

GRAPHITE ANODES

Manufactured from high quality petroleum coke and coal tar pitch, graphite is an excellent material for use as an inert anode.

Typical Applications

Graphite anodes will operate in any aqueous environment but offer exceptional protection in free flowing seawater and high chloride environments. However, although suitable for conventional and deep groundbed applications, they perform best in dry soil conditions.

Advantages of Graphite Anodes

- Readily available in a variety of sizes
- Relatively inexpensive
- A good conductor of electricity
- High ratio of surface area to weight enhances low current density current discharge and low resistance to electrolyte
- Is chemically resistant
- Does not form a high resistance layer of corrosion product
- Easy to machine

Standard Graphite Anodes

The standard CCEL graphite anode is available in sizes: 2" x 60", 2 1/2" x 60", 3" x 30", 3" x 60" and 4" x 72" (50mm x 1524mm, 64mm x 1524mm, 76mm x 762mm, 76mm x 1524mm, 102mm x 1829mm)

Non-standard anodes may be available upon request.

Waterproofing

Inherently porous, graphite anodes can be impregnated with phenolic resin or linseed oil for added protection against water penetration.

This treatment can greatly reduce electrochemical reaction occurring in the pores of the graphite material, thus improving the stability and wear rate of the anode.

Typical Properties

Bulk Density	g/cm sq	1.62
Apparent Porosity	%	24
Grain Size	mm	1.50
Ash	%	0.16
Sulphur	%	0.01
Specific Resistance	Ohms/mm sq	8.6

Cable Connection

It is important to select the right cable connection for the environment in which the anode will be buried, therefore, cable is supplied according to individual requirements. For the complete range of CCEL KATHODICA cable see relevant data sheet. CCEL recommend epoxy resin encapsulation or a heat-shrink cap as a final protective measure.

Packaged Anodes

Graphite anodes are available bare or pre-packaged in canisters surrounded by carbonaceous backfill. Use of backfill increases the graphite anode's discharge surface area and lowers anode-to-earth resistance.

Quality Assurance

The grade of material and its accompanying properties are important when considering graphite anodes. CCEL operates a formal Quality Assurance system and is approved to ISO 9001.

Environment	Current Density, Amps/m ²	Consumption Rate, kg/Amp/Year
Fresh Water	3	0-0.2
Sea Water	10	0.1-0.2
Carbonaceous Backfill (wet)	10	0.05-0.1
Carbonaceous Backfill (dry)	10	negligible

