

TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

MATERIAL SPECIFICATION CELL

TECHNICAL SPECIFICATION
OF

LOW TENSION 440 VOLT, THREE PHASE SHUNT CAPACITORS 1,2,3,4,5 KVAR & 6 KVAR
RATING TO INSTALL AT OUTPUT SIDE OF STARTER OF AGRICULTURE PUMP AT
CONSUMER PREMISES

TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

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TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

1.00 SCOPE:

This specification covers design, manufacturing, testing and supply of 440 V Three Phase, Delta connected 50 Hz, outdoor, self-healing, Metallized Polypropylene (MPP) design type cylindrical LT MPP fixed shunt capacitor unit intended for power factor improvement and to be installed at output side of starter of motor of Agriculture consumer.

2.00 APPLICABLE STANDARDS:

Unless otherwise stipulated in the specifications, capacitors shall be complying with the latest version of IS 13340:2012 for self-healing type, IS 13341 :2012 for requirement of ageing test, self-healing test and destruction test. The capacitor units shall be ISI marked. The capacitor units shall comply Degree of Protection as per IP54.

The capacitor element used shall be self-healing metallized polypropylene (MPP) type. The cell shall be topped up with Non-PCB, non- hazardous, flexible polyurethane resin. The capacitor unit shall be hermetically sealed. This specification supersedes requirements in IS wherever applicable.

LT shunt capacitor meeting any other authoritative standard which ensure equal or better quality than standard mentioned above will also be acceptable but in such cases, a copy of standard (English version) adopted, should be enclosed with the tender.

3.00 SERVICE CONDITIONS:

The equipment/materials offered will be entirely satisfactory for operation under the climatic conditions indicated below:

a) Maximum ambient temperature	50°C
b) Maximum ambient temperature in shade	45°C
c) Minimum temperature of air in shade	35°C
d) Maximum daily average temperature	40°C
e) Maximum yearly weighted average temperature	32°C
f) Relative humidity	10 to 100%
g) Max. annual rainfall	1450mm
h) Maximum wind pressure	150 Kg/sq.m
i) Maximum altitude above mean sea level	1000 meters
j) Isoceraunic level	50 days/year
k) Seismic level (Horizontal acceleration)	0.3g
l) Climate	Moderately hot & humid tropical climate conducive to rust & fungus growth

4.00 SYSTEM PARTICULARS:

The distribution transformers are connected to the 11 KV network on its HT side while the LT side is connected to the 440 Volts for Three Phase LT network.

i)	Nominal Voltage	440 V \pm 10% Volts
ii)	Rated Frequency	50 \pm 3 % Hz
iii)	No. of phases	3

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5.00 RATING:

The rated output of capacitor units in kVAR at frequency of 50 Hz for upper limits of temperature category of 55 Deg. C. shall be as per relevant Annexure-A of the IS.

6.00 RATED VOLTAGE:

The rated voltage of the capacitor unit shall be 440 Volt for Three Phase Capacitors. The fluctuation in supply voltage as specified in IS: 585/1962 and IS: 12360/1985 (with latest amendments) shall not affect the normal working of the equipment.

7.00 GENERAL TECHNICAL REQUIREMENT:

The capacitor elements used in unit shall have multilayer metallized polypropylene film (MPP) having low losses dielectric and impregnated with a impregnate which has been completely refinished and degasified so as not to have any deterioration of the dielectric material. The impregnate used shall have high dielectric constant, low viscosity and high chemical stability. The impregnate should be NPCB (Non-polychlorinated biphenyl) and should be non-oxidizing and specially suitable for capacitor. Alternatively, capacitor - elements used in the units shall be MPP thoroughly dried (without NPCB), casted in high quality semisolid epoxy resin of very high dielectric constant. The PP film should be a product manufactured by a company of international repute. Active binding element shall be properly heated and then vacuumed dried prior to encapsulation in soft resin. The contact area must be carefully prepared so as to achieve high inrush current withstand and long life. The capacitor unit shall have over pressure disconnecter protection. The over voltage limiter shall reduce the residual voltage to less than 75 volts within 3 minute as required by IS:13340/2012 with latest amendment. Capacitor should have pressure disconnected mechanism and should be visible in case of failure.

8.00 CONSTRUCTION:

The capacitors should be a compact single unit of three phase 1/2/3/4/5/6 KVAR rating cylindrical unit. At the base of the capacitor unit suitable arrangement for earthing preferably in the form of M-12 size stud bolt having 16 mm outer (projected) length with toothed washer and hexagonal Nut and 2-No. spring washer shall be provided in such a way that it should also serve a facility for clamping the capacitor unit in the container.

9.00 PERMISSIBLE OVERLOADS:

For capacitors specified in this specification, the max. permissible over loads shall not exceed anyone of the limits given in (i) and (ii) below as confirming to IS:13340/2012 (Reaffirmed 1998).

VOLTAGE: The permissible over loads shall not exceed the limits set by IS:13340 for self-healing type capacitors.

CURRENT: Capacitor units shall be suitable for continuous operation at R.M.S. line current of 1.30 times the current that occurs at rated sinusoidal voltage and rated frequency, excluding transients (as per IS:13340 for self-healing type capacitors).

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10.00 CAPACITOR LOSS:

The total capacitor loss including discharge resistor (without lead wires) should not be more than 0.65 Watt/KVAR for 1/2/3 KVAR and should not be more than 0.6 Watt/KVAR for 4/5/6 KVAR self-healing type capacitors using metalized polypropylene. The manufacturer must state the loss of the capacitor(s) offered.

11.00 RATING PLATE:

A rating plate shall be provided on each unit with complete information as marked indelibly in accordance with Clause No. 26 "Marking" of IS:13340 (Part -1) 2012 (With latest amendments).

12.00 SAFETY REQUIREMENT:

Capacitor unit shall be provided with directly connected discharge device metal oxide resistors (MOV) or resistors of suitable energy handling capacity and as per IS:13340/2012 (With latest amendment) for self-healing type capacitors. It should be ensured that there must be no switch, fuse or any other isolating device between the capacitor unit and the discharge device.

The discharge device shall reduce the residual voltage from the crest value of the rated voltage to less than 75 volts within 3 minute as required by IS:13340/2012 with latest amendment after the capacitor is disconnected from the source of supply. Capacitor shall comply with the relevant general safety regulations for power installation as per Indian Electricity Rules 1956/Electricity Act 2003 amended time to time.

13.00 TESTS:

ROUTINE TESTS:

All individual capacitor units shall be subjected to the routine tests at the manufacturer's works (at the cost of the manufacturer) for the tests specified in Clause No. 6.1 of IS:13340 (Part-1) 2012. A certificate detailing the results of such tests shall be furnished by the supplier along with inspection call to the purchaser.

TYPE TESTS:

All the type tests as per IS:13340/2012 carried out at the laboratories accredited by National Accreditation Board of Testing and Calibration Laboratories (NABL) for similar or Higher Rating shall be submitted. The type tests should have been carried out within 10 years prior to the date of opening of tender.

ACCEPTANCE TESTS:

The inspecting officer will carry out the Acceptance Tests specified as under as per IS:13340/2012 for self-healing type capacitors.

- a) Visual Examination
- b) Sealing Test
- c) Measurement for capacitance and output
- d) Insulation Resistance Test between terminals & capacitor container
- e) Capacitor loss tangent (tan delta) measurement at elevated temperature.
- f) A.C. Voltage Test between terminals
- g) A.C. Voltage test between terminals & container (for capacitor units & Capacitor bank)
- h) Test for efficiency of discharge device

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14.00 DOCUMENTATION

The Tenderer shall furnish GA drawing to the office of the Chief Engineer (Testing & QC) and get it approved as per Tender Conditions.

15.00 INSPECTION

The inspection may be carried out by the MSEDCL at any stage of manufacture. The successful Tenderer shall grant free access to the MSEDCL's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipment under this specification by the MSEDCL, shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective. The supplier shall keep the MSEDCL informed in advance, about the manufacturing programme so that arrangement can be made for inspection.

16.00 SCHEDULE

The tenderer shall fill in the following schedule which form part of tender Specification & offer. If the schedule is not submitted duly filled in with the offer, the offer shall be liable for rejection.

SCHEDULE 'A' – GUARANTEED TECHNICAL PARTICULARS

TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

**SCHEDULE - 'A'
GUARANTEED TECHNICAL PARTICULARS
LT 440V 1kVAr Three Phase Shunt Capacitor**

Sr. No.	Particulars	MSEDCL Requirement	To be offered by Bidder
1.	Name of Manufacturer & Address	Mfg. to give details	Text
2.	Capacitor Modal Name	Mfg. to give details	Text
3.	KVAr	1kVAr	Text
4.	Applicable Standards	IS 13340-2012	Text
5.	Rated Voltage	440 V	Text
6.	Frequency	50 Hz	Text
7.	Temp Category	-25/D (-25°C to 55°C)	Text
8.	Shape	Cylindrical	Text
9.	Rated Current	1.31 Amp	Text
10.	Dielectric Type	Metallized polypropylene (MPP)	Text
11.	Film Thickness	≥7 microns	Text
12.	Type of Impregnant	Non Polychlorinated biphenyl (NPCB) Resin filled	Text
13.	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter provided	Text
14.	Rated Capacity of Element to be used (3elements X microfarad)	Mfg to give details	Text
15.	Microfarad per phase	Mfg to give details	Text
16.	Capacitance Tolerance(as per IS)	-5% to 10%	Text
17.	Life expected in hours	1,30,000 hours	Text
18.	Discharge Time	75 V or less within 3 min.	Text
19.	Capacitor loss including discharge resistor (without lead wires)	≤ 0.65 Watt/KVAr	Text
20.	Whether Type Test Report as per IS13340-2012 from NABL LAB submitted	Yes	Text
21.	ISI Certificate Number	Mfg. to give details	Text
22.	Voltage Proof Test	As per IS 13340-2012 Part 1	Text
22a	Test Voltage between Terminal	2.15xUn for 10 Sec	Text
22b	Test voltage between Terminal and Container	3kV for 1 min.	Text
23.	Permanent Over Voltage(Ur)	As per IS 13340-2012 Part 1	Text
23a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V	Text
23b	Upto 30 min Daily	1.15 X Rated Voltage 440V	Text
23c	Upto 5 min	1.20 X Rated Voltage 440V	Text
23d	Upto 1 min	1.30 X Rated Voltage 440V	Text

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24.	Material of Container & Thickness in mm	Material - Aluminium Thickness – Mfg. to give details	Text
25.	Dimension of capacitor(DXH)	Mfg. to give details	Text
26.	Weight of Capacitor unit (in Kg)	Mfg. to give details	Text
27.	Mounting Details	Vertical upright/Horizontal, Mounting Stud – M12x16mm	Text
28.	Cable provided in R MTR	Mfg. to give details	Text
29.	Capacitor Failure Indicator	Provided	Text
30.	Capacitor Cap Provided or Not	Provided	Text
31.	Suitable Earthing Terminal Provided(Yes/No)	Yes	Text

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**SCHEDULE - 'A'
GUARANTEED TECHNICAL PARTICULARS
LT 440V 2kVAr Three Phase Shunt Capacitor**

Sr. No.	Particulars	MSEDCL Requirement	To be offered by Bidder
1.	Name of Manufacturer & Address	Mfg. to give details	Text
2.	Capacitor Modal Name	Mfg. to give details	Text
3.	KVAr	2kVAr	Text
4.	Applicable Standards	IS 13340-2012	Text
5.	Rated Voltage	440 V	Text
6.	Frequency	50 Hz	Text
7.	Temp Category	-25/D (-25°C to 55°C)	Text
8.	Shape	Cylindrical	Text
9.	Rated Current	2.62 Amp	Text
10.	Dielectric Type	Metallized polypropylene (MPP)	Text
11.	Film Thickness	≥7 microns	Text
12.	Type of Impregnant	Non Polychlorinated biphenyl (NPCB) Resin filled	Text
13.	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter provided	Text
14.	Rated Capacity of Element to be used (3elements X microfarad)	Mfg to give details	Text
15.	Microfarad per phase	Mfg to give details	Text
16.	Capacitance Tolerance (as per IS)	-5% to 10%	Text
17.	Life expected in hours	1,30,000 hours	Text
18.	Discharge Time	75 V or less within 3 min.	Text
19.	Capacitor loss including discharge resistor (without lead wires)	≤ 0.65 Watt/KVAr	Text
20.	Whether Type Test Report as per IS13340-2012 from NABL LAB submitted	Yes	Text
21.	ISI Certificate Number	Mfg. to give details	Text
22.	Voltage Proof Test	As per IS 13340-2012 Part 1	Text
22a	Test Voltage between Terminal	2.15xUn for 10 Sec	Text
22b	Test voltage between Terminal and Container	3kV for 1 min.	Text
23.	Permanent Over Voltage(Ur)	As per IS 13340-2012 Part 1	Text
23a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V	Text
23b	Upto 30 min Daily	1.15 X Rated Voltage 440V	Text
23c	Upto 5 min	1.20 X Rated Voltage 440V	Text
23d	Upto 1 min	1.30 X Rated Voltage 440V	Text

TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

24.	Material of Container & Thickness in mm	Material - Aluminium Thickness – Mfg. to give details	Text
25.	Dimension of capacitor(DXH)	Mfg. to give details	Text
26.	Weight of Capacitor unit (in Kg)	Mfg. to give details	Text
27.	Mounting Details	Vertical upright/Horizontal, Mounting Stud – M12x16mm	Text
28.	Cable provided in R MTR	Mfg. to give details	Text
29.	Capacitor Failure Indicator	Provided	Text
30.	Capacitor Cap Provided or Not	Provided	Text
31.	Suitable Earthing Terminal Provided(Yes/No)	Yes	Text

TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

**SCHEDULE - 'A'
GUARANTEED TECHNICAL PARTICULARS
LT 440V 3kVAr Three Phase Shunt Capacitor**

Sr. No.	Particulars	MSEDCL Requirement	To be offered by Bidder
1.	Name of Manufacturer & Address	Mfg. to give details	Text
2.	Capacitor Modal Name	Mfg. to give details	Text
3.	KVAr	3kVAr	Text
4.	Applicable Standards	IS 13340-2012	Text
5.	Rated Voltage	440 V	Text
6.	Frequency	50 Hz	Text
7.	Temp Category	-25/D (-25°C to 55°C)	Text
8.	Shape	Cylindrical	Text
9.	Rated Current	3.93 Amp	Text
10.	Dielectric Type	Metallized polypropylene (MPP)	Text
11.	Film Thickness	≥7 microns	Text
12.	Type of Impregnant	Non Polychlorinated biphenyl (NPCB) Resin filled	Text
13.	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter provided	Text
14.	Rated Capacity of Element to be used (3elements X microfarad)	Mfg to give details	Text
15.	Microfarad per phase	Mfg to give details	Text
16.	Capacitance Tolerance(as per IS)	-5% to 10%	Text
17.	Life expected in hours	1,30,000 hours	Text
18.	Discharge Time	75 V or less within 3 min.	Text
19.	Capacitor loss including discharge resistor (without lead wires)	≤ 0.65 Watt/KVAr	Text
20.	Whether Type Test Report as per IS13340-2012 from NABL LAB submitted	Yes	Text
21.	ISI Certificate Number	Mfg. to give details	Text
22.	Voltage Proof Test	As per IS 13340-2012 Part 1	Text
22a	Test Voltage between Terminal	2.15xUn for 10 Sec	Text
22b	Test voltage between Terminal and Container	3kV for 1 min.	Text
23.	Permanent Over Voltage(Ur)	As per IS 13340-2012 Part 1	Text
23a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V	Text
23b	Upto 30 min Daily	1.15 X Rated Voltage 440V	Text
23c	Upto 5 min	1.20 X Rated Voltage 440V	Text
23d	Upto 1 min	1.30 X Rated Voltage 440V	Text

TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

24.	Material of Container & Thickness in mm	Material - Aluminium Thickness – Mfg. to give details	Text
25.	Dimension of capacitor(DXH)	Mfg. to give details	Text
26.	Weight of Capacitor unit (in Kg)	Mfg. to give details	Text
27.	Mounting Details	Vertical upright/Horizontal, Mounting Stud – M12x16mm	Text
28.	Cable provided in R MTR	Mfg. to give details	Text
29.	Capacitor Failure Indicator	Provided	Text
30.	Capacitor Cap Provided or Not	Provided	Text
31.	Suitable Earthing Terminal Provided(Yes/No)	Yes	Text

TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

**SCHEDULE - 'A'
GUARANTEED TECHNICAL PARTICULARS
LT 440V 4kVAr Three Phase Shunt Capacitor**

Sr. No.	Particulars	MSEDCL Requirement	To be offered by Bidder
1.	Name of Manufacturer & Address	Mfg. to give details	Text
2.	Capacitor Modal Name	Mfg. to give details	Text
3.	KVAr	4kVAr	Text
4.	Applicable Standards	IS 13340-2012	Text
5.	Rated Voltage	440 V	Text
6.	Frequency	50 Hz	Text
7.	Temp Category	-25/D (-25°C to 55°C)	Text
8.	Shape	Cylindrical	Text
9.	Rated Current	5.24 Amp	Text
10.	Dielectric Type	Metallized polypropylene (MPP)	Text
11.	Film Thickness	≥7 microns	Text
12.	Type of Impregnant	Non Polychlorinated biphenyl (NPCB) Resin filled	Text
13.	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter provided	Text
14.	Rated Capacity of Element to be used (3elements X microfarad)	Mfg to give details	Text
15.	Microfarad per phase	Mfg to give details	Text
16.	Capacitance Tolerance(as per IS)	-5% to 10%	Text
17.	Life expected in hours	1,30,000 hours	Text
18.	Discharge Time	75 V or less within 3 min.	Text
19.	Capacitor loss including discharge resistor (without lead wires)	≤ 0.6 Watt/KVAr	Text
20.	Whether Type Test Report as per IS13340-2012 from NABL LAB submitted	Yes	Text
21.	ISI Certificate Number	Mfg. to give details	Text
22.	Voltage Proof Test	As per IS 13340-2012 Part 1	Text
22a	Test Voltage between Terminal	2.15xUn for 10 Sec	Text
22b	Test voltage between Terminal and Container	3kV for 1 min.	Text
23.	Permanent Over Voltage(Ur)	As per IS 13340-2012 Part 1	Text
23a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V	Text
23b	Upto 30 min Daily	1.15 X Rated Voltage 440V	Text
23c	Upto 5 min	1.20 X Rated Voltage 440V	Text
23d	Upto 1 min	1.30 X Rated Voltage 440V	Text

TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

24.	Material of Container & Thickness in mm	Material - Aluminium Thickness – Mfg. to give details	Text
25.	Dimension of capacitor(DXH)	Mfg. to give details	Text
26.	Weight of Capacitor unit (in Kg)	Mfg. to give details	Text
27.	Mounting Details	Vertical upright/Horizontal, Mounting Stud – M12x16mm	Text
28.	Cable provided in R MTR	Mfg. to give details	Text
29.	Capacitor Failure Indicator	Provided	Text
30.	Capacitor Cap Provided or Not	Provided	Text
31.	Suitable Earthing Terminal Provided(Yes/No)	Yes	Text

TECHNICAL SPECIFICATION OF LT 440 VOLT THREE PHASE SHUNT CAPACITOR

**SCHEDULE - 'A'
GUARANTEED TECHNICAL PARTICULARS
LT 440V 5kVAr Three Phase Shunt Capacitor**

Sr. No.	Particulars	MSEDCL Requirement	To be offered by Bidder
1.	Name of Manufacturer & Address	Mfg. to give details	Text
2.	Capacitor Modal Name	Mfg. to give details	Text
3.	KVAr	5kVAr	Text
4.	Applicable Standards	IS 13340-2012	Text
5.	Rated Voltage	440 V	Text
6.	Frequency	50 Hz	Text
7.	Temp Category	-25/D (-25°C to 55°C)	Text
8.	Shape	Cylindrical	Text
9.	Rated Current	6.56 Amp	Text
10.	Dielectric Type	Metallized polypropylene (MPP)	Text
11.	Film Thickness	≥7 microns	Text
12.	Type of Impregnant	Non Polychlorinated biphenyl (NPCB) Resin filled	Text
13.	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter provided	Text
14.	Rated Capacity of Element to be used (3elements X microfarad)	Mfg to give details	Text
15.	Microfarad per phase	Mfg to give details	Text
16.	Capacitance Tolerance(as per IS)	-5% to 10%	Text
17.	Life expected in hours	1,30,000 hours	Text
18.	Discharge Time	75 V or less within 3 min.	Text
19.	Capacitor loss including discharge resistor (without lead wires)	≤ 0.6 Watt/KVAr	Text
20.	Whether Type Test Report as per IS13340-2012 from NABL LAB submitted	Yes	Text
21.	ISI Certificate Number	Mfg. to give details	Text
22.	Voltage Proof Test	As per IS 13340-2012 Part 1	Text
22a	Test Voltage between Terminal	2.15xUn for 10 Sec	Text
22b	Test voltage between Terminal and Container	3kV for 1 min.	Text
23.	Permanent Over Voltage(Ur)	As per IS 13340-2012 Part 1	Text
23a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V	Text
23b	Upto 30 min Daily	1.15 X Rated Voltage 440V	Text
23c	Upto 5 min	1.20 X Rated Voltage 440V	Text
23d	Upto 1 min	1.30 X Rated Voltage 440V	Text

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24.	Material of Container & Thickness in mm	Material - Aluminium Thickness – Mfg. to give details	Text
25.	Dimension of capacitor(DXH)	Mfg. to give details	Text
26.	Weight of Capacitor unit (in Kg)	Mfg. to give details	Text
27.	Mounting Details	Vertical upright/Horizontal, Mounting Stud – M12x16mm	Text
28.	Cable provided in R MTR	Mfg. to give details	Text
29.	Capacitor Failure Indicator	Provided	Text
30.	Capacitor Cap Provided or Not	Provided	Text
31.	Suitable Earthing Terminal Provided(Yes/No)	Yes	Text

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**SCHEDULE - 'A'
GUARANTEED TECHNICAL PARTICULARS
LT 440V 6kVAr Three Phase Shunt Capacitor**

Sr. No.	Particulars	MSEDCL Requirement	To be offered by Bidder
1.	Name of Manufacturer & Address	Mfg. to give details	Text
2.	Capacitor Modal Name	Mfg. to give details	Text
3.	KVAr	6kVAr	Text
4.	Applicable Standards	IS 13340-2012	Text
5.	Rated Voltage	440 V	Text
6.	Frequency	50 Hz	Text
7.	Temp Category	-25/D (-25°C to 55°C)	Text
8.	Shape	Cylindrical	Text
9.	Rated Current	7.87 Amp	Text
10.	Dielectric Type	Metallized polypropylene (MPP)	Text
11.	Film Thickness	≥7 microns	Text
12.	Type of Impregnant	Non Polychlorinated biphenyl (NPCB) Resin filled	Text
13.	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter provided	Text
14.	Rated Capacity of Element to be used (3elements X microfarad)	Mfg to give details	Text
15.	Microfarad per phase	Mfg to give details	Text
16.	Capacitance Tolerance(as per IS)	-5% to 10%	Text
17.	Life expected in hours	1,30,000 hours	Text
18.	Discharge Time	75 V or less within 3 min.	Text
19.	Capacitor loss including discharge resistor (without lead wires)	≤ 0.6 Watt/KVAr	Text
20.	Whether Type Test Report as per IS13340-2012 from NABL LAB submitted	Yes	Text
21.	ISI Certificate Number	Mfg. to give details	Text
22.	Voltage Proof Test	As per IS 13340-2012 Part 1	Text
22a	Test Voltage between Terminal	2.15xUn for 10 Sec	Text
22b	Test voltage between Terminal and Container	3kV for 1 min.	Text
23.	Permanent Over Voltage(Ur)	As per IS 13340-2012 Part 1	Text
23a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V	Text
23b	Upto 30 min Daily	1.15 X Rated Voltage 440V	Text
23c	Upto 5 min	1.20 X Rated Voltage 440V	Text
23d	Upto 1 min	1.30 X Rated Voltage 440V	Text

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24.	Material of Container & Thickness in mm	Material - Aluminium Thickness - Mfg. to give details	Text
25.	Dimension of capacitor(DXH)	Mfg. to give details	Text
26.	Weight of Capacitor unit (in Kg)	Mfg. to give details	Text
27.	Mounting Details	Vertical upright/Horizontal, Mounting Stud - M12x16mm	Text
28.	Cable provided in R MTR	Mfg. to give details	Text
29.	Capacitor Failure Indicator	Provided	Text
30.	Capacitor Cap Provided or Not	Provided	Text
31.	Suitable Earthing Terminal Provided(Yes/No)	Yes	Text