

## StacoVAR®

### Motor Load (ML) Fixed Capacitor Assemblies

#### Product Highlights

- Voltage Ratings 240vac to 600vac
- Standard Sizes, 2kvar to 200kvar
- Harmonic Duty Rated Available
- Fusing and Blown Fuse Light Options
- Complete Assembly UL 508 Listed
- Economical Power Factor Improvement
- In-Stock or Fast Delivery Lead Times

Power factor improvement is available from 2kvar to 200kvar in economical, fixed motor load (ML) type capacitor assemblies. Each unit is offered for rugged industrial indoor use and includes optional fusing and blown fuse indication lights. Specific user requirements can be accommodated with unique designs and other ratings. The standard, off-the-shelf capacitors provide a wide selection range for 240, 480, and 600vac electrical systems.

Capacitors are three phase, metalized polypropylene, which are self-healing to prevent permanent dielectric breakdown. Each capacitor is designed for long life and operation for a wide temperature range and is contained in a steel rectangular "can." Pressure sensitive circuit interruption is incorporated within the capacitor to safely

remove the unit from service under heavy fault conditions, while maintaining case integrity (10k available fault current rating with or without fuses). External discharge resistors allow voltage to be reduced to 50 volts or less in one minute. Resistors are sized for long life and continuous operation, at maximum rated temperature.

StacoVAR ML capacitors are housed in either a 14 or 16 gauge metal enclosure, painted ANSI 61 gray. All units include either a stud or terminal type power line connection and allow for quick, simple installation. Capacitor assemblies can be mounted either vertically or horizontally, helping to meet a variety of application needs.

Options include current limiting fuses rated 100kaic through 200kaic for over-current protection, along with blown fuse indication lights (three fuses and three neon lights). Where overcurrent protection is required, applicable NEC codes should be followed for proper equipment installation.

These capacitor assemblies are ideal for improving power factor where induction motors are located, as well as for multiple, small kvar requirements. For larger kvar, automatically switched capacitor banks, or harmonic mitigation, Staco Energy can provide these solutions, as well as help to coordinate a totally balanced power quality system.



## Capacitors

Construction of capacitors include impregnation of a dielectric fluid to provide added insulation, excellent corona protection and a moisture barrier. The dielectric fluid is a “green,” environmentally friendly material. Reactive compensation capacitors are compact, while providing a high level of operation.

## Harmonics and Capacitors

Harmonic distortion generated from non-linear loads, such as variable speed drives, UPS and other switch-mode power supplies can affect metalized film capacitors. This includes higher operating temperatures and higher voltage stress, which will shorten the capacitor life expectancy. All StacoVAR ML capacitors are designed to accommodate harmonic currents. However, StacoVAR ML capacitors are also available for power systems with higher harmonic distortion. These optional **harmonic-duty** rated capacitors are more robust to handle this type of requirement.

## Capacitor Specifications

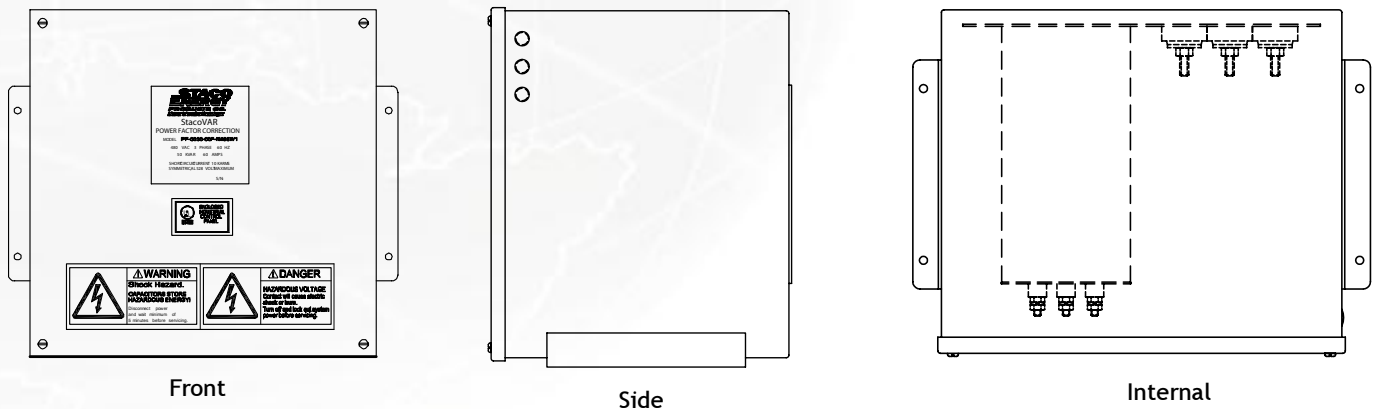
<p><b>Electrical Characteristics</b></p> <p>Rated Voltage: 240, 480, 600 VAC            Rated Frequency: 60 Hz.            Capacitor Type: Fluid Impregnated            Dielectric System: Self-Healing, Metalized Polypropylene            Impregnation Fluid: Non-PCB, non-toxic, biodegradeable, class III combustible fluid            Capacitor Connection - 3 phase: Internal delta connection            Capacitance Tolerance: -0% to +15%            Discharge Device: External resistors reduce voltage to &lt;50v within 1 min. of de-energization            Over Current: Standard: 135% x rated current continuous, includes harmonic currents                              Harmonic Duty: 150% x rated current continuous, includes harmonic currents            Over Voltage: Standard: 110% x rated voltage continuous                              Harmonic Duty: 120% x rated voltage continuous            Total Losses: &lt;0.5 Watts/kvar at 60 Hz, 25° C            Design Service Life: 200,000 Hours</p>	
<p><b>Mechanical Characteristics</b></p> <p>Enclosure Type: Drawn steel rectangular can            Terminals (3 terminal cover): 1/4” - 20 male threaded stud, 20 In-lbs max. fastening torque</p>	
<p><b>Environmental Characteristics</b></p> <p>Operating Temperature: -40°C to +46°C, -40°F to +115°F, with natural convection cooling            Storage Temperature: -40°C to +85°C, -40°F to +185°F            Maximum Altitude: 2000 meters above sea level            Humidity: 0 - 95% non-condensing</p>	
<p><b>Standards</b></p> <p>UL 810: UL recognized - CYTW2            C22.2 No. 190 Canadian Stds.: cUL recognized - CYTW8            IEC 831</p>	

## Enclosure Mounting and Connections

A standard NEMA 1 built enclosure painted ANSI 61 gray, with a durable baked enamel finish (knock-outs not provided) allows site specific installation, and allows for easy service. Flange design provides for wall or floor mounting, equipment mounting (top of motor control center, motor bracket etc.) Other NEMA rated enclosures are available, including NEMA 12 and NEMA 3R. Consult the factory for these or other enclosure types. Optional neon (red color) lights include a "seal-tight" design.

Power line connections utilize an M8 threaded stud when equipped with fuses rated 40 amps and above. Assemblies equipped with fuses smaller than 40 amps use a #10 screw terminal. Where assemblies are provided without fuses, a compression lug type terminal block is provided. All assemblies include a 1/4" ground stud connection point. Entry locations are from the top panel, or both side panels (near top panel location); user to punch appropriate size hole.

## Enclosure Drawings & Dimensions



Voltage	KVAR Range	Capacitors	Enclosure Size	Dimensions (H x W x D, inches)
240 480 600	2 - 20 2 - 50 2.5 - 50	1 - 2	T	14.50 x 16.00 x 12.10
240 480 600	25 - 50 60 - 125 60 - 125	3 - 5	U	22.50 x 18.00 x 12.10
240 480 600	60 - 100 150 - 200 150 - 200	6 - 10	V	28.50 x 22.00 x 12.10

Note: Consult the price list for product weight.

## Part Numbers by KVAR, with Voltage and Fuse Ratings

240 VAC				480 VAC				600 VAC			
Part #	kvar	Fuse Amps	kIac	Part #	kvar	FUSE Amps	kIac	Part #	kvar	FUSE Amps	kIac
PF-0002-00x-N246W1	2	10	100,000	PF-0002-00x-N486W1	2	5	100,000	PF-0002-00x-N606W1	2.5	5	100,000
PF-0003-00x-N246W1	2.5	10	100,000	PF-0005-00x-N486W1	5	10	100,000	PF-0005-00x-N606W1	5	10	100,000
PF-0004-00x-N246W1	4	20	100,000	PF-0008-00x-N486W1	7.5	15	100,000	PF-0008-00x-N606W1	7.5	15	100,000
PF-0005-00x-N246W1	5	20	100,000	PF-0010-00x-N486W1	10	20	100,000	PF-0010-00x-N606W1	10	20	100,000
PF-0008-00x-N246W1	7.5	30	100,000	PF-0013-00x-N486W1	12.5	25	100,000	PF-0013-00x-N606W1	12.5	20	100,000
PF-0010-00x-N246W1	10	40	200,000	PF-0015-00x-N486W1	15	30	100,000	PF-0015-00x-N606W1	15	25	100,000
PF-0013-00x-N246W1	12.5	50	200,000	PF-0020-00x-N486W1	20	40	200,000	PF-0020-00x-N606W1	20	40	100,000
PF-0015-00x-N246W1	15	63	200,000	PF-0025-00x-N486W1	25	50	200,000	PF-0025-00x-N606W1	25	40	200,000
PF-0020-00x-N246W1	20	80	200,000	PF-0030-00x-N486W1	30	63	200,000	PF-0030-00x-N606W1	30	50	200,000
PF-0025-00x-N246W1	25	100	200,000	PF-0035-00x-N486W1	35	80	200,000	PF-0035-00x-N606W1	35	63	200,000
PF-0030-00x-N246W1	30	125	200,000	PF-0040-00x-N486W1	40	80	200,000	PF-0040-00x-N606W1	40	80	200,000
PF-0040-00x-N246W1	40	160	200,000	PF-0045-00x-N486W1	45	100	200,000	PF-0045-00x-N606W1	45	80	200,000
PF-0050-00x-N246W1	50	200	200,000	PF-0050-00x-N486W1	50	100	200,000	PF-0050-00x-N606W1	50	80	200,000
PF-0060-00x-N246W1	60	250	200,000	PF-0060-00x-N486W1	60	125	200,000	PF-0060-00x-N606W1	60	100	200,000
PF-0075-00x-N246W1	75	315	200,000	PF-0075-00x-N486W1	75	160	200,000	PF-0075-00x-N606W1	75	125	200,000
PF-0100-00x-N246W1	100	400	125,000	PF-0100-00x-N486W1	100	200	200,000	PF-0100-00x-N606W1	100	160	200,000
				PF-0125-00x-N486W1	125	250	200,000	PF-0125-00x-N606W1	125	200	200,000
				PF-0150-00x-N486W1	150	315	200,000	PF-0150-00x-N606W1	150	250	200,000
				PF-0175-00x-N486W1	175	350	125,000	PF-0175-00x-N606W1	175	315	200,000
				PF-0200-00x-N486W1	200	400	125,000	PF-0200-00x-N606W1	200	350	200,000

### Note on Part Numbering:

- 1) The x in the part number requires the designation of N (No Fuses), F (Fuses), or L (Fuses and Lights).
- 2) For Harmonic Duty rated capacitors, change the N in the last section of the part number to H.

For example, to order a harmonic duty rated 240 VAC, 4 kvar capacitor with fuses, you would use part number **PF-0004-00F-H246W1**.

**Note:** For 208 VAC systems, use 240 kvar rating and multiply by .75 for 208 kvar rating. Consult the factory for higher kvar ratings.



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