

Competitive pricing makes these pre-mounted blanks less costly than spending your time preparing and mounting the blanks yourself (based on current shop labor rates).

Specials – need different sizes, tungsten copper, or a different grade of graphite? No problem; we can supply these to order to your specifications.



Note: Pre-mounted blanks are furnished at nominal dimensions.

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Rounds

| Size (Inch) | | POCO Grade | Catalog No. | POCO Grade | Catalog No. |
|-------------|--------|------------|--------------------|------------|--------------------|
| Dia. | Length | | | | |
| .625 | 2 | EDM-200 | AR3R-US492D-.625-2 | EDM-3 | AR3R-US493D-.625-2 |
| .625 | 3 | EDM-200 | AR3R-US492D-.625-3 | EDM-3 | AR3R-US493D-.625-3 |
| .750 | 2 | EDM-200 | AR3R-US492D-.75-2 | EDM-3 | AR3R-US493D-.75-2 |
| .750 | 3 | EDM-200 | AR3R-US492D-.75-3 | EDM-3 | AR3R-US493D-.75-3 |
| 1.00 | 2 | EDM-200 | AR3R-US492D-1-2 | EDM-3 | AR3R-US493D-1-2 |
| 1.00 | 3 | EDM-200 | AR3R-US492D-1-3 | EDM-3 | AR3R-US493D-1-3 |
| 1.25 | 2 | EDM-200 | AR3R-US492D-1.25-2 | EDM-3 | AR3R-US493D-1.25-2 |
| 1.25 | 3 | EDM-200 | AR3R-US492D-1.25-3 | EDM-3 | AR3R-US493D-1.25-3 |
| 1.50 | 2 | EDM-200 | AR3R-US492D-1.5-2 | EDM-3 | AR3R-US493D-1.5-2 |
| 1.50 | 3 | EDM-200 | AR3R-US492D-1.5-3 | EDM-3 | AR3R-US493D-1.5-3 |
| 1.75 | 2 | EDM-200 | AR3R-US492D-1.75-2 | EDM-3 | AR3R-US493D-1.75-2 |
| 1.75 | 3 | EDM-200 | AR3R-US492D-1.75-3 | EDM-3 | AR3R-US493D-1.75-3 |
| 2.00 | 2 | EDM-200 | AR3R-US492D-2-2 | EDM-3 | AR3R-US493D-2-2 |
| 2.00 | 3 | EDM-200 | AR3R-US492D-2-3 | EDM-3 | AR3R-US493D-2-3 |
| .625 | 2 | EDM-C3 | AR3R-US496D-.625-2 | — | — |
| .750 | 2 | EDM-C3 | AR3R-US496D-.75-2 | — | — |

– Continued on next page.

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POCO Graphite 3 Ready-To-Run Electrode Blanks Pre-Mounted on MacroJunior Holders

– continued

Squares

| Size (Inch) | | POCO Grade | Catalog No. | POCO Grade | Catalog No. |
|-------------|--------|---------------|--------------------|---------------|--------------------|
| Square | Length | | | | |
| .625 | 2 | EDM-200 | AR3R-US492S-.625-2 | EDM-3 | AR3R-US493S-.625-2 |
| .625 | 3 | EDM-200 | AR3R-US492S-.625-3 | EDM-3 | AR3R-US493S-.625-3 |
| .750 | 2 | EDM-200 | AR3R-US492S-.75-2 | EDM-3 | AR3R-US493S-.75-2 |
| .750 | 3 | EDM-200 | AR3R-US492S-.75-3 | EDM-3 | AR3R-US493S-.75-3 |
| 1.00 | 2 | EDM-200 | AR3R-US492S-1-2 | EDM-3 | AR3R-US493S-1-2 |
| 1.00 | 3 | EDM-200 | AR3R-US492S-1-3 | EDM-3 | AR3R-US493S-1-3 |
| 1.25 | 2 | EDM-200 | AR3R-US492S-1.25-2 | EDM-3 | AR3R-US493S-1.25-2 |
| 1.25 | 3 | EDM-200 | AR3R-US492S-1.25-3 | EDM-3 | AR3R-US493S-1.25-3 |
| 1.50 | 2 | EDM-200 | AR3R-US492S-1.5-2 | EDM-3 | AR3R-US493S-1.5-2 |
| 1.50 | 3 | EDM-200 | AR3R-US492S-1.5-3 | EDM-3 | AR3R-US493S-1.5-3 |
| 1.75 | 2 | EDM-200 | AR3R-US492S-1.75-2 | EDM-3 | AR3R-US493S-1.75-2 |
| 1.75 | 3 | EDM-200 | AR3R-US492S-1.75-3 | EDM-3 | AR3R-US493S-1.75-3 |
| 2.00 | 2 | EDM-200 | AR3R-US492S-2-2 | EDM-3 | AR3R-US493S-2-2 |
| 2.00 | 2.5 | EDM-200 | AR3R-US492S-2-2.5 | EDM-3 | AR3R-US493S-2-2.5 |
| 2.00 | 3 | EDM-200 | AR3R-US492S-2-3 | EDM-3 | AR3R-US493S-2-3 |

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TTK-4 Graphite

TTK-4 is a premium-grade, isotropic, ultra-fine grain EDM graphite, offering:

- Excellent machinability
- High strength and outstanding wear
- Outstanding performance in producing fine detail
- Excellent choice for fine finishing

Technical Specifications

| Grade | Identifying Color | Shore Hardness | Flexural Strength (psi) | Resistance (ohm/in.) | Particle Size (microns) |
|--------------|-------------------|----------------|-------------------------|----------------------|-------------------------|
| TTK-4 | Silver | 66 | 11,000 | 560 | <5 |

Rectangles

| Size (Inch) | | | Stock Availability & Catalog No. | Style |
|-------------|-------|--------|----------------------------------|------------|
| Thickness | Width | Length | | |
| 1/8 | 12 | 12 | GL2008 | Bulk Plate |
| 3/16 | 12 | 12 | GL2026 | Bulk Plate |
| 1/4 | 12 | 12 | GL2032 | Bulk Plate |
| 3/8 | 12 | 12 | GL2056 | Bulk Plate |
| 1/2 | 12 | 12 | GL2076 | Bulk Plate |
| 5/8 | 12 | 12 | GL2084 | Bulk Plate |
| 3/4 | 12 | 12 | GL2092 | Bulk Plate |
| 1 | 4 | 6 | GL2140 | Bulk Plate |
| 1 | 6 | 12 | GL2168 | Bulk Plate |
| 1 | 12 | 12 | GL2192 | Bulk Plate |
| 1 | 12 | 24 | GL2196 | Bulk Plate |
| 1-1/2 | 12 | 12 | GL2264 | Bulk Plate |
| 2 | 4 | 6 | GL2336 | Bulk Plate |
| 2 | 4 | 12 | GL2340 | Bulk Plate |
| 2 | 6 | 12 | GL2364 | Bulk Plate |
| 2 | 8 | 12 | GL2384 | Bulk Plate |
| 2 | 12 | 12 | GL2396 | Bulk Plate |
| 3 | 12 | 12 | GL2520 | Bulk Plate |
| 3 | 12 | 24 | GL2528 | Bulk Plate |
| 4 | 12 | 12 | GL2616 | Bulk Plate |
| 6 | 12 | 24 | GL2712 | Raw Block |

Rounds

| Size (Inch) | | Stock Availability & Catalog No. |
|-------------|--------|----------------------------------|
| Diameter | Length | |
| 1/4 | 12 | GL0036 |
| 3/8 | 12 | GL0056 |
| 1/2 | 12 | GL0072 |
| 5/8 | 12 | GL0080 |
| 3/4 | 12 | GL0088 |
| 1 | 12 | GL0108 |
| 2 | 12 | GL0140 |
| 3 | 12 | GL0156 |
| 4 | 12 | GL0176 |

Squares

| Size (Inch) | | Stock Availability & Catalog No. |
|-------------|--------|----------------------------------|
| Square | Length | |
| 1/4 | 12 | GL4012 |
| 3/8 | 12 | GL4020 |
| 1/2 | 12 | GL4032 |
| 3/4 | 12 | GL4044 |
| 1 | 12 | GL4056 |
| 2 | 12 | GL4076 |

Tolerances

Bulk Plates & Raw Blocks: All Dimensions Minimum

Rounds: Sizes <.75" +0.005/-0.000"; Sizes ≥.75" All Dimensions Minimum

Squares: +0.030/-0.000" (Surfaced)

**Don't See the Size or Grade You Need? Call Us.
Special Sizes Available Quickly at Reasonable Cost.**

TTK-4C Graphite

TTK-4C is a premium-grade, isotropic, ultra-fine grain EDM graphite, which is optimized for:

- Burning into carbides
- Fine, detailed electrodes
- Drilling small holes
- Threading electrodes
- Aerospace applications
- Available in sizes and shapes to order.

Technical Specifications

| Grade | Identifying Color | Shore Hardness | Flexural Strength (psi) | Resistance (ohm/in.) | Particle Size (microns) |
|---------------|-------------------|----------------|-------------------------|----------------------|-------------------------|
| TTK-4C | Orange / White | 60 | 15,500 | 100 | <5 |

EDM

**U.S.A. Toll-free
1-800-323-0295**
Canada Toll-free
1-800-243-5853

TTK-50 Graphite

TTK-50 is a premium-grade, isotropic, fine-grain EDM graphite, which is optimized for:

- Forging dies
- Die casting dies
- Large plastic injection molds
- Large blow molds
- Available in sizes and shapes to order, up to a raw block size of 12 x 24 x 47".

Technical Specifications

| Grade | Identifying Color | Shore Hardness | Flexural Strength (psi) | Resistance (ohm/in.) | Particle Size (microns) |
|---------------|-------------------|----------------|-------------------------|----------------------|-------------------------|
| TTK-50 | Gold / White | 72 | 9,135 | 565 | 8 |

TTK-50 Ordering Information

| Size (Inch) | | | Catalog No. | |
|-------------|-------|--------|-------------|-----------|
| Thickness | Width | Length | Bulk Plate | Raw Block |
| 1 | 12 | 12 | GM2192 | |
| 2 | 12 | 12 | GM2396 | |
| 12 | 24 | 47 | | GM2818 |

**Don't See the Size or Grade You Need? Call Us.
Special Sizes Available Quickly at Reasonable Cost.**