Vibro-Meter®

Coupling capacitors

Models CC 308, CC 316 and CC 328

The CC 308, CC 316 and CC 328, from Meggitt's Vibro-Meter product line, are a series of coupling capacitors (CCs) designed to monitor partial discharge (PD).

A partial discharge is a localized electrical discharge in an insulation system that does not completely bridge the electrodes. PDs usually occur in voids and gaps in high-voltage insulation and are a leading indicator of insulation breakdown and can lead to destruction, if not addressed.

The design and construction of Meggitt's CCs utilizes 'virgin' mica splittings (rather than mica paper or ceramics) and a special, high-performance epoxy in order to provide the most stable and reliable performance over the lifetime of your equipment. The epoxy resin used in the CCs is specifically designed for high-voltage insulator applications and provides excellent insulation properties, high mechanical properties and superior resistance to chemicals, including concentrated acids, as well as superior arc resistance compared with standard electrical grade epoxy materials and meets UL 94 / V-0 requirements. As a result of this robust design and the reliability of the devices, it is possible to install the CCs extremely close to the windings, thus minimizing attenuation effects and maximizing system sensitivity.

The surface of Meggitt's CCs are moulded, without machining. In contrast, some competitors pour their moulds in a cylindrical form then machine the skirts, a manufacturing technique which breaks the glazed surface of the mould and results in a rough, porous surface through which humidity, moisture, dirt and grease can easily be absorbed into the CC and decrease the dielectric capability of the device.

Key features

- Constructed from 'virgin' mica splittings
- Sealed with a special epoxy resin for operation in extreme industrial environments
- Designed for exceptional reliability in high-voltage insulator applications
- Withstands 30 kV for over 1,500 hours (best in industry), tested in accordance with IEEE 1043
- Available in three voltage ratings: 8 kV, 16kV and 28 kV
- Provided in complete kits of three sensors with all required mountings, boots and cables
- Compatible with the PDM 150 monitoring system, from Meggitt Sensing Systems
- The electrical protection circuits and the high-voltage grounding connections are installed right at the CC to simplify installation, minimize any additional signal attenuation and ensure the safety of all test personnel from exposure to high voltage signals.

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Specifications

Operating	**Capacitance**	80 pF ± 3 pF
	Sensitivity	1 pC
	Frequency range	0.5 to 500 MHz (rejecting 50 / 60 Hz power line frequencies)
	Dielectric strength	30 .5 V/ µm (775 V/ mil)
Environmental	**Temperature range**	–58 to +302 °F (–50 to +150 °C)
	Sealing	Special epoxy resin, for operation in extreme industrial environments
Applicable standards	**ANSI / IEEE C37.20.2**	Meets electrical tracking resistance
	IEEE 1043	Meets voltage-endurance test (withstands 30 kV for 1,500 hours)
Physical	**Case material**	Casting with a glazed surface (for reduced porosity)
	Mounting	Mounting base included – see ordering information
	Recommended cables	Cables included – see ordering information
	Dimensions	
	Diameter	CC 308, CC 316 and CC 328: 3.6 in (90 mm)
	Height	CC 308: 3.8 in (95 mm) CC 316: 5.4 in (135 mm) CC 328: 7.8 in (195 mm) Add 1.18 in (30 mm) to the CC height to allow for the mounting base
	Weight	CC 308: 2.1 lb (0.95 kg) CC 316: 3.1 lb (1.40 kg) CC 328: 4.6 lb (2.10 kg)

Ordering information

Item	Model	Ordering number
8 kV power coupling capacitor kit	CC 308	8001078
16 kV power coupling capacitor kit	CC 316	8001079
28 kV power coupling capacitor kit	CC 328	8001080

Each CC kit contains
3 power coupling capacitors (with the same voltage rating)
3 mounting bases
3 protective boots
3 ft (1 m) of HV jumper cable (high temperature silicone) with lugs
250 ft (76 m) of coaxial signal cable

Contact

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Installation

Protective insulating boots are provided to reduce the installation time (since no taping is required).

High-temperature jumper cables are provided for connection to the high voltage. These silicone cables resist cracking and are extremely flexible compared to standard jumper cables.

No termination box is required, since the CCs are grounded and protected at the point of installation.

The electrical protection circuits and the high-voltage grounding connections are installed right at the CC to simplify installation, minimize any additional signal attenuation and ensure the safety of all test personnel from exposure to high voltage signals.

NOTE: This is in contrast to many competitor's systems that ground the CC at the termination box, which places test personnel at risk of high-voltage electrical shock if the protection within the termination box fails.

Summary

CC model	Voltage rating (kV)	AC high potential (kV)	Basic impulse level (kV)	Height (in / mm)	Weight (lb / kg)
CC 308	8	20	75	3.8 /95	2.1 / 0.95
CC 316	16	40	100	5.4 /135	3.1 / 1.40
CC 328	28	65	175	7.8 / 195	4.6 / 2.10

Applications information

Partial discharge monitoring is for generators and motors used in industrial power generation systems.

On typical generators, a minimum of one CC is required on each phase of the windings. However, additional CCs are often used to provide additional data. On hydro generators, additional CCs are usually installed on the ring bus at the location of each phase group.

In order to address a variety of generator and motor sizes, the CCs are available in three distinct voltage ratings: 8 kV, 16 kV and 28kV. The rating of the CC should be greater than or equivalent to the rating of the generator or motor in your application.

In order to provide a complete PD analysis system, the CC 3xx series of CCs are typically used in conjunction with the RTD 600 and the PDM 150 monitoring system and software.

For specific applications, contact your Meggitt Sensing Systems representative.

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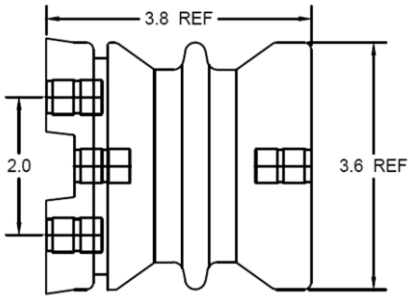
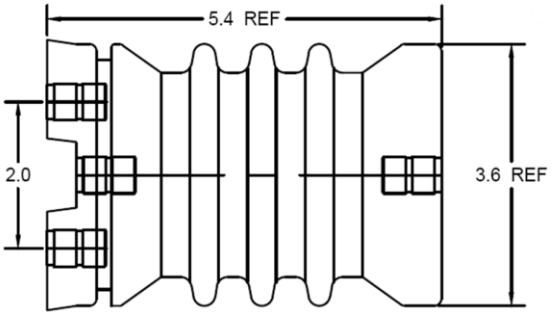
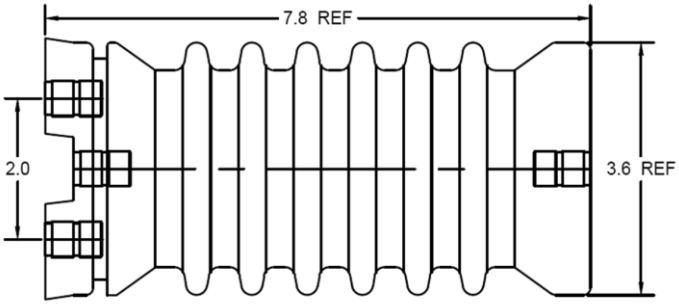
Drawings



CC 308, 8 kV



CC 316, 16 kV



CC 328, 28 kV