

ELMACO

Over 50 Years of Experience

شركة النصر لصناعة المحولات والمنتجات الكهربائية (الماكو)
ELNASR TRANSFORMERS & ELECTRICAL PRODUCTS CO.



Registration Schedule

SCOPE OF REGISTRATION

*Design and Production of Power and Distribution transformers,
LV capacitors and MV disconnectors and the production of
HRC LV/MV fuse links*

Company Name: EL NASR TRANSFORMERS &
ELECTRICAL PRODUCTS COMPANY (ELMACO)

Sites Registered: PO Box 1916, 3 Kablat Street, Mataria, Cairo, Egypt

Standard: BS EN ISO 9001:2008

EAC: 19

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Certificate Number: AJA09/13581



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Low Voltage Power Capacitors

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Low Voltage Power Capacitors

ELMACO Produces two types of dry capacitors

A - Dry capacitors mounted in steel box and surrounded by vermiculite .

B - Dry capacitors type Zn Ps mounted in aluminum cans filled with oil or inert gas or epoxy.

Each type is installed inside ventilated panel board.

The capacitors are produced according to the IEC standard no.60831

Introduction

The low voltage dry capacitors are used for industrial power factor correction.

They are three phase, 50HZ, 400 volt and rated power up to 100 KVAR

Any capacitor with other voltage and capacities can be manufactured on request.

Description

The dry low voltage capacitor consists of a number of capacitor elements which are wound from metalized polypropylene film and encapsulated in a thermal setting resin inside plastic cans.

The capacitor element has two leads with different colors.

The elements are connected in groups to provide the required three phase rated power.

The terminals are mounted on the container cover and protected with a steel bonnet.

The capacitor is provided with discharge resistors connected between the terminals to reduce the residual voltage to 50 volts or less within one minute of deenergization

Advantages

Reduced Losses :

The use of low loss metalized polypropylene film as the dielectric in the capacitor, results in total losses including the discharge resistors of less than 0.5 watts per KVAR.

Self Healing

The electrodes of the dry capacitor are very thin layers of metal deposited on the polypropylene surface. In the event of short circuit in the dielectric material, the energy discharged into the puncture causes this thin metal layer to vaporize and eliminate the fault. Thus the capacitor is self healing and does not require a separate fuse to protect against dielectric failures.

Reduced Risk of Fire:

In addition to the self healing characteristics of metalized dielectric, the design of the dry capacitor incorporates additional protection. This protection is provided by :

- a- The combination of the liquid-free capacitor cells and the vermiculite packing around these cells within the steel container
- b- The aluminum cans may be provided with over pressure protection.

Customer Connections

The capacitor terminals are provided with washes and nuts for line connections.

The steel bonnet can be drilled for a suitable cable gland by the customer.

Testing

A - Routine tests According to IEC 60831 - part -1

All capacitors should pass the following tests.

- 1- Measurement of capacitance and dissipation factor.
- 2- Insulation test (terminal to case) .
- 3- Over potential test (terminal to terminal test) .
- 4- Discharge resistor test.
- 5- Loss determination.

B- Type tests

The type tests according to IEC 60831-1 will be carried at Extra high voltage research center

Important Remarks

- The voltage on the capacitor terminals may be particularly high at times of light load conditions.
- In such cases-some or all of the capacitors should be switched out of circuit in order to prevent overstressing of the capacitors due to voltage increase in the network.
- In case the network is disturbed by harmonics, special care could be necessary and this case must be revised.

Capacitor Specifications

Voltage range	All standard voltage from 240 volt up to 660 volt for continuous operation
Frequency	50 Hz
No of phases	3 phase standard. Single. phase on request.
Temperature limit	- 5 To 55 °C (other value on request)
Protection degree of panel	As per customer requirement
Max permissible voltage	Shown in table (1)
Max . inrush current	On request
Max . permissible current	Up to 1.5 In
Capacitance tolerance	- 5% To + 10 %
Dielectric losses	< 0.5 W / KVAR
Discharge resistor	50 V after 60 sec
Max humidity	Up to 95 %

Max. permissible voltage

Voltage Factors (x) r.m.s	Maximum duration
1	Continuous
1.1	8 hour in every 24 h
1.15	30 min - in every 24 h
1.2	5 min - in every 24 h
1.3	1 min

Table (1)