



## PRODUCT CATALOG

# Sharda Electronics & Co.

An ISO 9001:2015 Certified Company







# Sharda Electronics & Co.

Manufacturer of : L.T., H.T. & Special Capacitors



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## SHARDA Make Medium Voltage / High voltage Heavy duty Capacitor



**SHARDA** make **Medium Voltage (MV) / High Voltage (HV)** Capacitors We offer to the customer up to 400 kV class Capacitor bank. Single Unit of Capacitor is up to **1200 kVAR** & Capacitor Bank is up to **50,000 kVAR, 400 kV** voltage class. **“SHARDA” MV/HV ALL POLYPROPYLENE (All PP) POWER CAPACITOR.** The basic Capacitor units will be, 1Ø / 3Ø, 50 Hz, with single / double / triple, porcelain bushing termination, in all Film design. Capacitors are manufactured using Electrical grade double side hazy Bi-axially Oriented All Polypropylene film interleaved with soft annealed high purity Aluminium foil as its electrode. The units are impregnated under high vacuum with electrical grade Non-PCB insulating fluid. All capacitor either internal fuse or external fuse assembly with permanent internal connected discharge device.

MV/HV capacitors compliance to IS 13925, IEC 60871, ANSI IEEE STD 18.

### Capacitor consists of,

1. Dielectric: All Polypropylene film with electrically graded of both side biaxially hazy type.
2. Conducting Material : 99% pure Aluminum foil
3. Housing — CRCA / Stainless steel container.
4. Insulation — Press Phan paper.
5. Bushing – Porcelain, glazed type.
6. Impregnation —By PXE oil / Jerry lac Oil.
7. Electrode – Tinned Copper Wire.
8. Finish – By spray painting method using Anti UV Protection based paint

### PROCESS OF MANUFACTURING

#### Winding

MV/HV Capacitors contains several elements wound in 2-3 alternate layers of aluminum foil as a electrode & all polypropylene as a dielectric. We adopt the advance edge & end fold technology to manufacture the capacitors. This process is carried under AC clean room i.e. dust or moisture free room. We maintain the dust level below 3 micron.

#### Inprocess testing

In this testing procedure it is important to test the element of capacitor as capacitor contains the number of series and parallel elements in each capacitor. If a failed element is inserted in the capacitor then finding that element is somehow lengthy process so considering this scenario we test every elements with our Hi-tech DC element tester before making this series and parallel combination.

We are using high quality imported raw material. We are also testing our raw material before taking in to the production.

#### Soldering and connection

The capacitor contains the number of elements so to connect all these elements we use Tin-Zinc & Tin-Lead soldering material. We also take care that all soldering is correct with smooth layers of solders.

For connection purpose we use tinned copper multistrand wire. After connection entire capacitor is wrapped by insulating paper.

#### Vacuum Impregnation

After above procedure the pack of capacitor is sealed in Stainless steel or CRCA container. The welding is done by TIG and MIG welding. Entire capacitor is sealed only the sealing hole is kept open to fill the oil.

Then number of capacitor is put in vacuum impregnation plant. We have capacity 30000 kVAR it means that at a time we can manufacture the 30,000 kVAR capacity capacitor.

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## Testing of Capacitor

In our plant we conduct all Routine Test as per IS 13925, IEC 60871, IEE 18. The test carried out as listed below,

1. Measurement of Capacitance
2. Measurement of Tangent of the loss angle ( $\tan \delta$ )
3. HV DC Voltage test between terminal
4. HV AC Voltage test between terminal and container
5. Test of internal discharge devices
6. Sealing test

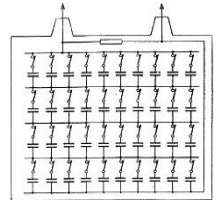
We are periodically done type test, endurance test on variety of capacitor in NABL laboratory like CPRI / ERDA

## PROTECTION TO MV / HV CAPACITORS

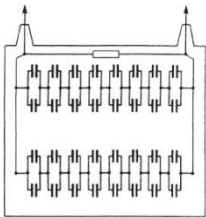
We have provided internal as well as external protection by fuse. Fuse plays an important role at MV/HV Capacitors. The purpose of fuse is to protect the effect of unit dielectric failure. There are two type of fusing one is internal fuse type and another is external fuse type. As details below,

### Internal Fuse type:

The tinned copper wire is used as element fuse link to all element. The principle to use the element fuse is all element must be capable of withstanding the transient inrush current of capacitors at switching in without deterioration and it must be operate positively when an element suffer dielectric break down.



### External FUSING



Capacitor unit with external fuses are not subjected to any element pack design restriction for higher voltages. It is important feature is that current limiting HRC fuse normally is assigned to withstand the high frequency switching transient characteristic of capacitors.

## FEATURES OF CAPACITORS

- Japanese Imported electric grade double side haze Bi-axially oriented Polypropylene Film ie. **Dielectric material.**
- Aluminum foil is interleaved with soft annealed high purity as a **conducting electrode.**
- Units are impregnated under high Vacuum with electrical grade Non-PCB insulating fluid.
- Compliant with IS13925 & IEC 60871 / Equivalent to global standards.
- Less Losses.
- Design life is 30 years.
- Compact dimension with more durability.
- High performance Anti UV Protection based paint coated better for UV performance.
- Adaptable temperature construction -25 to +60 deg C.
- Special design constructions for compliance to high seismic requirement.

## APPLICATION:

1. Increase supply efficiency.
2. Improve power quality.
3. Reduce cost of electricity.
4. Reduction in burden on transformer
5. Decreasing Voltage drop.

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## TECHNICAL DATA SHEET

Sr. No.	Particulars	Technical Data							
1	Manufacturer Details & Make	SHARDA Electronics & Co. Plot No. J-32 MIDC Kupwad Sangli, 416436, Maharashtra, India. <b>Make : SHARDA</b>							
2	Reference	IS 13925-2012, IEC-60871:2005 ANSI –IEEE Std.18							
3	Rated Output (kVAR)	Up to 1200 kVAR							
4	Rated Bank Output (MVAR)	Up to 50 MVAR							
5	Rated Voltage (kV AC)	1.1 kV to 400 kV AC							
6	Temperature (°C)	- 25 °C to + 70 °C							
7	Frequency (Hz)	50 / 60 Hz							
8	Connection	Single (1 $\phi$ ) / Three Phase (3 $\phi$ ) , $\Delta$ or Y							
9	Protection	Internal / External Fuse							
10	Discharge Resistors	Internal Discharge Resistors Provided							
11	Maximum Voltage	110% of Rated Voltage							
12	Maximum continues over current	130% Rated Current							
13	Inrush Current	100 Times Rated Current							
14	Humidity	Less Than 95% RH							
15	Maximum Altitude	1000 Meter Above Sea Level							
16	Type of Foil Material	Aluminum Foil (99.9% Purity)							
17	Impregnant	NPCB PXE Oil							
18	Type of Dielectric	All Polypropylene							
19	Power Losses/ kVAR	0.11 Watts / kVAR							
20	Discharge Time	Within 10 Minutes as per IS							
21	Installation	Indoor / Outdoor, H. T. Panel /Floor Mounted							
22	Life of Capacitor	More Than 2 Lakh Hours							
23	Insulation Level	Basic Insulation Level of bank	kV (system)	12	024	036	72.5	123	145
		Power Frequency withstand Voltage	kV (RMS)	28	050	070	140	185	230
		1.2/50 ms. Impulse Withstand Voltage	kV (Peak)	75	125	170	325	450	500

*For More details on products and services*

Please communicate our Techno-commercial executive (+91-9503435575) or visit us at [www.shardacapacitor.com](http://www.shardacapacitor.com)

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