

SCHEDULE-III**TECHNICAL SPECIFICATION FOR SUPPLY OF SHEET METAL TYPE 400 AMP LT DISTRIBUTION KIOSK 250/315 KVA DISTRIBUTION TRANSFORMERS RESPECTIVELY AGAINST TN-2728.**

1. **INTRODUCTION:** This section describes the objective and scope of work for design, manufactured, testing and supply of LT Distribution kiosk with all accessories.
2. **OBJECTIVE:** The objective is to develop an efficient and accidental free distribution system in the jurisdiction area of Jaipur Vidyut Vitran Nigam Ltd.
3. **SCOPE OF WORK:** The scope of work shall mainly include the following:-
Design, Testing and supply of following rating of LT Kiosk with all necessary accessories.

Sr. No.	Item	Qty in Nos.
1	Sheet Metal Type 400 Amp. L.T. Distribution Kiosks suitable for 250/315 KVA Distribution Transformers	400

4. APPLICABLE STANDARDS:

- a. IS :13947/1993 (Part 3)/IEC:60947 (Pt.3) for Isolator (Switch Disconnecter)
- b. IS: 13947/1993 (Part2)/ IEC:60947 (Pt.2) (amended upto date) for L.T. MCCBs.
- c. IS: 8623/1993 (amended upto date) for enclosure Box & for degree of protection provided by enclosures of electrical equipments.
- d. IS:4237/1982, IS:8623/1993 (amended upto date) – for general requirement of L.T. Switchgear

5. MANUFACTURE/CONSTRUCTION OF LT DISTRIBUTION KIOSK:-

L.T. Distribution kiosk will have Isolator/Switch Disconnecter as incomer and single phase MCCBs & Link Disconnecter on outgoing side with necessary interconnecting Bus Bars/Links.

Standard General Arrangement of Isolator/Switch Disconnecter, MCCBs & Link disconnecter, Neutral Link Bus Bars, connecting links, Cable termination arrangement etc inside the LT DISTRIBUTION KIOSK is shown in the enclosed drawing for LT Distribution kiosk suitable for 250/315 KVA Distribution Transformers.

6. INCOMER CIRCUIT

ISOLATOR (SWITCH DISCONNECTOR)

The Isolator shall be of heavy duty, quick make and quick break type with Arc Chute feature. The Isolator for 400 Amp L.T. Distribution Kiosk should have Short Circuit rating of at least 20 kA for one second to withstand the short circuit fault level in our distribution system.

Each LT DISTRIBUTION KIOSK shall have following rating of triple pole isolator depending upon the capacity of Transformer for which it is to be used. :-

Sr. No.	Rating of Transformer	Rating of triple pole isolator	No. of triple pole isolator
1	250 / 315 KVA	630 Amp.	1 No.

The bidder have to indicate makes and types of isolator and submit the complete type test report of the isolator as per specification, along with the offer and the isolator to be provided in the LT distribution KIOSK shall be conforming to our specification.

Isolator should be front operated triple pole type. No separate enclosure is required if the casing of non tracking heat resistant insulating material is provided. The isolator shall be of rebutting construction for operation. The handle of the isolator should be detachable easily for security purpose while working on L.T. lines. The characteristics of Isolator shall be as follows:-

Sr. No.	Characteristic	400 Amp. L.T. Distribution Kiosk
1	Rated Operational current	630 Amp
2	Mechanism	Manual quick make quick break
3	Standard applicable	IS:13947/1993/ IEC 60947 Pt.3 amended up-to-date
4	Utilization category	AC-23A
5	Mechanical Endurance	As per IS
6	Electrical Endurance	As per IS
7	Rate duty	Uninterrupted
8	Making/Breaking capacity	Not less than the requirement of AC-23A category.
9	Rated Short Time withstand current	20 kA for one second

The terminal connector strips of the isolator shall be projecting out of isolator for minimum length of 80 mm, on cable connection side and 60 mm, on bus bar side as

shown in the drawing. The cross section of the strips shall be 30x5 Sq.mm for 63/100 KVA & 50x6 sq. mm for rest on outside of the isolator and length & cross section inside the isolator shall be provided as per design. The material shall be EC grade tinned copper.

All nut bolts used for assembly and connections shall be of nonmagnetic stainless steel only.

7. OUT GOING CIRCUITS:

7.1(a) MCCBs

Any make of MCCB offered by the firm will be acceptable subject to having successful type test reports.

TIME CURRENT CHARACTERISTICS:-

The L.T. MCCBs shall have the following time current characteristics:

MULTIPLE OF NORMAL CURRENT SETTING	TRIPPING TIME
1.05	More than 2.5 hrs.
1.2	More than 10 minutes and less than 2 hrs.
1.3	Less than 30 minutes
1.4	Less than 10 minutes
2.5	Less than 1 minute
4.0	Not less than 2 seconds
5.0	Less than 5 seconds
12.0	Instantaneous (less than 40 milli seconds)

For above time/current characteristics reference calibration temperature of the breaker shall be 50 degree C. Deration, if any upto 60 degree C ambient temperature shall not exceed 10 % of the current setting indicated above.

Each LT DISTRIBUTION KIOSK shall have 3 Nos. of single pole MCCBs per circuit to control and protect outgoing circuits. MCCB shall be conforming to our specification and relevant ISS.

The bidder have to indicate makes & type of MCCB and submit the complete type test reports of the MCCB as per IS:13947/1993 for test sequence I, II & III complete with certified diagram/ Oscillograms and approved drawing from NABL approved Laboratory along with offer. The successful bidder shall furnish detailed type test reports of MCCBs to be used by them, for our approval. The colour of

MCCB casing for 250/315 KVA LT DISTRIBUTION KIOSK shall be Gray colour. Offers without complete type test reports of MCCB as above, may be rejected.

The MCCBs shall be manually operated type and shall have quick make quick break mechanism. The detailed specification for MCCBs shall be as under:-

1.	KVA rating	250/315
2.	Rated current	200 A
3.	No. of Circuits	4 Nos.
4.	Fixed overload release setting (Amp.)	160 A
5.	No. of poles	1 Ph
6.	Rated service short circuit breaking capacity(KA) which is equal to ultimate breaking capacity as per IS (Ics = Icu= 18 (KA) or more). (The sequence of operation for this test shall be O-t-CO-t-CO, and t=3 min.) The test shall be done at 240V at 0.4 PF. Voltage rating phase to phase 415V and phase to earth 240V.	13947 Pt.III (1993) 18 KA or more
7.	Power factor for short circuit(Max.)	0.4 (lag)
8.	Utilization category	A

The Terminal Connector strips of the MCCB shall be projecting out of the MCCB for minimum length of 40 mm on Link Disconnecter side and 60 mm on busbar side as shown in the drawings. The cross section of the strips shall be 30x3 sq. mm on outside of the MCCB and the length and cross section inside the MCCB shall be provided as per design. The material shall be EC grade tinned copper.

All nut bolts used for assembly and connections shall be of non-magnetic stainless steel only.

The rated service short circuit breaking capacity as specified in at Sr.No.6 above, shall be based on the rated service short circuit test carried out at specified power factors. For the purpose of this test, the following operation sequence shall be followed.

Break-3 minutes interval-make-3 minutes interval make break.

While the above stipulation regarding the test power factor and the sequence of operation shall be binding, the other procedure for making the short circuit test and circuit etc. shall generally be in accordance with the Indian standard applicable to the type of circuit breakers under test. MCCBs should have locking facility in 'off' position.

The MCCB shall directly be purchased from the manufacturer or the authorized dealer or stockiest. The routine & acceptance test on MCCB shall be carried out at the works of original manufacturer. However, in every case of purchase of MCCB the delivery shall be from the manufacturer's godown for which a copy of bill shall be given to inspecting officer at the time of inspection.

Single pole MCCB is to be provided with over load trip release with inverse time current characteristics for overload protection and magnetic trip release for instantaneous tripping in the wake of Short-Circuits.

These MCCB's shall be confirming to IS 13947/1993 or any other relevant ISS/IEC as amended upto date. The rated un-interrupted current of MCCB shall be 200 Amp. with the overload release set at 160 Amp for 250/315 KVA Distribution Transformers.

The MCCB's shall be marked with 'Brand Name' of manufacture and Ics in KA by embossing only whereas other particulars may be marked as per the manufacturers standard practice.

The contacts of MCCB should be self-wiping type so as to keep the contacts clean and milli-volt drop low.

7.2 LINK DISCONNECTOR: Link Disconnecter of suitable capacity shall be provided between outgoing terminal of MCCB & cable connection as shown in the drawing to facilitate mechanical breaking of the circuit.

Each LT DISTRIBUTION KIOSK shall have 3 Nos. of Link Disconnectors in each outgoing circuits.

The bidder has to indicate the Makes and Types of Link Disconnecter offered.

The base of the Link Disconnecter shall be of non tracking, heat resistant insulating material of superior electrical and mechanical properties equivalent to Dough-Moulding Compound (DMC) etc. up to 500 Volt for 400 Amp. The Link Disconnecter shall be sturdy in construction and easy in operation. The link of Link Disconnecter shall be of tinned plated E.C. grade copper. The construction of the Link Disconnecter shall be such that it shall be hinged type on cable connection end and dis-connectable at the MCCB end. The disconnection will be with the help of special handle/puller. One handle/puller shall be supplied along with each LT DISTRIBUTION KIOSK. The terminal connector strips of the Link Disconnecter shall be projecting out of Link Disconnecter for minimum length of 80 mm on cable connection side and 40 mm on MCCB outgoing side as shown in the drawings. The cross section of the strips shall be 30x3 sq. mm and Cross section of knife edge link

shall be 20x4 sq. mm. The material for both the strips and links shall be tinned E.C. grade copper.

These base of Link Disconnecter shall be rated for 200 Amp. current for 250 /315 KVA.

All nut & Bolts used for assembly and connections shall be of non magnetic stainless steel only.

- 8. BUSBARS AND CONNECTIONS:** Bus Bars & inter connecting links shall be of anodized Electrolytic grade aluminum as per IS 5082. All bus bars & links should be properly drilled, de-burred and should be provided with durable PVC insulating sleeves, standard Colour code shall be used for different phases. Minimum clearance wherever shown shall be as per General Arrangement drawing attached. Other clearance shall be as per requirement of IS: 4237 amended upto date. The size of Main Bus bars and neutral bus bar for different rating of LT Distribution Kiosk shall be as below :-

Sr. No.	Rating of LT Distribution KIOSK suitable for Transformers of	Size (cross-section) of main Bus-Bar / dropper links	Size (cross-section) of neutral Bus-Bar
1	250 / 315 KVA	2 x (40 x 8 mm) / 30 x 8 mm	60 X 8.5 mm

- 8.1 All busbars and links should be properly drilled, de-burred and preferably brazed to minimize tearing of joints. Minimum joints preferred.
- 8.2 Busbars shall be provided with durable PVC insulating sleeves. Standards colour code shall be used for different phases.
- 8.3 Shroud Bakelite (2 mm thick) shall be provided to cover bus bar arrangement for human safety. Shroud Bakelite sheet is to be provided on the front side as well as back side for 400 AMP LT Distribution Kiosk.**
- 8.4 Two no. bus bar stiffeners shall be provided/duly supported on DMC insulator such that bus bar should not stress of force on the MCCBs.**

9. ENCLOSURES:

- 9.1 The circuit breakers, Link Disconnecter and Isolator shall be housed in a sheet steel enclosure with the door closed. The enclosure shall comply with the requirement of IP-43 type as per relevant IS / IEC or the latest version thereof. Access to the circuit breakers including operating handle shall be available only after the enclosure door is opened.

- 9.2 Four sets of louvers shall be provided to ensure that the temperature inside the enclosure is not substantially different from that of the atmosphere. The louvers shall be provided with perforated M.S. sheet of 1.25 mm welded from inside the LT DISTRIBUTION KIOSK.
- 9.3 Fixing of circuit breaker inside the enclosure shall be such as to allow free circulation of air at its back and sides.
- 9.4 The centrally closed doors with "Godrej" type triple position locking arrangement shall be provided. In addition to this, an arrangement for locking the doors by Sturdy rod type door latch shall be provided on outside. Both illustrations are shown in the drawing.
- 9.5 The enclosure shall be made of sheet steel of not less than 2 mm thickness for 250/315 KVA.
- 9.6 The enclosure shall be painted with suitable weather proof & corrosion resistant enamel paint after 7 Tank cleaning process both inside & outside. The colour of the inside paint shall be white, while that of the outer paint shall be gray for 250/315 KVA LT DISTRIBUTION KIOSK. Powder coating followed with 7 tank hot phosphate cleaning process is equally acceptable. In case of Powder coating the colour of inside & outside surfaces shall be same i.e. gray for 250 / 315 KVA rating.
- 9.7 Necessary fixing arrangement shall be provided at the back of the enclosure to ensure proper fixing on double pole structure by means of suitable clamps only for 100 KVA L.T. Distribution Kiosks.
- 9.8 Necessary fixing arrangement shall be provided at the top of the Canopy as shown in the drawing to ensure proper fixing on double Pole structure. In addition to this two Nos. M.S. channel of size 75x40x40 shall be provided at the bottom of the enclosure as shown in the drawing for fixing the enclosure on Plinth.
- 9.9 For all rating of LT Distribution Kiosks i.e. 250 / 315 KVA the top of the Distribution Kiosks shall be provided with a sloping Canopy such that the rain water is not accumulated on the top. The Canopy shall be of one piece construction. The side members shall be welded at both sides. The Canopy shall project over the sides & doors. The sides section shall be folded to a "U" form to make a water drawing channel. Only front opening is required for 63/100 KVA L.T. Distribution Kiosks whereas for other rating of L.T. Distribution Kiosks i.e. 250/315 KVA, the opening shall be on both sides.
- 9.10 A suitable bimetallic cable termination arrangement with support insulators shall be provided by extending the EC gr. Tinned copper terminals of the incoming Isolator &

outgoing Link Disconnecter. It shall be such that after fixing relevant cable lugs, clearances and creepages are maintained.

- 9.11 The 3.15 mm bottom plate shall be, detachable to facilitate easy crimping of lugs to the cable ends and for convenience in making connections. The plate shall be provided with holes suitable for cable sizes indicated. The bottom plate shall be provided with two air vents with perforated M.S. sheet of 1.25 mm thick welded from inside.
- 9.12 The flats provided for clamping (at top & bottom) shall have horizontal slots for adjustment & shall be of welded construction and the welding should be on all sides.
- 9.13 Required no. of knock out holes should be provided on the bottom plate. Suitable size of PVC cable glands should be provided for these holes.
- 9.14 Instruction leaflet in HINDI should be provided as sticker in the LT DISTRIBUTION KIOSK door from inside as per Nigam's specification.
- 9.15 All the knock out holes shall be of size suitable to enter single core cables having sizes as mentioned in Clause 10.
- 9.16 The Danger marking with fluorescent paint shall be provided on one door and a danger plate shall be riveted on another door, on front side.
- 9.17 The bimetallic lugs of adequate size required for termination of cables on Isolator and Link disconnecter at the incoming and outgoing terminals and neutral link shall be provided. The bimetallic lugs shall be as per relevant IS and the Make shall be approved by the Nigam.
- 9.18 Minimum 3 Nos. Hinges per door made of heavy duty MS Sheet of minimum length of 75 mm shall be provided from inside, duly continuous welded.
- 9.19 All joints for current carrying parts shall be made using non-magnetic stainless steel bolts, 2 nuts & spring washers. The nuts and bolts should be of hexagonal type with groove for bolt.
- 9.20 **All drawings should be in three dimensions.**

10. CABLE TERMINATION:

Suitable lugs for Incoming and outgoing feeders for different rating of LT Distribution KIOSK as below:-

Sr. No.	Rating of LT Distribution kiosk suitable for Transformers of	Incoming cable size	Outgoing cable size
1	250 / 315 KVA	4.0 X 300 / 400 sq. mm	Single core 4 nos. 150/ 185 sq. mm

11. FINISH OF LT DISTRIBUTION KIOSKS:

- 11.1 All sheet metal works shall undergo the 7 tank chemical and mechanical cleaning process before final paint. Two coats of red oxide and two coats of final paints shall be applied. Colour of outside/inside surface shall be mentioned in this specification.
- 11.2 Electrostatic painting with oven drying will also be acceptable.
- 11.3 All other metal parts used in the LT DISTRIBUTION KIOSK's shall be treated as under.

M.S. parts such as Bolts& Nuts, washers etc. : Electro galvanizing of Zinc except for bus bar & links.

- 12. SAFETY ARRANGEMENTS:** Two earthing studs of galvanized M.S. 50x12 mm shall be provided for external earth and internal neutral connections. These should be complete with plain washer, spring washer, nuts etc. Earthing studs must be welded to prevent removal of the same from the LT DISTRIBUTION KIOSK.

- 13. TESTS & TEST CERTIFICATES:** The routine and acceptance tests of MCCB as per relevant IS and this specification shall be carried out at the original manufacturer's works. In case of brought out items, such as Isolator, Link Disconnecter etc., the test certificates of original manufacturer shall be produced to the inspecting officer and shall be enclosed with the inspection report.

13.1 Routine Test: (carried out on LT DISTRIBUTION KIOSK's)

- Overall dimensions checking
- High voltage test as per relevant IS.
- Operation test on MCCB/ Isolator /Link Disconnecter.

13.2 Acceptance Tests (on complete LT DISTRIBUTION KIOSK):

Following tests shall be carried out as acceptance tests in addition to routine tests as per sampling plan i.e. 1 no out of every lot of 50 or part thereof.

i) Insulation Resistance tests

The IR value shall be measured with meager of 1000 Volt DC voltage between terminals as mention in the high voltage test. The IR value shall not be less than 50 Meg. Ohm.

ii) Temperature rise test on one sample of each rating : Temperature rise test will be carried out on complete LT Distribution KIOSK with all equipments & accessories mounted inside as per provision of IS : 8623 , part – I -1977.

This test shall be carried out on LT DISTRIBUTION KIOSK as well as MCCB & link Disconnecter Separately.

iii) Time-Current Characteristics: With the stabilized temperature rise as per (ii) above the MCCB should be tested for time current characteristics at 1.05 & 1.3 times of overload release setting current and should pass the requirement given in this specification.**iv) All routine test:.****a) Visual Examination:**

The LT Dist. Kiosk will be inspected visually externally and internally, fittings of all the components in accordance with Nigam specification, drawings and relevant IS/IEC.

b) Verification of dimensions:

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

c) Verification of fittings:

Components like Isolators, MCCBs, Link Disconnectors and other fittings will be verified as per technical specifications and approved drawings.

d) High Voltage Withstand Test at 2.5 KV:

The voltage of A.C. 2.5 KV rms, 50Hz shall be applied for one minute as per relevant IS.

e) Operation test on MCCB/Isolator/Link Disconnecter.**13.3 Routine & Acceptance Test on MCCB at original manufacturer's works.**

To ensure the quality of MCCB, routine & acceptance tests on MCCBs may be carried out at the works of original manufacturers. Before offering the complete box, the manufacturer should offer the MCCBs for inspection at the works of original manufacturer. The following tests shall be conducted only on samples MCCBs as

routine/ acceptance for acceptance of the lot of MCCBs at the works of manufacturer during inspection.

1. Visual examination and overall dimensional checking.
2. High Voltage test at 2.5 KV for one second between:
 - a)-Main circuit & earth.
 - b)-Control circuit and earth.
 - c)-Shorted top and bottom terminals with MCCB in open conditions.
3. Insulation resistance test (IS: 8623) with 1000 V MEGGER between above points of S.N.2.
4. Milli-volt drop (IS:5147)
6. Temperature rise test (conducted one sample of each rating out of 1000 Nos. or part thereof) in which contact resistance (mili volt) shall also be indicated.
7. Verification of time current characteristics (conducted one sample of each rating out of 1000 Nos. or part thereof).

The criteria for selection of No. of samples and for acceptance of lot shall be on 1% quantity or 10 Nos. samples whichever is more. Before dispatch, the MCCBs shall be inspected and tested by the authorized inspecting officer/Agency of the Nigam at the works of the manufacturer.

The successful testing of all samples in respect of tests mentioned above shall be the acceptability criteria of the lot/sub-lot.

Balance Type test of rating offered relating to all equipments/material as per Specification shall be arranged from first lot (without asking for any delivery extension) from CPRI/ independent NABL accredited Lab.

13.4 TYPE TESTS:

I) ON COMPLETE LT DISTRIBUTION KIOSK

- a) **Temperature rise test:** The temperature rise test should be carried out as per IS: 8623-1993.

Each feeder shall be loaded to its full capacity along with Incomer Isolator as below:

Capacity of LT DISTRIBUTION KIOSK Suitable for transformer having rating	MCCB(SP)	Isolator (SP)
250 / 315 KVA	160 / 160 Amp	630 Amp, 1 No.

- b) High voltage test as per IS:8623 amended upto date.
- c) Short Time Withstand Current Test on distribution LT DISTRIBUTION KIOSK:-The LT DISTRIBUTION KIOSK should be subjected to Short Time Withstand Current Test for

8 KA for two seconds for 250 / 315 KVA rating all circuit independently. The test should be carried out after by-passing MCCBs.

- d) Degree of protection for IP-43 on complete unit.
- e) Time/current characteristic test as per clause 13.2 (iii) of this specification as stated above.

II) ON ISOLATOR:

All type test on incoming Isolator as per IS-13947/ 1993 (Part-III)/ IEC 60947 amended up to date. Only test report shall be submitted.

III) ON MCCB

All type test on MCCB as per IS-13947 amended upto date. Only test reports shall be submitted.

13.5 TEST CERTIFICATES : The LT DISTRIBUTION KIOSK, Isolator and MCCB offered shall be fully type tested as per relevant IS and this specification .

The bidder must furnish type test reports along with bid as per the qualification requirement of the Tender Specification.

The detailed type Test Reports shall be furnished with relevant oscillogram drawings and certified Drawing of the equipment tested. The purchaser reserves the right to demand repetition of some or all type tests in presence of purchaser's representative at purchaser's cost. For this purpose, the tenderer shall quote unit rates for carrying out each Type Test.

14. TESTING & 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 acceptance and type tests. These facilities may be verified by JVVNL Engineers or other testing agency , if deputed to carry out or witness the tests in the manufacturer's works. The tenderer must have all the in-house testing facilities to carry out the acceptance tests on the LT DISTRIBUTION KIOSK.

The tenderer should have following minimum manufacturing facilities in house to prove his reliability as a manufacturer of LT DISTRIBUTION KIOSKS.

- i) Power operated shearing machine
- ii) Power operated press brake.
- iii) Power operated power presses
- iv) Welding machines,
- v) Assembling tools

The tenderer shall furnish detailed process of painting. In case painting is to be carried out from outside agencies, the tenderer shall furnish the facilities available with the sub-contractor.

15. TENDER SAMPLE:

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 at CTL or elsewhere and after obtaining the written approval from the competent authority of Nigam, 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 dispatched 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/kiosk for all acceptance tests.

(B). The tenderer shall have to submit one tender sample of each rating offered of L.T. Dist. Kiosk fitted with all the accessories like Isolator, MCCBs, Link Disconnectors etc. duly tested as per the tender specifications before the date of opening of techno-commercial bid or one day prior to opening of techno-commercial bid, for arranging CTL or elsewhere testing. 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. However, only after successful CTL or elsewhere testing in presence of tenderer's / bidder's representative and after acceptable of sample material / equipment by the purchaser, offer of the firm will be considered for opening of the financial bid. The tender sample will be returned back on whom order is not placed. It will be responsibility of bidder to collect the tender sample within 10 days on receipt of letter from Purchaser. The purchaser 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 purchaser, then Nigam 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 tests at CTL or elsewhere, it will be allowed for dispatch at the destination, allotted by the purchaser along with the last lot. Supplier has to carry-out all modifications/rectification at his cost suggested by the purchaser on this sample box. The samples are to be submitted to Testing office (i.e. CTL or elsewhere) under guidance of purchaser.

16. INSPECTION: All tests and inspection shall be made at the place of manufacturer. The manufacturer shall afford the Inspector (representing the purchaser), all reasonable facilities, without charge to satisfy him that the material is being supplied in accordance with this specification. All the equipments used in testing shall be calibrated from NABL accredited test lab & shall not be more than one year old.

17. TEST CHECKING OF MATERIAL AT STORE:

The material received in the stores of the Nigam shall be subject to the test checking at stores as well as successful testing in CTL or elsewhere before final acceptance of the material, the procedure for the same shall be as under: -

17.1 SAMPLING: - One sample out of each sub-lot / lot of 200 nos. for either rating LT Distribution Kiosks or part thereof from each inspected lot received in stores shall be selected from each store for test checking of material and shall be got tested. The selection of sample from the material received at stores shall be done as soon as material is received in stores without the presence of the representative of the supplier. However, testing of sample(s) at CTL or elsewhere as arranged by Nigam shall be carried out in the presence of firm's/supplier's representative after identification / confirmation by him that sample so selected belongs to them.

17.2 TESTS: - The following tests will be conducted on the following material(s) at CTL or elsewhere:

A). Either rating LT Distribution Kiosk: - The testing on selected complete LT Distribution Kiosks shall be as per technical specification.

B). To ensure the quality of MCCB, routine & acceptance tests on MCCBs shall be carried out at the works of original manufacturer and also dimensional checking on One No. MCCB of either rating from each lot at works of original manufacturers will be carried out by breaking the MCCB and matching the same with the internal drawing of type tested MCCB. Besides this, dimensional checking on One No. MCCB of either rating from each lot of material received in Nigam's store(s) at CTL or elsewhere shall be carried out by breaking the MCCB and matching the same with the internal drawing of type tested MCCB. Moreover rated current capacity and over load release setting will also be tested in CTL or elsewhere as per relevant Standards/IS/IEC.

C). To ensure the quality of Isolator, routine & acceptance tests on Isolators shall be carried out at the works of original manufacturer and also dimensional checking on One No. Isolator of either rating from each lot at works of original manufacturers will be carried out by breaking the Isolator and matching the same with the internal drawing of type tested MCCB. Besides this, dimensional checking on One No. Isolator of either rating from each lot of material received in Nigam's store(s) at CTL or elsewhere shall be carried out by breaking the Isolator and matching the same with the internal drawing of type tested Isolator.

D). Any other tests for which testing facility is available in CTL or elsewhere, may also be carried out.

E). The successful testing of all samples in respect of tests mentioned at point (A) to (D) above shall be the acceptability criteria of the LOT/SUB-LOT. Payment of the

particular sub-lot / lot of material shall be released only after successful acceptability criteria of the LOT/SUB-LOT

18. PAYMENT IN ABSENCE OF TYPE TEST REPORTS.

Nigam may accept the material in absence of type test report. 70% payment shall be released in absence of type test reports and balance payment shall be released after receipt of successful type test reports. In case of failure of selected sample during type testing, another sample will be selected from the material already received in stores to get it type tested as per provision of purchase order at firm's cost. In case of repeat failure in type test(s), the order of balance quantity including the quantity lying unused in the stores/ field shall be cancelled. The guarantee period of quantity already supplied & used shall be doubled and payment for used material shall be arranged @ 70% of cost of material. However, Nigam may ask firm to re-offer the material after change/ modification in the material. The balance material shall be accepted only after successful type testing. The type testing charges shall be borne by firm. However, no material will be accepted in absence of complete type test reports of Isolator & MCCB.

19. ADDITIONAL ORDER

Repeat orders for additional quantities, upto 50% of original ordered quantities, may be placed by the Nigam, on the same rates, terms and conditions given in the contract as per provision of rule No. 73 of RTPP Rules 2013.

20. QUALITY ASSURANCE PLAN :

- 1) The Bidder shall invariably furnish following information along with his offer, failing which the offer shall be liable for rejection. Information shall be separately given for individual type of equipment offered.
 - i) Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards according to which the raw material are tested, list of tests normally carried out on raw material in the presence of Supplier's representative, copies of test certificates.
 - ii) Information and copies of test certificates as in (i) above in respect of bought out items.
 - iii) List of manufacturing facilities available.

- iv) Level of automation achieved and list of areas where manual processing exists.
 - v) List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.
 - vi) Special features provided in the equipment to make it maintenance free.
 - vii) The bidder should have adequate facilities to carryout accurately all required tests during manufacturing and routine/acceptance tests as per relevant ISS/IEC standards at the final end routine/acceptance. The supplier will ensure that all testing/measuring instruments/apparatus are calibrated at regular periodicity from reputed test house as per relevant standards and a certificate of testing authority is made available to purchaser's inspector at the time of inspection. Such calibration certificates, in any case shall not be older than one year on the date of such tests".
 - viii) List of testing instruments and apparatus along with their last date of calibration, available with the Bidder for testing of equipment specified and test plant limitation, if any, vis-a-vis the type, special, acceptance and routine tests testing during manufacture specified in the relevant standards. These limitations shall be very clearly brought out in "Schedule of Deviations".
- 2) The Supplier shall also submit the following information to the Purchaser, along with drawings/GTPs/BOM of ordered material, within 15 days of placement of order for purchaser's approval:-
- i) Name of the raw material as well as bought out accessories and the names of sub-suppliers selected from those furnished along with the offer.
 - ii) Type test certificates of the raw material and bought out accessories.
 - iii) Quality Assurance Plan (QAP) with hold points for Purchaser's inspection. The QAP and Purchaser's hold points shall be discussed between the Purchaser and the Supplier before the QAP is finalized.
- 3) The Supplier shall submit the routine test certificates of bought out items and raw material at the time of routine/acceptance testing of the fully assembled equipment.

21.0 GUARANTEE :

The tenderer quoting other brand / make of Isolator, MCCBs, Link Disconnectors etc. or any part provided in the L.T.Dist. Kiosk and Complete LTDK / equipment supplied shall be guaranteed for a period of 24 months from the date of last dispatch.

The Stores / material 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 by the Nigam Engineers.

22.0 Purchasing on the Risk & cost of supplier, in case of non-execution of order/ delay in delivery.

If at any time during the currency of the contract, the performance in whole or in part be prevented or delayed, the purchaser reserves the right to procure the material/equipment on order or part thereof from any other source at the risk and cost of the contractor/ supplier.

SE(MM-II)/SPO-V/TN-2728**BILL OF MATERIAL FOR L.T. DISTRIBUTION KIOSK FOR
250/315 KVA & 63/100 KVA TRANSFORMER (JVVNL), (TN-2728)**

S.NO.	ITEM	SIZE
		250/315 KVA
1	M.S. SHEET	2 MM THICK
2	SWITCH DISCONNECTOR (T.P.)	630 A - 1 NO.
3	M.C.C.B. (S.P.)	200Amp with overload release set at 1 60 A -12 NOS.
4	LINK DISCONNECTOR	200 A- 12 NOS.
5	ALU. BUSBAR	2*(40*8 MM)
6	ALU. DROPPERS	38 * 8 MM
7	ALU. NEUTRAL BUSBAR	60 * 8.5 MM
8	COLOUR INSIDE / OUTSIDE IN CASE OF ENAMEL PAINT	WHITE / GREY
	COLOUR INSIDE / OUTSIDE IN CASE OF POWDER COATED	GREY
9	DANGER PLATE	AS / DRG. 1 NO.
10	NAME PLATE	AS / DRG. 1 NO.
11	FUSE PULLAR	1 NO.
12	P.V.C. GLANDS	3"- 1 NO.
13	P.V.C. GLANDS	2"- 4 NOS.
14	BUSBAR STIFFNER	2 NOS.

LEGENDS:-

1. M.S. SHEET FOR ENCLOSURE 2MM & BOTTOM PLATE 3.15MM THICK.
2. DANGER PLATE AS/SP.- 1 No.
3. NAME PLATE AS/ SP. – 1 No.
4. MCCB (S.P.) 200 A – 12 Nos.(250/315 KVA) & – 6 Nos.(63/100 KVA)
5. ISOLATOR 630 A (T.P.) – 1 No. (250/315 KVA) & 200 A – 1 No. (63/100 KVA).
6. LINK DISCONNECTOR 200 A – 12 NOS.(250/315 KVA) & 150 A – 6 Nos.(63/100 KVA)
7. Alu. BUSBAR 2x(40x8mm).(250/315 KVA) , 40x6mm.(63/100 KVA) WITH HEAT SHRINKABLE SLEEVES.
8. Alu. DROPPERS 30x8mm.(250/315 KVA) , (25mm X 4mm) X 2 Set.(63/100 KVA) WITH HEAT SHRINKABLE SLEEVES.
9. Alu NEUTRAL BUS BAR 60x 8.5 mm.(250/315 KVA) ,60x3mm.(63/100 KVA) OR EQUIVALENT CROSS SECTION
10. EARTHING BOLTS WITH NUT & PLAIN, SPRING WASHER (GALVANIZED) M12x50 MM – 2 Nos.
11. COLOUR –FOR 250/315 KVA - INSIDE WHITE & OUTSIDE DARK GREY IN CASE OF ENAMEL PAINT.

DARK GREY INSIDE & OUTSIDE IF POWDER

COATED.

FOR 63/100 KVA - INSIDE WHITE & OUTSIDE BROWN IN CASE OF

ENAMEL PAINT.

BROWN INSIDE & OUTSIDE IF POWDER COATED.

Min. Clearance

- a. 200 mm
- b. 75,,
- c. 60mm
- d. 95mm

1. All dimensions are in mm.

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JAIPUR VIDYUT VITRAN NIGAM LIMITED	
TITLE	L.T. DISTRIBUTION KIOSK FOR 250/315 KVA & 63/100 KVA TRANSFORMERS.

