MH Series **CURRENT TRANSFORMERS -- Malaysia**

CT Series

0.72kV 50Hz. Ring Type PVC Insulated
Compliance : BS 7626/1993, IEC 185, IEC60044-1, IEC61869-1
RoHS, UKCA and CE certified.

2026 PRICE LIST

All Prices are Unit LIST PRICE in Ringgit Malaysia

#	Ratio	Class 1 15VA	Class 3 5VA	Class 5P10 15VA	Class 10P5 15VA	Class 10P10 15VA
1)	**60/5**	RM202.00	RM33.00	----	RM278.00	----
2)	**100/5**	RM138.00	RM33.00	RM342.00	RM156.00	RM313.00
3)	**150/5**	RM80.00	RM33.00	RM297.00	RM150.00	RM261.00
4)	**200/5**	RM77.00	RM30.00	RM258.00	RM129.00	RM250.00
5)	**250/5**	RM56.00	RM31.00	RM237.00	RM131.00	RM192.00
6)	**300/5**	RM57.00	RM32.00	RM224.00	RM134.00	RM203.00
7)	**400/5**	RM58.00	RM35.00	RM210.00	RM135.00	RM187.00
8)	**500/5**	RM59.00	RM38.00	RM197.00	RM98.00	RM176.00
9)	**600/5**	RM61.00	RM39.00	RM198.00	RM109.00	RM175.00
10)	**800/5**	RM62.00	RM48.00	RM190.00	----	RM168.00
11)	**1000/5**	RM68.00	RM55.00	RM176.00	----	RM149.00
12)	**1200/5**	RM74.00	RM60.00	RM179.00	----	RM153.00
13)	**1500/5**	RM82.00	RM74.00	RM180.00	----	RM157.00
14)	**1600/5**	RM84.00	RM76.00	RM183.00	----	RM159.00
15)	**2000/5**	RM92.00	RM78.00	RM204.00	----	RM184.00
16)	**2500/5**	RM102.00	RM88.00	RM214.00	----	RM197.00
17)	**3000/5**	RM127.00	RM105.00	RM221.00	----	RM205.00
18)	**3200/5**	RM158.00	RM128.00	RM229.00	----	RM207.00
19)	**3500/5**	RM173.00	RM154.00	RM276.00	----	RM219.00
20)	**4000/5**	RM191.00	RM167.00	RM311.00	----	RM235.00
21)	**5000/5**	RM255.00	RM228.00	RM386.00	----	RM271.00



1. Prices and Dimensions are subject to change without prior notice / Prices effective from 1st August 2023
2. Prices quoted above are ex-Kuala Lumpur in Ringgit Malaysia, Ex-Stock Price.
3. Prices for ranges not found in our price lists are available upon request / Bracket extra cost at **RM2.00**/pc

VISHAY ESTAprop® PhMKP series -- Germany

POWER FACTOR CORRECTION CAPACITORS - OIL Type

			Discount :	
Rated Output	**Rated Voltage (PhMKP440 .3. …)**	**Combination**	**LIST Unit Price**	**Price/Kvar**
5 kVar	440V 3Ø 50Hz	Single Unit	**$437.50**	**$87.50**
10 kVar	440V 3Ø 50Hz	Single Unit	**$537.50**	**$53.75**
15 kVar	440V 3Ø 50Hz	Single Unit	**$690.00**	**$46.00**
20 kVar	440V 3Ø 50Hz	Single Unit	**$616.00**	**$30.80**
25 kVar	440V 3Ø 50Hz	Single Unit	**$770.00**	**$30.80**
30 kVar	440V 3Ø 50Hz	Single Unit	**$924.00**	**$30.80**
40 kVar	440V 3Ø 50Hz	20 kVar x 2	**$1,232.00**	**$30.80**
50 kVar	440V 3Ø 50Hz	25 kVar x 2	**$1,540.00**	**$30.80**
60 kVar	440V 3Ø 50Hz	30 kVar x 2	**$1,848.00**	**$30.80**
75 kVar	440V 3Ø 50Hz	25 kVar x 3	**$2,310.00**	**$30.80**
80 kVar	440V 3Ø 50Hz	25kVar x 2, 30kVar x 1	**$2,464.00**	**$30.80**
100 kVar	440V 3Ø 50Hz	25 kVar x 4	**$3,080.00**	**$30.80**

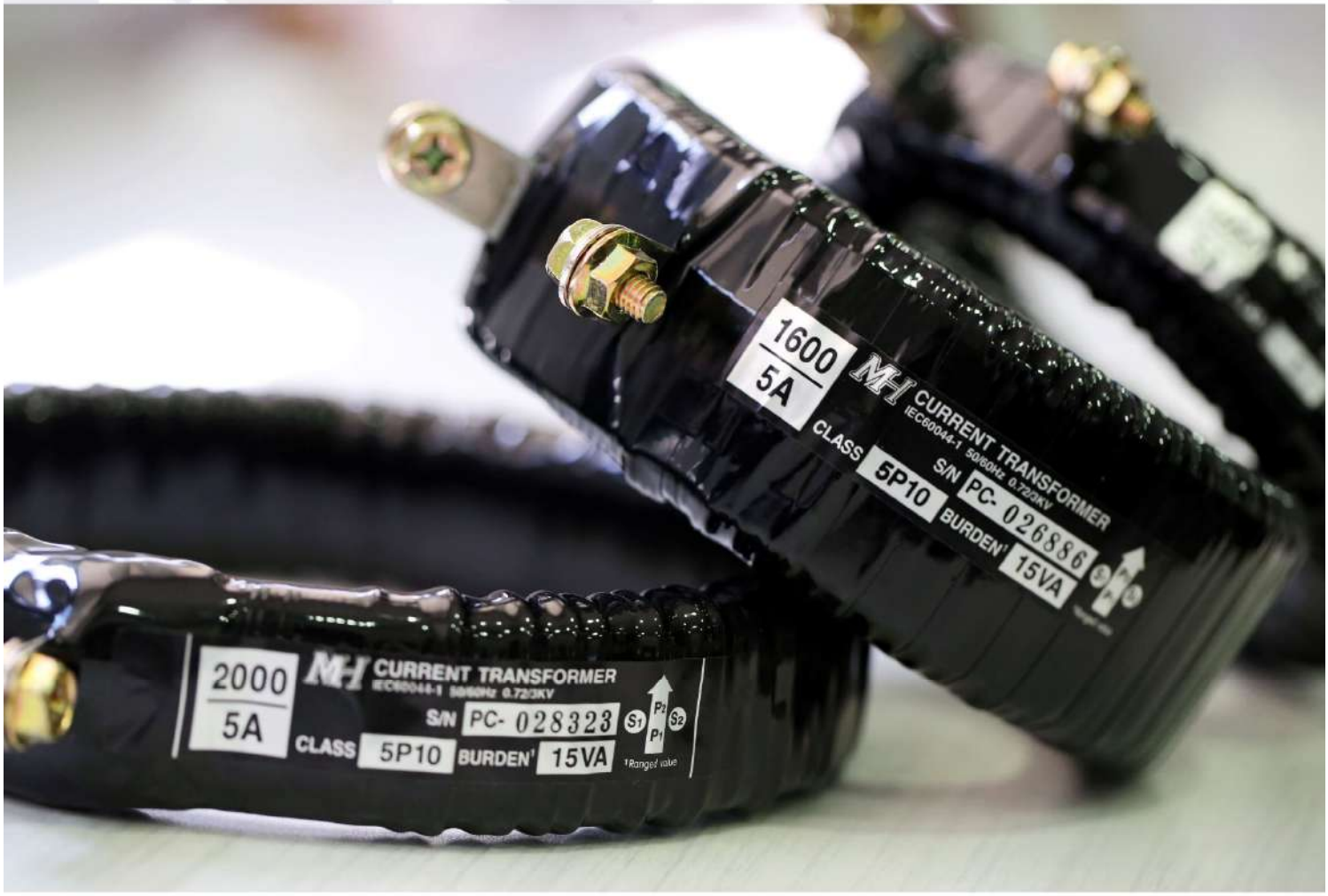
We reserve the right to change the combinations stated in this price list

Rated Output	**Rated Voltage (PhMKP525 .3. …)**	**Combination**	**LIST Unit Price**	**Price/Kvar**
5 kVar	525V 3Ø 50Hz	Single Unit	**$445.00**	**$89.00**
10 kVar	525V 3Ø 50Hz	Single Unit	**$476.50**	**$47.65**
15 kVar	525V 3Ø 50Hz	Single Unit	**$635.25**	**$42.35**
20 kVar	525V 3Ø 50Hz	Single Unit	**$734.00**	**$36.70**
25 kVar	525V 3Ø 50Hz	Single Unit	**$775.00**	**$31.00**
30 kVar	525V 3Ø 50Hz	15 kVar x 2	**$1,270.50**	**$42.35**
40 kVar	525V 3Ø 50Hz	20 kVar x 2	**$1,468.00**	**$36.70**
50 kVar	525V 3Ø 50Hz	25 kVar x 2	**$1,550.00**	**$31.00**
60 kVar	525V 3Ø 50Hz	20 kVar x 3	**$2,202.00**	**$36.70**
75 kVar	525V 3Ø 50Hz	25 kVar x 3	**$2,325.00**	**$31.00**
80 kVar	525V 3Ø 50Hz	20 kVar x 4	**$2,936.00**	**$36.70**
100 kVar	525V 3Ø 50Hz	25 kVar x 4	**$3,100.00**	**$31.00**

Note : The capacitors are supplied with 1meter cable & other accessories

THE ABOVE PRICES ARE EFFECTIVE FROM 1ST AUGUST 2023
PRICES: RINGGIT MALAYSIA EX-KUALA LUMPUR PRICE.
STOCK: NORMALLY EX-STOCK KUALA LUMPUR / SINGAPORE SUBJECT TO PRIOR SALE
OTHERWISE INDENT FROM PRINCIPAL
NOTE: PRICES AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE
OTHERS: PRICES FOR OTHER RANGES NOT STATED AVAILABLE UPON REQUEST

MH Current Transformers



MH Since 1981
INSTRUMENTS

Current Transformer



MH Current Transformer
Tape wound construction for Low Voltage AC network measurement

Device Features

METERING CT

- Class 0.2 / 0.5S / 0.5 / 1
- Insulated tape wound

PROTECTION CT

- Class 5P/ 10P/ PX
- Insulated tape wound

Standard Compliance

- IEC 61869-1
- IEC 61869-2
- IEC 60044-1

Customized CT

- MH CT is available in custom built specification such as PX type requirement
- We have over 20 years' experience in making CT with precise tolerance & special performance



Product Description

MH Current Transformer (MH CT) is used in energy metering and protection application. Designed for use in low voltage 50/60Hz network, the current transformer is installed in electrical switch board, control panel or motor control centre. High grade annealed grain-oriented silicon steel is used for current transformer's core to provide improved accuracy and linearity of measurement.

The MH Current Transformer can be directly installed onto bare copper busbar up to 720VAC rating. Available in a wide variety of dimensions and current ratio rating. Connection to the secondary winding is made via two bolt terminals. Customized model can be manufactured to customer specification.

MH Current Transformer is designed, manufactured and tested in accordance with IEC 60044-1 and IEC 61869-1/2 standards. This ensures that each current transformer delivers accurate measurements when operating at the rated current or within the defined accuracy limit factors.

Product selection guide

METERING CT

Class 0.2	For measuring the energy for revenue proposes. Maximum of 0.2% ratio error at 100% rated current.
Class 0.5S	For measuring the energy purposes. Maximum of 0.5% ratio error from 20% rated current and above.
Class 0.5	For measuring the energy purposes. Maximum of 0.5% ratio error at 100% rated current.
Class 1	For general metering. Maximum of 1.0% ratio error at 100% rated current.

PROTECTION CT

5P	For stringent time graded coordination protection scheme. 5% composite error at rated accuracy limit factor.
10P	For general time coordination and instantaneous over current scheme. 10% composite error at rated accuracy limit factor.
PX	Special application where protection scheme requires precise parameter defined for Knee Point Voltage, Turn Ratio, Maximum Excitation Current at Knee Point, and CT Secondary Resistance. (Customized built item).

Examples of MH CT Specification

Metering CT	*e.g. 400/5, CL1, 5VA* 400A rated primary current, 5A rated secondary current, 5VA rated output, maximum 1% ratio error at 100% rated current.
Protection CT	*e.g. 1,600/5, 5P10, 15VA* 1,600A rated primary current, 5A rated secondary current, 15VA rated output, 5% composite error at 10x rated current.

Current Transformer

Technical Data

Construction	Tape wound toroidal
Highest voltage	0.72V
Rated insulation level	3kV 60 sec
Rated frequency	50 or 60Hz
Insulating material	Homopolymer Polyvinyl Chloride
Class of insulation	B
Rated short-time thermal current	60 x I_{pri} (100kA max)
Applied technical standards	IEC 61869-1, IEC 61869-2
Certificates	CE, UKCA, RoHS





Standard Model Range

Rated Primary / Secondary Current	Rated output (VA)		CL 5P10	Class 0.2	Class 0.5	Class 1
	5	15				
6,000 / 5	●	●	●	●	●	●
5,000 / 5	●	●	●	●	●	●
4,000 / 5	●	●	●	●	●	●
3,200 / 5	●	●	●	●	●	●
3,000 / 5	●	●	●	●	●	●
2,500 / 5	●	●	●	●	●	●
2,000 / 5	●	●	●	●	●	●
1,600 / 5	●	●	●	●	●	●
1,500 / 5	●	●	●	●	●	●
1,250 / 5	●	●	●	●	●	●
1,200 / 5	●	●	●	●	●	●
1,000 / 5	●	●	●	●	●	●
800 / 5	●	●	●	●	●	●
600 / 5	●	●	●	●	●	●
500 / 5	●	●	●	●	●	●
400 / 5	●	●	●	●	●	●
300 / 5	●	●	●	-	●	●
200 / 5	●	●	●	-	●	●
150 / 5	●	●	●	-	●	●
120 / 5	●	-	-	-	-	●
100 / 5	●	●	●	-	●	●
80 / 5	●	-	-	-	-	●
60 / 5	●	●	-	-	●	●
50 / 5	●	-	-	-	-	●
40 / 5	●	-	-	-	●	●

Legend: ● standard item
Note: *Other rating and sizes are available on customized built order.*

About MH Current Transformer

MH Current Transformer (MH CT) is designed and manufactured by Challenge Industrial Co. (Malaysia) Sdn. Bhd. which was founded in the year 1993 by a joint venture between Mun Hean and Challenge Industrial Co. Ltd. The MH Current Transformer is solely made under MH Instruments, a wing under Mun Hean Group. The founding of MH Current Transformer is in line with Mun Hean's flagship products, MH Protection Relays and Meters. In 1994, the product range for Protection Current Transformer is extended to Class X Type and subsequently in year 1996, Class 0.5 Metering Current Transformer was included into the production range. The complete chain of value creation including product design & development, production, and testing is based in Selangor, Malaysia. The major expansion of production area at the mid of year 2014 shows that the product demand of MH Current Transformer is increasing. Today, MH Current Transformer has been sold to Singapore, Malaysia, Hong Kong, Myanmar, Philippines, Indonesia and Vietnam, and it is the market leader in Malaysia and Singapore.

Rated voltage 440 V, 50 Hz, 3-phase, delta connection, UL/ULC

IP 00, OIL

CAN BE USED ALSO FOR 415V								
Type	Article No. (1)	OUTPUT KVAR 440V	OUTPUT KVAR 415V	Capacity µF	Current A 440V/ 415V	Dimensions Ø*H (mm)	Weight kg	Drawing No.
PhMKP 440.3.12,50 - 84-MH	5341- 44409 - xx	12.5	11.1	3 x 68.5	16.4 / 15.5	84.4 x 190	1.3	2
PhMKP 440.3.14,10 - 84-MH	5341- 44410 - xx	14.1	12.5	3 x 77.0	18.5/17.5	84.4 x 190	1.3	2
PhMKP 440.3.15,00 - 84-MH	5341- 44411 - xx	15	13.3	3 x 82.2	19.7/ 18.6	84.4 x 190	1.3	2
PhMKP 440.3.16,90 - 84-MH	5341- 44412 - xx	16.9	15	3 x 92.6	22.2 / 20.9	84.4 x 190	1.3	2
PhMKP 440.3.18,80 - 84-MH	5341- 44413 - xx	18.8	16.7	3 x 103.0	24.7/23.3	84.4 x 265	1.7	2
PhMKP 440.3.20,00 - 84-MH	5341- 44414 - xx	20	17.8	3 x 109.6	26.2/24.8	84.4 x 265	1.7	2
PhMKP 440.3.22,50 - 84-MH	5341- 44415 - xx	22.5	20	3 x 123.3	29.5/27.8	84.4 x 265	1.7	2
PhMKP 440.3.25,00 - 84-MH	5341- 44416 - xx	25	22.2	3 x 137.0	32.8/30.9	84.4 x 265	1.7	2
PhMKP 440.3.28,10 - 84-MH	5341- 44417 - xx	28.1	25	3 x 154.0	36.9/ 34.8	84.4 x 265	1.7	2
PhMKP 440.3.30,00 - 84-MH	5341- 44418 - xx	30	26.7	3 x 164.4	39.4/37.1	84.4 x 340	2.1	2

Rated voltage 525 V, 50 Hz, 3-phase, delta connection, UL/ULC

IP 00, OIL

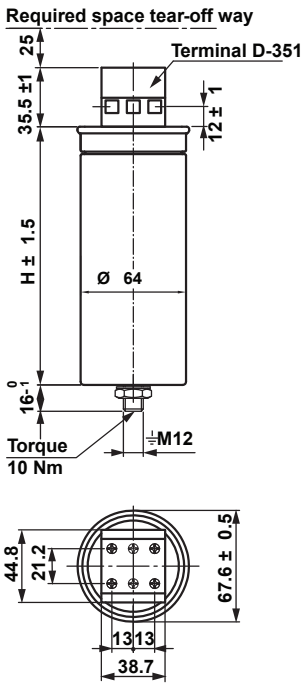
CAN BE USED ALSO FOR 480V								
Type	Article No. (1)	OUTPUT KVAR 525V	OUTPUT KVAR 480V	Capacity µF	Current A 525V/ 480V	Dimensions Ø*H (mm)	Weight kg	Drawing No.
PhMKP 525.3.10,00 - 84-MH	5341- 44419 - xx	10	8.33	3 x 38.5	11.0/10.1	84.4 x 190	1.3	2
PhMKP 525.3.12,50 - 84-MH	5341- 44420 - xx	12.5	10.4	3 x 48.1	13.7/12.6	84.4 x 190	1.3	2
PhMKP 525.3.13,80 - 84-MH	5341- 44421 - xx	13.8	11.5	3 x 53.1	15.2/13.8	84.4 x 190	1.3	2
PhMKP 525.3.15,00 - 84-MH	5341- 44422 - xx	15	12.5	3 x 57.7	16.5/15.0	84.4 x 190	1.3	2
PhMKP 525.3.20,00 - 84-MH	5341- 44423 - xx	20	16.7	3 x 77.0	22.0/20.1	84.4 x 265	1.7	2
PhMKP 525.3.25,00 - 84-MH	5341- 44424 - xx	25	20	3 x 96.2	27.5/24.6	84.4 x 265	1.7	2

Notes:

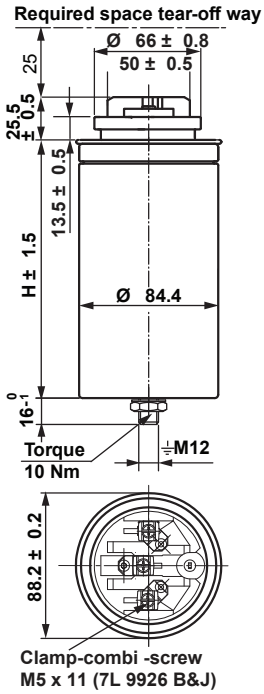
- Other voltage ratings, outputs and frequencies upon request. All PhMKP-type capacitors may be also applied in 60Hz networks, output and current will, however, be 20% higher in these cases (i.e. additional thermal load and therefore, a lower class of temperature must be taken into account.)

(1) Version no. xx may differ as it respects small changes, e.g. on the label

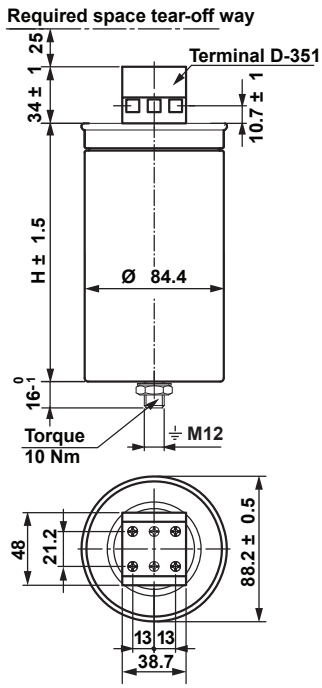
DIMENSIONS



Drawing 1



Drawing 2



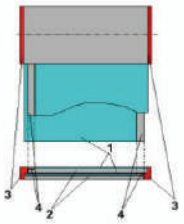
Drawing 3

General Technical Information

MKP- Technology

Capacitors are used in many diverse applications, and many different capacitor technologies are available. In low voltage applications, MKP-type capacitors which are metallized polypropylene technology have proved to be most appropriate and also the most cost effective. Dependent on the nominal voltage of the capacitor, the thickness of the polypropylene film will be different.

MKP-TYPE CAPACITOR (Metallized polypropylene film)

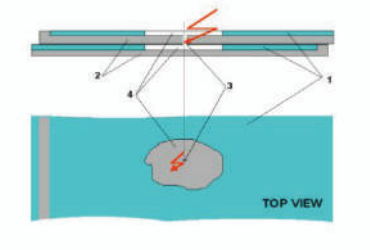


Design of a MKP-type capacitor

1. Electrodes (Metallized)
2. Polypropylene film
3. Electric contact (schooping)
4. Non-metallized edge

SELF-HEALING

At the end of service life, or due to inadmissible electrical or thermal overload, an insulation breakdown may occur. A breakdown causes a small arc which evaporates the metal layer around the point of breakdown and re-establishes the insulation at the place of perforation. After electric breakdown, the capacitor can still be used. The decrease of capacitance caused by a self-healing process is less than 100pF. The self-healing process lasts for a few microseconds only and the energy necessary for healing can be measured only by means of sensitive instruments.



Self-healing breakdown

1. Electrodes (Metallized)
2. Polypropylene film
3. Point of breakdown
4. Non-conductive insulating area

For self-healing dielectric, impregnation is basically not required. However, our MKP capacitors are impregnated to eliminate environmental influences and to guarantee reliable, long-term operation. Vacuum impregnation eliminates air and moisture, improves “Self healing” and reduces thermal resistance.

FILLING AGENT

ESTAprop-PhMKP

ESTAprop MKP-type capacitors are filled with a natural oil. The highly fire-resisting insulation oil on vegetable base (flash point 285°C, ignition point 315°C) is fully biodegradable and non-toxic. There are no legal regulations regarding its destruction so it can be safely disposed of along with ordinary refuse.

After an extended drying period, the filling of the capacitor casing with oil is carried out under high vacuum for removal of moisture. Following this process, the capacitor will be hermetically sealed. This process ensures excellent heat dissipation and constant capacitance over full service life.

ESTAdry – PhMKPg

ESTAdry MKP-type capacitors are “dry”. That is, after the extended drying period and before the hermetic sealing of the casing, a non-liquid filling agent is used instead of natural oil. In case of tubular cans, it is an environmentally friendly inert gas-filling to avoid corrosion of the winding elements and inner electric contacts.

For larger dry capacitors, e.g. the D-type capacitors or the DW-type filter capacitors, the filling agent is a resin.

A little “g” shows the difference in the type designation between the oil-filled (PhMKP) and the dry version (PhMKPg).

Both versions comply with the highest temperature class D, specified by the standards. The Oil-impregnated version has more safety margin by design.

We recommend the use of our oil-impregnated standard tubular can type whenever possible. Especially for filter applications, as its thermal resistance is very low and it therefore provides excellent heat dissipation, which helps to overcome very high loading.

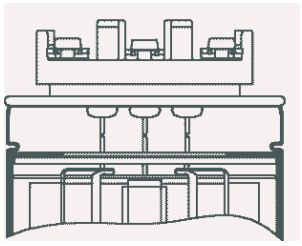
PROVIDING THE WINDING ELEMENT WITH ELECTRIC CONTACTS

For ESTAprop and ESTAdry MKP-type capacitors, metallized electrodes are used. A winding element consists of two displaced polypropylene films, wound together. The front surface of the winding elements is joined by means of a mental spray process. This process is called Schooping. Due to the displacement of the two polypropylene films, only one film will be electrically connected on one side of the element. The terminal leads can be soldered onto this sprayed metal surface.

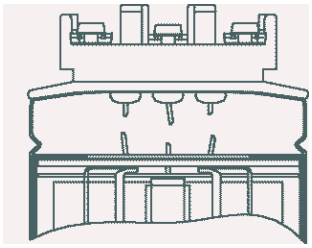
OVERPRESSURE TEAR-OFF FUSE

At the end of service life, due to inadmissible electrical or thermal overload, an overpressure builds up and causes an expansion of the cover. Expansion over a certain limit causes the tear-off of the internal fuses. The active capacitor elements are thus cut off from the source of supply. The pressure within the casing separates the breaking point so rapidly that no harmful arc can occur.

Operating Condition



Torn-off condition



CE-MARKING

ESTAprop ESTAdry	Low voltage capacitors conform with the regulations of the following European directives:
73/23 EEC	Low Voltage Directive

All ESTAprop and ESTAdry low voltage power factor correction Capacitors are supplied with CE-marking.

UL – AND ULC - MARKING

ESTAprop and ESTAdry cylindrical type capacitors have been tested and approved by independent laboratories such as Underwriters Laboratories Inc. (UL). ESTAprop and ESTAdry low voltage capacitors conform with UL standard 810 and Canadian standard C 22.2. UL and ULc marks are included in standard component marking.