

No. CE/MMC/MSC-I/3428

Date: 17/02/2018

To,
The Chief Engineer,
Bhandup/Kalyan/Konkan/Nashik/Kolhapur/Pune/Baramati/Latur/Nanded/Jalgaon/
Aurangabad/Akola/Amravati/Gondia/Chandrapur/Nagpur
O & M Zone, MSEDCL.

Sub: Approved vendor list of Capacitors required for Agriculture pumps.

Ref: 1)Circular No. ED/Comm/Reactive Power/22384 dt. 15.09.17.
2)CE/MMC/MSC-I/Epcos/3028 dt. 09.02.18.
3)CE/MMC/MSC-I/Shreem/3029 dt. 09.02.18.

.....

As you are aware that reactive power management with capacitor banks particularly in Ag dominated area is most neglected part by Ag consumers, it is hereby instructed to conduct the program to create awareness among the Ag consumers regarding their responsibility & importance of capacitor for quality of supply.

As per the action plan circulated vide circular No. ED/Comm/Reactive Power/22384 dt. 15.09.17, M.M. Cell has approved GTP & Drawings of LT Capacitors of rating 1kVAR to 6kVAR of two vendors viz. M/s. Epcos India Pvt. Ltd., Nashik and M/s. Shreem Electric Ltd., Jaysingpur vide letter under reference 2 & 3 respectively. Copy of the approved GTP & Drawings are attached herewith.

As the role of individual Agriculture consumer is most important to maintain power factor at their installations, the field staff should ensure availability of above make capacitors at local electrical shops /stores for sale so that Ag consumers can purchase & install the same on their pump sets.

Thanking you,

Encl: As above

Yours faithfully,


Chief Engineer (M M Cell)

Copy s.w.rs. to:

1. Director (Operations)/(Projects)/(Commercial), MSEDCL, Mumbai.
2. Jt. Managing Director, MSEDCL, Aurangabad.
3. Regional Director, MSEDCL, Nagpur/Pune/Konkan.
4. Executive Director (Dist.-II)/(Commercial)/Infra/Projects, MSEDCL, Mumbai.
5. C.E. Commercial/ Dist./Infra/IPDS, MSEDCL, Mumbai.

Copy to:

1. All Superintending Engineer, O&M Circle, MSEDCL.
2. M/s. Shreem Electric Ltd., Gat No. 311, Near R.K. Market Yard, Jaysingpur - 416144.
3. M/s. Epcos India Pvt. Ltd., E-22/25, M.I.D.C., Satpur, Nashik - 422007.
4. As per mailing list.

CE/MMC/MSC-I/Epcos/ 3028

Date: 9 FEB 2018

To,
M/s. Epcos India Pvt. Ltd.,
E-22/25, M.I.D.C., Satpur,
Nashik - 422007.

Sub: Approval of the proposal of M/s. Epcos India Pvt. Ltd., Nashik for supply of
LT Capacitors of rating 1kVAR to 6 kVAR.

..... Preparation of approved vender list of capacitors required for
Agriculture pumps thereof.

Ref: 1)Your letter No. Nil dt. 10.10.17.

2)Your mail dt. 17.10.17.

3)Discussion with your representative regarding discrepancies in the proposal
on dt. 10.10.17, 17.10.17 & 24.10.17.

4)Your letter No. TDK/1/LT Capacitor/ dt. 06.11.17 received to this office on dt.
07.11.17.

Sir,

Your proposal for supply of LT Capacitors of ratings 1 kVAR to 6 kVAR to be
installed on Ag pumps is received to this office vide letter under reference No. 1. The
GTP & Drawings enclosed are scrutinized in light of IS 13340. The GTP & Drawings
are found generally in order. The details of the Drawings are as follows.

Sr.No.	Drawing Name	Drawing No.
1.	1 TO 6 Kvar POLE CAP GA DRAWING	C61014-A405-A003-00-7606

The Type Tests carried out on 1 kVAR Capacitor & 8 kVAR Capacitor are
scrutinized in light of IS 13340 & found generally in order. The details of Type Test
reports are as follows.

1 kVAR Capacitor : (EPCOS PhiCap B25671L4012P040 Power Capacitor)

Sr. No.	Name of the Type Test	Type Test Report No. & Date
1.	Thermal stability test	RP-1617-010077 dt. 30.05.16 at ERDA, Vadodara
2.	Measurement of the tangent of the loss angle (tan delta) of the capacitor at elevated temperature	
3.	Voltage Test between terminals	
4.	Voltage Test between terminals & container	
5.	Discharge Test	
6.	Ageing Test	
7.	Self Healing Test	
8.	Destruction Test	
9.	Lightning Impulse Voltage Test between terminals & container	RP-1617-010973 dt. 04.06.16 at ERDA, Vadodara

8 kVAR Capacitor : (EPCOS PhiCap B25671L4082P040 Power Capacitor)

Sr. No.	Name of the Type Test	Type Test Report No. & Date
1.	Thermal stability test	RP-1617-010462 dt. 31.05.16 at ERDA, Vadodara
2.	Measurement of the tangent of the loss angle (tan delta) of the capacitor at elevated temperature	
3.	Voltage Test between terminals	
4.	Voltage Test between terminals & container	
5.	Discharge Test	
6.	Ageing Test	
7.	Self Healing Test	
8.	Destruction Test	
9.	Lightning Impulse Voltage Test between terminals & container	RP-1617-010974 dt. 04.06.16 at ERDA, Vadodara

In view of the above, the proposal is considered & approved by competent authority. The approval for LT Capacitors of rating 1KVAR to 6KVAR for installation on Agriculture pumps is given on following terms & conditions:

- 1) This approval of GTP, Drawings & Type Tests for Capacitor rating from 1kVAR to 6kVAR will not be considered for any ongoing or future tender technical/commercial evaluation for procurement in MSEDCL.
- 2) You should maintain same design & construction of Capacitor of rating 1kVAR to 6 kVAR strictly in accordance with the approved GTP, Drawings & Type Tests and IS only.
- 3) "Guaranteed Technical Particulars of Capacitors of rating 1kVAR to 6kVAR should be strictly in accordance with the relevant IS standards (amended up to date).
- 4) This approval of GTP, Drawings & Type Tests shall not relieve you from your responsibility and liability to ensure correctness of the Drawings & correct interpretation for meeting the requirements as specified in the relevant IS".
- 5) This approval is valid upto 5 years from date of Type Test reports.

Thanking you.

Encl: Approved GTP & Drawing

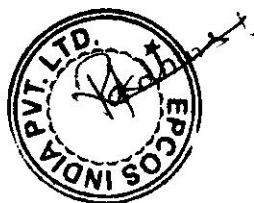
Yours faithfully,


Chief Engineer (M.M. Cell)

GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

1 kvar,440V

Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	Epcos India Pvt. Ltd. Nashik Brand Name: 'EPCOS'
	2	Capacitor Modal Name	PhiCap PoleCap
	3	KVAR	1 kvar
	4	Applicable Standards	IS-13340:2012
	5	Rated Voltage	440Vac
	6	Frequency	50Hz
	7	Temp Category	-10 /D (-10/55°C)
	8	Shape	Cylindrical
	9	Rated Current	1.3 A
	10	Dielectric Type	Metallized Polypropylene (MPP)
	11	Film Thickness	≥7 micron
	12	Type of Impregnant	Dry Inert Gas
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 5.5 microfarad (8.25 microfarad between two phases)
	15	Capacitance Tolerance(as per IS)	-5 to 10%
	16	Life expected in hours	130,000 hours
	17	Discharge Time	75V or less within 3 minutes
	18	Capacitor loss with cable & discharge resistor	≤ 0.9 W/kvar with cable and discharge resistor
	19	Capacitor losses in watts/KVAR excluding cable & discharge resistor	≤ 0.7 W/kvar without cable and discharge resistor
Test and Certification	20	Whether Type Test Report as per clause no 6.2 IS13340 from NABL LAB submitted	Type Test report submitted only for 1kvar,440V(Lowest rating) & 8kvar,440V(Highest rating)
	21	ISI Certificate Number	CM/L-1432640
	22	Voltage Proof Test	As per IS 13340:2012 Part-1
	22-a	Test Voltage between Terminal	2.15 x U _N for 10sec (Type Test)
	22-b	Test vottage between Terminal and Container	3kV for 1 min. (Type test)
	23	Permanent Over Voltage(U _R)	As per IS 13340:2012 Part-1
	23-a	Upto 8 Hrs Daily	1.1 x U _N rms
	23-b	Upto 30 minus Daily	1.15 x U _N rms
	23-c	Upto 5 min Daily	1.20 x U _N rms
23-d	Upto 1 min Daily	1.30 x U _N rms	
Mechanical and Termination	24	Material of Container & Thickness in mm	Aluminium - Thickness 0.5 (+0.15) mm
	25	Dimension of capacitor(DXH)	68.8(±1) mm x 175(±3) mm
	26	Weight of Capacitor unit(in Kg)	Approx. 0.5 ± 0.2 kg.
	27	Mounting Details	Vertical Upright/Horizontal, Mounting Stud - M12 x 16mm
	28	Cable provided in R MTR	1 meter (1 Sq.mm.)
	29	Capacitor Failure Indicator	Yes (Visual indication of red tape)
	30	Capacitor Cap Provided or Not	Provided
	31	Suitable Earthing Terminal Provided(Yes/No)	Yes, Mounting Stud with nut washer, Size M12, length 16mm



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

2 kvar,440V

Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	Epcos India Pvt. Ltd. Nashik Brand Name: 'EPCOS'
	2	Capacitor Modal Name	PhiCap PoleCap
	3	KVAr	2 kvar
	4	Applicable Standards	IS-13340:2012
	5	Rated Voltage	440Vac
	6	Frequency	50Hz
	7	Temp Category	-10 /D (-10/55°C)
	8	Shape	Cylindrical
	9	Rated Current	2.6 A
	10	Dielectric Type	Metallized Polypropylene (MPP)
	11	Film Thickness	≥7 micron
	12	Type of Impregnant	Dry Inert Gas
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 11 microfarad (16.5 microfarad between two phases)
	15	Capacitance Tolerance(as per IS)	-5 to 10%
	16	Life expected in hours	130,000 hours
	17	Discharge Time	75V or less within 3 minutes
	18	Capacitor loss with cable & discharge resistor	≤ 0.9 W/kvar with cable and discharge resistor
	19	Capacitor losses in watts/KVAr excluding cable & discharge resistor	≤ 0.7 W/kvar without cable and discharge resistor
Test and Certification	20	Whether Type Test Report as per clause no 6.2 IS13340 from NABL LAB submitted	Type Test report submitted only for 1kvar,440V(Lowest rating) & 8kvar,440V(Highest rating)
	21	ISI Certificate Number	CM/L-1432640
	22	Voltage Proof Test	As per IS 13340:2012 Part-1
	22-a	Test Voltage between Terminal	2.15 x U _n for 10sec (Type Test)
	22-b	Test vottage between Terminal and Container	3kV for 1 min. (Type test)
	23	Permanent Over Voltage(U _r)	As per IS 13340:2012 Part-1
	23-a	Upto 8 Hrs Daily	1.1 x U _n rms
	23-b	Upto 30 minus Daily	1.15 x U _n rms
Mechanical and Termination	23-c	Upto 5 min Daily	1.20 x U _n rms
	23-d	Upto 1 min Daily	1.30 x U _n rms
	24	Material of Container & Thickness in mm	Aluminium - Thickness 0.5 (+0.15) mm
	25	Dimension of capacitor(DXH)	68.8(±1) mmx 175(±3) mm
	26	Weight of Capacitor unit(in Kg)	Approx. 0.6 ± 0.2 kg.
	27	Mounting Details	Vertical Upright/Horizontal, Mounting Stud - M12 x 16mm
	28	Cable provided in R MTR	1.5 meter (1.5 Sq.mm.)
	29	Capacitor Failure Indicator	Yes (Visual indication of red tape)
	30	Capacitor Cap Provided or Not	Provided
31	Suitable Earthing Terminal Provided(Yes/No)	Yes, Mounting Stud with nut washer, Size M12, length 16mm	



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

3 kvar,440V

Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	Epcos India Pvt. Ltd. Nashik Brand Name: 'EPCOS'
	2	Capacitor Modal Name	PhiCap PoleCap
	3	KVAR	3 kvar
	4	Applicable Standards	IS-13340:2012
	5	Rated Voltage	440Vac
	6	Frequency	50Hz
	7	Temp Category	-10 /D (-10/55°C)
	8	Shape	Cylindrical
	9	Rated Current	3.9 A
	10	Dielectric Type	Metallized Polypropylene (MPP)
	11	Film Thickness	≥7 micron
	12	Type of Impregnant	Dry Inert Gas
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 16.4 microfarad (24.6 microfarad between two phases)
	15	Capacitance Tolerance(as per IS)	-5 to 10%
	16	Life expected in hours	130,000 hours
	17	Discharge Time	75V or less within 3 minutes
	18	Capacitor loss with cable & discharge resistor	≤ 0.9 W/kvar with cable and discharge resistor
	19	Capacitor losses in watts/KVAR excluding cable & discharge resistor	≤ 0.7 W/kvar without cable and discharge resistor
Test and Certification	20	Whether Type Test Report as per clause no 6.2 IS13340 from NABL LAB submitted	Type Test report submitted only for 1kvar,440V(Lowest rating) & 8kvar,440V(Highest rating)
	21	ISI Certificate Number	CM/L-1432640
	22	Voltage Proof Test	As per IS 13340:2012 Part-1
	22-a	Test Voltage between Terminal	2.15 x U _N for 10sec (Type Test)
	22-b	Test vottage between Terminal and Container	3kV for 1 min. (Type test)
	23	Permanent Over Voltage(U _r)	As per IS 13340:2012 Part-1
	23-a	Upto 8 Hrs Daily	1.1 x U _N rms
	23-b	Upto 30 minus Daily	1.15 x U _N rms
23-c	Upto 5 min Daily	1.20 x U _N rms	
23-d	Upto 1 min Daily	1.30 x U _N rms	
Mechanical and Termination	24	Material of Container & Thickness in mm	Aluminium - Thickness 0.5 (+0.15) mm
	25	Dimension of capacitor(DXH)	68.8(±1) mmx 175(±3) mm
	26	Weight of Capacitor unit(in Kg)	Approx. 0.6 ± 0.2 kg.
	27	Mounting Details	Vertical Upright/Horizontal, Mounting Stud - M12 x 16mm
	28	Cable provided in R MTR	1.5 meter (2.5 Sq.mm.)
	29	Capacitor Failure Indicater	Yes (Visual indication of red tape)
	30	Capacitor Cap Provided or Not	Provided
	31	Suitable Earthing Terminal Provided(Yes/No)	Yes, Mounting Stud with nut washer, Size M12, length 16mm



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

4 kvar, 440V

Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	Epcos India Pvt. Ltd. Nashik Brand Name: 'EPCOS'
	2	Capacitor Modal Name	PhiCap PoleCap
	3	KVAr	4 kvar
	4	Applicable Standards	IS-13340:2012
	5	Rated Voltage	440Vac
	6	Frequency	50Hz
	7	Temp Category	-10 /D (-10/55°C)
	8	Shape	Cylindrical
	9	Rated Current	5.2 A
	10	Dielectric Type	Metallized Polypropylene (MPP)
	11	Film Thickness	≥7 micron
	12	Type of Impregnant	Dry Inert Gas
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 21.9 microfarad (32.85 microfarad between two phases)
	15	Capacitance Tolerance(as per IS)	-5 to 10%
	16	Life expected in hours	130,000 hours
	17	Discharge Time	75V or less within 3 minutes
	18	Capacitor loss with cable & discharge resistor	≤ 0.9 W/kvar with cable and discharge resistor
	19	Capacitor losses in watts/KVAr excluding cable & discharge resistor	≤ 0.7 W/kvar without cable and discharge resistor
Test and Certification	20	Whether Type Test Report as per clause no 6.2 IS13340 from NABL LAB submitted	Type Test report submitted only for 1kvar,440V(Lowest rating) & 8kvar,440V(Highest rating)
	21	ISI Certificate Number	CM/L-1432640
	22	Voltage Proof Test	As per IS 13340:2012 Part-1
	22-a	Test Voltage between Terminal	2.15 x U _N for 10sec (Type Test)
	22-b	Test vottage between Terminal and Container	3kV for 1 min. (Type test)
	23	Permanent Over Voltage(U _r)	As per IS 13340:2012 Part-1
	23-a	Upto 8 Hrs Daily	1.1 x U _N rms
	23-b	Upto 30 minus Daily	1.15 x U _N rms
Mechanical and Termination	23-c	Upto 5 min Daily	1.20 x U _N rms
	23-d	Upto 1 min Daily	1.30 x U _N rms
	24	Material of Container & Thickness in mm	Aluminium - Thickness 0.5 (+0.15) mm
	25	Dimension of capacitor(DXH)	68.8(±1) mmx 196(±3) mm
	26	Weight of Capacitor unit(in Kg)	Approx. 0.6 ± 0.2 kg.
	27	Mounting Details	Vertical Upright/Horizontal, Mounting Stud - M12 x 16mm
	28	Cable provided in R MTR	1.5 meter (2.5 Sq.mm.)
	29	Capacitor Failure Indicater	Yes (Visual indication of red tape)
	30	Capacitor Cap Provided or Not	Provided
	31	Suitable Earthing Terminal Provided(Yes/No)	Yes, Mounting Stud with nut washer, Size M12, length 16mm



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

5 kvar, 440V

Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	Epcos India Pvt. Ltd. Nashik Brand Name: 'EPCOS'
	2	Capacitor Modal Name	PhiCap PoleCap
	3	KVAR	5 kvar
	4	Applicable Standards	IS-13340:2012
	5	Rated Voltage	440Vac
	6	Frequency	50Hz
	7	Temp Category	-10 /D (-10/55°C)
	8	Shape	Cylindrical
	9	Rated Current	6.6 A
	10	Dielectric Type	Metallized Polypropylene (MPP)
	11	Film Thickness	≥7 micron
	12	Type of Impregnant	Dry Inert Gas
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 27.4 microfarad (41.1 microfarad between two phases)
	15	Capacitance Tolerance(as per IS)	-5 to 10%
	16	Life expected in hours	130,000 hours
	17	Discharge Time	75V or less within 3 minutes
	18	Capacitor loss with cable & discharge resistor	≤ 0.9 W/kvar with cable and discharge resistor
	19	Capacitor losses in watts/kVAR excluding cable & discharge resistor	≤ 0.7 W/kvar without cable and discharge resistor
Test and Certification	20	Whether Type Test Report as per clause no 6.2 IS13340 from NABL LAB submitted	Type Test report submitted only for 1kvar,440V(Lowest rating) & 8kvar,440V(Highest rating)
	21	ISI Certificate Number	CM/L-1432640
	22	Voltage Proof Test	As per IS 13340:2012 Part-1
	22-a	Test Voltage between Terminal	2.15 x U _N for 10sec (Type Test)
	22-b	Test vottage between Terminal and Container	3kV for 1 min. (Type test)
	23	Permanent Over Voltage(U _r)	As per IS 13340:2012 Part-1
	23-a	Upto 8 Hrs Daily	1.1 x U _N rms
	23-b	Upto 30 minus Daily	1.15 x U _N rms
Mechanical and Termination	23-c	Upto 5 min Daily	1.20 x U _N rms
	23-d	Upto 1 min Daily	1.30 x U _N rms
	24	Material of Container & Thickness in mm	Aluminium - Thickness 0.5 (+0.15) mm
	25	Dimension of capacitor(DXH)	68.8(±1) mmx 196(±3) mm
	26	Weight of Capacitor unit(in Kg)	Approx. 0.6 ± 0.2 kg.
	27	Mounting Details	Vertical Upright/Horizontal, Mounting Stud - M12 x 16mm
	28	Cable provided in R MTR	1.5 meter (2.5 Sq.mm.)
	29	Capacitor Failure Indicator	Yes (Visual indication of red tape)
	30	Capacitor Cap Provided or Not	Provided
31	Suitable Earthing Terminal Provided(Yes/No)	Yes, Mounting Stud with nut washer,Size M12, length 16mm	



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

6 kvar,440V

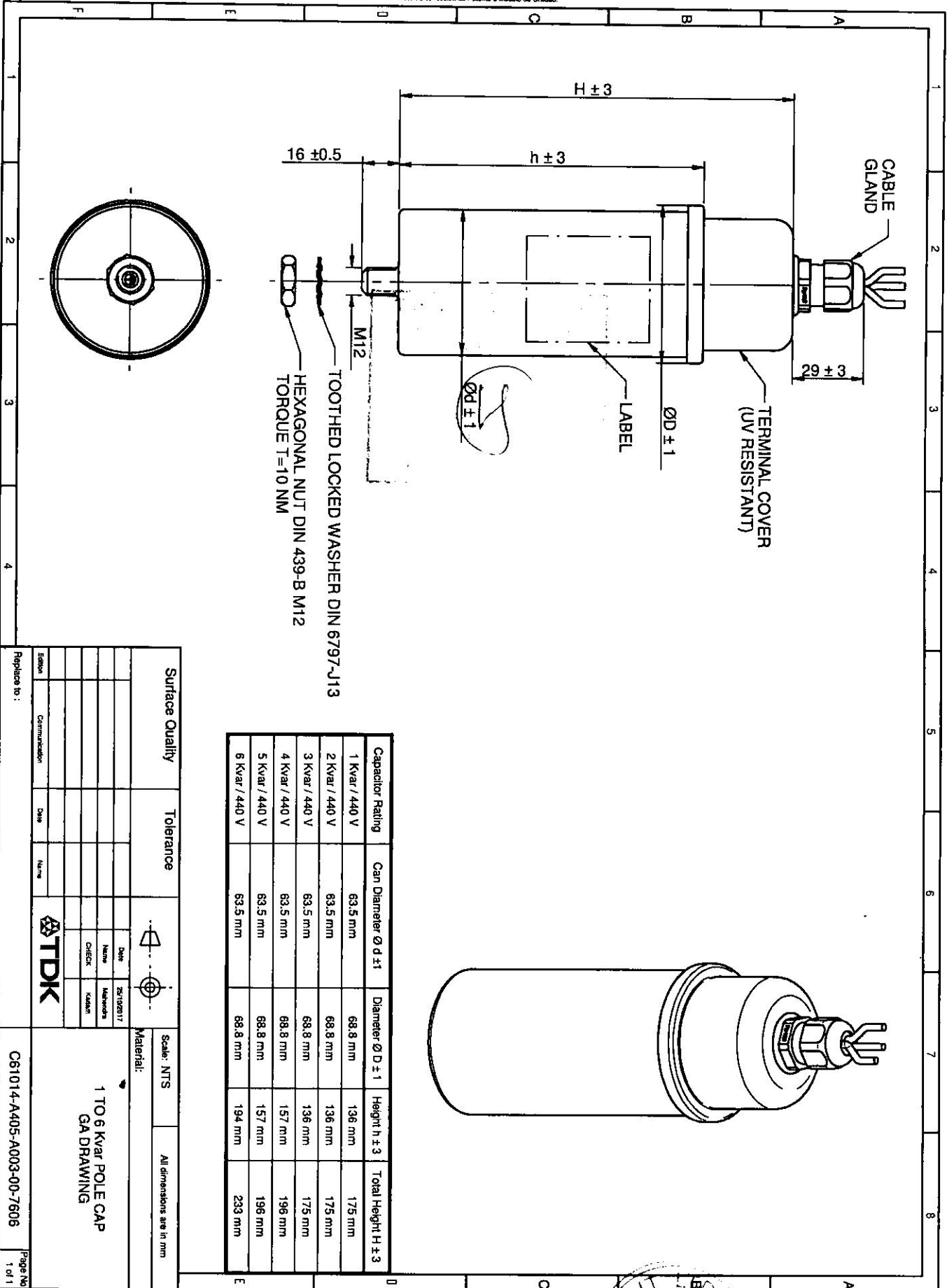
Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	Epcos India Pvt. Ltd. Nashik Brand Name: 'EPCOS'
	2	Capacitor Modal Name	PhiCap PoleCap
	3	KVAR	6 kvar
	4	Applicable Standards	IS-13340:2012
	5	Rated Voltage	440Vac
	6	Frequency	50Hz
	7	Temp Category	-10 /D (-10/55°C)
	8	Shape	Cylindrical
	9	Rated Current	7.9 A
	10	Dielectric Type	Metallized Polypropylene (MPP)
	11	Film Thickness	≥7 micron
	12	Type of Impregnant	Dry Inert Gas
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 32.9 microfarad (49.35 microfarad between two phases)
	15	Capacitance Tolerance(as per IS)	-5 to 10%
	16	Life expected in hours	130,000 hours
	17	Discharge Time	75V or less within 3 minutes
	18	Capacitor loss with cable & discharge resistor	≤ 0.9 W/kvar with cable and discharge resistor
	19	Capacitor losses in watts/KVAR excluding cable & discharge resistor	≤ 0.7 W/kvar without cable and discharge resistor
Test and Certification	20	Whether Type Test Report as per clause no 6.2 IS13340 from NABL LAB submitted	Type Test report submitted only for 1kvar,440V(Lowest rating) & 8kvar,440V(Highest rating)
	21	ISI Certificate Number	CM/L-1432640
	22	Voltage Proof Test	As per IS 13340:2012 Part-1
	22-a	Test Voltage between Terminal	2.15 x U _n for 10sec (Type Test)
	22-b	Test vottage between Terminal and Container	3kV for 1 min. (Type test)
	23	Permanent Over Voltage(U _n)	As per IS 13340:2012 Part-1
	23-a	Upto 8 Hrs Daily	1.1 x U _n rms
	23-b	Upto 30 minus Daily	1.15 x U _n rms
Mechanical and Termination	23-c	Upto 5 min Daily	1.20 x U _n rms
	23-d	Upto 1 min Daily	1.30 x U _n rms
	24	Material of Container & Thickness in mm	Aluminium - Thickness 0.5 (+0.15) mm
	25	Dimension of capacitor(DXH)	68.8(±1) mmx 233(±3) mm
	26	Weight of Capacitor unit(in Kg)	Approx. 0.7 ± 0.2 kg.
	27	Mounting Details	Vertical Upright/Horizontal, Mounting Stud - M12 x 16mm
	28	Cable provided in R MTR	1.5 meter (2.5 Sq.mm.)
	29	Capacitor Failure Indicator	Yes (Visual indication of red tape)
	30	Capacitor Cap Provided or Not	Provided
31	Suitable Earthing Terminal Provided(Yes/No)	Yes, Mounting Stud with nut washer,Size M12, length 16mm	



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NOTE: IF IN DOUBT.ASK



Surface Quality

Tolerance



Scale: NTS

All dimensions are in mm

Date: 25/10/2017

Name: Madhava

CHECK: Madhava

Material:

1 TO 6 Kvar POLE CAP
GA DRAWING



Replace to :

C61014-A405-A003-00-7606

Page No 1 of 1

CE/MMC/MSC-I/Shreem/3029

Date: 9 FEB 2018

To,
M/s. Shreem Electric Ltd.,
Gat No. 311, Near R.K. Market Yard,
Gate, Jaysingpur - 416 144.

Sub: Approval of the proposal of M/s. Shreem Electric Ltd., Jaysingpur for supply of LT Capacitors of rating 1kVAR to 6 kVAR.
..... Preparation of approved vender list of capacitors required for Agriculture pumps thereof.

- Ref: 1)Your letter No. Nil dt. 13.10.17.
2)Discussion with your representative regarding discrepancies in the proposal on dt. 13.10.17 & 24.10.17.
3)Your letter No-SHR-7/11/17 dt. 07.11.17.

Sir,

Your proposal for supply of LT Capacitors of rating 1kVARr to 6kVAR to be installed on Ag pumps is received to this office vide letter under reference 1. The GTP & Drawings enclosed are scrutinized in light of IS 13340. The GTP & Drawings are found generally in order. The details of the Drawings are as follows.

Sr.No.	Drawing Name	Drawing No.
1	1K And 2Kvar/440V/3Phase/50Hz Cylindrical Resin filled Capacitor Unit DRW	SHR-NA-07-10-2017/1
2	3K And 4Kvar/440V/3Phase/50Hz Cylindrical Resin filled Capacitor Unit DRW	SHR-NA-04-11-2017/2
3	5K And 6Kvar/440V/3Phase/50Hz Cylindrical Resin filled Capacitor Unit DRW	SHR-NA-07-10-2017/3

The Type Tests carried out on 25 kVAR Capacitor are scrutinized in light of IS 13340 & found generally in order. The details of Type Test reports are as follows.

25 kVAR/440V/3 Ph./50 HZ Cylindrical Capacitor

Sr. No.	Name of the Type Test	Type Test Report No. & Date
1.	Thermal stability test	DCCD-14683 dt. 01.07.15 at CPRI, Bangalore
2.	Capacitor loss tangent (tan delta) measurement at elevated temperature	
3.	Voltage Test between terminals	
4.	Voltage Test between terminals & container	
5.	Short Circuit discharge Test	
6.	Ageing Test	
7.	Self Healing Test	
8.	Destruction Test	
9.	Lightning Impulse Voltage Test between terminals & container	

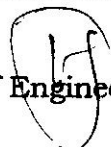
In view of the above, the proposal is considered & approved by competent authority. The approval for LT Capacitors of rating 1KVAR to 6KVAR for installation on Agriculture pumps is given on following terms & conditions:

- 1) This approval of GTP, Drawings & Type Tests for Capacitor rating from 1kVAR to 6kVAR will not be considered for any ongoing or future tender technical/commercial evaluation for procurement in MSEDCL.
- 2) You should maintain same design & construction of Capacitor of rating 1kVAR to 6 kVAR strictly in accordance with the approved GTP, Drawings & Type Tests and IS only.
- 3) "Guaranteed Technical Particulars of Capacitors of rating 1kVAR to 6kVAR should be strictly in accordance with the relevant IS standards (amended up to date).
- 4) This approval of GTP, Drawings & Type Tests shall not relieve you from your responsibility and liability to ensure correctness of the Drawings & correct interpretation for meeting the requirements as specified in the relevant IS".
- 5) This approval is valid upto 5 years from date of Type Test reports.

Thanking you.

Encl: Approved GTP & Drawing

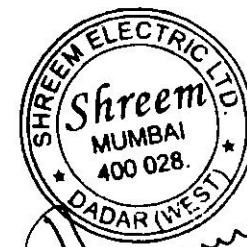
Yours faithfully,


Chief Engineer (M.M. Cell)

GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

1 KVAR

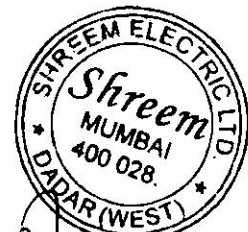
Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	M/s. Shreem Electric Ltd. (Jaysingpur. Dist Kolhapur.)
	2	Capacitor Modal Name	Agro Wire
	3	KVAr	1Kvar
	4	Applicable Standards	IS 13340:2012
	5	Rated Voltage	440V
	6	Frequency	50Hz
	7	Temp Category	-10°C to +55°C
	8	Shape	Cylindrical
	9	Rated Current	1.31 Amp
	10	Dielectric Type	MPP
	11	Film Thickness	7 to 8 Micron
	12	Type of Impregnant	NPCB Resin Filled
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter Provided
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 5.48µf (1.5 × 5.48 = 8.22uf)
	15	Capacitance Tolerance(as per IS)	-5% +10%
	16	Life expected in hours	150000 hrs.
	17	Discharge Time	75 Volts or less within 3 Min.
	18	Capacitor loss with cable & discharge resister	0.75Watt /Kvar with Cable & Discharge resister
	19	Capacitor losses in watts/KVAr	0.6 Watt /Kvar Excluding Cable & Discharge resister
Test and Certification	20	Whether Type Test Report as per clause No 6.2 of IS13340 from NABL LAB submitted	Type Test Report submitted for rating 25Kvar
	21	ISI Certificate Number	CM/L -3747978
	22	Voltage Proof Test	As Per IS 13340:2012 Part -1
	22-a	Test Voltage between Terminal	2.15XUn for 10 Sec
	22-b	Test vottage between Terminal and Container:	3kV for 1 Min
	23	Permanent Over Voltage(Ur)	As Per IS 13340:2012 Part -1
	23-a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V
	23-b	Upto 30 minus Daily	1.15 X Rated Voltage 440V
Mechanical and Teminat	23-c	Upto 5 min	1.20 X Rated Voltage 440V
	23-d	Upto 1 min	1.30 X Rated Voltage 440V
	24	Material of Container & Thickness in mm	Aluminum (0.5mm with ±0.06 Tolerance)
	25	Dimension of capacitor(DXH)	50mmX126mm
	26	Weight of Capacitor unit(in Kg)	0.266 Kg Approx.
	27	Mounting Details	Vertical, Mounting Stud M8 X 10mm
	28	Cable provided in R MTR	0.3 MTR (0.75 Sq mm)
	29	Capacitor Failure Indicator	Provided (Flag Type Green & Red)
	30	Capacitor Cap Provided or Not	Provided
	31	Suitable Earthing Terminal Provided(Yes/No)	Yes



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

2 KVAR

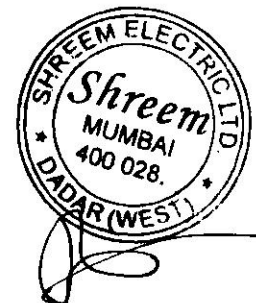
Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	M/s. Shreem Electric Ltd. (Jaysingpur. Dist Kolhapur.)
	2	Capacitor Modal Name	Agro Wire
	3	KVAR	2Kvar
	4	Applicable Standards	IS 13340:2012
	5	Rated Voltage	440V
	6	Frequency	50Hz
	7	Temp Category	-10°C to +55°C
	8	Shape	Cylindrical
	9	Rated Current	2.62 Amp
	10	Dielectric Type	MPP
	11	Film Thickness	7 to 8 Micron
	12	Type of Impregnant	NPCB Resin Filled
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter Provided
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 10.97 µf (1.5 × 10.97 = 16.46uf)
	15	Capacitance Tolerance(as per IS)	-5% +10%
	16	Life expected in hours	150000 hrs.
	17	Discharge Time	75 Volts or less within 3 Min.
	18	Capacitor loss with cable & discharge resister	0.75Watt /Kvar with Cable & Discharge resister
	19	Capacitor losses in watts/KVAR	0.6 Watt /Kvar Excluding Cable & Discharge resister
Test and Certification	20	Whether Type Test Report as per clause No 6.2 of IS13340 from NABL LAB submitted	Type Test Report submitted for rating 25Kvar
	21	ISI Certificate Number	CM/L -3747978
	22	Voltage Proof Test	As Per IS 13340:2012 Part -1
	22-a	Test Voltage between Terminal	2.15XUn for 10 Sec
	22-b	Test vorage between Terminal and Container	3kV for 1 Min
	23	Permanent Over Voltage(Ur)	As Per IS 13340:2012 Part -1
	23-a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V
	23-b	Upto 30 minus Daily	1.15 X Rated Voltage 440V
23-c	Upto 5 min	1.20 X Rated Voltage 440V	
23-d	Upto 1 min	1.30 X Rated Voltage 440V	
Mechanical and Terminati	24	Material of Container & Thickness in mm	Aluminum (0.5mm with ±0.06 Tolerance)
	25	Dimension of capacitor(DXH)	50mmX126mm
	26	Weight of Capacitor unit(in Kg)	0.283 Kg Approx.
	27	Mounting Details	Vertical, Mounting Stud M8 X 10mm
	28	Cable provided in R MTR	0.3 MTR (0.75 Sq mm)
	29	Capacitor Failure Indicator	Provided (Flag Type Green & Red)
	30	Capacitor Cap Provided or Not	Provided
	31	Suitable Earthing Terminal Provided(Yes/No)	Yes



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

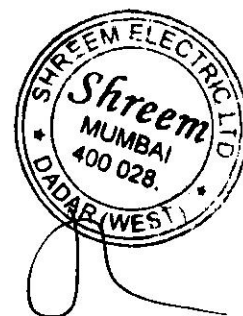
3 KVAR

Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	M/s. Shreem Electric Ltd. (Jaysingpur. Dist Kolhapur.)
	2	Capacitor Modal Name	Agro Wire
	3	KVAR	3Kvar
	4	Applicable Standards	IS 13340:2012
	5	Rated Voltage	440V
	6	Frequency	50Hz
	7	Temp Category	-10°C to +55°C
	8	Shape	Cylindrical
	9	Rated Current	3.93 Amp
	10	Dielectric Type	MPP
	11	Film Thickness	7 to 8 Micron
	12	Type of Impregnant	NPCB Resin Filled
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter Provided
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 16.45 µf (1.5 × 16.45 = 24.68uf)
	15	Capacitance Tolerance(as per IS)	-5% +10%
	16	Life expected in hours	150000 hrs.
	17	Discharge Time	75 Volts or less within 3 Min.
	18	Capacitor loss with cable & discharge resister	0.75Watt /Kvar with Cable & Discharge resister
	19	Capacitor losses in watts/KVAR	0.6 Watt /Kvar Excluding Cable & Discharge resister
Test and Certification	20	Whether Type Test Report as per clause No 6.2 of IS13340 from NABL LAB submitted	Type Test Report submitted for rating 25Kvar
	21	ISI Certificate Number	CM/L -3747978
	22	Voltage Proof Test	As Per IS 13340:2012 Part -1
	22-a	Test Voltage between Terminal	2.15XUn for 10 Sec
	22-b	Test vorage between Terminal and Container	3kV for 1 Min
	23	Permanent Over Voltage(Ur)	As Per IS 13340:2012 Part -1
	23-a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V
23-b	Upto 30 minus Daily	1.15 X Rated Voltage 440V	
23-c	Upto 5 min	1.20 X Rated Voltage 440V	
23-d	Upto 1 min	1.30 X Rated Voltage 440V	
Mechanical and Terminati	24	Material of Container & Thickness in mm	Aluminum (0.5mm with ±0.06 Tolerance)
	25	Dimension of capacitor(DXH)	65mmX130mm
	26	Weight of Capacitor unit(in Kg)	0.476 Kg Approx.
	27	Mounting Details	Vertical, Mounting Stud M12 X 16mm
	28	Cable provided in R MTR	0.3 MTR (1.5 Sq mm)
	29	Capacitor Failure Indicater	Provided (Flag Type Green & Red)
	30	Capacitor Cap Provided or Not	Provided
	31	Suitable Earthing Terminal Provided(Yes/No)	Yes



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS
4 KVAR

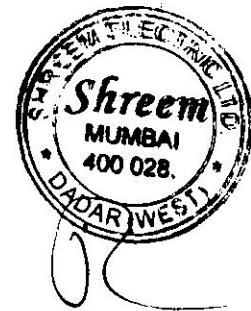
Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	M/s. Shreem Electric Ltd. (Jaysingpur. Dist Kolhapur.)
	2	Capacitor Modal Name	Agro Wire
	3	KVAR	4Kvar
	4	Applicable Standards	IS 13340:2012
	5	Rated Voltage	440V
	6	Frequency	50Hz
	7	Temp Category	-10°C to +55°C
	8	Shape	Cylindrical
	9	Rated Current	5.24 Amp
	10	Dielectric Type	MPP
	11	Film Thickness	7 to 8 Micron
	12	Type of Impregnant	NPCB Resin Filled
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter Provided
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 21.93 μ f (1.5 \times 21.93 = 32.90uf)
	15	Capacitance Tolerance(as per IS)	-5% +10%
	16	Life expected in hours	150000 hrs.
	17	Discharge Time	75 Volts or less within 3 Min.
	18	Capacitor loss with cable & discharge resister	0.75Watt /Kvar with Cable & Discharge resister
	19	Capacitor losses in watts/KVAR	0.6 Watt /Kvar Excluding Cable & Discharge resister
Test and Certification	20	Whether Type Test Report as per clause No 6.2 of IS13340 from NABL LAB submitted	Type Test Report submitted for rating 25Kvar
	21	ISI Certificate Number	CM/L-3747978
	22	Voltage Proof Test	As Per IS 13340:2012 Part -1
	22-a	Test Voltage between Terminal	2.15XUn for 10 Sec
	22-b	Test vottage between Terminal and Container	3kV for 1 Min
	23	Permanent Over Voltage(Ur)	As Per IS 13340:2012 Part -1
	23-a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V
	23-b	Upto 30 minus Daily	1.15 X Rated Voltage 440V
Mechanical and Termination	23-c	Upto 5 min	1.20 X Rated Voltage 440V
	23-d	Upto 1 min	1.30 X Rated Voltage 440V
	24	Material of Container & Thickness in mm	Aluminum (0.5mm with \pm 0.06 Tolerance)
	25	Dimension of capacitor(DXH)	65mmX130mm
	26	Weight of Capacitor unit(in Kg)	0.486 Kg Approx.
	27	Mounting Details	Vertical, Mounting Stud M12 X 16mm
	28	Cable provided in R MTR	0.3 MTR (2.5 Sq mm)
	29	Capacitor Failure Indicator	Provided (Flag Type Green & Red)
	30	Capacitor Cap Provided or Not	Provided
	31	Suitable Earthing Terminal Provided(Yes/No)	Yes



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

5 KVAR

Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	M/s. Shreem Electric Ltd. (Jaysingpur. Dist Kolhapur.)
	2	Capacitor Modal Name	Agro Wire
	3	KVAR	5Kvar
	4	Applicable Standards	IS 13340:2012
	5	Rated Voltage	440V
	6	Frequency	50Hz
	7	Temp Category	-10°C to +55°C
	8	Shape	Cylindrical
	9	Rated Current	6.56 Amp
	10	Dielectric Type	MPP
	11	Film Thickness	7 to 8 Micron
	12	Type of Impregnant	NPCB Resin Filled
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter Provided
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 27.42 µf (1.5 x 27.42 = 41.13uf)
	15	Capacitance Tolerance(as per IS)	-5% +10%
	16	Life expected in hours	150000 hrs.
	17	Discharge Time	75 Volts or less within 3 Min.
	18	Capacitor loss with cable & discharge resister	0.75Watt /Kvar with Cable & Discharge resister
	19	Capacitor losses in watts/KVAR	0.6 Watt /Kvar Excluding Cable & Discharge resister
Test and Certification	20	Whether Type Test Report as per clause No 6.2 of IS13340 from NABL LAB submitted	Type Test Report submitted for rating 25Kvar
	21	ISI Certificate Number	CM/L -3747978
	22	Voltage Proof Test	As Per IS 13340:2012 Part -1
	22-a	Test Voltage between Terminal	2.15XUn for 10 Sec
	22-b	Test vottage between Terminal and Container	3kV for 1 Min
	23	Permanent Over Voltage(Ur)	As Per IS 13340:2012 Part -1
	23-a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V
	23-b	Upto 30 minus Daily	1.15 X Rated Voltage 440V
23-c	Upto 5 min	1.20 X Rated Voltage 440V	
23-d	Upto 1 min	1.30 X Rated Voltage 440V	
Mechanical and Terminati	24	Material of Container & Thickness in mm	Aluminum (0.5mm with ±0.06 Tolerance)
	25	Dimension of capacitor(DXH)	65mmX150mm
	26	Weight of Capacitor unit(in Kg)	0.563 Kg Approx.
	27	Mounting Details	Vertical, Mounting Stud M12 X 16mm
	28	Cable provided in R MTR	0.3 MTR (2.5Sq mm)
	29	Capacitor Failure Indicator	Provided (Flag Type Green & Red)
	30	Capacitor Cap Provided or Not	Provided
	31	Suitable Earthing Terminal Provided(Yes/No)	Yes



GUARANTEED TECHNICAL PARTICULARS FOR LT CAPACITORS

6KVAR

Title	Sr.NO	Parameter	Parameter Type
General Technical Details	1	Name of Manufacturer	M/s. Shreem Electric Ltd. (Jaysingpur. Dist-Kolhapur.)
	2	Capacitor Modal Name	Agro Wire
	3	KVAR	6Kvar
	4	Applicable Standards	IS 13340:2012
	5	Rated Voltage	440V
	6	Frequency	50Hz
	7	Temp Category	-10°C to +55°C
	8	Shape	Cylindrical
	9	Rated Current	7.87 Amp
	10	Dielectric Type	MPP
	11	Film Thickness	7 to 8 Micron
	12	Type of Impregnant	NPCB Resin Filled
	13	Safety Feature- Over Pressure Disconnecter	Over Pressure Disconnecter Provided
	14	Rated Capacity of Element to be used (3 X microfarad)	3 elements of 32.90 µf (1.5 × 32.90 = 49.35uf)
	15	Capacitance Tolerance(as per IS)	-5% +10%
	16	Life expected in hours	150000 hrs.
	17	Discharge Time	75 Volts or less within 3 Min.
	18	Capacitor loss with cable & discharge resister	0.75Watt /Kvar with Cable & Discharge resister
	19	Capacitor losses in watts/KVAR	0.6 Watt /Kvar Excluding Cable & Discharge resister
Test and Certification	20	Whether Type Test Report as per clause No 6.2 of IS13340 from NABL LAB submitted	Type Test Report submitted for rating 25Kvar
	21	ISI Certificate Number	CM/L-3747978
	22	Voltage Proof Test	As Per IS 13340:2012 Part -1
	22-a	Test Voltage between Terminal	2.15XUn for 10 Sec
	22-b	Test vottage between Terminal and Container	3kV for 1 Min
	23	Permanent Over Voltage(Ur)	As Per IS 13340:2012 Part -1
	23-a	Upto 8 Hrs Daily	1.1 X Rated Voltage 440V
	23-b	Upto 30 minus Daily	1.15 X Rated Voltage 440V
Mechanical and Termination	23-c	Upto 5 min	1.20 X Rated Voltage 440V
	23-d	Upto 1 min	1.30 X Rated Voltage 440V
	24	Material of Container & Thickness in mm	Aluminum (0.5mm with ±0.06 Tolerance)
	25	Dimension of capacitor(DXH)	65mmX190mm
	26	Weight of Capacitor unit(in Kg)	0.686 Kg Approx.
	27	Mounting Details	Vertical, Mounting Stud M12 X 16mm
	28	Cable provided in R MTR	0.3 MTR (2.5Sq mm)
	29	Capacitor Failure Indicater	Provided
	30	Capacitor Cap Provided or Not	Provided (Flag Type Green & Red)
	31	Suitable Earthing Terminal Provided(Yes/No)	Yes



C1

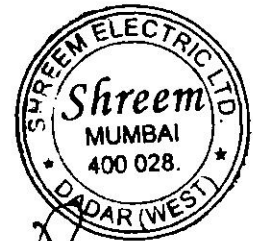
22

H

300mm Flexible Copper Cable in Each Phase

M8X10mm

D



KVAR RATING	DIMETER D in mm	HIEGHT H in mm	CABLE SIZE in Sqmm
1kvar	50	126	0.75
2kvar	50	126	0.75

NOTE: DIMENSIONAL TOLERANCE $\pm 10\%$

FINISH:

DEBUR AND
BREAK SHARP
EDGES

DO NOT SCALE DRAWING

REVISION

Shreem Electric Ltd.

	NAME	SIGNATURE	DATE			
DRAWN						
CHEK'D						
APPV'D						
M/G						
QA						
				MATERIAL:		
				WEIGHT:		

TITLE: 1K And 2Kvar/440V/3Phase/50Hz Cylindrical Resin filled Capacitor Unit DRW

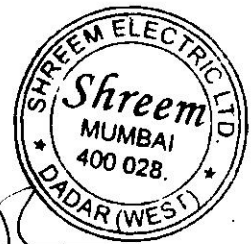
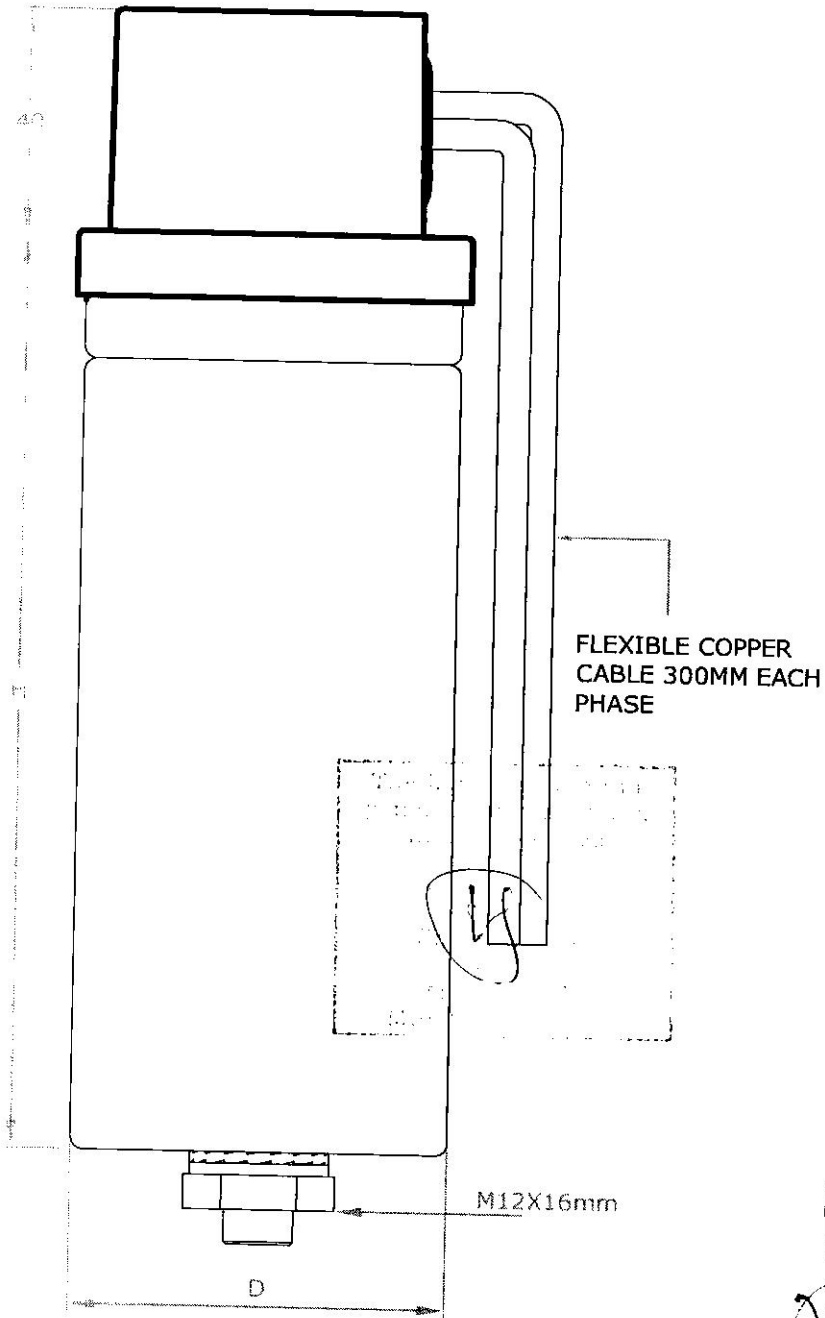
DWG NO: SHR-NA-07-10-2017/1

A4

SCALE: 1:1.5

SHEET 1 OF 1

C2

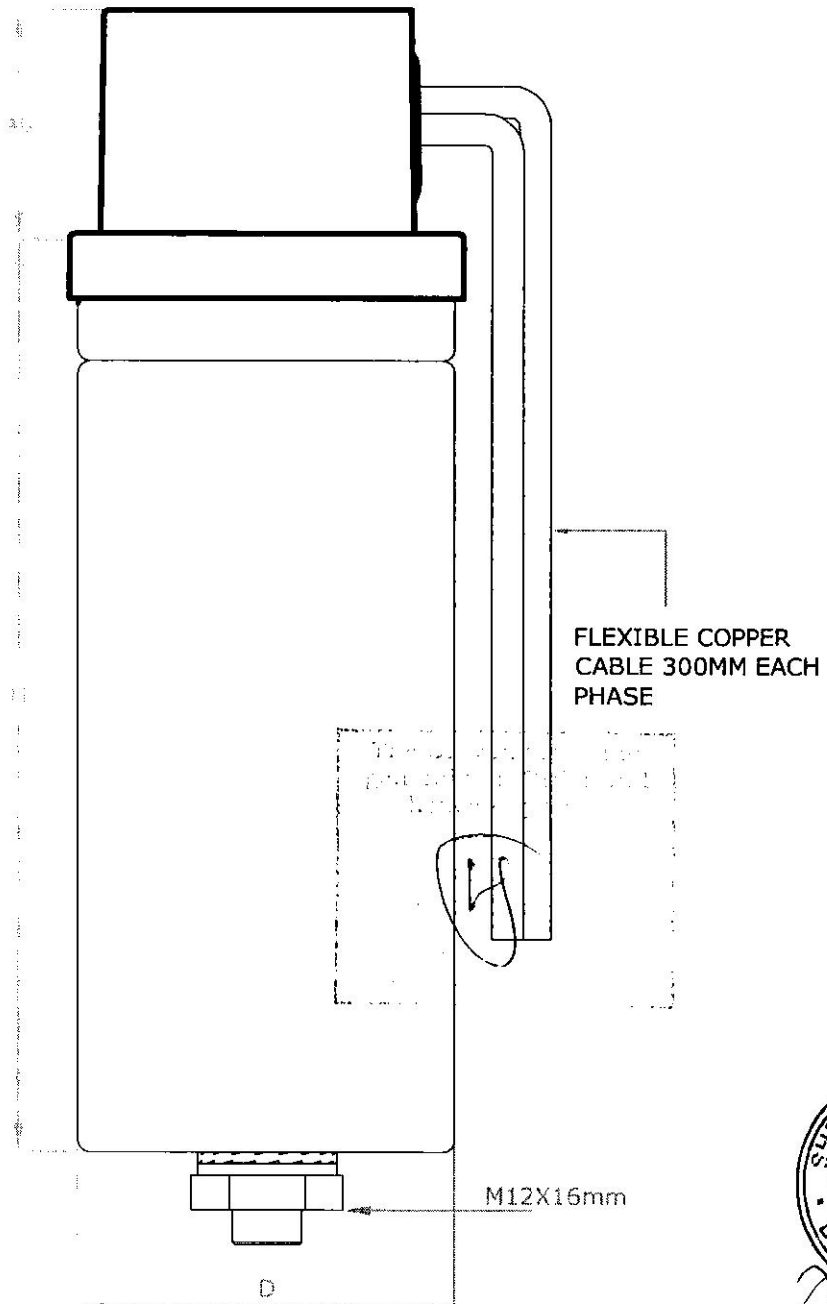


KVAR RATING	DIMETER D in mm	HIEGHT H in mm	CABLE SIZE in Sqmm
3kvar	65	130	1.50
4kvar	65	130	2.50

NOTE: DIMENSIONAL TOLERANCE $\pm 10\%$

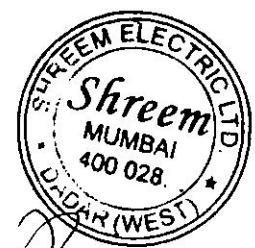
FINISH:		DEBUR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION
Shreem Electric Ltd.				
DRAWN		TITLE: 3K And 4Kvar/440V/3Phase/50Hz Cylindrical Resin filled Capacitor Unit DRW		
CHK'D		DWG NO. SHR-NA-04-11-2017/2		
APPV'D		A4		
MFG		SCALE: 1:1.5		
QA		SHEET 1 OF 1		
MATERIAL:		WEIGHT:		

C2



FLEXIBLE COPPER
CABLE 300MM EACH
PHASE

M12X16mm



KVAR RATING	DIMETER D in mm	HIEGHT H in mm	CABLE SIZE in Sqmm
5kvar	65	150	2.50
6kvar	65	190	2.50

NOTE: DIMENSIONAL TOLERANCE ±10%

FINISH:		DEBUR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
Shreem Electric Ltd.							
DRAWN				TITLE: 5K And 6Kvar/440V/3Phase/50Hz Cylindrical Resin filled Capacitor Unit DRW			
CHK'D							
APPV'D							
MFG							
QA				MATERIAL:		DWG NO. SHR-NA-07-10-2017/3	
						A4	
WEIGHT:				SCALE:1:1.5		SHEET 1 OF 1	