ANNEXURE - I

DRAFT SPECIFICATION FOR L. T. DISTRIBUTION BOX OF DISTRIBUTION TRANSFORMER (DTR) OF DIFFERENT RATINGS WITH INCOMING PORCELAIN REWIREABLE FUSE UNIT AND OUTGOING INSULATED STUD REWIREABLE.

SCOPE

The Specification covers design, manufacture, testing at manufacture's works, supply, transport to site, insurance, & storage, of L.T. Distribution Boxes for protection and control of Distribution Transformers of different ratings and LT line as per IS No. 13947 (P. 1,2,3) of 1993 with latest amendment if any and also other applicable IS Nos. mentioned in Specification

1.1. : CONSTRUCTIONAL FEATURES :-

(1) L.T. Distribution Box shall be outdoor type and have suitable enclosure (factory built assembly) manufactured by Thermosetting Plastic i.e. Glass Fiber Reinforced Polyester Sheet Moulding Compound (SMC As per IS 13410/1992 (S 3) to be tested at Central Institute of Plastic Engineering & Technology (CIPET) and confirming to the requirements of this specification and of suitable sizes as mentioned for different ratings of Distribution Tansformer. Incoming Porcelain Fuse units as per IS: 2086/1993 with latest Amendment/ Revision if any on the date of inviting tender and as per our specification. Outgoing composite Stud disconnector as per IS: 13410/1992(S3) with latest Amendment/Revision if any on the date of inviting tender.

2. GENERAL REQUIREMENT :

2.1 L.T. Distribution Box should be designed to have maximum utilization of transformer capacity and shall be well equipped with adequate protection to transformer and feeder against overload and short circuit and minimum interruption in power supply. The contractor shall submit time current characteristic curves so as to ensure proper coordination with LT protection system.

2.2. SERVICE CONDITION :-

a) WEATHER CONDITION :

The materials used in Construction of the Distribution Box shall be suitable for use under following conditions.

(a) Location at various locations of West Bengal	
(b) Temperature Variation	1º C to 50 º C
(c) Relative humidity	Upto 95%
(d) Altitude	1000 Mtrs.
(e) No. of tropical monsoon months	3 (three)
(f) Max. wind pressure	150 Kg/cm2
(g) Average annual rainfall	125 cm
(h) Average thunderstorm base per annum	50
(i) Seismic level (Horizontal Acceleration)	0.3g\

b) MODE OF INSTALLATION

The boxes are to be mounted on M.S. Channels/angles fixed between two PCC / Guarder Poles with suitable size of hot dip galvanized bolts and nuts.

c) SYSTEM DETAILS

These Distribution Boxes are meant for control and protection of Distribution Transformer and Feeder with required technical parameters as under :

1. KVA RATING OF TRANSFORMER	16/25/63/100
2. VOLTAGE	415/400 volts, 3phase with solidly ground earth.
3. FREQUENCY	50 Hz, +/- 5%
4. Approx rated load current in Amp	23/36/91/144
5. No. of outgoing circuits	2
6. Rated short time withstand current of Distribution Box	7.5 KA for 1 Sec
7. No. of poles per phase	1

3. DETAILED SPECIFICATION

The specification is subdivided into the three parts.

1) Enclosure
2) Panelling Fuse unit.
3) Components of Circuits.

3.1 Enclosure Panel :

a) The box shall be suitable for outdoor installation. The box is expected to be mounted below the transformers and it shall be mounted on PCC poles.
b) The thickness of SMC be of 3 mm in Base and 2.5 mm Side wall and top cover.
c) Door hinge shall be properly conceil to box and cover. The box shall open at top side i.e. vertical opening. Swing of door opening be minimum 110º. Conceiled Hinges shall be provided from inside only.
d) The door locking device as Padlocking arrangement should also be provided.
e) Rubber gasket shall be provided around the boxes to prevent entering of outside dust, rain water etc inside and to have proper vermin proofing. The rubber gasket should be minimum 3 mm thick.
f) The roof should be given a slope of 2 ° to 5 ° to drain the rainwater easily and having the rain guard arrangement for prevention of rain water entering into the box.
g) Two sets of louvers shall be provided on the side walls. The louvers shall be backed up by SMC from inside the box for preventing dust, insects and rain water getting inside the box. The box will be provided with IP- 44 (as per IS: 12063 latest) protection and entry of fresh cool air and to maintain the temperature rise limits of various components provided inside the box.
h) For using the Terminal, it should installed in a flexible composite tray as per IS:13411which assemble in this enclosure with GI passivated nut bolts.
i) The current carrying parts should be properly connected using Brass bolts, nuts & washers. All other bolts, nuts and plain washers used for tightening purpose including connectors should be of M.S. hot dip galvanized. Bolts, nuts washers.
j) The size of the Kiosk box suitable for 100 & 63 KVA DTR will be 1200 X 800 X 300 mm and for 16/25 KVA DTR will be 700 X 400 X 363 mm. However, the dimensions of the box is for reference only, internal clearance as per our requirement shall be strictly maintained. Overall dimensions of the box shall be such that the box will withstand temperature rise limits as per IS and Company's Specification and to have sufficient space for working during maintenance. The size of the box will depend on the size of Electrical components and other relevant provision made in IS:13947/(P1,2&3)/1993, IS 2086/1993 and IS:4237/1983 with latest amendment if any. The box will fulfill following requirement, bidder can give suitable design of enclosure with all the equipments/ accessories and electrical clearances as per IS.

k) i) The danger sign as per IS: 2551 / 1982 of shall be printed manner on front cover of the box.

ii) The incoming and outgoing terminals of the Disconnector Porcelain Fuses and the Stud shall have suitable termination. Disconnector and Porcelain Fuses should have extended terminal for proper clearance to be maintained between phases .

iii) All other minimum clearance between phases, between phase and earth shall be as per minimum requirement of IS; 13947(P1, 2 & 3) 1993.

iv) The temperature rise shall be within limits specified in IS: 13947/(P1, 2&3) / 1993 and also mentioned at Annexure- "A" attached with specification. The temperature rise test be conducted with the current (specified in the Annexure -A) passing through the incoming circuit and proportional rated current through outgoing circuits. This test should be conducted with enclosure doors properly closed and the entire box as in the actual service. The test certificate from Government approved and NABL accredited Laboratory such as CPRI, NPL, NTH,ETDC, ERDA,CIPET,ERTL etc and for the same should be submitted, which shall not be more than five years old from the date of the tender.

v) Separate half round clamps of 2 mm MS sheet should be provided for holding the incoming & outgoing cables, so that cables do not rest directly on the terminals.

vi) Terminals suitable for connecting LT Capacitor bank (to be installed outside LTDB) with four core LT XLPE cable of 35 sq.mm (up to 100 KVA) and for terminal for street light is to be provided.

vi) One Number plate containing following details shall be riveted inside the door of the L.T Distribution Box and also outside on front side should be embossed with manufacturing year.

l) All cut out with fuse arrangements should be accommodated in a detachable plate. So that it can be replaced as and when necessary for maintenance purpose .

3.2 : -- Name Plate

1) Company's Name with full address

2) Capacity of Box

3) Serial No. of Box

4) A /T No. with date

5) Property of WBSEDCL

6) Date of supply of L.T. Dist. Box

7) Purchase Order Reference No

4.1 NEUTRAL:-

A solid neutral link of aluminum shall be provided for terminating neutral core of incoming and outgoing cables directly. The neutral shall be duly supported on insulating supports and aluminum lugs with washer and will be provided for connections. Cross sectional area of neutral link shall be same as that of main conductor capacity. Neutral bus bar shall withstand rated short time current for one sec as per IS 8623/93 with latest amendment.

4.1.1 EARTH:

Minimum two earthing point should be provided in the Distribution box. All the metallic parts of accessories used should be connected with the earth point provided in the box. Those earthing point should be connected to the main earthing sub-station D.P of the structure.

4.2 CABLE TERMINATION:-

a) For connecting internal circuit i.e. incoming and outgoing connections, the suitable size of rewirable Aluminium wire of sufficient capacity to meet the required ampere loading for the box.

b) Incoming cables shall enter from the bottom portion of the box to the terminals of the installed porcelain rewirable fusing and outgoing cable shall go outside through bottom parts with separate gland plate having minimum size of 100 mm x 100 mm and having suitable knock out / drilled holes to be provided as per cable sizes. The separate gland plate shall be fitted with the proper size of hardware.

The size of cable to be used are provided by the bidder in tender as bellows:-

1. KVA Rating
2. Incoming Cable size mm^2
3. Outgoing Cable size mm^2
4. Numbers of circuits

c) Adequate cabling space shall be provided in the box for incoming and outgoing cables.

d) Polymer glands shall be provided for incoming and outgoing cables. The compression type gland shall be having grooved rubber ring of appropriate diameter.

4.3 COMPONENTS OF CIRCUITS

4.3.1 INCOMING CIRCUIT:

For 100 KVA & 63 KVA Distribution Transformer

Each Dist. Box shall have 3 nos. Porcelain Fuse units for Distribution Transformer of different rating to control and protecting incoming circuit.. One additional set may be provided for future provision of connection of L.T. Capacitor Bank.

For DTR LTDB Rating of Porcelain Fuse Unit - 300A

4.3.2 OUTGOING CIRCUIT

Each Dist. Box shall have 12 nos. Composite stud Fuse units for 100 KVA Transformer to control and protecting outgoing circuit.

For 100 KVA LTDB Rating of Composite stud Fuse Unit - 200 Amps
For 25 KVA & 16 KVA Distribution Transformer: - Incoming outgoing circuits with fuse units would be designed based on the capacity of Transformer .

Note: - The drawing attached is for reference, showing 2 Nos. outgoing circuits, but bidder will have to attach separate drawing for each type of distribution boxes offered with nos. of circuit specified in the specification.

4.3.3. GENERAL CONSTRUCTION REQUIREMENT OF

FUSES :-

MATERIALS :

This rewireable fuses shall conform to all the design and constructional requirements as stipulated in IS 2086 and it's amendment time to time. The units shall be made of ceramics which shall be of sand fine grain homogenous non-porous chemically and high electrical and mechanical strength and shall be thoroughly vetrified and smoothly glazed shall cover at least those surfaces which are exposed when the fuses have been mounted in intended manner. The mounting surface may be left unglazed. The materials should not have any defect such as :

i) Craking : A hairline crack in glaze of ceramic material.
ii) Dunt : A hair line fracture extending through the body and the galze and cause by strains set up in the process of manufacture of ceramic materials.
iii) Projection : A raised imperfection, projecting more than 0.75 mm above the surface of the ceramic materials.
iv) Water : The ceramics material shall not absorb more than absorption 2% of its weight of water when broken and tested for.

(B) The design and dimension of the fuses shall be in accordance with the drawing attached with tender and relevant IS

(C) PROTECTION : The porcelain fuse shall be mounted such a way that there cannot be any possibility of the live contact to touch with the and have minimum clearance with the body.

(D) HANDLING GRIP : The fuse shall have Puller Grip to pull out male part i.e. top portion without damaging or disturbing the female contact / parts and it should pull out easily as and when required.

(E) METAL PARTS :- All metal parts shall be protected against corrosion by suitable method and shall be hot dip galvanized.

4.3.4 FUSE BASE :-

(A) The fuses base shall be provided with two fixing holes for fixing the fuse base by means of screw or bolts.

(B) The fuse base shall have contacts for suitably engaging with the contacts of the fuse top rigidly under any condition. The contacts shall be made out of such a metal which will not lose its elasticity due to heating of the contracts on full load with 20% overload current or heat generated and required pressure is maintained even repeated engagements after engagements and disengagement. The contact for rating 32A and above will also have extended strips for fixing cables by means of bolts/lugs. The fuse base should have extended electrolytic copper strips at both ends to connect the cable with bolts/lugs. The cross section area of electrolytic copper extension strips should not be less than specified limit mentioned below.

4.3.5 FUSE CARRIER :-

(A) The fuse carrier should have two brass screws with brass washers for fixing of fuse wire. The fuse carrier shall be so constructed that it is capable of being reversible for introduction into the fuse base. The contacts shall be made out of the metal which will not loose its elasticity on account of heating of the contacts on full load with 20% overload conditions or heating due to blowing of the fuse element due to short circuit. The side leaves on the base should be sufficiently thick and stiff to ensure tight fitting of "U" contact with base block the asbestos cloth shall be provided in base of fuse shall be of fire proof insulating and of sufficient length, width and thickness to avoid short circuit between earth and fuse wire where fuse wire is made to pass through the hole provided in the porcelain carrier and asbestos tube must be inserted in the hole to avoid direct heating of the porcelain.

(B) The asbestos cloth to be provided in fuse shall be fire proof Insulating and of sufficient length width and thickness.

(C) SCREWS:

i) Screws upon which the general assembly of the fuse base and carriers terminals and contacts depend shall be prevented from loosening of backing out buy lock, washers, stacking of other reliable means.

ii) If screws used in the assembly of a fuse are loosened or removed in order to install the fuse elements or to connect the fuse into a circuit they should be thread into metal and shall be provided with washers.

4.3.6 CURRENT CARRYING PARTS :

i) Current carrying parts shall be of robust construction and capable of carrying rated current without exceeding the temperature rise limits of IS specification 2086-1993.

ii) Iron and steel parts shall not be used for current carrying part including screws provided in the base terminal block and "U" contact.

4.3.7 CONTACTS:

The contact of the Fuse Base, fuse carrier terminal blocks/strips shall be as under,

Sl.No.		Description for Fuse Unit
1	Fuse Carrier Contacts (Male Contacts)	Tinned copper
2	Fuse Base Contacts (Female Contacts)	Phosphor Bronze
3	Terminal Block / Strips	Tinned Brass.

The contact used should be perfect so as to provide easy but Perfect "U" contact should penetrate full depth of back contact. The Minimum Thickness and width of "U" contact used should be as below.

Sr. No. Units	Rating porcelain units	Dimension of Width	Thickness of "U" contact.	Dimension of terminal block
1	300 Amp. - 415 V	12.5mm	1.8 mm	14X20X18mm

2. For other units to be specified by the vender depending upon the rating.

The current carrying screws and washers shall be of tinned brass while the screw, washers not carrying current shall be of M.S. Galvanized M.S. hot dip Galvanized bolt and nut with one plain washer and one spring washer suitable for 25 sq. mm cable lugs shall be provided with extended strips for 63 A fuse.

4.3.8 CHEMICAL COMPOSITION OF THE CONTACTS.

Electrolytic copper (Tinned phosphor bronze Tinned) use for contacts of KK fuse shall confirm various IS as stated below.

a) ELECTROLYTIC COPPER :

Copper strips used for contacts of kit kat fuse should confirm to IS: 1897/1983 with latest amendment. The material shall be of electrolytic tough puitch (ETP) grade with minimum 99.9% of copper and silver as per table 1 of IS 191 part IV.

b) PHOSPHER BRONZE :

The phosphor bronze used for contact of KK fuse shall confirm to any of the grade- I,II or III given in IS: 7814/1985 (with latest amendments.) The requirement of metal composition should be as per IS: 7814.

c) BRASS :

It shall confirm to grade LCBI/DCB2 of IS-1264/1997 (with latest amendment) /IS 4101/1977 with latest amendment) The metal composition for casting shall be as per IS 1264 and that of brass sheet, as per IS 410.

.

4.3.9 EMBOSSING:

(A) Every fuse carrier shall be clearly embossed with the following information.

i) Rated current.
ii) Rated voltage
iii) Manufacturer's name / Trade mark.
iv) WBSEDCL
v) Year of Manufacture.

(B) Every fuse base shall be clearly marked with the following.

i) Manufacturers name / Trade mark.
ii) WBSEDCL
iii) Year of manufacture.

5.0 TYPE TEST CERTIFICATE:

(A) TYPE TESTS:

Type test reports not more than 5 years old from the date of tender from Government approved and NABL approved laboratories such as CPRI, NTH,NPL, ETDC, ERDA, ERTL etc. to be furnished with all certified attested drawing to prove that the equipment's offered meet the requirement of the specification and relevant IS.All the type tests of Composite stud & Porcelain Fuse units and complete box are required to be carried out as under:

1) Type Test for complete Distribution box-IS 13410 and IS14772 or relevent as under.

TEST	CLAUSE REFERENCE	IS SPECIFICATION NO.
1. MARKING	CLAUSE NO. 7	IS : 14772 (2000)
2. DIMENSIONS	CLAUSE NO. 8	IS : 14772 (2000)
3. PROTECTION AGAINST ELECTRIC SHOCK	CLAUSE NO. 9	IS : 12063 (1987)
4. PROVISION FOR EARTHING	CLAUSE NO. 10	IS : 14772 (2000)
5. CONSTRUCTION	CLAUSE NO. 11	IS : 14772 (2000)
6. RESISTANCE TO AGEING, TO HUMID CONDITIONS, INGRESS OF SOLID OBJECTS AND TO HARMFUL INGRESS OF WATER	CLAUSE NO. 12	IS : 12063 (1987)
7. MECHANICAL STERNGTH	CLAUSE NO. 13	IS : 14772 (2000)
8. RESISTANCE TO HEAT	CLAUSE NO. 14	IS : 14772 (2000)

9. RESISTANCE OF INSULATING MATERIALS TO ABNORMAL HEAT & FIRE	CLAUSE NO. 15	IS : 11000 (Part 2/Sec 1) (2008)
10. RESISTANCE TO RUSTING	CLAUSE NO. 16	IS : 14772 (2000)
11. RESISTANCE TO TRACKING	CLAUSE NO. 17	IS : 2824 (2007)

2) Type Test for Porcelain Fuse as per IS 2086/1982 and its latest Amendment.

3) Type test report for composite stud fuse as per IS or its latest amendment.

4) The test report of the materials used in making the Box.

(B) The Bidder shall have to give Type test certificate for the components being used along with the offer. For the Type test on complete box as per clause 5A (1) the Bidder shall have to give confirmation in the event of Order he will give Type test on the Box without effecting Delivery Schedule..

(C) ACCEPTANCE TESTS OF LOT:

Following acceptance tests shall be carried out while inspecting lot of materials offered. The following tests shall be carried out on 1% (one percent) of the offered quantity on sample boxes selected randomly.

1) The minimum offered lot shall be 25% of quantity ordered. The fifth and onward visit of inspection of Lot shall be on chargeable bases and actual Rail/Road/Air fair as the case may be, shall be recovered for To & Fro journey from firm. Also the necessary accommodation to provide the engineer's visit for inspection.

(D) The samples to be taken for tests shall be 1% (one percent) of the total quantity of the offered lot, selected randomly by the Inspector of WBSDCL. They should be subjected to acceptance tests mentioned as above. In case of brought out items like Porcelain Fuse Units etc. the same have either tested at firm's works or at the works of original principle manufacturer at supplier's cost. In case the requisite testing facility is not available at firm's works or at original manufacturer works, Then the samples are to be getting tested at Government approved laboratory such as CPRI, NPL, ETDC, ERDA,ERTL etc. approved laboratories at party's cost. All these tests are to be carried out in presence of Inspector of WBSEDCL and all testing charges are to be borne by the firm only. Temperature rise test shall be taken on one sample from each lot offered for inspection. In case of material, used for the Distribution Box, the test of the same to be conducted at **Central Institute of Plastic Engineering & Technology (CIPET).**

(E) In case of inspection/testing of loose Porcelain Fuse units or composite stud fuse is carried out at the manufacturer's works for acceptance tests.

(1) 1% (one percent of the total offered quantity). From the lot offered minimum 3 pieces shall be taken for type test. The cost of which shall be borne by the bidder. If the facilities not available the same shall be carried out at ERDA,NTH,CIPET,CPRI, ERTL, ETDC, NPL etc of any Govt. approved lab or NABL accredited lab, at the cost of bidder. In case the sample does not confirm any of the test the whole lot shall be rejected and the firm will have to offered the fresh lot, this is applicable to the equipments/materials offered for inspection.

6.ROUTINE TESTS:

Routine Test to be carried out on all L.T. Distribution Boxes completely including Porcelain Fuse Units or composite fuse. All results to be entered in separate register to be shown to inspector visiting for inspecting/testing of particular offered lot.

7.DRAWING & CALIBRATION OF INSTRUMENT

(A) The tenderer shall submit detailed constructional and dimensional drawing of complete distribution box with details of Porcelain Fuse Units and Composite stud fuse units , incoming and out going circuit details, clearance details along with the offer.

(B) The firm has to submit list of testing equipment's instruments, stating Sr. No. Make, Capacity, date of last calibration along with test certificate of each instrument along with the offer, same is also required to be provided to inspecting officer at the time of sample inspection as well as regular lots. The calibration shall be either from original manufacturer of the equipment's/ instruments or from Government approved laboratory.

(C) The following technical details be furnished for Porcelain Fuse Units as well as Composite stud fuse along with the offer.

1) Make/Trade Mark
2) Name and full address of Supplier
3) Basic rating in Amp
4) Rated Voltage in volts
5) Continuous current carrying capacity
6) Rupturing capacity in KA and in Amp category , Type of mechanism, Main and neutral bus bar details Earth leakage if any with size in mm.

8) SAMPELING :

All the testing expenditures of sample testing. Acceptance tests for routine inspection of lots will be borne by the firm only. After successful passing of the sample unit in all the tests and after obtaining the written approval from the competent authority of WBSEDCL, Can qualify for commercial bids.

(A) Quantity ordered for a successful tenderer on whom order is placed and this sample will be allowed to be despatched with the last lot of supply. Any modification, Rectification of defects etc. will also have to be carried out along with necessary testing on this sample box for all acceptance tests.

(B) TENDERS SAMPLES

The tenderer shall have to submit one tender sample of each rating offered of L.T. Dist. Box fitted with all the accessories like Porcelain Fuse Units, composite stud etc. duly tested as per the tender specifications or before the date of opening tender. Tenderer offering additional alternative makes of bought out items viz. Porcelain Fuse Units and composite stud fuse etc. shall submit a sample of the box with each alternative brand for each rating offered. The tender without sample or delayed submission of sample will be out-rightly rejected and offer will not be considered neither for technical evaluation nor for price bid consideration. The tender sample will be returned back on whom order is not placed. It will be responsibility of bidder to collect the tender sample with in 10 days on receipt of letter from CE (C&P) WBSEDCL.The company is not responsible for any damage or loss of parts etc. if found short during collection of tender sample. If bidder is not lifting the tender sample on receipt of letter from WBSEDL, then company will not be responsible for its safe custody. The tender sample will be considered as a part for the successful bidder and after successful passing in all tests, it will be allowed for despatch at the destination, allotted by the WBSEDCL along with the last lot. Supplier has to carry-out all modifications/rectification at his cost suggested by the company on this sample box. The samples are to be submitted to Testing office under guidance by tendering officer of WBSEDCL.

9) GUARANTEE

The tenderer quoting other brand / make of composite stud / Porcelain fuse units or any part provided in the LT Dist. Box and complete LTDB /equipment supplied shall be guaranteed for a for a period of 36 months from the date of dispatch and or 24 months from the date of commissioning whichever is earlier.

The Stores / materials as above found defective or not meeting requirement of specifications within above guarantee period shall be replaced / repaired duly tested by the supplier free of cost within one month of receipt of intimation.

10) DEVIATION FROM SPECIFICATION

No deviation from specification shall be permitted. The offers with deviations shall be rejected.

11) TESTING AND MANUFACTURING FACILITIES

The tenderer must clearly indicate what testing facilities are available in the works of manufacturer and whether the facilities are adequate to carry out all Routine, and Acceptance Tests. These facilities should be available to WBSEDCL's Engineers, if deputed to carry out or witness the tests in the manufacturers to carry out the acceptance tests on the Box. All testing equipment shall be duly calibrated in Govt. / NABL approved laboratory.

12) MINIMUM MANUFACTURING FACILITY:

The tender should have following minimum manufacturing facilities to prove his reliability as a manufacture of L.T. Distribution Boxes .

i) Hot compression moulding machine,
ii) Sheet Moulding Compound Production line
iii) Assembling tools and fixture
iv) Drilling Machine (Hand & Table)
v) Grinder (for surface cleaning)
vi) Facility of Own or Details of sub Vendor having such component supply facility.

13) MINIMUM TESTING FACILITY:

The tender should have following minimum testing facilities to prove his reliability for supplying good quality manufacturer of L. T. Distribution Box.

1. Low voltage High current source.
2. H. V. tester
3. Meggar
4. Contact resistance test
5. Measuring Instruments like Vernier & Micrometer etc.

14) DOCUMENT

Tenderer has to submit document along with his offer, as per clause no. 3 to14 otherwise offer will be considered rejected. Tenderer has also specified manufacturing & supply capacity in qty. for the tendered similar items from last 3 years from the due date of the tender.

15) FACTORY INSPECTION :

Factory inspection Shall be carried out with respect to testing and manufacturing facilities Factory inspection of works of manufacturer will be carried out by the WBSEDCL'S officer for technical evaluation of their offer whenever desired.
Local transportation & staying arrangements will have to be borne by the party, if it is needed.

ANNEXURE : "A"

(1) Calibration of Instruments :-

The firm has to submit the list of testing equipment's/instruments stating Make, capacity, date of last calibration along with certificate etc. to the inspecting Engineer of WBSEDCL. The calibration should be either from original manufacturer of the equipment/instruments or from the Government approved laboratory.

(2) ACCEPTANCE TESTS:

(a) Visual Examination :

The L.T. Dist. Box will be inspected visually externally and internally, fittings of all the components in accordance with WBSEDCL Specification, drawings and relevant IS.

(b) Verification of dimensions :

Verification of dimensions, external/internal clearances, will be carried out as per technical specifications and approved drawing.

(c) Verification of fittings :

Components like Porcelain Fuse Units, composite stud fuse, neutral links and other fittings will be verified as per technical specification and approved drawings.

(d) High Volatage Withstand Test at 2.5 KV:

The Voltage of A.C. 2.5 KV RMS, 50 Hz. Shall be applied for one minute as follows :

For Porcelain Fuse Units and composite stud fuse units
With all the Contacts closed.
Between each pole and all other poles.
Between all live parts of the poles connected together and earth.

(e) Insulation Resistance Test :

The IR Value shall be measured with meager of1000 Volt DC Voltage between terminals as mention in the high voltage test. The IR Value shall not be less than 50 Meg. Ohm.

(f) Earth Continuity Checking Test:

Earth continuity shall be checked by megger between two earthing terminals brought out on either side of Dist. Box.

(g) Temperature Rise test :

This test will be conducted in accordance with relevant IS and as per WBSEDCL's specification at specified current of Dist. Box by keeping the doors closed. The Dist. Box shall be kept in vertical position as in actual service. Single Core PVC insulated 180 sq. mm . Aluminum cable or equivalent size of copper cable shall be used for I/C of 100 KVA and 90 sq. mm aluminum cable or equivalent size of copper cable shall be used for O/G of 100 KVA Dist. Box temperature rise test. The cables used for testing shall be crimped properly with proper size of lugs. The length of each cable from terminal shall be minimum 2 meter. All the cable connections shall be in free air and spaced not less than the distance existing, between terminals. If possible the outgoing cable shall be taken out from the entry as that of incoming cable entry.

1. Incoming terminals of Porcelain Fuse Units - 80^{o} C
2. Outgoing terminals of Porcelain Fuse Units - 80^{o} C

3. Incoming and outgoing terminal of Disconnector on incoming circuits. - 80° C
4. Body of Dist. Box - 25° C
5. Body of Disconnector - 35° C
6. Disconnector's operating Knob(handle)

(B) With all the contacts open :-

Between incoming terminals and outgoing terminals of Porcelain Fuse Units There shall not be any puncture or flasher during this test. Following this test, the IR test shall be taken and values observed shall not be less than 10 Meg.Ohm. The door of the box will be in closed position, and box shall be kept vertical and will be protected against undue external heating or cooling.The test shall be conducted for a period of time sufficient for temperature rise on different points shall be mentioned above.

3) GENERAL :

Although samples selected at random by WBSEDCL's Inspector at supplier's works, passes the acceptance tests conducted and lot accepted the WBSEDCL reserves the right to test the boxes after receipt of destination by arranging testing at any Government approved Laboratory. However, in the event of samples failing in the tests, or the material found defective the supplier shall replace such material free of cost at the destination concerned on receipt of intimation from Company.

(4) ROUTINE TESTS :

The following Routine Tests shall be conducted by the manufacturer on each lot and will keep record in register at manufacturer/Firm's works and will show to the inspector for checking purpose.

(1) Test to prove satisfactory operation of Porcelain Fuse Units and Composite Stud unit.

(2) Visual examination and dimensions for all boxes including that of components and accessories provided, for workmanship etc.

(3) Insulation resistance test (Megger)

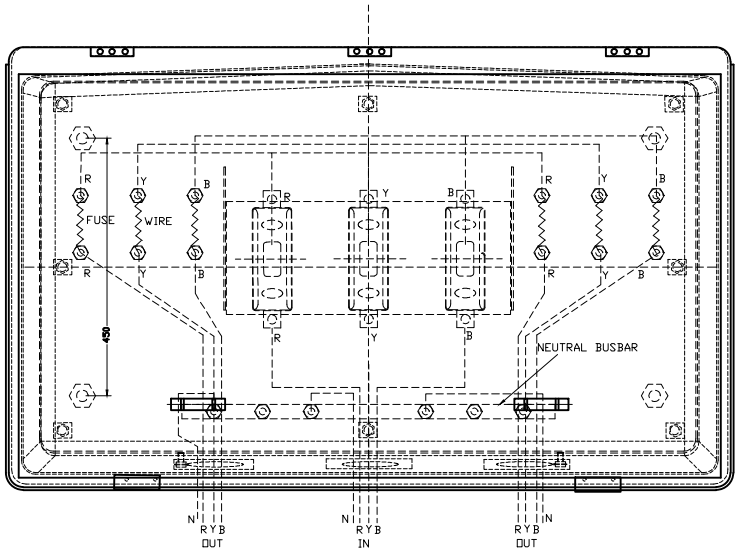
(4) Dielectric test on each box - including Switch Disconnector.

All the routine tests shall be as per IS.13947(P.1,2&3)/1993 with latest amendment/revision if any. The tenderer shall submit general layout drawing of the box fitted with all accessories, keeping in view this specification & relevant IS nos. mentioned herein this specification. Detail of clearance, details of cables, bus bar details, Porcelain Fuse Units etc., with certified copies of type test certificates along with attested copies of all drawings, copy of guaranteed technical particulars along with the offer without which offer is liable to be rejected.

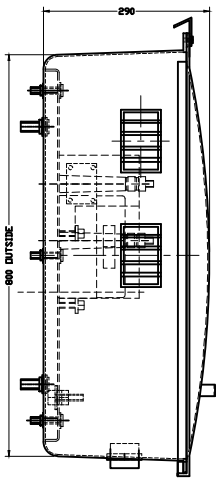
ANNEXURE -II

GUARANTEED TECHNICAL PARTICULARS OF 100 KVA KIOSK

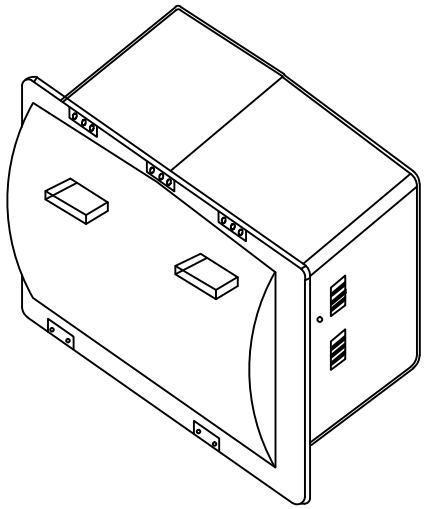
SL. NO.	PARTICULARS	SPECIFIED	OFFER
01)	Material	Thermosetting Plastic	
02)	Grade Of Material	IS: 13410	
03)	Thickness Of Base/ Door (Min)	3 mm	
04)	Properties Of Material Of Construction Of Meter Box		
(a)	Heat Deflection Temperature (Ref. Std. ISO 75-III)	150°C (Min)	
(b)	Exposure To Flame (Ref. Std. IS : 4249)	Self Extinguishing	
(c)	Melting Point (Test upto 250° C) (Ref. Std. IS: 13360 Part 6 Sec. 10, 1992. Sec 1 method 'a' Capillary Tube Method	Does Not Melt	
(d)	Temper Proof	Box could not be tempered through Hot Soldering Iron	
05)	Dimensions of Box	Depend on rating of Transformer	
(a)	Height		
(b)	Width		
(c)	Depth		
06)	Earthing Arrangement		
(a)	No. Of Earthing Bolts	2 Number.	
(b)	Material Of Earthing Bolt	M.S.Z.P/MS CADMIUM PLATED	
(c)	Size Of Earthing Bolts	M8 X 40 mm	
07)	Sealing Arrangement	2 Nos. Conceiled Hinge	
08)	Facility For Pad Lock	Hole for locking arrangement	
09)	Colour Of Distribution Box	Off White	
10)	Cable Entry Exit Arrangement		
(a)	Incoming & Outgoing	Ø90 PVC gland at bottom 3 Nos.	
11)	Bus Bars		
(a)	Bus Bars Material	Aluminium	
(b)	Phase & Neutral Bus Bar Size and Quantity	40x10x600 mm Lg.(P),25X10X800 mm (N)	
(c)	No. of connection on each Phase Bus bar	5 Nos. service connection (O/G).	
		1 no. Connection for Incoming	
(d)	Connection arrangement	As per Drawing	
12)	Clearance		
(a)	Bus Bar & Box Wall	Min 165 mm	
(b)	Between Bus Bar	Min 95 mm	

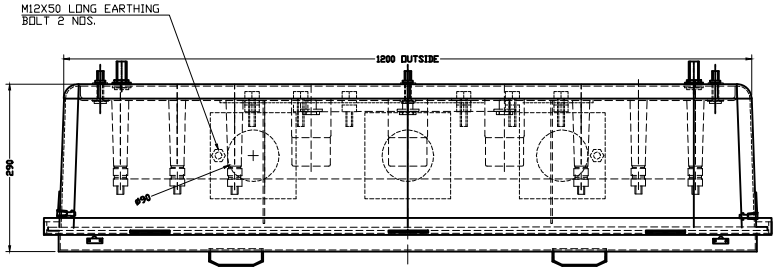


FRONT VIEW



SIDE VIEW





TOP VIEW

For: 100 KV – Bus Bar & Bare Wire fuse unit. - Double feeder.

Supply of SMC moulded LTDB made out from SMC materials confirming to **IS: 13410/1992** by Hot press moulding having overall size 1100 x 800 x 300 mm ± 2% or nearer with provision to fix EC Grade Aluminium Bus Bar of 300 Amps x 3 nos of length 225 ± 3% in the incomer and EC Grade Aluminium Bus Bar of 300 Amps x 3 nos on each side for outgoing connection with bare wire fuse systems to be provided. The bare wire fuse to be fixed on the 3/8 x 3" bolt having 2 nuts & 3 washer all of MSZP. The distance between the incomer & outgoing bus bar will be appox 100 mm. The connection from incomer bus bar to Fuse bolt bus bar will be done by bare wire fuse of appropriate rating to be provided by the user. The 300 A bus bar to be fixed on Sheet confirming to IS : 13410/1992 with proper insulators and the bus bars should have heat shrinkable PVC colour sleeves(RYBN). The neutral bus bar of size 300 x 25 x 5mm with PVC insulated shelve –BLACK colour- , 3/8 x 3" bolt having 3 nuts & 3 washers MSZP 4 nos for connections and same fixed with insulators directly to the base wall of box. The bus bar arrangement/ system should have gap from top 100 mm & 250 mm from bottom and from side wall 110 mm approx should be provided. All cable fixing bolts should be 3/8 x 3" MSZP with 3 nuts & washer. Two louvers/ventilators on each side wall to be provided at a approx distance of 75 mm from top and 200 mm from bottom having overall size of 100 x 65 mm of insulated moulded materials confirming to IS 13410. The kiosk should have one single leaf door as per drawing in plain type reinforced design construction with top huge SS hinges (long) fitted to the base/ body as required, one centre position panel lock as per drawing, "D" type 100 mm aluminium handle fitted on the cover and 'U' type door locking clamp as per drawing. The required incoming holes of 90 mm dia x 1 no., as showing in drawing & 50 mm dia x 2 nos., outgoing holes as shown in drawing for cables without cable gland at bottom side entry to be provided, Gland plate made out of SMC / FRP of 150 x 150 x 2 mm ± 3% to be provided at the cable entry hole point from inside and should be properly fixed to the wall of the box. The two nos earthing bolt of 3/8 x 3" with 2 nuts & 2 Washers to be provided at the both side wall at bottom. The box should have mounting hole of 8 or 10 mm dia at each corners as showing in drawing. The lid/cover should be design in order to restrict entry of rain water directly inside the box. Two metals stay with self locking arrangement to be provided in the box to hold the lid in open position. All the Metal items/Parts should be MSZP. Danger Logo should be moulded/ Embossed on the front cover/ lid with provision to print the Customer name and Order no., etc. Company's Logo / Name should be Embossed on the Front Cover and Printed inside the box/ base (if required).