

Vishay ESTA

ESTAprop[®]/ESTAdry[®] Power Factor Correction Capacitors Low Voltage

DW-TYPE FILTER CAPACITORS / IMPREGNATED OR DRY / RESIN-FILLED DESIGN

APPLICATION

ESTAprop[®] DW-type capacitors in rectangular steel casing have been designed for high current filter circuit applications in low voltage plants. Loads such as frequency drives, converters, and other nonlinear loads create harmonics. The purpose of tuned and detuned filters is the protection of electrical equipment and reduction of harmonics. DW-type capacitors have an excellent current-carrying capability and may be built for high voltages as well as high loads within one casing.

DW-type capacitors may be used for:

- fixed detuned Power Factor Correction Equipment
- automatic detuned Power Factor Correction Equipment
- tuned filter circuits

DESIGN

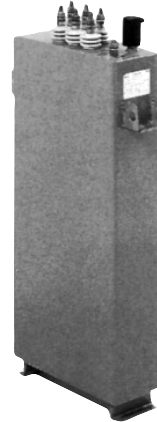
The DW-type capacitor is based on MKP-technology. The active element consists of metallized polypropylene film with self-healing properties. The current-carrying metal layer is vaporised onto one side of the polypropylene film. The front surface of tubular winding elements are joined by means of the metal spray method (Schooping). A number of elements will be connected together to get the required capacitance. The entire winding package will be incorporated within a welded stainless steel casing.

The casing is fitted with hermetically sealed bushings M12, for connection of the supply cable.

A threaded stud M10 for grounding is provided. Easy mounting will be ensured by 4 drillings, Ø9.8mm, at the bottom of the container, or by side-brackets.

This design ensures the highest safety by self-healing technology as well as by an over pressure monitoring device. In case of an internal failure, an over pressure may occur and operate a potential-free contact, which will (connected to a switching device like a contactor) disconnect the capacitor from the supply and thus protect the capacitor from bursting.

DW-TYPE CAPACITOR, IP00, 6 TERMINALS



DW-TYPE FILTER CAPACITORS

TECHNICAL DATA	
STANDARDS:	IEC 60831-1+2, EN 60831-1+2, VDE 0560-46+47
Overvoltages: (in accordance with the above standards)	Ucn + 10% (up to 8 hours daily) Ucn + 15% (up to 30 minutes daily) Ucn + 20% (up to 5 minutes) Ucn + 30% (up to 1 minute) Please also refer to Terms and Definitions.
Overcurrent: (in accordance with the above standards)	1.3 * In, 1.5 * In with 10% overvoltages, 15% overcapacitance and harmonics included, continuous operation Please also refer to Terms and Definitions. Higher currents upon request!
Tolerance on capacitance:	± 5% (tolerances of ± 3% possible)
Test voltage, terminal / terminal:	2.15 * Ucn, AC, 2 seconds
Test voltage, terminal / casing:	4800VAC, 2 seconds
Inrush current:	300 times rated current
Losses:	< 0.50W / kVAr (inclusive discharge resistors)
Statistical life expectancy:	> 150,000 operating hours
Degree of protection:	IP00, IP43, IP54, indoor mounting
Permitted ambient temperature:	- 25 / up to D (max. 55°C)
Permitted casing temperature:	max. 65°C (measured on top of the capacitor)
Cooling:	naturally air-cooled
Permissible relative humidity:	maximum 95%
Maximum allowed altitude:	2000 meters above sea level
Mounting position:	vertical or horizontal
Mounting:	4 drillings, Ø 9.8 mm
Safety features:	over pressure monitoring device, self-healing
Casing:	welded stainless sheet steel casing, colour RAL 7033
Dielectric:	polypropylene film, self-healing
Impregnant:	natural oil, non-PCB, biodegradable (ESTAprop) or dry / resin filled (ESTAdry)
Terminals:	threaded studs, M12



ESTAprop®/ESTAdry® Power Factor Correction
Capacitors Low Voltage

This capacitor type will be built upon customer request. With its narrow tolerances, it is ideal for use in filter circuit applications.

voltage ratings are between 230V and 1000V. Output ratings are up to 500kvar, depending on the voltage.

Capacitor types below reflect typical ratings. Available

Overcurrent loading in excess of standard figures is possible.

FOR EXAMPLE:

RATED VOLTAGE 480V, 50Hz, 3-PHASE, DELTA CONNECTION						
TYPE	OUTPUT kVAr	CAPACITANCE µF	CURRENT A	DIMENSIONS L*W*H (mm)	WEIGHT kg	DRAWING No.
PhMKP480/150-dw	150	3*690.8	180	345*135*460	30	12
PhMKP480/280-S-dw	280	3*1289.0	337	345 * 135 * 720	47	13

RATED VOLTAGE 525V, 50Hz, 3-PHASE, DELTA CONNECTION						
TYPE	OUTPUT kVAr	CAPACITANCE µF	CURRENT A	DIMENSIONS L*W*H (mm)	WEIGHT kg	DRAWING No.
PhMKP525/150-dw	150	3*577.4	165	345*135*470	31	12
PhMKP525/300-S-dw	300	3*1155.0	330	345*135*780	50	13

RATED VOLTAGE 690V, 50Hz, 3-PHASE, DELTA CONNECTION						
TYPE	OUTPUT kVAr	CAPACITANCE µF	CURRENT A	DIMENSIONS L*W*H (mm)	WEIGHT kg	DRAWING No.
PhMKP690/150-dw	150	3*334.3	126	345*135*430	28	12
PhMKP690/350-S-dw	350	3*780.0	293	345*135*780	51	13

RATED VOLTAGE 830V, 50Hz, 3-PHASE, STAR CONNECTION						
TYPE	OUTPUT kVAr	CAPACITANCE µF	CURRENT A	DIMENSIONS L*W*H (mm)	WEIGHT kg	DRAWING No.
PhMKP830/150-dw	150	3*693.0	104	345*135*470	31	12
PhMKP830/350-S-dw	350	3*1617.0	243	345*135*780	51	13

RATED VOLTAGE 910V, 50Hz, 3-PHASE, STAR CONNECTION						
TYPE	OUTPUT kVAr	CAPACITANCE µF	CURRENT A	DIMENSIONS L*W*H (mm)	WEIGHT kg	DRAWING No.
PhMKP910/150-dw	150	3*576.6	95	345*135*470	31	12
PhMKP910/250-dw	250	3*961.0	159	345*135*780	50	12

The protection of DW-type capacitors is provided by an OVER PRESSURE MONITORING DEVICE, which must be connected to a contactor or breaker to switch off the unit in case of internal over pressure.

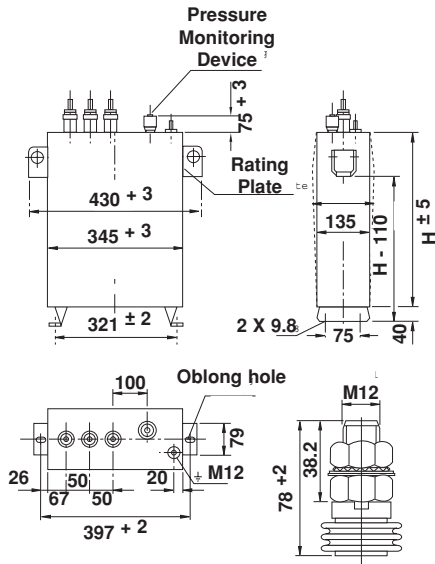
All oil-impregnated part types can also be produced in a PhMKPg dry version. Dimensions and ratings are unchanged.

DIMENSIONS FILTER CIRCUIT CAPACITORS

The total output within one casing may be divided into two outputs and six bushings. Using such an "S"-type terminal arrangement may be of cost advantage when two outputs are required, but neither of them is large enough to fill up the capacitor casing.

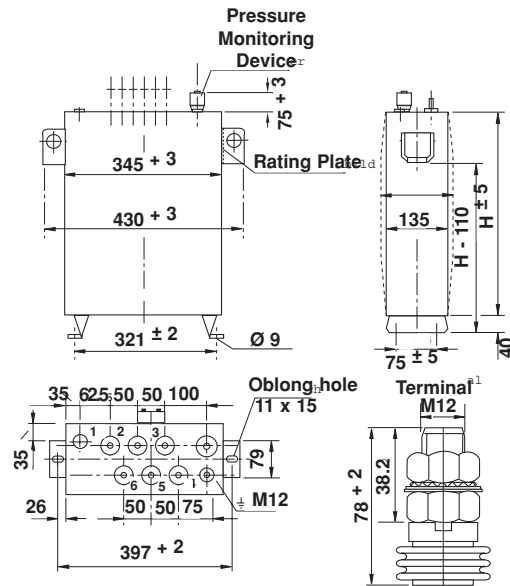
Drawing 12

DW-Type with 3 Terminals



Drawing 13

DW-Type with 6 Terminals



RECOMMENDED TORQUES:

TERMINAL STYLE	RECOMMENDED TORQUE
terminals M6	3Nm
terminals M8	6Nm
terminals M10	10Nm
terminals M12	15.5Nm

ORDERING INFORMATION

Minimum order quantity per type and order:

1 Unit

Delivery time

Manufactured to customer specification, approximately 10 weeks subject to confirmation from plant.