

# MOTOR & LIGHTING CAPACITORS



Single-phase polypropylene and electrolytic Capacitors.

**COMAR**  
Condensatori

Save Your **Energy.**

# Introduction

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## Motor Capacitors

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A photograph of a modern building facade with large windows and a prominent sign for 'COMAIR Condensatori'. The sign is mounted on a light-colored wall and features the word 'COMAIR' in large, bold, blue letters, with 'Condensatori' written below it in a smaller, blue, cursive font. The building has a series of large windows reflecting the sky and trees. The overall scene is brightly lit, suggesting a sunny day.

**COMAIR**  
*Condensatori*

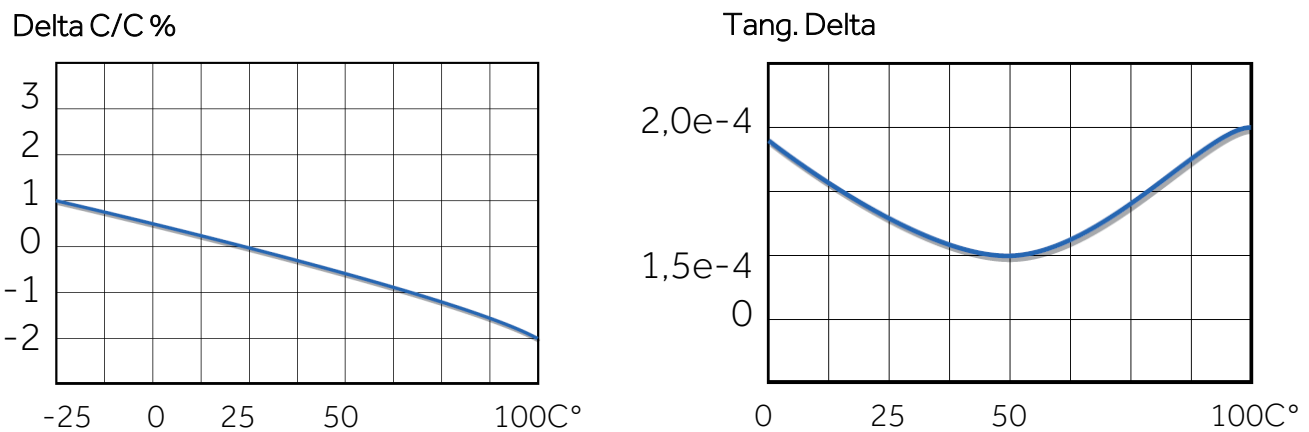
Introduction

# COMAR Condensatori S.p.A.

Since 1968 we provide standard products, as well as tailor-made solutions, depending on the needs of the Customer. We are leaders in the production of single-phase and three-phase **capacitors**, as well as power factor correction equipment.

The production began with the oil-paper dielectric capacitors and has evolved into the current **metallized polypropylene** capacitors. Our **MKP** capacitors are made of a bi-oriented polypropylene dielectric with low shrinkage and high mechanical properties.

The most relevant feature of this type of film is the **self-healing of the dielectric** that allows the restoration of the electrical functionality, while the stability over time is guaranteed by the technological and methodological measures adopted during the construction of each capacitor. Below are summarized the key characteristics when temperature changes:



Thanks to the continual replacement and upgrading of production equipment, the quality and reliability levels are always improving and at the highest international standard. Indeed, several homologations have been achieved during the years, such as:

## Motor Capacitors



## Lighting Capacitors



The excellence of COMAR Condensatori products is possible thanks to Italian supply chain, fully under control in our factory located near Bologna. The path to ensure the quality of the methods of design, procurement, production, testing and delivery sees the achievement of the **ISO 9001**, **ISO 14001** and **OHSAS 18001** certifications. All COMAR capacitors, displayed in this catalog, are labelled with **CE marking**.

# Insights on Motor Capacitors

This catalogue includes standard single-phase capacitors currently provided by COMAR Condensatori. Capacitors for **motor applications**, thanks to a very wide choice of models and construction options, offer the ideal solution for any type of application with **single or three-phase motors** supplied as single-phase. Single and three-phase electrical motors need, for their starting, a capacitor which generates a displaced current creating a rotating magnetic field. The capacitor can be used also for permanent operation, it maintains the required magnetic field and it compensates the motor's inductive load.

There are two types of capacitors used for those applications:

- motor starting capacitors, they are electrolytic capacitors with high capacitance value ( $\mu\text{F}$ ), able to provide an high starting torque to the motor. They are disconnected at the end of the starting in order to avoid overload to the motor winding;
- motor running capacitors, they are used to improve the value of the  $\cos\phi$  when motor is working at rated load conditions, they are permanently connected to the motor.

When using **single-phase** motors, the motor running capacitor also maintains the rotating magnetic field. For single-phase motors supplied at 230Vac 50Hz, the value of required motor running capacitors is 30 - 50  $\mu\text{F}$  for kW of motor power.

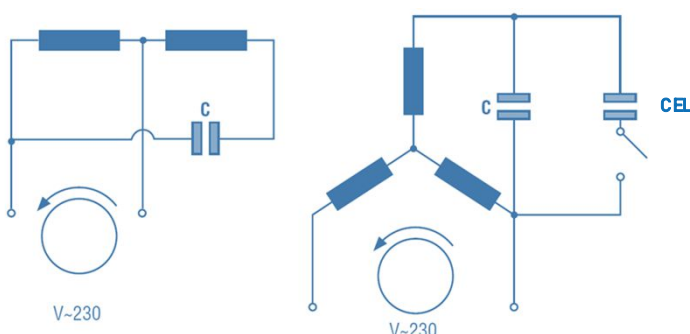
| Typical values for<br>Single-phase applications | <i>kW</i> | 0,18 | 0,37 | 0,55 | 0,75 | 0,92 | 1,1 | 1,5 |
|---|-----------|------|------|------|------|------|-----|-----|
|   | <i>HP</i> | 0,25 | 0,5  | 0,75 | 1    | 1,25 | 1,5 | 2   |
| 3000'/min 50 Hz – 2 Poles                       |           | 10   | 16   | 20   | 25   | 30   | 32  | 40  |
| 1500'/min 50 Hz – 4 Poles                       |           | 12,5 | 16   | 20   | 25   | 28   | 32  | 40  |
| 1000'/min 50 Hz – 6 Poles                       |           | 10   | 20   | 25   | 25   | 30   | 36  | 50  |

When using **three-phase** motors with single-phase supply, the motor running capacitor ensures the presence of the third phase.

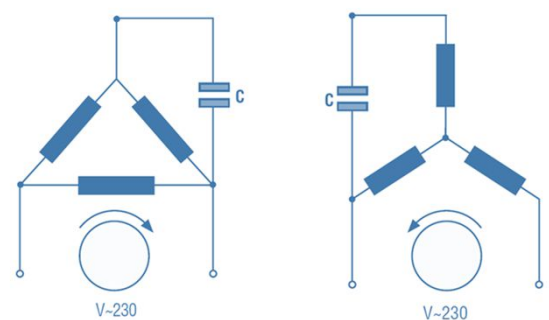
| Typical values for<br>Three-phase motor | <i>kW</i> | 0,18 | 0,37 | 0,55 | 0,75 | 0,92 | 1,1 | 1,5 |
|---|-----------|------|------|------|------|------|-----|-----|
|   | <i>HP</i> | 0,25 | 0,5  | 0,75 | 1    | 1,25 | 1,5 | 2   |
| Full Load                               |           | 12,5 | 25   | 38   | 50   | 60   | 75  | 100 |

The above data are obtained from the catalogue of motor manufacturers; they have indicative value and they are not binding for COMAR Condensatori.

Single-phase applications



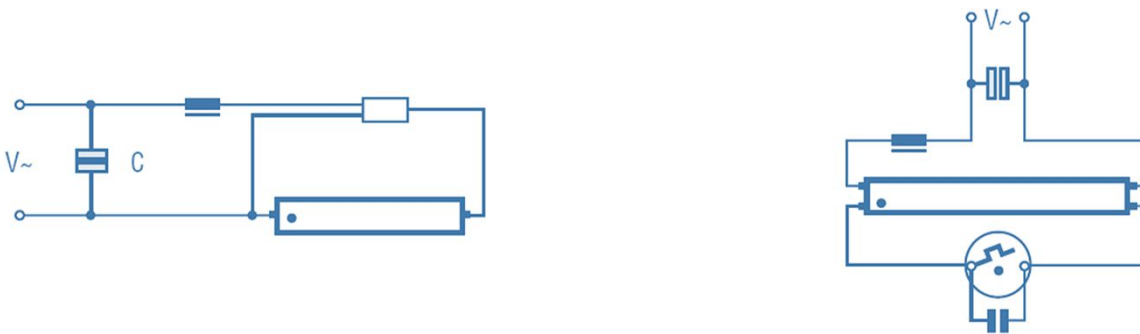
Three-phase applications with single-phase supply



# Insights on Lighting Capacitors

The capacitors for **lighting applications**, thanks to a very wide choice of models and constructions options, offer the ideal solution to compensate **fluorescent and discharge lamps**. All fluorescent and discharge lamps need a reactor to switch and keep on the electric arc. This kind of load is very inductive ( $\cos\phi \leq 0.5$ ) and it generates very high value of absorbed current. In order to decrease the absorbed current (optimizing the cable section of the supply cables) and to improve the value of the  $\cos\phi$ ; it is necessary to add a capacitor in the circuit. The national regulation of many countries impose the use of the compensation capacitors in lighting installations.

COMAR provides capacitors to be used in **parallel** (see beside examples): one capacitor can compensate one or more lamps supplied in parallel;



Typical capacitors values used in lighting equipment are reported below.

## Fluorescent Lamps

| Electronic |               | Preheated |               |     |               | Rapid |               | Rapid Start |               | Slimline    |               |
|------------|---------------|-----------|---------------|-----|---------------|-------|---------------|-------------|---------------|-------------|---------------|
| W          | $\mu\text{F}$ | W         | $\mu\text{F}$ | W   | $\mu\text{F}$ | W     | $\mu\text{F}$ | W           | $\mu\text{F}$ | W           | $\mu\text{F}$ |
| 5          | 2             | 4         | 2             | 30  | 4,5           | 14    | 4             | 20          | 4             | 42" T6 25W  | 5             |
| 7          | 2             | 6         | 2             | 32  | 4,5           | 16    | 4             | 22          | 4             | 48" T12 25W | 12,5          |
| 9          | 2,5           | 8         | 2             | 40  | 4,5           | 20    | 4             | 32          | 5             | 64" T6 38W  | 8             |
| 10         | 2,5           | 10        | 2             | 65  | 7             | 22    | 4             | 40          | 5             | 72" T8 37W  | 8             |
| 11         | 2,5           | 14        | 4             | 85  | 8             | 25    | 4             | 65          | 10            | 72" T12 57W | 16            |
| 13         | 3             | 16        | 4             | 115 | 16            | 30    | 5             | 115         | 16            | 96" T8 50W  | 10            |
| 18         | 3             | 20        | 4             | 140 | 18            | 32    | 5             | 140         | 18            | 96" T12 75W | 16            |
| 24         | 4             | 22        | 4             |     |               | 40    | 5             | 215         | 30            |             |               |
| 26         | 4             | 25        | 4,5           |     |               |       |               |             |               |             |               |
| 36         | 4,5           |           |               |     |               |       |               |             |               |             |               |

## Discharge Lamps

| High Pressure Sodium |               | Low Pressure Sodium |               | Mercury |               | Metal Halide |               |
|----------------------|---------------|---------------------|---------------|---------|---------------|--------------|---------------|
| W                    | $\mu\text{F}$ | W                   | $\mu\text{F}$ | W       | $\mu\text{F}$ | W            | $\mu\text{F}$ |
| 50                   | 10            | 18                  | 5             | 50      | 8             | 70           | 12            |
| 70                   | 12,5          | 35                  | 20            | 80      | 9             | 150          | 20            |
| 100                  | 18,5          | 55                  | 20            | 125     | 10            | 250          | 30            |
| 125                  | 20            | 90                  | 30            | 250     | 20            | 400          | 35            |
| 150                  | 20            | 135                 | 35            | 400     | 25            | 1000         | 70            |
| 250                  | 30            | 180                 | 40            | 700     | 40            | 2000         | 125           |
| 400                  | 50            |                     |               | 1000    | 60            | 2000/380     | 60            |
| 1000                 | 100           |                     |               |         |               |              |               |
| 2000                 | 125           |                     |               |         |               |              |               |

The above data are obtained from the catalogue of lamp manufacturers; they have indicative value and they are not binding for COMAR Condensatori.



MKA 450 • MK 450 • EL

## Motor Capacitors



# MKA 450

Motor Film Capacitors



## PERFORMANCE DATA

- Rated Voltage 450 Vac
- Rated Frequency 50 / 60 Hz
- Capacitance Tolerance  $-/+ 5\%$
- Operating class 400 V – B 10000 h (HPFNT)  
450 V – C 3000 h (HPFPU)
- Dielectric Self-healing MKP
- Safety class S0

## STANDARDS AND APPROVALS

Reference standards CEI EN 60252-1; VDE560-8

Homologation EN60252-1 (1.5  $\pm$  45  $\mu$ F)

EN60252-1 (1.5  $\pm$  45  $\mu$ F)

File E214047 (upon request)



The **MKA 450** capacitors are suitable for the **standard** motor applications.

## TECHNICAL DATA

|   |                                       |
|---|---------------------------------------|
| Climatic category                       | -25 °C / +85 °C                       |
| Protection degree                       | IP00                                  |
| Loss Factor                             | $\leq 5 \times 10^{-4}$ typical value |
| Test Voltage between terminals          | 1,75 Vn x 2 sec (min.)                |
| Test Voltage between terminals and case | 2 Vn x 2 sec (min.)                   |

## MECHANICAL CONFIGURATIONS

| Case      | Plane base self-extinguishing (V2) plastic case          | Plane base self-extinguishing (V2) plastic case               | Plane base self-extinguishing (V2) plastic case   | Bottom M8 metal stud self-extinguishing (V2) plastic case | Bottom M8 metal stud self-extinguishing (V2) plastic case     | Bottom M8 metal stud self-extinguishing (V2) plastic case                               |
|-----------|--|---|---|---|---|---|
| Finishing | Bipolar cable. Length = 250 mm (other length on request) | Two flexible leads. Length = 150 mm (other length on request) | Faston terminal. Single if $\varnothing = 25$ mm, otherwise double. Size = 6,3 x 0,8 mm | Bipolar cable. Length = 250 mm (other length on request)  | Two flexible leads. Length = 150 mm (other length on request) | Faston terminal. Single if $\varnothing = 25$ mm, otherwise double. Size = 6,3 x 0,8 mm |
| Figure    |  |   |   |   |   |   |
| Top view  |  |   |   |   |   |   |
| Naming    | Pla-PB<br>CB250  | Pla-PB<br>CVF150  | Pla-PB<br>FS/FD   | Pla-C8<br>CB250   | Pla-C8<br>CVF150  | Pla-C8<br>FS/FD   |

Optional item:

- Capacitors can be equipped with plastic **protective cap**



## CONFIGURATION

Table

| Type         | Cn<br>( $\mu$ F) | Homologation | Dimension<br>D x H<br>(mm) | Pcs x bag* |
|--------------|------------------|--------------|----------------------------|------------|
| MKA 450-1    | 1                |              | 25 x 57                    | 50         |
| MKA 450-1,25 | 1,25             |              | 25 x 57                    | 50         |
| MKA 450-1,5  | 1,5              | VDE   IMQ    | 25 x 57                    | 50         |
| MKA 450-2    | 2                | VDE   IMQ    | 25 x 57                    | 50         |
| MKA 450-2,5  | 2,5              | VDE   IMQ    | 25 x 57                    | 50         |
| MKA 450-3    | 3                | VDE   IMQ    | 25 x 57                    | 50         |
| MKA 450-3,15 | 3,15             | VDE   IMQ    | 25 x 57                    | 50         |
| MKA 450-3,5  | 3,5              | VDE   IMQ    | 25 x 57                    | 50         |
| MKA 450-3,75 | 3,75             | VDE   IMQ    | 25 x 57                    | 50         |
| MKA 450-4    | 4                | VDE   IMQ    | 25 x 57                    | 50         |
| MKA 450-4,5  | 4,5              | VDE   IMQ    | 25 x 57                    | 50         |
| MKA 450-5    | 5                | VDE   IMQ    | 30 x 57                    | 50         |
| MKA 450-5,5  | 5,5              | VDE   IMQ    | 30 x 57                    | 50         |
| MKA 450-6    | 6                | VDE   IMQ    | 30 x 57                    | 50         |
| MKA 450-6,3  | 6,3              | VDE   IMQ    | 30 x 57                    | 50         |
| MKA 450-7    | 7                | VDE   IMQ    | 30 x 57                    | 50         |
| MKA 450-8    | 8                | VDE   IMQ    | 30 x 70                    | 50         |
| MKA 450-9    | 9                | VDE   IMQ    | 30 x 70                    | 50         |
| MKA 450-10   | 10               | VDE   IMQ    | 30 x 70                    | 50         |
| MKA 450-11   | 11               | VDE   IMQ    | 35 x 70                    | 50         |
| MKA 450-12   | 12               | VDE   IMQ    | 35 x 70                    | 50         |
| MKA 450-12,5 | 12,5             | VDE   IMQ    | 35 x 70                    | 50         |
| MKA 450-13   | 13               | VDE   IMQ    | 35 x 70                    | 50         |
| MKA 450-14   | 14               | VDE   IMQ    | 35 x 70                    | 50         |
| MKA 450-15   | 15               | VDE   IMQ    | 40 x 70                    | 50         |
| MKA 450-16   | 16               | VDE   IMQ    | 40 x 70                    | 50         |
| MKA 450-18   | 18               | VDE   IMQ    | 40 x 70                    | 50         |
| MKA 450-20   | 20               | VDE   IMQ    | 40 x 70                    | 50         |
| MKA 450-22   | 22               | VDE   IMQ    | 40 x 94                    | 50         |
| MKA 450-25   | 25               | VDE   IMQ    | 40 x 94                    | 50         |
| MKA 450-30   | 30               | VDE   IMQ    | 40 x 94                    | 50         |
| MKA 450-31,5 | 31,5             | VDE   IMQ    | 40 x 94                    | 50         |
| MKA 450-35   | 35               | VDE   IMQ    | 45 x 94                    | 50         |
| MKA 450-40   | 40               | VDE   IMQ    | 45 x 94                    | 50         |
| MKA 450-45   | 45               | VDE   IMQ    | 50 x 94                    | 50         |
| MKA 450-50   | 50               |              | 50 x 94                    | 50         |
| MKA 450-55   | 55               |              | 50 x 94                    | 50         |
| MKA 450-60   | 60               |              | 50 x 120                   | 50         |
| MKA 450-70   | 70               |              | 50 x 120                   | 50         |
| MKA 450-75   | 75               |              | 50 x 120                   | 50         |
| MKA 450-80   | 80               |              | 50 x 120                   | 50         |
| MKA 450-90   | 90               |              | 60 x 120                   | 50         |
| MKA 450-100  | 100              |              | 60 x 120                   | 50         |

Other solutions are available on request.

\* All capacitors are supplied inside polyethylene bag, in order to reduce cardboard boxes.

# MK 450

Motor Film Capacitors



## PERFORMANCE DATA

- Rated Voltage 450 Vac
- Rated Frequency 50 / 60 Hz
- Capacitance Tolerance  $-/+ 5\%$
- Operating class 420 V – A 30000 h (HPFNS)  
450 V – B 10000 h (HPFNT)
- Dielectric Self-healing MKP
- Safety class S0

## STANDARDS AND APPROVALS

Reference standards CEI EN 60252-1; VDE560-8

Homologation EN60252-1 (1.5  $\pm$  45  $\mu$ F)  
EN60252-1 (1.5  $\pm$  45  $\mu$ F)



The **MKA 450** capacitors are suitable for the **heavy duty** motor applications.

## TECHNICAL DATA

|   |                                       |
|---|---------------------------------------|
| Climatic category                       | -25 °C / +85 °C                       |
| Protection degree                       | IP00                                  |
| Loss Factor                             | $\leq 5 \times 10^{-4}$ typical value |
| Test Voltage between terminals          | 1,75 Vn x 2 sec (min.)                |
| Test Voltage between terminals and case | 2 Vn x 2 sec (min.)                   |

## MECHANICAL CONFIGURATIONS

| Case      | Plane base self-extinguishing (V2) plastic case          | Plane base self-extinguishing (V2) plastic case               | Plane base self-extinguishing (V2) plastic case   | Bottom M8 metal stud self-extinguishing (V2) plastic case | Bottom M8 metal stud self-extinguishing (V2) plastic case     | Bottom M8 metal stud self-extinguishing (V2) plastic case                               |
|-----------|--|---|---|---|---|---|
| Finishing | Bipolar cable. Length = 250 mm (other length on request) | Two flexible leads. Length = 150 mm (other length on request) | Faston terminal. Single if $\varnothing = 25$ mm, otherwise double. Size = 6,3 x 0,8 mm | Bipolar cable. Length = 250 mm (other length on request)  | Two flexible leads. Length = 150 mm (other length on request) | Faston terminal. Single if $\varnothing = 25$ mm, otherwise double. Size = 6,3 x 0,8 mm |
| Figure    |  |   |   |   |   |   |
| Top view  |  |   |   |   |   |   |
| Naming    | Pla-PB<br>CB250  | Pla-PB<br>CVF150  | Pla-PB<br>FS/FD   | Pla-C8<br>CB250   | Pla-C8<br>CVF150  | Pla-C8<br>FS/FD   |

Optional item:

- Capacitors can be equipped with plastic **protective cap**

## CONFIGURATION

Table

| Type        | Cn<br>( $\mu$ F) | Homologation | Dimension<br>D x H<br>(mm) | Pcs x bag* |
|-------------|------------------|--------------|----------------------------|------------|
| MK 450-1    | 1                | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-1,25 | 1,25             | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-1,5  | 1,5              | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-2    | 2                | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-2,5  | 2,5              | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-3    | 3                | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-3,15 | 3,15             | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-3,5  | 3,5              | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-3,75 | 3,75             | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-4    | 4                | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-4,5  | 4,5              | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-5    | 5                | VDE   IMQ    | 30 x 57                    | 50         |
| MK 450-5,5  | 5,5              | VDE   IMQ    | 30 x 70                    | 50         |
| MK 450-6    | 6                | VDE   IMQ    | 30 x 70                    | 50         |
| MK 450-6,3  | 6,3              | VDE   IMQ    | 30 x 70                    | 50         |
| MK 450-7    | 7                | VDE   IMQ    | 30 x 70                    | 50         |
| MK 450-8    | 8                | VDE   IMQ    | 30 x 70                    | 50         |
| MK 450-9    | 9                | VDE   IMQ    | 35 x 70                    | 50         |
| MK 450-10   | 10               | VDE   IMQ    | 35 x 70                    | 50         |
| MK 450-11   | 11               | VDE   IMQ    | 40 x 70                    | 50         |
| MK 450-12   | 12               | VDE   IMQ    | 40 x 70                    | 50         |
| MK 450-12,5 | 12,5             | VDE   IMQ    | 40 x 70                    | 50         |
| MK 450-13   | 13               | VDE   IMQ    | 40 x 70                    | 50         |
| MK 450-14   | 14               | VDE   IMQ    | 40 x 70                    | 50         |
| MK 450-15   | 15               | VDE   IMQ    | 40 x 70                    | 50         |
| MK 450-16   | 16               | VDE   IMQ    | 40 x 70                    | 50         |
| MK 450-18   | 18               | VDE   IMQ    | 40 x 94                    | 50         |
| MK 450-20   | 20               | VDE   IMQ    | 40 x 94                    | 50         |
| MK 450-22   | 22               | VDE   IMQ    | 40 x 94                    | 50         |
| MK 450-25   | 25               | VDE   IMQ    | 45 x 94                    | 50         |
| MK 450-30   | 30               | VDE   IMQ    | 45 x 94                    | 50         |
| MK 450-31,5 | 31,5             | VDE   IMQ    | 45 x 94                    | 50         |
| MK 450-35   | 35               | VDE   IMQ    | 50 x 94                    | 50         |
| MK 450-40   | 40               | VDE   IMQ    | 50 x 94                    | 50         |
| MK 450-45   | 45               | VDE   IMQ    | 50 x 120                   | 50         |
| MK 450-50   | 50               |              | 50 x 120                   | 50         |
| MK 450-55   | 55               |              | 55 x 120                   | 50         |
| MK 450-60   | 60               |              | 55 x 120                   | 50         |
| MK 450-70   | 70               |              | 60 x 120                   | 50         |
| MK 450-75   | 75               |              | 60 x 120                   | 50         |
| MK 450-80   | 80               |              | 60 x 120                   | 50         |

Other solutions are available on request.

\* All capacitors are supplied inside polyethylene bag, in order to reduce cardboard boxes.



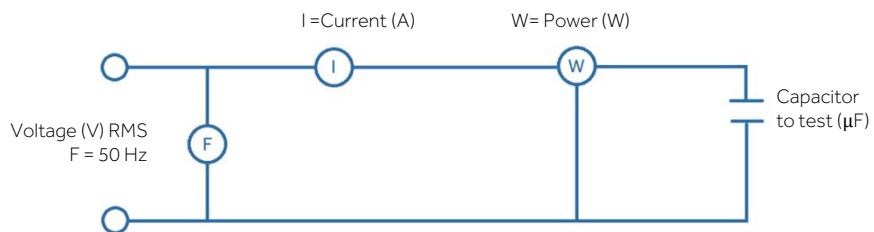
The **EL** electrolytic capacitor have **high capacitance** ( $\mu\text{F}$  value) able to provide an high starting torque to the motor. It is a non polarized capacitor especially designed for intermittent AC voltage applications for single-phase motors.

### PERFORMANCE DATA

- **Rated Voltage** 250 Vac
- **Rated Frequency** 50 / 60 Hz
- **Capacitance Range** from 25  $\mu\text{F}$  to 550  $\mu\text{F}$
- **Capacitance Tolerance** 0% + 20% o -/+ 10% (0% + 22% for 8141910)
- **Operating class:**
  - 250 Vac** The standard time rating defined of IEC 60252 is 1,7% full time and corresponds to a duty cycle of 3 seconds on and 177 seconds off.
  - 330 Vac** The standard time rating defined of IEC 60252 is 0,55% full time and corresponds to a duty cycle of 1 second.

### TECHNICAL DATA

- Operating Temperature** -45 °C / +65 °C (higher temperatures on request)
- Storage Temperature** -40 °C / +70 °C
- Endurance test** 500 h
- Dissipation Loss Angle** Measurement frequency: 50 Hz, the typical value shall not exceed 0,10, calculated as follows:  
 $\text{Tan } d = W / (V \times I) = (\text{true watts} / \text{apparent watts})$
- Capacitance Measurement** Capacitance shall be determined by measuring the current – after 2/3 sec. of energizing – through the capacitor at rated voltage and frequency.  
 The capacitance is defined as follows:  $C = (I \times 10^6) / 2 \pi^2 \times f \times V$



### TYPICAL VALUES

|                        |           |                  |                  |                   |                   |                   |                   |                   |
|------------------------|-----------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| For Single-phase Motor | <i>kW</i> | 0,074            | 0,183            | 0,368             | 0,552             | 0,736             | 1,104             | 1,472             |
|                        | <i>HP</i> | 1/10             | 1/4              | 1/2               | 3/4               | 1                 | 1,5               | 2                 |
| 220 V                  |           | 20 $\mu\text{F}$ | 50 $\mu\text{F}$ | 100 $\mu\text{F}$ | 150 $\mu\text{F}$ | 200 $\mu\text{F}$ | 300 $\mu\text{F}$ | -                 |
| 280 V                  |           | 10 $\mu\text{F}$ | 25 $\mu\text{F}$ | 50 $\mu\text{F}$  | 80 $\mu\text{F}$  | 100 $\mu\text{F}$ | 150 $\mu\text{F}$ | 200 $\mu\text{F}$ |

Note: the indicated voltages are the working capacitor voltages

### STANDARDS AND APPROVALS

- Reference standards** CEI EN 60252-2 (capacitor); UL 810; CEI EN 60695-11-10 (electrolyte).
- Homologation** JIS C 4905 IMQ CE 133-3; SEV 1029; EIA RS 463; CQC
- Directives** It complies with the RoHs Directive

CONFIGURATION

Table

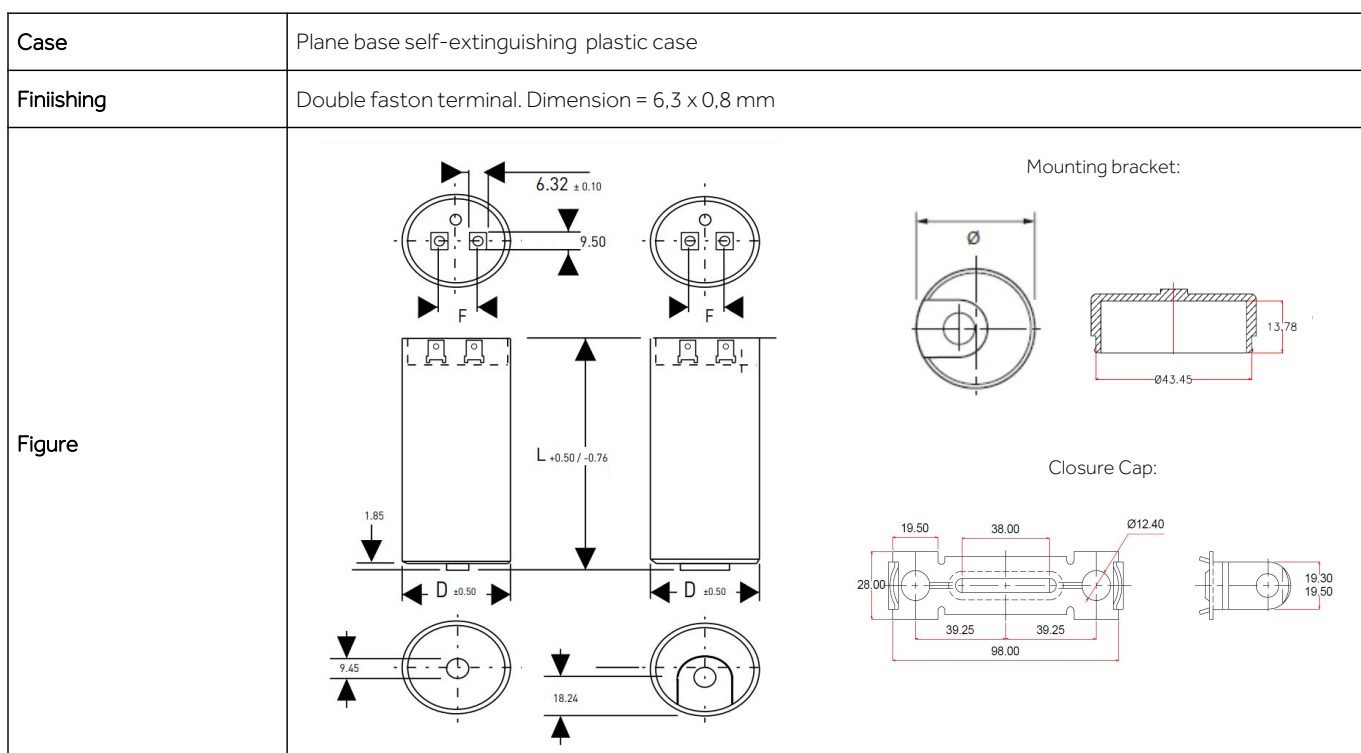
| Type    | Cn<br>(μF) | Rated Voltage | Dimension<br>D x H<br>(mm) |
|---------|------------|---------------|----------------------------|
| 8140610 | 25 - 30    | 250 V         | 46 x 85                    |
| 8140710 | 31,5 - 37  | 250 V         | 46 x 85                    |
| 8140810 | 40 - 48    | 250 V         | 46 x 85                    |
| 8140910 | 50 - 60    | 250 V         | 46 x 85                    |
| 8141010 | 64 - 77    | 250 V         | 46 x 85                    |
| 8141110 | 80 - 96    | 250 V         | 46 x 85                    |
| 8141210 | 100 - 120  | 250 V         | 46 x 85                    |
| 8141310 | 125 - 150  | 250 V         | 46 x 85                    |
| 8141410 | 160 - 192  | 250 V         | 46 x 85                    |
| 8141510 | 200 - 240  | 250 V         | 46 x 85                    |
| 8141610 | 250 - 300  | 250 V         | 46 x 85                    |
| 8141710 | 315 - 378  | 250 V         | 46 x 85                    |
| 8141810 | 400 - 480  | 250 V         | 46 x 85                    |
| 8141910 | 450 - 550  | 250 V         | 46 x 85                    |

Other solutions are available on request.

Optional requests:

- **Protective cap**, code 730046;
- **Mounting bracket**, code 565008;
- **Bipolar cable**, length 300 mm with Female Faston 6.35 mm, code 7850694;
- EL Capacitors can be equipped with **Resistors** (codes on request);
- EL Capacitors can be supplied in a more compact version, with a **diameter of 36.5 mm** (codes on request).

MECHANICAL CONFIGURATION



# DR - DRC

Relay Disjunctore



The electronic disjunctore is a device that allows the starts up of electrical asynchronous single phase motor. The disjunctore with Relay connects the motor start capacitor for the time necessary to reach the 80% of the rated motor speed, then it opens and discharges the capacitor by means of a resistance. The **DR** comes alone, while **DRC** also includes the capacitor.

## PERFORMANCE DATA

- Rated Voltage 250 / 450 Vac
- Rated Frequency 50 / 60 Hz
- Max. Capacitance 100  $\mu$ F - 450 Vac (50 Hz)  
180  $\mu$ F - 250 Vac (50 Hz)  
90  $\mu$ F - 450 Vac (60 Hz)  
160  $\mu$ F - 250 Vac (60 Hz)

## STANDARDS

Homologation UL E475575

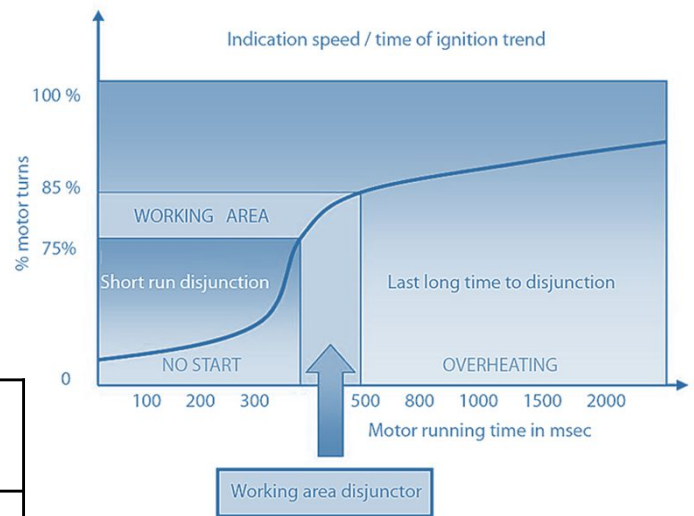
## TECHNICAL DATA

|   |   |
|---|---|
| Disjunctore Recovery Time<br>(after one intervention) | 1 sec<br>(since the motor switches off) |
| Advisable repetition time                             | 6 sec                                   |
| Number of advisable max starts up                     | 6 /min                                  |
| Max current   | 15 A                                    |
| Operation and Storage temperature                     | -20 °C / +80 °C                         |

## CONFIGURATION

DR Series: Relay without Capacitor

| Type      | Current<br>(A) | Voltage<br>(Vac) | Dimension<br>D x H<br>(mm) |
|-----------|----------------|------------------|----------------------------|
| DR R2 250 | 15             | up to 250        | 42 x 70                    |
| DR R4 450 | 15             | up to 250        | 42 x 70                    |

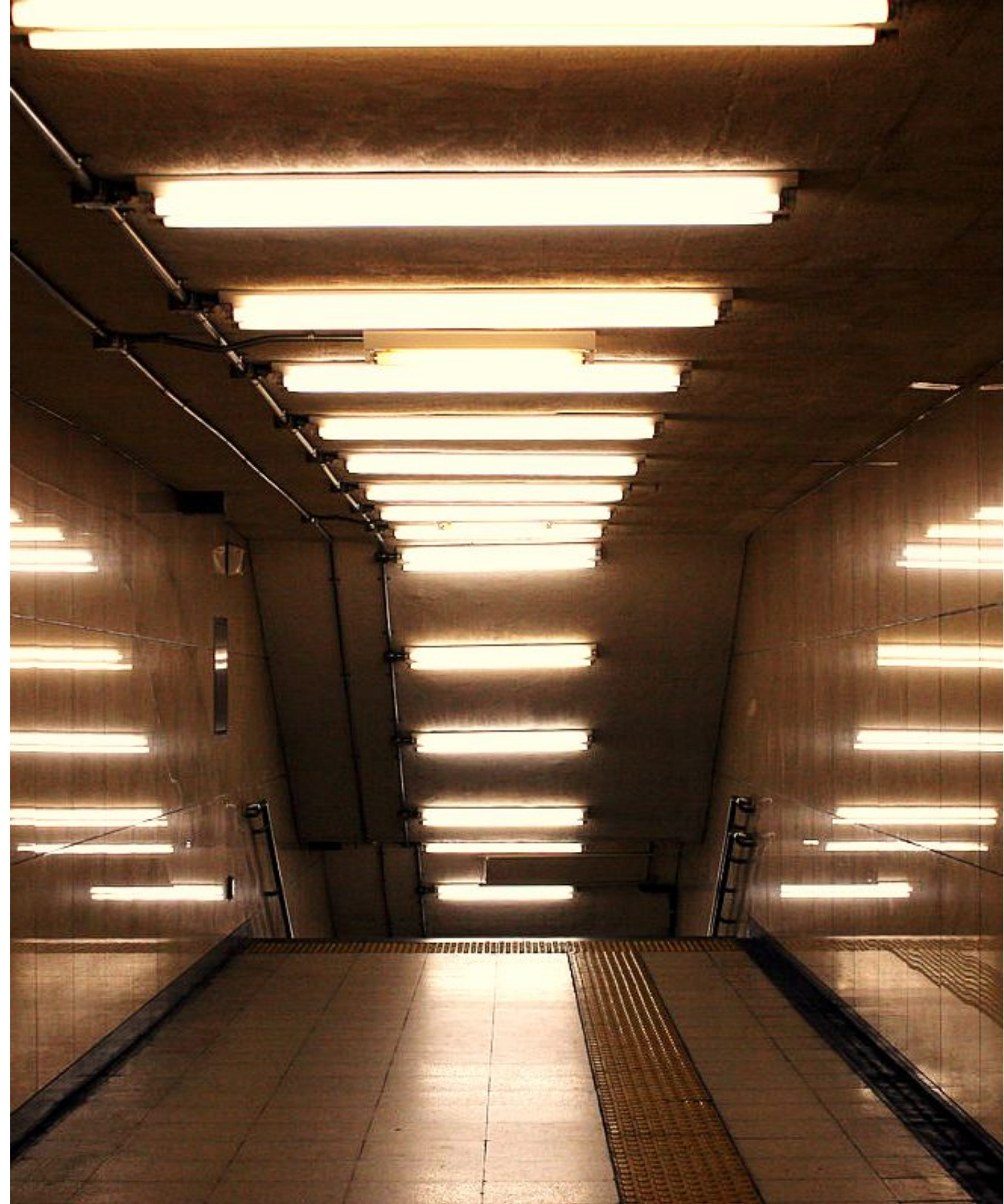


DRC Series: Relay with Capacitor

| Type            | Cn<br>( $\mu$ F) | Voltage<br>(Vac) | Dimension<br>D x H<br>(mm) |
|-----------------|------------------|------------------|----------------------------|
| DRC - 250 - 10  | 10               | up to 250        | 45 x 94                    |
| DRC - 250 - 15  | 15               | up to 250        | 45 x 94                    |
| DRC - 250 - 18  | 18               | up to 250        | 45 x 94                    |
| DRC - 250 - 24  | 24               | up to 250        | 45 x 94                    |
| DRC - 250 - 45  | 45               | up to 250        | 55 x 94                    |
| DRC - 250 - 60  | 60               | up to 250        | 50 x 120                   |
| DRC - 250 - 80  | 80               | up to 250        | 60 x 120                   |
| DRC - 250 - 100 | 100              | up to 250        | 65 x 120                   |
| DRC - 250 - 160 | 160              | up to 250        | 65 x 120                   |

| Type             | Cn<br>( $\mu$ F) | Voltage<br>(Vac) | Dimension<br>D x H<br>(mm) |
|------------------|------------------|------------------|----------------------------|
| DRC - 450 - 10   | 10               | up to 250        | 45 x 94                    |
| DRC - 450 - 12   | 15               | up to 250        | 45 x 94                    |
| DRC - 450 - 15   | 15               | up to 250        | 45 x 94                    |
| DRC - 450 - 22,5 | 22,5             | up to 250        | 45 x 94                    |
| DRC - 450 - 40   | 40               | up to 250        | 55 x 94                    |
| DRC - 450 - 50   | 50               | up to 250        | 50 x 120                   |
| DRC - 450 - 80   | 80               | up to 250        | 60 x 120                   |
| DRC - 450 - 100  | 100              | up to 250        | 65 x 120                   |

Tailor made versions available on requests:



MFE 250 • MFE 450

## Lighting Capacitors



# MFE 250

Lighting Capacitors



The **MFE 250** capacitors are suitable for lighting applications such as **fluorescent** and **discharge lamps**.

## PERFORMANCE DATA

- Rated Voltage 250 Vac
- Rated Frequency 50 Hz (optional 60 Hz)
- Capacitance Tolerance -/+ 10 (optional +/- 5%)
- Operating class 400 V – B 10000 h (HPFNT)  
450 V – C 3000 h (HPFPU)

## STANDARDS AND APPROVALS

Reference standards CEI EN 60252-1; VDE5460-8

Homologation IMQ - EN61048 2/ EN61049  
ENEC03



## TECHNICAL DATA

|   |  |
|---|--|
| Climatic category                       | -25 °C / +85 °C. Upon request: max. temperature +100 °C. |
| Protection degree                       | IP00.  |
| Loss Factor                             | $\leq 5 \times 10^{-4}$ typical value                    |
| Test Voltage between terminals          | 2 Vn x 2 sec   |
| Test Voltage between terminals and case | 2 kV x 2 sec   |

## MECHANICAL CONFIGURATIONS

|           |   |   |
|-----------|---|---|
| Case      | Plane base self-extinguishing (V2) plastic case               | Bottom M8 metal stud self-extinguishing (V2) plastic case     |
| Finishing | Two flexible leads. Length = 150 mm (other length on request) | Two flexible leads. Length = 150 mm (other length on request) |
| Figure    |   |   |
| Top view  |   |   |
| Naming    | Pla-PB<br>CVF150  | Pla-PB + Pla-C8<br>CVF150                                     |

Optional items:

- Capacitors can be equipped with plastic **protective cap**
- Capacitors can be equipped with **discharge resistors**



## CONFIGURATION

Table

| Type         | Cn<br>( $\mu$ F) | Pcs x box | Dimension<br>D x H<br>(mm) |
|--------------|------------------|-----------|----------------------------|
| MFE 250-2    | 2                | 150       | 25 x 57                    |
| MFE 250-2,5  | 2,5              | 150       | 25 x 57                    |
| MFE 250-3    | 3                | 150       | 25 x 57                    |
| MFE 250-3,15 | 3,15             | 150       | 25 x 57                    |
| MFE 250-3,5  | 3,5              | 150       | 25 x 57                    |
| MFE 250-4    | 4                | 150       | 25 x 57                    |
| MFE 250-4,5  | 4,5              | 150       | 25 x 57                    |
| MFE 250-5    | 5                | 150       | 25 x 70                    |
| MFE 250-6    | 6                | 150       | 25 x 70                    |
| MFE 250-6,3  | 6,3              | 150       | 25 x 57                    |
| MFE 250-7    | 7                | 100       | 30 x 70                    |
| MFE 250-8    | 8                | 100       | 30 x 70                    |
| MFE 250-9    | 9                | 100       | 30 x 70                    |
| MFE 250-10   | 10               | 100       | 30 x 70                    |
| MFE 250-11   | 11               | 100       | 30 x 70                    |
| MFE 250-12   | 12               | 100       | 30 x 70                    |
| MFE 250-12,5 | 12,5             | 100       | 30 x 70                    |
| MFE 250-14   | 14               | 70        | 35 x 70                    |
| MFE 250-15   | 15               | 70        | 35 x 70                    |
| MFE 250-16   | 16               | 70        | 35 x 70                    |
| MFE 250-18   | 18               | 50        | 40 x 70                    |
| MFE 250-20   | 20               | 50        | 40 x 70                    |
| MFE 250-25   | 25               | 50        | 40 x 94                    |
| MFE 250-30   | 30               | 50        | 40 x 94                    |
| MFE 250-31,5 | 31,5             | 50        | 40 x 94                    |
| MFE 250-35   | 35               | 50        | 45 x 94                    |
| MFE 250-40   | 40               | 50        | 45 x 94                    |
| MFE 250-45   | 45               | 50        | 45 x 94                    |
| MFE 250-50   | 50               | 50        | 50 x 94                    |
| MFE 250-55   | 55               | 35        | 50 x 120                   |

Other solutions are available on request.

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Do you have any other question? Feel free to ask:

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Motor Film Capacitors  
Motor Electrolytic Capacitors  
Relay Disjunctors  
Lighting Capacitors



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