TECHNICAL SPECIFICATION FOR HT AMR METER BOXES MADE FROM GLASS REINFORCED POLYSTER SHEET MOULDING COMPOUNDS (SMC).

1.0 SCOPE:

1.1 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 Service Connection Dist. Box made from Thermosetting Plastic i.e. Glass Reinforced Polyester Sheet Moulding Compound (SMC) Confirming to IS:13410 (1992) and attached technical specification, drawing and IS 14772:2000.

2.0 CONSTRUCTION:

2.1. The SMC HT AMR meter Box shall comprise of Moulded single Base and doors. The construction of the Box shall be of Single Base type.

2.2. The SMC HT AMR meter box shall comply with the provision of IS 14772. The boxes shall be suitable for outdoor/indoor application.

2.3. SMC HT AMR Meter box shall have minimum inside size of 810(H) x 350(W) x 230(D) mm as per enclosed drawing. Colour of the Box Shall be thoroughly Off White and without colour coating.

2.4. The thickness of the box shall not be less than 2.0 mm on all sides including door.

2.5. The top surface of SMC HT AMR Meter box shall have tapering shape for easy flow of rainwater.

2.6. The meter box shall have a groove all round to hold soft rubber gasket with Corresponding tongue in door to ensure tongue & Groove type sealing arrangement in addition to Gasket sealing for protection against entry of dust and water.

2.7. The door shall rest on the base of box in such a way that any access from outside to the meter is not possible. The door in closed position should be overlapped on collar of base such that direct entry of screwdriver or tool is not possible.

2.8. The Box shall confirm to ingress protection level IP-53.

2.9. All corners of the Meter box should be round and not pointed ones.

2.10. Z.P. M.S. Sliding arrangement shall be fitted in the box so as to facilitate mounting of meter and TTB as shown in the drawing. Vertical part of sliding arrangement should be 'C' Channel type with minimum 2 mm thickness.

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2.11. 4 mm thick SMC plate for Modem mounting shall be provided as shown in the drawing. MS Plates of 70x70 mm shall also be fitted at 2 places as shown in the drawing to facilitate Modem Antenna fixing.

2.12. Thickness of horizontal Strips used for sliding arrangement for meter/ TTB mounting shall be minimum 2 mm.

2.13. SMC HT AMR Meter box door shall be fitted to base with concealed Stainless Steel Strip hinges.

2.14. The SMC HT AMR Meter boxes shall be closed by S.S. 'U' Clamp of minimum 0.8mm thickness for holding and locking of the door. The "U" Clamp shall have 4mm diameter hole through which it is possible to seal the box for sealing purpose.

2.15. For meter reading the box should have a window with Toughened/Triplex Glass Fixed with S.S. frame from inside. The box should have a window of size 280mm x 180mm made out of Thermosetting Plastic and provided with Glass as shown in the drawing.

2.16. 4 Nos wall/pole mounting SMC Flat having holes 12 mm diameter shall be provided on back side of Meter Box for fixing of box on the wall/pole.

2.17. For cable entry shall be provided at Bottom of box with good quality dia 25mm brass double compression gland as shown in the drawing. Gland should be as per IS 12943:1990.Gland size should be marked on gland.

2.18. One no. earthing bolt of 6mm diameter X 25mm length with 2 Nos. Nuts and 2Nos. washers plus a spring washer shall be provided. The earthing arrangement shall be of M.S. with Zinc passivated. Earting symbol is to be provided near the earthing bolt.

2.19. All metal parts shall be Zinc passivated. If not mentioned specifically.

3.0 GUARANTEED TECHNICAL PARTICULARS:

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

4.0 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 (Seven) years as on the date of tender opening.

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5.0 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.

6.0 ACCEPTANCE TEST

The acceptance test as per IS 14772-2000 shall be carried out on randomly selected samples as per Annexure-B

7.0 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.

8.0 FACILITY

The bidder shall have facility to test the box for routine tests and acceptances as per IS-14772: 2000 and IS-13410 at their works. The bidder has to submit list of Machinery and Equipment / Testing instrument etc.

9.0 INSPECTION AND TESTING

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

10.0 DESPATCH

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

11.0 TENDER SAMPLE

A two nos. of tender sample as per specifications will have to be submitted in time (i.e. within due date and time for submission of offer) to The Deputy Engineer (stores) Regional Store Office: UTTAR GUJARAT VIJ COMPANY LTD.: Visnagar Road: Mehsana: 3840011,

12.0 DESTINATION

The above material shall be supplied to RSO, stores of **UGVCL.**

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ANNEXURE – A			
GUARANTEED TECHNCIAL PARTICULARS FOR SMC HT AMR METER BOX			
Sr No	**PARTICULARS**	**DETAILED PARTICULARS**	**TO BE OFFERED BY BIDDER**
1	Maker's name	To be intimated by the supplier	
2	Material	Glass reinforced polyester sheet moulding compound	
3	Grade of Material	SMC confirming to IS:13410:1992 Grade S 1	
4.0	Properties of material of construction of meter box		
4.1	Flame retardant test	As per IS-11731 (Min. FV0)	
4.2	Exposure to flame (Ref Std IS:4249)	Self – extinguishing	
4.3	Degree of Protection	IP-53 as per IS-12063 / 87	
4.4	Heat distortion temp.	150° C (Min) as per IS:13411	
4.5	Glow wire test at 650C	As per IS-11000 Part-2/sec-1	
4.6	Dielectric Strength at 90 Degree C in oil	9 KV/mm (min) as per IS:6262-1971	
4.7	Tensile Strength	50 Mpa (min) as per Annex-F of IS:8543(P-4/Sec-1)-1984	
4.8	Flexural Strength	155 Mpa (min) as per Annex-F of IS:13411-1992	
4.9	Izod Impact strength Strength	45 KJ/M2 (min) as per Annex-E of IS:13410-	
5.0	Inside dimension of meter box	To be mentioned by the supplier	
5.1	Height	810 mm (min.)	
5.2	Width	350 mm (min.)	
5.3	Depth	230 mm (min.)	
5.4	Thickness	2mm (min.)	
6.0	Earthing Arrangement		

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6.1	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.	
6.2	Dia and length of earthing bolts	Dia 6 mm and Length 25 mm	
7	Locking arrangement	For holding and locking of door with base "U" shaped clamps to be provided with arrangement for sealing of box.	
8	Manufacturer short name and UGVCL company logo shall be printed on the front side of the box	To be provided on the front side of the box	
9	Sealing arrangement	Holes for wires seal	
10	Cable entry holes	Cable entry holes with 1 no. good quality dia 25 mm brass double Compression gland as per IS:12943-1990.	
11	Colour of box.	Toughly Off white material and without colour coating.	
12	Window having Triplex Glass	Window size 280mm X 180 mm	
13	Fixing of glass	Fitted from inside in such a way that it cannot be replaced without opening door (with S.S. frame all around))	

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Annexure-B

	TEST REQUIREMENT FOR SMC 3 PH HT AMR METER BOX	Reference Standards
A	**ROUTINE TEST**	
1	Protection against electric shock	IS 14772
2	Provision for earthing	- Do -
B	**ACCEPTANCE TESTS (Random samples 10 nos. to be selected)**	
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
C	**TYPE TEST**	
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 objects and to harmful ingress of water	- Do -

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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
	Type Tests	**Requirement as per IS (Grade:S1)**
a	Glass Content	20% (Mini)
b	Water Absorption	0.25 % (Max)
c	Izod Impact strength (Notched)	45 KJ/M^2 (Mini)
d	Flexural strength	155 Mpa (Mini)
e	Power Arc Resistance	120 Sec (Mini)
f	Dielectric Strength at 90 ^{0}C	9 Kv/mm (Mini)
g	Heat distortion temp.	125 ^{0}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_0
l	Melting point (IS 13360)	--
m	Glow wire test at 650 ^{0}C (IS : 11000 P2)	--

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