

**TECHNICAL SPECIFICATION FOR 3-PHASE BOX MADE FROM GLASS REINFORCED POLYESTER SHEET MOULDING COMPOUNDS (SMC) FOR 3- PHASE RING TYPE CT OPERATED ENERGY METER.**

**1 SCOPE:**

This specification covers the design, manufacturing and testing of anti-corrosive, dust proof, rust proof, shock proof, self extinguishing property, resistant to heat, vermin & water proof, Ultra Violet Stabilized and pilfer resistant, SMC meter Box made from Thermosetting Plastic i.e. Glass Reinforced Polyester Sheet Molding Compound (SMC) Confirming to IS:13410 (1992) and attached technical specification, drawing and IS 14772:2000.

**2.0 CONSTRUCTION:**

2.1 The minimum size of box from inside shall be **570X 280 X 220 mm & thickness minimum 2 mm.**

2.2 SMC meter Box shall be molded in a single piece forming the body of the SMC meter Box with a cover fitted with base by minimum three nos. concealed Stainless steel hinges. The lid/cover shall rest on the collar of the SMC meter Box base in such a way that any access from outside of the SMC meter Box is not possible. The hinges shall be fitted with the Meter Box body base and cover rigidly, thereby making the Service Connection Box pilfer resistant. All corners of the SMC meter Box should be round & not pointed ones.

2.3 The door in closed position should be overlapped in such a manner that no direct entry or access is possible. The SMC meter Box shall be closed by S.S. 'U' Clamp of minimum 0.8 mm (+/- 0.1 mm). Thickness for holding and locking of the door with body base. The "U" Clamp shall have 4 mm diameter hole through which it is possible to seal the box for sealing purpose.

2.4 The top surface of SMC meter Box shall have little tapering shape towards both Sides of the SMC meter Box for easy flow of rainwater.

2.5 The box should have a window of size **140 X 120 mm.** provided with glass as Shown in the Drawing. The door shall open at 90 degree.

2.6 Hardware used for fixing window glass, hinges and particle board shall be concealed and Non removable from outside

2.7 2 Strips of size 220x 25 x3 mm should be provided for extra strength at mounting hole.

2.8 Wooden Particle board of size 220 x 110 x 10 mm should be provided to facilitate easy & faster mounting of various make of meters.

2.9 Cable entry and exit holes of 70 mm shall be provided on both sides of the box with Flexible PVC Glands/Closed rubber grommets on both side as shown in drawing.

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2.10 A fixed Bracket/bolt should be provide as shown in the drawing to facilitate hanging of Meter from key hole provided in the meter.

2.11 The Earth Bolt shall be M.S. Zinc passivated.

2.12 Required arrangements per box should be as follows:

Sr. No.	Details	Box for 3 ph. connection
01	Size of the box inside	570X 280 X 220 mm.
02	Thickness	2 mm
03	Opening of the box	90°
04	No of holes on backside box wall having 6mm dia for fixing of box.	04 No
05	Earth bolt of 6 mm dia x 25 mm length with 2 nuts and 2 washers	01 No

**3 GUARANTEED TECHNICAL PARTICULARS:**

Guaranteed Technical particulars are given in enclosed Annexure 'A' and 'B'. Bidder shall submit the data in given Performa.

**4 TYPE TEST CERTIFICATE:**

The bidder shall submit type test report as per IS-14772-2000 & IS - 13410: 1992 from CIPET /ERDA, Vadodara/**Any NABL Accredited Laboratory** along with the offer. Type Test Certificate should not be older than **7** years as on the date of tender opening.

**5 ROUTINE TEST :**

Manufacturer has to carryout routine test during production to check the essential Requirements which are likely to vary during production. Manufacturer has to keep Records of the same and to be produced for verification of inspector when asked at the time of inspection of lot.

**6 ACCEPTANCE TEST**

The acceptance tests shall be carried out on randomly selected samples as per Annexure-B

**7 RAW MATERIALS**

The manufacturer has to submit the test certificate for the material used in the lot Offered and document for purchase of raw material.

**8 FACILITY**

The bidder shall have facility to test the SMC meter Box for routine tests and acceptance as Per IS- 14772: 2000 and IS - 13410 at their works. The bidder has to submit List of Machinery & Equipment / Testing instruments etc.

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**9 INSPECTION AND TESTING**

The bidder has to offer the boxes for inspection at his works before dispatch. The manufacturer will offer all facilities to inspector without any charge

**10 DESPATCH**

The SMC meter Box shall be so dispatched as to ensure that no damage occurs during transport where they may be subject to rough handling.

**11 TENDER SAMPLE**

Two nos. of samples as per specifications will have to be submitted for the tender to Deputy Engineer (Stores): Regional Store Office: UTTAR GUJARAT VIJ COMPANY LTD.: Visnagar Road: Mehsana: 384001

**12 Destination:**

The above material shall be supplied to RSO or any store of UGVCL.

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<b>ANNEXURE - A</b>			
<b>GUARANTEED TECHNICAL PARTICULARS FOR THREE PHASE RING TYPE CT OPERATED ENERGY METER SMC BOX</b>			
<b>SR. NO</b>	<b>PARTICULARS</b>	<b>DETAILED PARTICULARS</b>	<b>TO BE OFFERED BY BIDDER</b>
1	Maker's name	To be intimated by the supplier	
2	Material	Glass reinforced polyester sheet molding compound	
3	Grade of Material	SMC confirming to IS: 13410:1992 Grade S 1	
4	Properties of Material of Construction of 3ø SMC meter Box		
	Flame Retardant test	As per IS : 11731 (Min. FVO)	
	Exposure to flame (Ref. Std. IS:4249)	Self-extinguishing	
	Flexural Strength	155 Mpa (Min) as per Annex-F of IS- 13411-1992	
	Glow wire test at 650 C	As per IS 12063 / 87	
	Degree of protection	IP-42 as per IS-12063 / 87	
	Heat distortion temp.	125 C (Min) as per IS:13411	
	Dielectric Strength at 90 C in oil	9 KV/mm (Min) as per IS : 6262-1971	
	Tensile Strength	50 Mpa (Min) as per Annex-F of IS- 8543(P-4/Sec-1)-1984	
	Izod Impact Strength	155 Mpa (Min) as per Annex-F of IS- 13410-1992.	
5	Inside dimension of Service Connection Box	To be mentioned by the supplier	
	a. Height	570 mm (min)	
	b. Width	280 mm (min)	
	c. Depth	220 mm (min)	
	d. Thickness of SMC	02 mm (min)	
	Earthing Arrangement		
6	Earthing bolt	One no. of Earthing bolt of MS with 2 nuts and 2 washers shall be provided on RH side of box. Earthing sign has to be provided near to Earthing bolt.	
	Dia. & Length of Earthing bolts	Dia. 6 mm Length 25 mm	
7	Locking arrangement	For Holding & Locking of door with base two nos. of "U" shaped clamps to be provided	

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8	Manufacturer short name and UGVCL shall be embossed. A/T no. and month & year of manufacture shall be screen printed.	To be provided on the front side of the box	
9	Sealing arrangement	Holes for wire seal.	
10	Wire entry	Cable entry and exit holes shall be provided on both sides of the box with flexible PVC glands/Closed rubber grommets	
11	Colour of Meter Box	Off White	
12	Window having Triplex Glass	Window Size 140mm X 120 mm	
	Fixing of Glass	Fitted from inside in such a way that it can be replaced without opening door (with anti corrosive SS frame all around)	

**Annexure-B**

	TEST REQUIREMENT FOR SMC 3 PH METER BOX (3-PH WHOLE CURRENT METER)	Reference Standards
<b>A</b>	<b>ROUTINE TEST</b>	
1	Protection against electric shock	IS 14772
2	Provision for earthing	- Do -
<b>B</b>	<b>ACCEPTANCE TESTS (Random samples 10 nos. to be selected)</b>	
1	Marking (Name, Trade mark)	- Do -
2	Protection against electric shock	- Do -
3	Provision for earthing	- Do -
4	Construction and Dimension verification	- Do -
5	Heat distortion temperature (min 150°C) (On any one sample)	IS: 13411
6	Self Extinguishing (On any one sample)	IS: 4249
<b>C</b>	<b>TYPE TEST</b>	
1	Marking	IS: 14772
2	Dimensions	- Do -
3	Protection against electric shock	- Do -
4	Provision for earthing	- Do -
5	Construction	- Do -
6	Resistance to ageing, to humid conditions, ingress of Solid	- Do -

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	objects and to harmful ingress of water	
7	Mechanical strength	- Do -
8	Resistance to heat	- Do -
9	Resistance to insulating material to abnormal heat and fire	- Do -
10	Resistance to rusting	- Do -
11	Resistance of tracking	- Do -
12	Heat distortion temperature (min 150°)	IS 13360 (Part VI Sec III)
13	Self Extinguishing	IS: 4249
14	Material Identification	CIPET
15	All test as per IS:13410:1992	CIPET/ERDA, Baroda
	<b>Type Tests</b>	<b>Requirement as per IS (Grade:S1)</b>
a	Glass Content	20% (Mini)
b	Water Absorption	0.25 % (Max)
c	Izod Impact strength (Notched)	45 KJ/M <sup>2</sup> (Mini)
d	Flexural strength	155 Mpa (Mini)
e	Power Arc Resistance	120 Sec (Mini)
f	Dielectric Strength at 90 °C	9 Kv/mm (Mini)
g	Heat distortion temp.	125 °C (Mini)
h	Oxygen Index	23 % (Mini)
i	Tracking resistance	600 CTI (Mini)
j	Modulus of elasticity	12 to 15 MPa
k	Flammability (Min) As per IS-11731	FV <sub>0</sub>
l	Melting point (IS 13360)	--
m	Glow wire test at 650 °C (IS : 11000 P2)	--

Note: All applicable I.S are as per the latest amendments time to time if any

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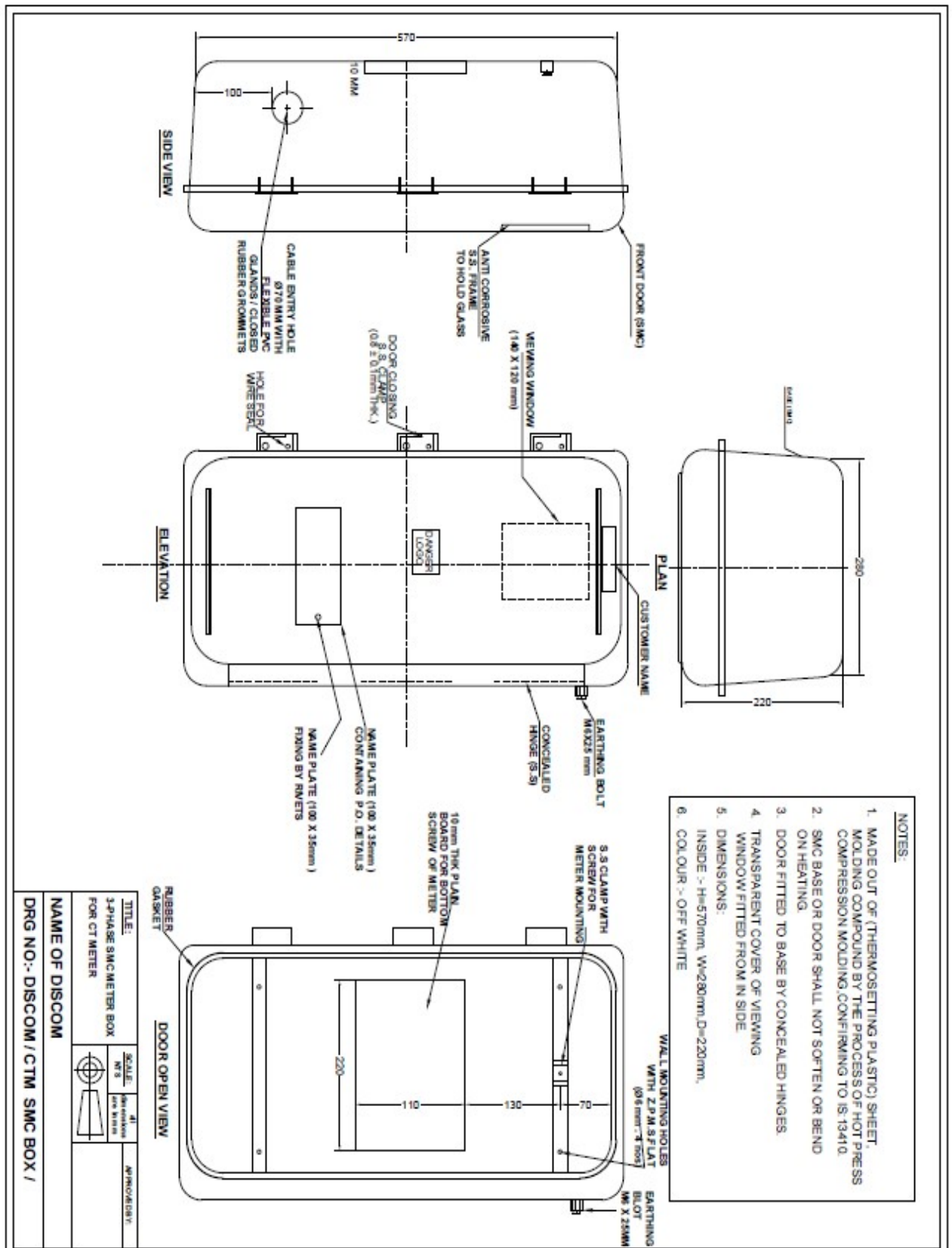
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