

UNIPAK®



Product Description / Application Description

Power Factor Correction Capacitors

Eaton Corporation introduces Commonwealth Sprague power factor correction capacitor banks and harmonic filters. Power factor correction capacitors and harmonic filters are an essential part of modern electric power systems. Power factor correction capacitors are the simplest and most economical means of increasing the transmission capacity of a power system, minimizing energy losses and correcting load power factor. In addition, power factor penalties can be reduced and power quality can be greatly enhanced.

There are two main reasons to correct poor power factor. The first is to reduce or eliminate a power factor penalty charged by your local utility. Another reason is that your existing transformer is, or shortly will be, at full capacity and installing power factor correction capacitors can be a very cost-effective solution to installing a brand new service. Depending on the amount of power factor correction (number of kvar that needs to be injected into the electrical system to improve the power factor) and the dynamic nature of the load, a fixed or switched capacitor bank may be the best solution. When capacity becomes a problem, the choice of a solution will be dependent upon the size of the increase needed. Like all power quality solutions, there are many factors that need to be considered when determining which solution will be best to solve your power factor problem.

Harmonic Filtering

As the world becomes more dependent on electric and electronic equipment, the likelihood that the negative impact of harmonic distortion increases dramatically. The efficiency and productivity gains from these increasingly sophisticated pieces of equipment have a negative side effect...increased harmonic distortion in the power lines. The difficult thing about harmonic distortion is determining the cause. Once this has been determined, the solution can be easy. Passive harmonic filtering equipment will mitigate specific harmonic issues, and correct poor power factor as well.

Features, Benefits and Functions

- Five-year warranty on capacitor cells.
- High quality construction.
- Designed for heavy-duty applications.
- Twenty-year life design.
- Indoor/outdoor service.
- Options available for NEMA® 4X enclosure.
- Wall or floor mounted banks available.
- Fused protection standard.
- Blown-fuse indicating lights standard.
- Quick lead times.
- Harmonic filters available.

Standards and Certifications

- UL® and CSA® listed.

Features and Specifications

Configuration

- **Outer case:** Heavy, No. 16 gauge steel finished with durable baked-on enamel. Series 100 universal mounting flanges for wall or floor installation. Series 200 and 400 floor mounting feet. Elimination of knockouts permits indoor/outdoor use. Manufactured to NEMA requirements 1, 3R and 12.
- **Cover:** "L" shaped gasketed cover with multiple fasteners provides front opening for ease of installation and service.

- **Ground terminal:** Furnished inside case.
- **Power line terminals:** Large size for easy connection.
- **Fusing:**
 - **Size Code AA:** Three midget type fuses with 100,000 ampere interrupting capacity.
 - **Size Code BB and larger:** Three slotted-blade type fuses with 200,000 ampere interrupting capacity. Fuses mounted on stand-off bushings or fuse blocks. Solderless connectors for easy hookup of incoming line conductors.
 - **Fuse indicating lights:** Red, neon blown-fuse indicating lights are protected by transparent weather-proof guard.
- **Options:**
 - No fuses
 - Fused, no indicating lights
 - NEMA 4X enclosure

Capacitor Cells — Dry Type

- **Terminals:** Threaded for secure connection, all sizes. 10 kVAC stand-off terminal bushings. Rated for 30 kV BIL.
- **Dielectric fill:** Thermosetting polymer resin.
 - Flash point: +415°F (+212°C)
 - Fire point: +500°F (+260°C)
- **Dielectric film:** Self-healing metallized polypropylene. Losses less than 1/2 watt per kvar.
- **Pressure-sensitive interrupter:** Built-in, three-phase interrupter design. UL recognized. Removes capacitor from line before internal pressures can cause case rupture.
- **Discharge resistors:** Reduce residual voltage to less than 50 volts within one minute of deenergization. Mounted on terminal stud assemblies. Selected for 20-year nominal life. Exceeds NEC® requirements.
- **Capacitor operating temperature:** -40°F (-40°C) to +115°F (+46°C).

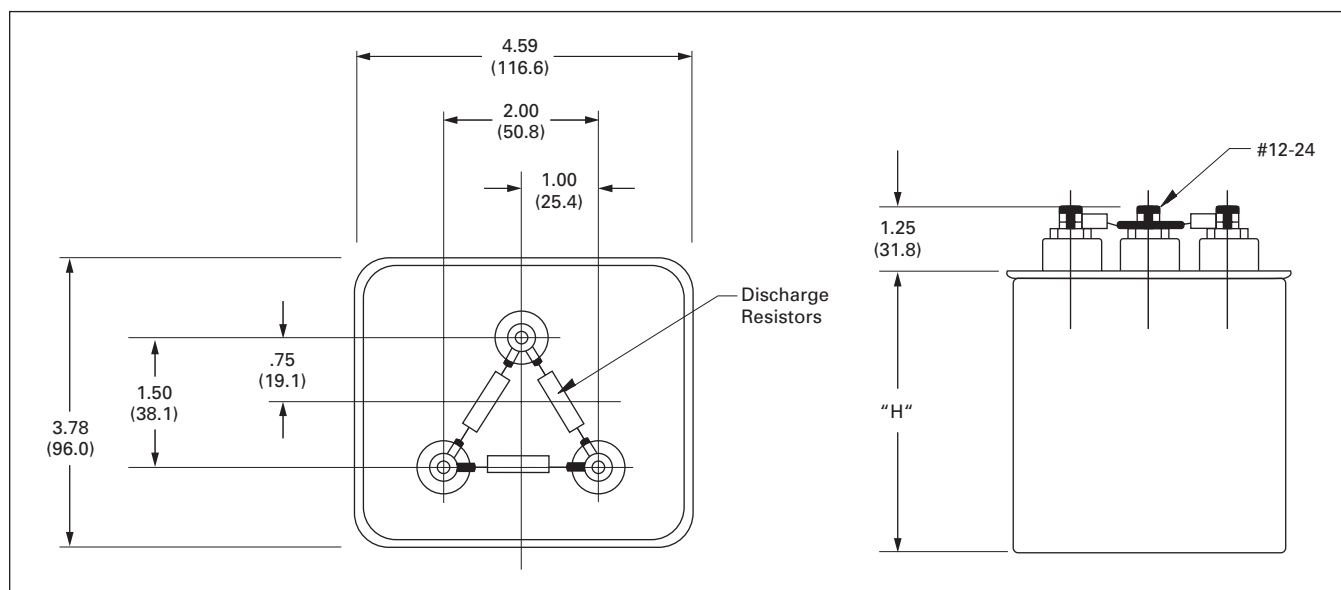


Figure 1. PCDM Cell Showing Threaded Nut and Stud Terminal Connection

Table 1. Dry Cell Chart

Voltage Rating	kvar ^①	Height — Inches (mm)	Approximate Weight — Lbs. (kg)	Catalog Number ^②
240	0.50	4.00 (101.6)	2.1 (1.0)	243PCDMF
240	1.00	4.00 (101.6)	2.1 (1.0)	443PCDMF
240	1.50	4.00 (101.6)	2.1 (1.0)	643PCDMF
240	2.00	4.00 (101.6)	2.1 (1.0)	843PCDMF
240	2.50	4.50 (114.3)	2.6 (1.2)	1043PCDMF
240	3.00	5.50 (139.7)	3.2 (1.5)	12X43PCDMF
240	4.00	6.00 (152.4)	3.5 (1.6)	16S43PCDMF
240	5.00	5.00 (127.0)	2.6 (1.2)	523PCDMF
240	6.25	6.00 (152.4)	3.2 (1.5)	6A23PCDMF
240	7.50	6.00 (152.4)	3.5 (1.6)	7X23PCDMF
240	8.33	7.00 (177.8)	3.5 (1.6)	8B23PCDMF
480	1.00	4.00 (101.6)	2.1 (1.0)	143PCDMF
480	2.00	4.00 (101.6)	2.1 (1.0)	243PCDMF
480	2.50	4.00 (101.6)	2.1 (1.0)	2X43PCDMF
480	3.00	4.00 (101.6)	2.1 (1.0)	343PCDMF
480	4.00	4.00 (101.6)	2.1 (1.0)	443PCDMF
480	5.00	4.00 (101.6)	2.1 (1.0)	543PCDMF
480	6.00	4.00 (101.6)	2.1 (1.0)	643PCDMF
480	7.50	4.00 (101.6)	2.1 (1.0)	7X43PCDMF
480	8.00	4.00 (101.6)	2.1 (1.0)	843PCDMF
480	10.00	5.00 (127.0)	2.6 (1.2)	1043PCDMF
480	12.50	5.50 (139.7)	3.2 (1.5)	12X43PCDMF
480	15.00	6.00 (152.4)	3.2 (1.5)	1543PCDMF
480	16.67	6.00 (152.4)	3.5 (1.6)	16S43PCDMF
480	17.50	7.00 (177.8)	3.5 (1.6)	17X43PCDMF
480	20.00	7.00 (177.8)	4.2 (1.9)	2043PCDMF
600	2.00	4.00 (101.6)	2.1 (1.0)	263PCDMF
600	2.50	4.00 (101.6)	2.1 (1.0)	2X63PCDMF
600	5.00	4.00 (101.6)	2.1 (1.0)	563PCDMF
600	7.50	4.00 (101.6)	2.1 (1.0)	7X63PCDMF
600	10.00	5.00 (127.0)	2.6 (1.2)	1063PCDMF
600	12.50	6.00 (152.4)	3.2 (1.5)	12X63PCDMF
600	15.00	6.00 (152.4)	3.5 (1.6)	1563PCDMF
600	16.67	7.00 (177.8)	3.5 (1.6)	16S63PCDMF
600	17.50	7.00 (177.8)	3.5 (1.6)	17X63PCDMF
600	20.00	8.75 (222.3)	5.0 (2.3)	2063PCDMF

^① kvar rating standard. NEMA kvar tolerance is +15% - 0%.

^② Catalog Number as shown is for 3-phase units.

Note: Dry-type. Thermoplastic encapsulation medium.

Note: On all units, customer must provide overcurrent protection as tabulated or equivalent (fuse interruption rating shall be 100,000 amperes or greater).

Note: All units supplied unpainted.

Note: Case material terne plate steel approximately 0.017 thick.