

1.00 SCOPE:

This specification covers design, manufacturing, testing and supply of Meter Box made out of Sheet Moulding Compound (SMC) confirming to IS: 13410 / 1992 amended upto date & IS: 14772 / 2000 (amended upto date). The Meter Box shall be suitable for housing Three Phase Energy Meters with or without modem with antenna on wall or pole mounting in indoor as well as outdoor applications.

2.00 QUALIFYING REQUIREMENTS:

- 2.01 Offers of manufacturers / suppliers of Energy Meters Boxes shall be accepted against the Tender.
- 2.02 The following qualifying requirement shall be fulfilled by the bidders.
 - (a) The bidder shall have turnover of 60% of the estimated cost of the tender during any one of the last three financial years.
 - (b) The bidder shall have supplied one lakh energy meter boxes during the last three financial years.
 - (c) The bidder shall have minimum experience of three years of supply or manufacturing for meter boxes upto the end of the last financial year.
- 2.03 The offers of Indian subsidiary company, whose parent company is located abroad fulfilling the qualifying requirements, shall be considered provided the Indian participant subsidiary company fulfils the minimum experience of three years of supply or manufacturing of meters boxes upto the end of the last financial year. However, the conditions of turnover of 60% of the estimated cost of the tender during any one of the last three financial years and supply of minimum quantity of one lakh meter boxes during last three financial years can be fulfilled by the parent company located in abroad on behalf of their Indian subsidiary company. The parent company shall furnish undertaking for accepting responsibility for supplying quality meter boxes as per specifications and execution of the contract on behalf of its India based subsidiary unit who has participated in the tender in Annexure U-I.
- 2.04 In case of offers of foreign bidders/manufacturers, they shall fulfil Qualifying Requirement as per Sr. No. 2.1 and 2.2 above.

3.00 SERVICE CONDITIONS:

The meter box to be supplied against this specification shall be suitable for satisfactory continuous operation under the following service conditions.



Environmental Conditions	
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 95 %
g) Maximum Annual rainfall	1450 mm
h) Maximum wind pressure	150 kg/m2
i) Maximum altitude above mean sea level	1000 meters
j) Isoceraunic level	50 days/year
k) Seismic level (Horizontal acceleration)	0.3 g

l) Climate: Moderately hot and humid tropical climate conducive to rust and fungus growth.

4.00 APPLICABLE STANDARDS:

Unless otherwise modified in this specification, the meter box shall generally confirm with the provisions of IS: 14772 / 2000 (Amended upto date) and material of construction i.e. SMC to IS: 13410 / 1992 and requirement of this specification.

5.00 DESIGN & CONSTRUCTION:

- 5.01 The meter box shall be made from thermosetting plastic i.e. glass reinforced polyester sheet moulding compound confirming to IS: 13410 /1992, Grade S-3 & requirement of this specification.
- 5.02 The boxes shall be made by Hot Press compression moulding Process.
- 5.03 The Meter Box shall be comprised of Moulded Single Base and Single Door.
- 5.04 The base and cover of meter box shall be individually in one piece except for fixing of accessories like hinges, clamp, handles etc.
- 5.05 The meter box shall be so constructed as to have roof tapering down for easy flow of rainwater. It shall be moulded using 100% virgin SMC, grade S-3 material. The box shall be weather proof, unbreakable and scratch resistant & shall have good workmanship.
- 5.06 The meter box shall be made of anti corrosive, dust proof, rust proof, vermin and water proof, ultra violet stabilized and flame retardant



- high grade SMC material having good dielectric and mechanical strength property. The Meter Box shall facilitate wireless data communication with minimal disruption for AMR purpose.
- 5.07 The boxes shall be suitable for outdoor / indoor application.
- 5.08 Corners of the Meter Box shall be round and not pointed ones.
- 5.09 Door with locking arrangement shall be provided.
- 5.10 The minimum inside dimensions of the meter box shall be suitable for installation of all types of meters purchased from various meter manufacturers.
- 5.11 The three phase meter box shall be such that there shall be minimum 100 mm clearance at the bottom, 75 mm clearance on all three sides, 25 mm clearance at the front and 10 mm clearance at the back between the meter and meter box inner wall.
- 5.12 The wall thickness of the meter box base shall be minimum 3.0 mm on load bearing side and 2.00 mm on all other sides. The thickness of cover shall be minimum 2 mm. The meter box shall have base raised by about 10 mm in the box for easy wiring for fixing the meter, modem and antenna. The meter screws shall not protrude outside.
- 5.13 Except hinges & locking arrangement, all metal parts shall be of stainless steel only.
- 5.14 The base and cover must be UV stabilized to ensure that it does not get 'Yellow' over a period of time. It shall not change in colour, shape, size, dimensions when subjected to 200 hrs on UV ageing test as per ASTM: G53 (Cl. No. 9.3), 4 Hours UV at 60° C and 4 Hours Condensation at 50° C. The base and cover shall be capable of withstanding temperature of boiling water for five minutes continuously without distortion or softening.
- 5.15 The minimum internal dimensions of the meter box shall be as per below.

Particulars	Internal Dimensions of Meter Box with Modem & Antenna	Internal Dimensions of Meter Box without Modem & Antenna
Height (H)	570	370
Width (W)	280	280
Depth (D)	210	210



- 5.16 The tolerance permissible on the various dimensions of the meter box shall be + 1%.
- 5.17 The cover shall be made overlapping type having collars on all four sides.
- 5.18 The hinges / strip hinges for compartment cover shall be so designed that the door cannot be opened without breaking the seals, i.e. the hinges / strip hinges shall be provided from inside.
- 5.19 The cover in closed position shall be overlapped on base such that direct entry of screwdriver, tool or film is not possible. The cover shall be provided with semi circular / circular gasket of sufficient size to completely fit to the base. The gasket shall be made out of good quality neoprene rubber.
- 5.20 The meter box base and cover shall have minimum 2 nos. of matching Wire Sealing holes for MSEDCL sealing purpose.
- 5.21 The enclosure shall comply with the requirements of IP 55 as per IS: 12063 or the latest version thereof.
- 5.22 The mounting arrangement of the meter and modem and in the meter box shall be by way of adjustable slotted polymeric brackets / strips which shall be fixed on the base. The polymeric brackets / strips shall be provided with stainless steel screws of diameter 4 mm & length 20 mm to suit mounting of various make of meters and modems with antennae.
- 5.23 4 nos. of keyholes of diameter 6 mm shall be provided at the backside of the meter box to facilitate mounting of the meter box on the wall. 4 nos. of 37.5 mm long, 6 mm diameter mounting screws with washers shall be provided along with the meter box.
 - For mounting the box on pole, four MS / SMC strips of minimum 35 mm wide & 5 mm thick shall be provided on backside of the box.
- 5.24 2 nos. of holes with polymeric material collapsible glands of maximum diameter of 25 shall be provided at the bottom of meter box for incoming and outgoing cables.
- 5.25 The surface appearance or part of meter box must be smooth, non porous and homogeneous, free from ripples, defects and marks. No fillers or fibres shall be visible at any place.
- 5.26 The Meter Box shall comply with magnetic influence of AC / DC / 0.5 Tesla Permanent Magnet when tested as per Meter Testing Method of



CBIP Report No. 88 with meter having 0.5 Tesla Magnetic Immunity mounted in it.

5.27 For meter reading and modem viewing the box shall have a window with Toughened / Triplex Glass Fixed with stainless steel frame from inside. The box shall have window(s) of size as per the table given below provided with Glass

	Meter Box with Modem & Antenna		Meter Box	
Particulars	Window for Meter (mm)	Window for Modem & Antenna (mm)	without Modem & Antenna (mm)	
Height (H)	160	120	160	
Width (W)	140	140	140	

6.00 TESTS:

The meter box shall be fully type tested as per IS: 14772 / 2000 (amended up to date) and IS: 13410 / 1992 (amended up to date).

The type test report shall clearly indicate the constructional features identifying material of construction and its grade / composition as per respective IS and other type tests as well as acceptance tests as per table below.

All the Type Tests shall be carried out from Laboratories which are accredited by the National Board of Testing and Calibration Laboratories (NABL) of Govt. of India such as CPRI, Bangalore / Bhopal, ERDA Baroda, ERTL, CIPET to prove that the meter box meets the requirements of specification. Type Test Reports conducted in manufacturers own laboratory and certified by testing institute shall not be acceptable.

The purchaser reserves the right to demand repetition of some or all the type tests in presence of purchaser's representative at purchaser's cost.

The type test report of meter box having identical constructional and other features carried out during last three years shall be valid.

The meter box shall pass all the acceptance and routine tests laid down in IS: 14772 / 2000 (amended up to date) & IS: 13410 / 1992 (amended up to date) and also additional acceptance tests as prescribed in this specification.



The tenderer shall submit all the following type test reports along with offer. Separate type Test Reports for each offered type of meter box shall be submitted. The Type Test certificates as per table below shall be got approved from the Chief Engineer (Distribution) before commencement of supply.

TYPE TESTS & ACCEPTANCE TESTS

Sr. No.	Test	Reference Standard	Required Value
(1)	Flammability	UL-94 / IS: 1173	V2
(2)	Heat Deflection Temperature @ 1.8 MPA	IS: 13411 Annex. H / ISO 75	≥ 150° C
(3)	Glow Wire Test	IS: 11000 (P2 / S1) or IEC – 695-2-1	= 850°C
(4)	Ball Pressure Test	IS: 14772 / 2000 or IEC 335	Confirms
(5)	Water Absorption	IS:14772 / 2000	= <u><</u> 0.25%.
(6)	Mechanical strength	IS:14772 / 2000	≥ 50 MPA
(7)	Marking, Dimension & Construction	IS:14772 / 2000	As per IS
(8)	Material Identification	IS 13410 / 1992	Sheet Moulding Compound
(9)	Resistance to ageing to humid conditions, ingress of solid objects & to harmful ingress of water	IS:14772 / 2000	Confirms
(10)	UV Ageing Test for 200 Hours	ASTM G53 (9.3)	Confirms
(11)	IP-55	IS:12063 / 1987	Confirms

In addition to above, all other tests according to IS: 14772 / 2000 (amended upto date). For Acceptance Test, 10 Samples for each lot offered for inspection shall be selected randomly.

7.00 GUARANTEED TECHNICAL PARTICULARS:

The tenderer shall furnish the particulars giving specific required details of Meter boxes in schedule 'A' attached (As per Guaranteed Technical Particulars uploaded on e - Tendering site). The offers without the details in Schedule 'A' stand rejected.

8.00 TESTING AND MANUFACTURING FACILITIES:

- 8.01 The Bidder shall have necessary machinery for production of SMC.
- 8.02 Manufacturer shall have in house testing facilities for carrying out routine and acceptance tests as per IS: 14772 / 2000 (amended upto date) and Annexure 'A'.
- 8.03 The Bidder shall have the testing facility of flammability test of V2.

9.00 DRAWINGS / SAMPLES:

Enclosed drawings are only for general guidelines, however, the detailed dimensional drawing showing clearly the dimensions and material for meter box and its constructional features shall invariably be furnished with the offer.

10.00 GUARANTEE:

The meter box shall be guaranteed for a period of five years from the date of commissioning or five and half years from the date of dispatch whichever is earlier.

The meter boxes found defective within above guarantee period shall be replaced by the supplier free of cost within one month of receipt of intimation. If the defective material is not replaced within specified period as above, the Company shall recover an equivalent amount plus 15% supervision charges from any of the bills of the supplier.

11.00 MARKINGS:

The meter box shall have an anodized aluminium name plate clearly visible, effectively secured against removal and indelibly and distinctly marked with all essential particulars as per relevant standards.

The following information shall clearly & indelibly be embossed on the cover of the meter box.

- a) Purchaser's Name: MSEDCL
- b) Code name of manufacturer:



C)]	Purchase	oraer	number	and	date:	
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d) Year and month of manufacture:

e) Guarantee: Years

f) Sign of Danger

12.00 INSPECTION:

All Acceptance tests and inspection shall be carried out at the place of manufacturer unless otherwise specially agreed upon by the manufacturer and purchaser at the time of purchases. The manufacturer shall offer to the inspector representing the purchaser all the reasonable facilities, free of charge, for inspection and testing, to satisfy him that the material is being supplied in accordance with this specification. The MSEDCL representative / Engineer attending the above testing shall carry out testing as per IS: 13410 / 1992 (amended upto date) & IS: 14772 / 2000 (amended upto date) & this specification and issue a test certificate approval to the manufacturer and give clearance for dispatch.

The manufacturer shall give minimum 14 days notice for inspection of material.

13.00 PACKING:

The meter box shall be suitably packed in corrugated boxes in order to avoid damage during transit or handling.

14.00 REJECTION:

After dispatch of material against inspected lot to various store centres, the Chief Engineer, Distribution / O & M Zone may select one complete meter box at random from the lot of each type that may be supplied to various store centres and shall test the same for all the acceptance and routine tests at any third party NABL Lab.

The 5 days advance intimation shall be given to the supplier and if the supplier fails to attend the same on the date informed, the testing will be carried out in absence of supplier's representative. The results of the testing lab shall not be disputed by the supplier. If the meter box fails in above random sample testing, the lot will be rejected.

15.00 SCHEDULES:

The tenderer shall fill in the following schedules and submit along with the offer. If the schedules are not submitted duly filled in with the offer, the offer shall be rejected.



Schedule 'A' ... Guaranteed Technical particulars (As per GTP parameters uploaded on e- Tendering site.)

Schedule 'C' ... Tenderer Experience

The discrepancies, if any, between the specification and the catalogues and/or literatures submitted as part of the offer by the bidders, shall not be considered and representations in this regard will not be entertained. If it is observed that there are deviations in the offer in Guaranteed Technical Particulars other than those specified in the deviation schedules then such deviations shall be treated as deviations.



SCHEDULE - "C"

TENDERER'S EXPERIENCE

Tenderer shall furnish here list of similar orders executed / under execution for supplying meters boxes by him to whom a reference may be made by purchaser in case he considers such a reference necessary.

Sr. No. Name of client Order No. & date Oty. ordered Oty. supplied

NAME OF FIRM
NAME & SIGNATURE OF TENDERER
DESIGNATION
DATE

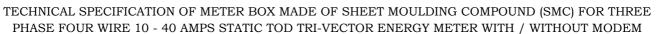


ANNEXURE U-I

"INDEMNITY BOND"

UNDERTAKING TO BE SUBMITTED BY THE PARENT COMPANY SITUATED ABROAD IN CASE OF THE PARTICIPANT BIDDER WHO IS AN INDIAN BASED SUBSIDIARY ON GENERAL STAMP OF RUPEES 200/-

To, The Executive Director (Stores), Maharashtra State Electricity Distribution Co. Lt Prakashgad, Bandra (E), Mumbai – 400 051.	cd.,
Sub: - Undertaking against Tender for p	procurement of
Dear Sir:	
We, M/s having registered office Company of M/s who have participated for procurement of	
We have carefully read and have thoroughly us terms and conditions of the subject tender.	nderstood and agree to the
We hereby undertake that in case of placement tender on our subsidiary company, M/s the responsibilities and liabilities for supply specification of the tender and execution of the undertake that we shall be responsible for any contract placed on M/s and to pay MSE rupees as per agreement in the event of any purchase order, loss and damage of the mater period as stipulated in the order. Our liability impaired or discharged by extension of time or with or without our knowledge or consent by or said contract. This undertaking shall be valid a including the execution and guarantee period of terminable by notice or change in the constituti. In case of any dispute arising out of or in concontract, if concluded, the same shall be subject of the "Court in Mumbai (India)."	in the event of we accept all of quality meters as per contract. We further hereby liability arising out of the DCL on demand the sum of breach of condition of the rial till expiry of guarantee by here under shall not be variation or alteration made a between the parties to the and binding on us upto and if the order and shall not be on of any of the companies. In action with this tender or to the exclusive jurisdiction
	Yours faithfully,
	(Authorised Signatory) FOR





SCHEDULE - "A" GUARANTEED TECHNICAL PARAMETERS (TO BE FILLED ONLINE)

ITEM NAME	METER BOX MADE OF SHEET MOULDING COMPOUND THREE PHASE FOUR WIRE 10 - 40 AMPS STATIC VECTOR ENERGY METER WITH / WITHOUT MODEM	•
SR. NO.	GTP PARAMETERS	GTP VALUES
1.	MANUFACTURER'S / SUPPLIER'S NAME AND ADDRESS WITH WORKS ADDRESS	TEXT
2.	APPLICABLE STANDARDS	TEXT
3.	METER BOX MADE FROM THERMOSETTING PLASTIC, I.E. GLASS REINFORCED POLYESTER SHEET MOULDING COMPOUND CONFIRMING TO IS: 13410 / 1992, GRADE S-3 & REQUIREMENT OF THIS SPECIFICATION (YES / NO)	BOOLEAN
4.	METER BOX MADE BY HOT PRESS COMPRESSION MOULDING PROCESS (YES / NO)	BOOLEAN
5.	WHETHER SMC GRADE S3 IS USED FOR CONSTRUCTION OF METER BOX. (YES / NO)	BOOLEAN
6.	SMC MATERIAL USED IS VIRGIN. (YES / NO)	BOOLEAN
7.	SMC MATERIAL USED IS UV STABILIZED. (YES / NO)	BOOLEAN
8.	DIMENSIONS OF METER BOX WITHOUT MODEM & ANTENNA L X B X H	TEXT
9.	DIMENSIONS OF METER BOX WITH MODEM & ANTENNA L X B X H	TEXT
10.	SHEET THICKNESS OF BASE OF METER BOX AT LOAD BEARING SIDE	TEXT
11.	SHEET THICKNESS OF BASE OF METER BOX EXCEPT AT LOAD BEARING SIDE	TEXT



12.	SHEET THICKNESS OF COVER OF METER BOX	TEXT
13.	MINIMUM INTERNAL DIMENSIONS OF THE METER BOX AS PER TECHNICAL SPECIFICATIONS (YES / NO)	BOOLEAN
14.	MINIMUM CLEARANCE AT FRONT SIDE BETWEEN METER AND METER BOX INNER WALL	TEXT
15.	MINIMUM CLEARANCE AT BACK BETWEEN METER AND METER BOX INNER WALL	TEXT
16.	MINIMUM CLEARANCE AT BOTTOM BETWEEN METER AND METER BOX INNER WALL	TEXT
17.	MINIMUM CLEARANCE ON ALL THREE SIDES BETWEEN METER AND METER BOX INNER WALL	TEXT
18.	DOOR WITH LOCKING ARRANGEMENT IS PROVIDED (YES / NO)	BOOLEAN
19.	INSIDE DIMENSIONS OF METER BOX ARE SUITABLE FOR INSTALLATION OF ALL TYPES OF METERS PURCHASED FROM VARIOUS METER MANUFACTURERS (YES / NO)	BOOLEAN
20.	COVER MADE OVERLAPPING TYPE HAVING COLLARS ON ALL FOUR SIDES (YES / NO)	BOOLEAN
21.	HINGES / STRIP HINGES ARE PROVIDED FROM INSIDE (YES / NO)	BOOLEAN
22.	COVER PROVIDED WITH SEMI CIRCULAR / CIRCULAR GOOD QUALITY NEOPRENE RUBBER GASKET OF SUFFICIENT SIZE TO COMPLETELY FIT TO THE BASE (YES / NO)	BOOLEAN
23.	MATCHING WIRE SEALING HOLES FOR MSEDCL SEALING PURPOSE ARE PROVIDED (YES / NO)	BOOLEAN
24.	MOUNTING ARRANGEMENT ON WALL / POLE AS PER SPECIFICATIONS (YES / NO)	BOOLEAN
25.	METER BOX CONFIRMS TO IP-55 (YES / NO)	BOOLEAN



26.	WINDOW WITH TOUGHENED / TRIPLEX GLASS FIXED WITH STAINLESS STEEL FRAME FROM INSIDE (YES / NO)	BOOLEAN
27.	CONFIRM FLAMMABILITY AS V2 AS PER UL 94 / IS 1173 (YES /NO)	BOOLEAN
28.	CONFIRM HEAT DEFLECTION TEMPERATURE OF BASE > 150°C @ 1.8 MPA AS PER IS:13411, ANNEXURE 'H' / ISO 75 (YES /NO)	BOOLEAN
29.	CONFIRM GLOW WIRE TEST AT 850° C AS PER IS: 11000 (PART 2 / SECTION 1) / IEC-695-2-1 (YES /NO)	BOOLEAN
30.	CONFIRM BALL PRESSURE TEST AS PER IS: 14772/2000 / IEC 335 (YES / NO)	BOOLEAN
31.	CONFIRM 200 HRS UV AGEING TEST IS CARRIED OUT AS PER ASTM G53 (9.3). (YES /NO)	BOOLEAN
32.	CONFIRM WATER ABSORPTION VALUE < 0.25% AS PER IS: 14772 / 2000. (YES /NO)	BOOLEAN
33.	CONFIRM MECHANICAL STRENGTH ≥ 50 MPA AS PER IS: 14772 / 2000. (YES /NO)	BOOLEAN
34.	CONFIRM FLEXURE STRENGTH ≤ 155 MPA. (YES /NO)	BOOLEAN
35.	CONFIRM MODULUS OF ELASTICITY 12 X 10 ² MPA. (YES /NO)	BOOLEAN
36.	CONFIRM IZOD IMPACT STRENGTH NOTCHED = 45 KJ / METER ² MINIMUM. (YES /NO)	BOOLEAN
37.	CONFIRM MATERIAL SMC DOES NOT MELT TEST UPTO 400°C (YES / NO)	BOOLEAN
38.	MINIMUM 2 NOS. COLLAPSIBLE POLYMERIC GLANDS ON THE BOTTOM OF BASE PROVIDED (YES / NO)	BOOLEAN
39.	METER BOX WITHSTANDS 0.5 TESLA MAGNETIC INFLUENCE TEST (YES / NO)	BOOLEAN
40.	LIFE EXPECTED IS 5.5 YEARS (YES / NO)	BOOLEAN



41.	IN-HOUSE TESTING FACILITY IS AVAILABLE. (YES / NO)	BOOLEAN
42.	METER BOX IS TYPE TESTED (YES / NO)	BOOLEAN
43.	TYPE TEST REPORT NOS.	TEXT
44.	WHETHER YOU AGREE TO SUPPLY METER BOXES AS PER ANNEXURE – D, I.E. TECHNICAL SPECIFICATIONS OF THE TENDER (YES / NO)	BOOLEAN
45.	WHETHER TYPE TEST REPORTS ALONGWITH THE COPY OF THE SAME IN TWO CDS ARE SUBMITTED (YES / NO)	BOOLEAN
46.	WHETHER 10 NOS. OF TENDER SAMPLE METER BOXES ARE SUBMITTED (YES / NO)	BOOLEAN
47.	WHETHER THE FIRM IS SUBSIDIARY (YES / NO)	BOOLEAN
48.	ADDITIONAL INFORMATION REQUIRED IN CASE OF FOREIGN BIDDER / MANUFACTURER (A) RATE OF CUSTOMS DUTY	TEXT
49.	(B) OFFER SUBMITTED BY FOREIGN BIDDER / MANUFACURER	TEXT
50.	(C) WHETHER THE OFFER SUBMITTED THROUGH AUTHORISED ASSIGNEE / NOMINEE (YES / NO)	BOOLEAN
51.	(D) IN CASE OFFER SUBMITTED THROUGH AUTHORISED ASSIGNEE / NOMINEE, WHETHER ANNEXURE UII SUBMITTED (YES / NO)	BOOLEAN

