

# Epoxy Mica Capacitors (80 pF)

*Partial Discharge Sensors for Testing High Voltage Electrical Equipment*



Iris Power's durable Epoxy Mica Capacitors (EMCs) are designed to detect Partial Discharge (PD) activity in electrical equipment (AC motors, generators, switchgear and dry-type transformers) while not imposing on the machines operation or reliability in any way.



***Over 16,000 Iris Power Epoxy Mica Capacitors are in service around the world, and have accumulated tens-of-millions of hours of reliable operation.***

EMCs are permanently installed (minimum one per phase) as close as possible to the equipment to be monitored to maximize sensitivity. In order to improve noise separation, the EMCs are installed directionally or differentially, depending on the equipment.

Iris Power's 80pF EMCs are designed to block the 50/60Hz power and allow only high frequency (>40MHz) signals to pass through, be collected and analyzed by an appropriate Iris Power portable instrument or continuous monitor.

PD monitoring is applicable to diverse equipment installations. That is why Iris Power offers four different voltage-rated capacitive couplers – 6.9kV, 16kV, 25kV and 28kV– the choice of which to install is dependent on the operating voltage of equipment.

## **UNIQUE FEATURES**

### *Mica Splittings Dielectric*

EMCs are safe for use in operating equipment because they have excellent electrical properties due to an 80 mm (3 inch) layer of epoxy impregnated mica splittings as the main dielectric. In comparison, a typical 13.8kV stator coil has only about 3 mm (0.25 inch) thickness of epoxy mica paper.

### *Voltage Endurance Testing*

Independent voltage endurance testing (IEEE 1043) proved that Iris Power EMCs withstand over 1000 hours at 30kVrms. According to statistical methods (IEEE 930-1987) this translates into 60,000 years of use at normal operating voltage. By comparison, the average 13.8kV coil is expected to withstand only 400 hours of exposure to 30kVrms. The EMCs excellent endurance and thermal stability is due to the use of mica splittings, as opposed to mica paper or ceramics.

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## SPECIFICATIONS

	EMC Voltage Rating			
	6.9 kV	16kV	25kV	28kV
DEV @ 1pC (kV)	8	15	25	28
AC Hipot (kVrms)	15	33	51	57
Mass (kg)	1.1	1.6	2.3	2.3
Height	92mm (3.6")	127mm (5.0")	206mm (8.1")	206mm (8.1")
Diameter	89mm (3.5")	89mm (3.5")	89mm (3.5")	89mm (3.5")

### DC and Impulse Capability (BIL)

Iris Power EMCs have been independently tested to DC hipot and lightning impulse strengths far greater than any other apparatus in its voltage class. For example, Iris Power 16kV EMCs have passed:

- 150kV DC hipot (50kV required by ANSI C37.20.2)
- 150kV impulse (95kV required by ANSI C37.20.2)

### Hazardous Locations

These EMCs can be used with Iris Power instruments certified for hazardous locations provided that they are installed in the appropriate enclosure to comply with the ATEX directive or UL certification for hazardous locations.

### Radiation Environments

EMC kits with installation material according to IEEE 323-1983 for Nuclear Power Generating Stations are available.

### Other Specifications

- Mica Splittings Dielectric
- Voltage endurance tested (IEEE 1043) to >1000 hours at 30kVrms
- Capacitance rating: 80pF +/- 4pF
- Dissipation factor: 0.10%
- Sensitivity: 1 pC (ASTM D1868 and IEC 60270)
- Bandwidth: (-3dB); 40MHz to 350MHz
- Operating temperature range: -50°C to +130°C (-67°F to +266°F)
- Electrical Tracking Resistant (ANSI/IEEE C37.20.2)
- 60,000 year life (IEEE 930-1987)
- Thermal Cycle Testing to -40°C to +150°C



Iris Power EMCs are sold individually or in coupler kits complete with all installation materials including the silicone rubber insulating boot (EMC boot) shown here.

Where required, insulating tapes are available.



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