



आरईसी पावर डिस्ट्रीब्यूशन कम्पनी लिमिटेड
REC POWER DISTRIBUTION COMPANY LIMITED
(A wholly owned subsidiary of REC Ltd., a 'Navratna CPSE' under Ministry of Power, Govt. of India)
CIN No. RECPDCL-U40101DL2007GOI165779

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NIT No: RECPDCL/TECH/Arunachal-HW/18-19/1914

Date: 01.08.2018

Notice Inviting Limited Tender

(Invited through e-Tendering mode only)

(Limited to Agencies as per list enclosed in "Annexure XI")

for

Supply of Various Hardware/ Fabricated Items (11kV Air Break Switch, Drop Out Switch, Disc Insulator etc.) in the State of Arunachal Pradesh for Electrification work under SAUBHAGYA/DDUGJY

REC Power Distribution Company Limited (RECPDCL)

(A wholly owned subsidiary of REC Ltd., a 'Navaratna CPSE'

Under Ministry of Power, Govt. of India)

CIN No. of RECPDCL: U40101DL2007GOI165779

Corporate office

4th Floor, KRIBHCO Bhawan,
A10, Sector-1, Noida (U.P.)-201301
Phone: 0120-4383783
Website: www.recpdcl.in

Description of task, e-tender submission format and procedure is provided in the tender document available on RECPDCL website (www.recpdcl.in), REC website (www.recindia.nic.in), e-tendering website (www.tenderwizard.com/REC), Central Public Procurement Portal (www.eprocure.gov.in)

Important Dates	
Date of Release of Limited Tender	01.08.2018
Last date of submission of Bid	09.08.2018 up to 15:00 Hours
Date of opening of Bids	09.08.2018 up to 15:30 Hours

Note: Online registration has to be done at e-tendering website i.e. www.tenderwizard.com/REC in general, activation of registration may take about maximum 24 hours subject to the submission of all requisite documents required in the process.

-Sd-
(Ajay Kumar Gupta)
CTO

[This document is meant for the purpose of engaging of Agencies against this tender and should not be transferred, reproduced or otherwise used for purposes other than specified/issued.]

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SECTION-I

TENDER INFORMATION

NAME OF ASSIGNMENT:

Supply of Various Hardware/ Fabricated Items (11kV Air Break Switch, Drop Out Switch, Disc Insulator etc.) in the State of Arunachal Pradesh for Electrification work under SAUBHAGYA/DDUGJY

IMPORTANT INFORMATION

S. No.	Event	Date/ Information	
1	Date of Release of Financial Bid	01.08.2018	
2	Last date of submission of Financial Bid	09.08.2018 up to 15:00 Hours	
3	Date of Opening of Financial Bids	09.08.2018 up to 15:30 Hours	
4	Tender document	The tender document can be downloaded and viewed from any of the website: www.recpdcl.in (or) www.recindia.nic.in (or) www.eprocure.gov.in (or) www.tenderwizard.com/REC at free of cost.	
5	Earnest Money Deposit (EMD)	All participating bidders have to submit EMD in original as per Clause No. 2 under Section-VI in the form of Demand Draft (DD) in favour of REC Power Distribution Company Ltd. payable at New Delhi (or) in the form of Bank Guarantee (bid bank guarantee) from a scheduled bank as per format of Annexure-V.	
6	Address for Bid Submission	Addl. Chief Executive Officer REC Power Distribution Company Limited, 4 th Floor, KRIBHCO Bhawan, A10, Sector-1, Noida (U.P.)-201301 Email: co.delhi@recpdcl.in	
7	Validity of Bid	180 days from the last bid submission	
8	Contact Person	Shri Ajay Kumar Gupta Chief Technical Officer RECPDCL Email: co@recpdcl.in	Shri Sunil Bisht Dy. Manager (Tech.) RECPDCL, Phone: 0120-4383759/767 Email: co@recpdcl.in

#The EMD (Earnest Money Deposit) is to be submitted by all the participating bidders in original as per Clause No. 2 under Section-VI in the form of Demand Draft (DD) in favour of REC Power Distribution Company Ltd. payable at New Delhi (or) in the form of Bank Guarantee (bid bank guarantee) from a scheduled bank as per format of Annexure-V. The EMD of unsuccessful bidder/s will be returned within 90 days after the finalization of Financial Bid/award of contract and EMD of successful bidder will also be returned after acceptance of work order & submission of PBG.

Exemption for payment of EMD amount will be given to Micro, Small & Medium Enterprises (MSMEs) registered with National Small Industries Corporation Ltd. (NSIC). However, relevant valid document/ Certificate from NSIC or Ministry of MSMEs, Govt. of India is required to be submitted without which bidders are not entitled for exemption.

SECTION-II

PREFACE & INTENT

REC Power Distribution Company Limited (RECPDCL) is a wholly owned subsidiary of Rural Electrification Corporation Ltd. (REC), a “Navratna CPSE” under the Ministry of Power, Govt. of India. RECPDCL is also an Empaneled Government Agency with Ministry of New & Renewable Energy (MNRE), Govt. of India.

RECPDCL is engaged in providing value added consultancy services in power sector arena covering Power Generation, Renewable Energy Sector and Energy Efficiency programs including Govt. of India’s power schemes for power utilities across the country and various regulatory assignments with CERC/SERCs. It includes the project works under Rural Electrification, Project Management Consultancy (PMC) works, Detailed Project Report (DPR) preparation for R-APDRP/DDUGJY/RGGVY/NEF and other power project schemes, Third Party Inspection of DDUGJY/ RGGVY/other projects, Feeder Renovation Program, Feeder separation, HVDS program, Lender’s Engineers assignment, IT related assignments in Distribution sector including Energy Audit, Evaluation study for HVDS/Distribution network, AT&C Loss assessment, System study, MRI based billing and Cost Book Data Preparation.

Government of India has launched Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) for strengthening & augmentation of power distribution network, separation of agriculture & non-agriculture feeders and rural electrification works. This scheme is already under implementation by various states in the country.

In addition to this, Government of India has recently launched SAUBHAGYA scheme to ensure last mile connectivity and electricity connections to all remaining un-electrified households in the country. This scheme aims for providing service connections to un-connected households in rural and urban areas through available grid or by incremental infrastructure.

RECPDCL, which expression shall also include its successors and permitted assigns, hereby invites Bids from the agencies which are technically and professionally qualified, experienced and capable of supplying single phase and three phase distribution transformers in large quantum as per Scope of Work detailed in Section-V of this tender document and are able to deliver the job in a time bound and efficient manner as per the requirements of RECPDCL.

Arunachal Power Development Agency (hereinafter referred as “APDA”) shall be Owner of the project however, REC Power Distribution Company Limited (hereinafter referred as “RECPDCL”) shall act as Employer for the Contract under this NIT.

RECPDCL shall be responsible for procurement of the materials under this NIT & timely supply to the respective store(s) located in the operational area of the Owner on behalf of Owner.

SECTION-III

INSTRUCTIONS TO BIDDING AGENCIES

SUBMISSION PROCESS OF BID DOCUMENTS:

A. Downloading & viewing of Tender Document:

Bidders can download and view tender document from RECPDCL web site www.recpdcl.in (or) e-tender website www.tenderwizard.com/REC (or) REC website www.recindia.nic.in (or) Central Public Procurement Portal www.eprocure.gov.in at free of cost.

B. Participation through e-Bid Submission:

Bidders shall submit their Bid documents online through website www.tenderwizard.com/REC

- 1) In order to participate in e-Bid submission, it is mandatory for agencies to have log-in User ID and Password. For this purpose, the agency has to register with RECPDCL through tender Wizard website as per procedure given below.

Steps for Online Registration:

- (i) Go to website <https://www.tenderwizard.com/REC>
- (ii) Click the link 'Register Me'
- (iii) Enter the details about the E-tendering as per format
- (iv) Click 'Create Profile'
- (v) System will provide / confirmation with Login ID and Password

Note:

- While accessing tenderwizard.com website, please type 'REC' in capital letters only to get access of e-tender portal.
 - Activation of On-Line registration may take about maximum 24 hours. It is the responsibility of the bidder to register in advance.
- 2) Please note that the agencies have to obtain digital signature token for applying the bid. Bidders may also obtain the same from Tender Wizard.

Steps for applying for Digital Signature from Tender Wizard:

Download the Application Form from the website <https://www.tenderwizard.com/REC>. Follow the instructions as provided therein. In case of any assistance you may contact RECPDCL officials whose address is given in this tender document.

C. Submission of Bid Documents:

Submission of bids will be through online e-tendering mode only from www.tenderwizard.com/REC website.

Agencies should upload Bid documents (scanned copies) as mentioned below. Online submission of Bid documents is mandatory.

- 1) **Letter for Submission of Financial Bid** has to be submitted on Company's letterhead duly signed and stamped as per format of **Annexure-I**. This is mandatory document for submission.
- 2) **Bidder's General Details** has to be submitted on Company's letterhead duly signed and stamped as per format of **Annexure-II**.

- 3) **Letter for Transmittal** has to be submitted on Company's letterhead duly signed and stamped as per format of **Annexure-III**.
- 4) **Earnest Money Deposit (EMD)** as per Clause No. 2 under Section-V has to be deposited in the form of Demand Draft (DD) in favour of 'REC Power Distribution Company Ltd.' payable at New Delhi (or) in the form of Bank Guarantee (Bid Bank Guarantee) from a scheduled bank as per format **Annexure-IV**. Scanned copy of DD or BG has to be uploaded and ***original of DD or BG has to be submitted before last date & time of submission of financial bid***. Exemption for payment of EMD amount will be given to Micro, Small & Medium Enterprises (MSMEs) registered with National Small Industries Corporation Ltd. (NSIC) or any other body as specified by Ministry of MSME. However, relevant valid document/ Certificate from NSIC or any other body as specified by Ministry of MSME, Govt. of India is required to be submitted without which bidders are not entitled for exemption.
- 5) **Power of Attorney** has to be submitted issued by the Bidding Company in favour of the authorized person signing the Bid as per format of **Annexure-V**. Scanned copy of Power of Attorney has to be uploaded and ***original has to be submitted before last date & time of submission of bid***.
- 6) **Acceptance form for participation in reverse auction event** has to be submitted duly signed and stamped as per format of **Annexure-VIII**.
- 7) **Price Bid** has to be submitted **through online** mode only as per format of **Annexure-X**.

Documents to be submitted in case of Award of Work.

- 1) **Advance Bank Guarantee** has to be submitted issued by the Bidding Company, if bidder wants mobilization advance during commencement of work as per **Annexure-VI**.
- 2) **Performance Bank Guarantee** has to be submitted by bidder within 5 days from the award of LoA as per **Annexure-VII**.

Note: All the documents should be addressed to.

**Addl. Chief Executive Officer
REC Power Distribution Company Ltd.
4th Floor Kribhco Bhawan,
A-10, Sector-4, Noida
(UP)-201301**

SECTION-IV

DETAILED SCOPE OF WORK, TECHNICAL SPECIFICATIONS & CONDITIONS OF CONTRACT

A. Detailed scope of work for the bidder but not limited to following includes:

SCOPE

Design, engineering, manufacture, testing and supply of 11kV Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items (as detailed in Table below) as per Scope of Work including transportation & insurance up to sub-divisional headquarter of the Namsai District in Arunachal Pradesh. Unloading of equipment on reaching the designated store shall be in the scope of respective DISCOMs/ Power Departments. All manpower, crane, truck etc. shall be arranged and paid by DISCOM officials. On successful delivery of equipment up to designated store, it shall be handed over to respective DISCOM/ Power Department.

S.No	Description	Unit	Nos.
1	11 kV Air Break Switch	Set	20
2	11 kV Drop out fuse set	Set	20
3	45 KN Disc Insulator for 11 kV line	Nos.	844
4	11 KV non-linear Lightning Arrestors	Nos.	60
5	11 kV Pin Insulator	Nos.	603
6	Danger plate	Nos.	221
7	8 SWG GI Wire for earthing	KG	448.4
8	40 mm Dia GI Pipe of length 3 mtr	Nos.	201
9	Copper Earth Plate 600x 600x 6 mm	Nos.	40
10	Copper Strip 25x4mm	Mtr.	500
11	Chain Link fencing 6SWG Wire	RM	320
12	MS Gate	Nos.	20
13	MS Cross Arm 2.8 Mtr long, (75x40x2.8mm) I/c Clamps	Set	60
14	V-Type Cross arm with MS Channel 75x40x4.8mm	Nos.	121
15	Pole Top Bracket (MS Channel 0.2 mtr long of 75x40x4.8mm)	Nos.	121
16	MS angle Bracing Set 3.1 mtr long 65x65x6mm	Nos.	60
17	Guard Bracket 3.5m 100x50x6mm	Nos.	40
18	6x 8SWG GI wire for Guarding	Kg	1005
19	Miscellaneous items like bolts, nuts etc. for LT ABC Line	LS	46
20	Hardware fittings for 45 kN Disc Insulator (including corss arm strap, ball eye, socket eye, strain clam etc.)	Nos.	422
21	MS Channel 100x50x6mm for AB Switch	Set(Nos.)	20
22	Top Bracket for transformer mounting and DO Fuse (8x2 = 16 Mtr.)	Set	20
23	Barbed wire/Anti Climbing device	KG	602
24	Stay Set with stay wire for 11 kV lines	Nos.	281
25	Stay Set with stay wire for LT Line	Nos.	459

INSULATORS

This specification covers the design, manufacture, testing and supply of 11KV Composite Insulators. The composite insulators shall be of the following type:

- i) Long rod insulators for conductors in tension application at angle / cut points; the insulators shall be of tongue & clevis type.
- ii) Line post insulators or pin insulators for straight line locations.

1. SERVICE CONDITIONS:

The equipment to be supplied against this specification shall be suitable for satisfactory continuous operation under the climatic conditions of North-eastern states (including Sikkim).

2. SYSTEM PARTICULARS:

a) Nominal System Voltage	11 kV
b) Corresponding highest system Voltage	12 kV
c) Frequency	50 Hz with 3% tolerance
d) Number of phase	3
e) Neutral earthing	Effectively grounded.

3. STANDARDS:

Unless otherwise specified elsewhere in the specifications insulators shall conform to the latest revisions of all relevant standards available at the time of placement of the order. The standards are listed below:

S. No.	Indian Standard	Title	International Standard
1	-	Definition, test methods and acceptance criteria for composite insulators for A.C. overhead lines above 1000V	IEC: 61109
2	IS: 731	Porcelain insulators for overhead power lines with a nominal voltage greater than 1000V	IEC: 60383
3	IS: 2071	Methods of High Voltage Testing	IEC: 60060-1
4	IS: 2486	Specification for Insulator fittings for Overhead power Lines with a nominal voltage greater than 1000V General Requirements and Tests Dimensional Requirements Locking Devices	IEC: 60120 IEC: 60372
5	-	Thermal Mechanical Performance test and mechanical performance test on string insulator units	IEC: 60575
6	IS: 13134	Guide for the selection of insulators in respect of polluted condition	IEC: 60815
7	-	Characteristics of string insulator units of the long rod type	IEC: 60433
8	-	Hydrophobicity Classification Guide	STRI guide 1.92/1
9	-	Radio interference characteristics of overhead power lines and high-voltage equipment.	CISPR: 18-2 Part 2
10	IS: 8263	Methods of RI Test of HV insulators	IEC: 60437

11		Standard for Insulators- Composite- Distribution Dead-end Type	ANSI C29.13- 2000
12	IS: 4759	Hot dip zinc coatings on structural steel & other allied products	ISO: 1459
13	IS: 2629	Recommended Practice for Hot, Dip Galvanization for iron and steel	ISO: 1461
14	IS: 6745	Determination of Weight of Zinc Coating on Zinc coated iron and steel articles	ISO: 1460
15	IS: 3203	Methods of testing of local thickness of electroplated coatings	
16	IS: 2633	Testing of Uniformity of Coating of zinc coated articles	
17	-	Standard specification for glass fiber strands	ASTM D 578-05
18	-	Standard test method for compositional analysis by Thermo-gravimetry	ASTM E 1131-03
19	IS:4699	Specification for refined secondary Zinc	

4. GENERAL REQUIREMENTS:

- (i) The composite insulators shall generally conform to latest Standards as listed in Annexure 'A'.
- (ii) The Composite Insulators will be used on lines on which the conductors will be A.A.A. Conductor of size up to 200 sq. mm. and ACSR of any size up to Panther (0.2 sq. inch copper equivalent). The insulators should withstand the conductor tension, the reversible wind load as well as the high frequency vibrations due to wind.
- (iii) Supplier must be an indigenous manufacturer and manufacturer of composite insulators of rating 33 kV or above OR must have developed proven in house technology and manufacturing process for composite insulators of above rating OR possess technical collaboration /association with a manufacturer of composite insulators of rating 33kV or above. The Manufacturer shall furnish necessary evidence in support of the above, which can be in the form of certification from the utilities concerned, or any other documents to the satisfaction of the Employer.
- (iv) Insulator shall be suitable for both the suspension and strain type of load & shall be of tongue & clevis type. The diameter of Composite Insulator shall be less than 200 mm. The center-to-center distance between tongue & clevis shall be max. 300 mm for 11 kV.
- (v) Insulators shall have sheds with good self-cleaning properties. Insulator shed profile, spacing, projection etc. and selection in respect of polluted conditions shall be generally in accordance with the recommendation of IEC-60815/IS: 13134.
- (vi) The size of Composite insulator, minimum creepage distance and mechanical strength along with hardware fittings shall be as follows:

S. No.	Type of Composite insulators	Nominal System Voltage kV (rms)	Highest System Voltage kV(rms)	Visible Discharge Test Voltage kV(rms)	Wet Power Frequency Withstand Voltage kV(rms)	Impulse Withstand voltage kV(rms)	Minimum Creepage Distance (mm) (Heavily Polluted 25mm/kV)	Center to Center Distance Between Tongue & Clevis (mm)	Min. Failing load kN	Shed Diameter (mm) (min)
i.	Long Rod insulator	11	12	9	35	75	320	300	45	75-100
ii.	Post/Pin Insulator	11	12	9	35	75	320		5	

(vii) Dimensional Tolerance of Composite Insulators:

The tolerances on all dimensions e.g. diameter, length and creepage distance shall be allowed as follows in line with-IEC 61109:

$(0.04d+1.5)$ mm when $d \leq 300$ mm.

$(0.025d+6)$ mm when $d > 300$ mm.

Where, d being the dimensions in millimeters for diameter, length or creepage distance as the case may be. However, no negative tolerance shall be applicable to creepage distance.

(viii) Interchangeability:

The composite insulator together with the tongue & clevis fittings shall be of standard design suitable for use with the hardware of any other indigenous make conforming to relevant standards referred above.

(ix) Corona and RI Performance:

All surfaces shall be clean, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The insulator and metal parts shall be so designed and manufactured that it shall avoid local corona formation and not generate any radio interference beyond specified limit under the operating conditions.

5. TECHNICAL DESCRIPTION OF COMPOSITE INSULATORS:

Polymeric Insulators shall be designed to meet the high quality, safety and reliability and are capable of withstanding a wide range of environmental conditions.

Polymeric Insulators shall consist of THREE parts, at least two of which are insulating parts :-

(a) Core- the internal insulating part

(b) Housing- the external insulating part

(c) Metal end fittings.

(i) CORE

It shall be a glass-fiber reinforced epoxy resin rod of high strength (FRP rod). Glass fibers and resin shall be optimized in the FRP rod. Glass fibers shall be Boron free electrically corrosion resistant (ECR) glass fiber or Boron free E-Glass and shall exhibit both high electrical integrity and high resistance to acid corrosion. The matrix of the FRP rod shall be Hydrolysis resistant. The FRP rod shall be manufactured through Pultrusion process. The FRP rod shall be void free.

(ii) HOUSING:

The FRP rod shall be covered by a seamless sheath of a silicone elastometric compound or silicone alloy compound of a thickness of 3mm minimum. It shall be one-piece housing using Injection Molding Principle to cover the core. The elastomer housing shall be designed to provide the necessary creepage distance and protection against environmental influences. Housing shall conform to the requirements of IEC 61109/92-93 with latest amendments

(iii) WEATHERSHEDS:

The composite polymer weather sheds made of a silicone elastometric compound or silicone alloy compound shall be firmly bonded to the sheath, vulcanized to the sheath or molded as part of the sheath and shall be free from imperfections It should protect the FRP rod against environmental influences, external pollution and humidity. The weather sheds should have silicon content of minimum 30% by weight. The strength of the weather shed to sheath interface shall be greater than the tearing strength of the polymer. The interface, if any, between sheds and sheath (housing) shall be free from voids.

(iv) **METAL END FITTINGS:**

End fitting transmit the mechanical load to the core. They shall be made of spheroidal graphite cast iron, malleable cast iron or forged steel or aluminum alloy. They shall be connected to the rod by means of a controlled compression technique. Metal end fittings shall be suitable for tongue & clevis hard wares of respective specified mechanical load and shall be hot dip galvanized after, all fittings have been completed. The material used in fittings shall be corrosion resistant. As the main duty of the end fittings is the transfer of mechanical loads to the core the fittings should be properly attached to the core by a coaxial or hexagonal compression process & should not damage the individual fibers or crack the core. The gap between fitting and sheath shall be sealed by a flexible silicone elastomeric compound or silicone alloy compound sealant. System of attachment of end fitting to the rod shall provide superior sealing performance between housing, i.e. seamless sheath and metal connection. The sealing must be moisture proof. The dimensions of end fittings of insulators shall be in accordance with the standard dimensions stated in IEC: 60120/ IS: 2486 - Part-II /1989.

6. WORKMANSHIP:

- (i) All the materials shall be of latest design and conform to the best engineering practices adopted in the high voltage field. Manufacturers shall offer only such insulators as are guaranteed by them to be satisfactory and suitable for continued good service in power transmission lines.
- (ii) The design, manufacturing process and material control at various stages shall be such as to give maximum working load, highest mobility, best resistance to corrosion, good finish and elimination of sharp edges and corners.
- (iii) The design of the insulators shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to deterioration.
- (iv) The core shall be sound and free of cracks and voids that may adversely affect the insulators.
- (v) Weather sheds shall be uniform in quality. They shall be clean, sound, smooth and shall be free from defects and excessive flashing at parting lines.
- (vi) End fittings shall be free from cracks, seams, shrinks, air holes and rough edges. End fittings should be effectively sealed to prevent moisture ingress; effectiveness of sealing system must be supported by test documents. All surfaces of the metal parts shall be perfectly smooth without projecting points or irregularities, which may cause corona. All load bearing surfaces shall be smooth and uniform so as to distribute the loading stresses uniformly.
- (vii) All ferrous parts shall be hot dip galvanized to give a minimum average coating of zinc equivalent to 610 gm/sq.m. or 87 micron thickness and shall be in accordance with the requirement of IS:4759. the zinc used for galvanizing shall be of purity 99.5% as per IS:4699. The zinc coating shall be uniform, adherent, smooth, reasonably bright continuous and free from imperfections such as flux, ash rust stains, bulky white deposits and blisters. The galvanized metal parts shall be guaranteed to withstand at least four successive dips each lasting for one (1) minute duration under the standard Preece test. The galvanizing shall be carried out only after any machining.

7. TESTS AND STANDARDS:

Insulators offered shall be manufactured with the same configuration & raw materials as used in the insulators for which design & type test reports are submitted. The manufacturer shall submit a certificate for the same. The design & type test reports submitted shall not be more than ten years old. Bidder who does not possess valid type test report for the same design are not eligible for bidding.

(i) **DESIGN TESTS:**

For polymeric insulators it is essential to carry out design test as per clause 4.1 of IEC 61109 / 92-

93 with latest amendments. The design tests are intended to verify the suitability of the design, materials and method of manufacture (technology). When a composite insulator is submitted to the design tests, the result shall be considered valid for the whole class of insulators, which are represented by the one tested and having the following characteristics:

- Same materials for the core, and sheds and same manufacturing method;
- Same material of the fittings, the same design, the same method of attachment;
- Same or greater layer thickness of the shed material over the core (including a sheath where used).
- Same or smaller ratio of the highest system voltage to insulation length;
- Same or smaller ratio of all mechanical loads to the smallest core diameter between fittings.
- Same or greater diameter of the core.

The tested composite insulators shall be identified by a drawing giving all the dimensions with the manufacturing tolerances.

Manufacturer should submit test reports for Design Tests as per IEC – 61109 (clause – 5). Additionally, following tests shall be carried out or reports for the tests shall be submitted after award of contract:

UV test: the test shall be carried out in line with clause 7.2 of ANSI C29.13.

(ii) TYPE TESTS:

The type tests are intended to verify the main characteristics of a composite insulator. The type tests shall be applied to composite insulators, the class of which has passed the design tests.

Following Type test shall be conducted on a suitable number of individual insulator units, components, materials or complete strings:

S. No.	Description of type test	Test procedure / standard
1	Dry lightning impulse withstand voltage test	As per IEC 61109(Clause 6.1)
2	Wet power frequency test	As per IEC 61109(Clause 6.2)
3	Mechanical load-time test	As per IEC 61109(Clause 6.4)
4	Radio interference test	As per IEC 61109(Clause 6.5) Revised
5	Recovery of Hydrophobicity test	Annexure-A below; This test may be repeated every 3yrs by the manufacturer
6	Chemical composition test for silicon content	Annexure-A below Or any other test method acceptable to the Employer
7	Brittle fracture resistance test	Annexure-A below

The Manufacturer shall submit type test reports as per IEC 61109. Additional type tests required if any shall be carried out by the manufacturer, after award of contract for which no additional charges shall be payable. In case, the tests have already been carried out, the manufacturer shall submit reports for the same. Bidder who does not possess valid type test report for the same design are not eligible for bidding

(iii) ACCEPTANCE TESTS:

The test samples after having withstood the routine test shall be subject to the following acceptance tests in order indicated below:

A	Verification of dimensions	Clause 7.2 IEC: 61109
B	Verification of the locking system (if applicable)	Clause 7.3 IEC: 61109
C	Verification of tightness of the interface Between end fittings & Insulator housing	Clause 7.4 IEC: 61109 amendment 1 of 1995
D	Verification of the specified mechanical load	Clause 7.4 IEC: 61109 amendment 1 of 1995
E	Galvanizing test	IS:2633/IS:6745

(iv) ROUTINE TESTS:

S. No.	Description	Standard
1	Identification of marking	As per IEC: 61109 Clause 8.1
2	Visual Inspection	As per IEC: 61109 Clause 8.2
3	Mechanical routine test	As per IEC: 61109 Clause 8.3

Every polymeric insulator shall withstand mechanical routine test at ambient temperature tensile load at RTL corresponding to at least 50 % of the SML for at least 10 sec.

(v) TESTS DURING MANUFACTURE:

Following tests shall also be carried out on all components as applicable

- (a) Chemical analysis of zinc used for galvanizing
- (b) Chemical analysis, mechanical, metallographic test and magnetic particle inspection for malleable castings.
- (c) Chemical analysis, hardness tests and magnetic particle inspection for forgings.

(vi) SAMPLE BATCH FOR TYPE TESTING:

The Manufacturer shall offer material for sample selection for type testing only after getting Quality Assurance Plan approved by Employer. The sample for type testing will be manufactured strictly in accordance with the approved Quality Assurance Plan.

8. QUALITY ASSURANCE PLAN:

The Manufacturer shall submit following information:

- (i) Test certificates of the raw materials and bought out accessories.
- (ii) Statement giving list of important raw material, their grades along with names of sub-Manufacturers for raw materials, list of standards according to which the raw materials are tested. List of tests normally carried out on raw materials in presence of Manufacturer's representative.
- (iii) List of manufacturing facilities available.
- (iv) Level of automation achieved and lists 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) List of testing equipments available with the Manufacturer for final testing of equipment along with valid calibration reports.
- (vii) The manufacturer shall submit Manufacturing Quality Assurance Plan (QAP) for approval & the same shall be followed during manufacture and testing.
- (viii) The Manufacturer shall submit the routine test certificates of bought out raw materials/accessories and central excise passes for raw material at the time of inspection.
- (ix) The Employer's representative shall at all times be entitled to have access to the works and all places of manufacture, where insulator, and its component parts shall be manufactured and the representatives shall have full facilities for unrestricted inspection of the Manufacturer's and sub-Manufacturer's works, raw materials, manufacture of the material and for conducting

necessary test as detailed herein.

- (x) The material for final inspection shall be offered by the Manufacturer only under packed condition. The Employer shall select samples at random from the packed lot for carrying out acceptance tests. The lot offered for inspection shall be homogeneous and shall contain insulators manufactured in 3-4 consecutive weeks.
- (xi) The Manufacturer shall keep the Employer informed in advance of the time of starting and the progress of manufacture of material in their various stages so that arrangements could be made for inspection.
- (xii) No material shall be dispatched from its point of manufacture before it has been satisfactorily inspected and tested unless the Employer in writing waives off the inspection. In the later case also the material shall be dispatched only after satisfactory testing specified herein has been completed.
- (xiii) The acceptance of any quantity of material shall in no way relieve the Manufacturer of his responsibility for meeting all the requirements of the specification and shall not prevent subsequent rejection, if such material are later found to be defective

9. TEST CERTIFICATE:

The manufacturer shall furnish detailed type test reports of the offered composite Insulators as per clause 7(ii) of the Technical Specifications at the NABL approved laboratories to prove that the composite Insulators offered meet the requirements of the specification. These Type Tests should have been carried out within ten years prior to the date of opening of this tender.

The Employer reserves right to demand repetition of some or all the Type Test in presence of Employer's representative. For this purpose, the manufacturer shall quote unit rates for carrying out each Type Test. However, such unit rates will not be considered for evaluation of the offer. In case the unit fails in the Type Tests, the complete supply shall be rejected.

10. TESTING FACILITIES:

The manufacturer must clearly indicate what testing facilities are available in the works of the manufacturer and whether facilities are adequate to carry out all Routine & acceptance Tests. These facilities should be available to Employer's Engineers if deputed or carry out or witness the tests in the manufacturer works. The insulators shall be tested in accordance with the procedure detailed in IEC 61109 / 92-93 with latest amendments.

11. DRAWINGS:

- (i) The Manufacturer shall furnish full description and illustration of the material offered.
- (ii) The Manufacturer shall furnish the outline drawing (3 copies) of each insulator unit including a cross sectional view of the long rod insulator unit. The drawing shall include but not be limited to the following information:
 - (a) Long rod diameter with manufacturing tolerances
 - (b) Minimum Creepage distance with positive tolerance
 - (c) Protected creepage distance
 - (d) Eccentricity of the long rod unit
 - Axial run out
 - Radial run out
 - (e) Unit mechanical and electrical characteristics
 - (f) Size and weight of ball and socket/tongue & clevis
 - (g) Weight of composite long rod units
 - (h) Materials

- (i) Identification mark
- (j) Manufacturer's catalogue number
- (iii) After placement of award the Manufacturer shall submit fully dimensioned insulator crate drawing for different type of insulators for approval of the Employer.

12. RETEST AND REJECTION:

- (i) Sample Procedure for testing of insulators shall be as per clause 7.1 to 7.6 of IEC 61109 for Acceptance & Routine Tests.
- (ii) For the sampling tests, two samples are used, E1 and E2. The sizes of these samples are indicated in the table below.

Lot Size (N)	Sample Size	
	E1	E2
N < 300	Subject to agreement	
300 < N < 2000	4	3
2000 < N < 5000	8	4
5000 < N < 10000	12	6

- (iii) If more than 10000 insulators are concerned, they shall be divided into an optimum number of lots comprising between 2000 and 10000 insulators. The results of the tests shall be evaluated separately for each lot.
- (iv) The insulators shall be selected by the Employer's representative from the lot at random.
- (v) The samples shall be subjected to the applicable sampling tests.

The sampling tests are:

Verification of dimensions	- (E1 + E2)
Verification of the locking system	- (E2)
Verification of tightness of the interface between end fittings & Insulator housing	- (E2)
Verification of the specified mechanical load SML	- (E1)
Galvanizing test	- (E2)

- (vi) In the event of a failure of the sample to satisfy a test, the retesting procedure shall be as follows:
 - If only one insulator or metal part fails to comply with the sampling tests, a new sample equal to twice the quantity originally submitted to the tests shall be subjected to retesting. The retesting shall comprise the test in which failure occurs. If two or more insulator or metal parts fail to comply with any of the sampling tests or if any failure occurs during the retesting, the complete lot is considered as not complying with this standard and shall be withdrawn by the manufacturer.
 - Provided the cause of the failure can be clearly identified, the manufacturer may sort the lot to eliminate all the insulators with these defects. The sorted lot then be resubmitted for testing. The number then selected shall be three times the first chosen quantity for tests. If any insulators fail during this retesting, the complete lot is considered as not complying with this standard and shall be withdrawn by the manufacturer.
- (vii) Verification of dimensions (E1 + E2)
The dimensions given in the drawings shall be verified. The tolerances given in the drawing are valid. If no tolerances are given in the drawings the values mentioned in this specification shall hold good.

(viii) Verification of the locking system (E2)

This test applies only to the insulators equipped with socket coupling as specified by IEC 120 and is performed according to IEC 383.

(ix) Verification of tightness of the interface between end fittings & Insulator housing (E2)

One insulator selected randomly from the sample E2, shall be subjected to crack indication by dye penetration, in accordance with ISO 3452, on the housing in the zone embracing the complete length of the interface between the housing and metal fitting and including an additional area, sufficiently extended beyond the end of the metal part.

The indication shall be performed in the following way:

- the surface shall be properly pre-cleaned with the cleaner;
- the penetrant, which shall act during 20 minutes, shall be applied on the cleaned surface;
- within 5 minutes after the application of the penetrant, the insulator shall be subjected, at the ambient temperature, to a tensile load of 70 % of the SML, applied between the metal fittings; the tensile load shall be increased rapidly but smoothly from zero up to 70 % of the SML, and then maintained at this value for 1 minute;
- the surface shall be cleaned with the excess penetrant removed, and dried;
- the developer shall be applied if necessary;
- the surface shall be inspected.

Some housing materials may be penetrated by the penetrant. In such cases evidence shall be provided to validate the interpretation of the results.

After the 1 min. test at 70 % of the SML, if any cracks occur, the housing and, if necessary, the metal fittings and the core shall be cut, perpendicularly to the crack in the middle of the widest of the indicated cracks, into two halves. The surface of the two halves shall then be investigated for the depth of the cracks.

(x) Verification of the specified mechanical load SML

The insulators of the sample E1 shall be subjected at ambient temperature to a tensile load, applied between the couplings. The tensile load shall be increased rapidly but smoothly from zero to approximately 75 % of the SML, and then be gradually increased to the SML in a time between 30 sec. to 90 sec.

If 100 % of the SML is reached in less than 90 s, the load (100 % of the SML) shall be maintained for the remainder of the 90 s. (This test is considered to be equivalent to a 1min withstand test at the SML.

The insulators have passed the test, if:

No failure (breakage or complete pull out of the core, or fracture of the metal fitting) occurs either during the 1 min. 70 % withstand test (a) or during the 1 min.100 % withstand test (b).

No cracks are indicated after the dye penetration method described in 13.4 above.

The investigation of the halves described in 13.4 above shows clearly that the cracks do not reach the core.

(xi) Galvanizing test

This test shall be performed according to IS: 2633/IS: 6745 on galvanized parts.

13. MARKINGS:

(i) Each insulator shall be legibly and indelibly marked with the following details as per IEC- 61109:

- a) Name or trademark of the manufacturer
- b) Voltage & Type
- c) Month and year of manufacturing
- d) Min. failing load/guaranteed mechanical strength in kilo Newton followed by the word 'KN' to facilitate easy identification.
- e) DDUGJY/SAUBHAGYA

f) 'Employer Name' Marking

- (ii) One 10 mm thick ring or 20 mm thick spot of suitable quality of paint shall be marked on the end fitting of each composite long rod of particular strength for easy identification. The paint shall not have any deteriorating effect on the insulator performance.

Following codes shall be used as identification mark:

For 45 KN long rod units : Blue

For 70 KN long rod units : Red

14. PACKING:

- (i) All insulators shall be packed in strong corrugated box of min. 7 ply duly palletted or wooden crates. The gross weight of the crates along with the material shall not normally exceed 100 Kg to avoid hackling problem. The crates shall be suitable for outdoor storage under wet climate during rainy season.
- (ii) The packing shall be of sufficient strength to withstand rough handling during transit, storage at site and subsequent handling in the field.
- (iii) Suitable cushioning, protective padding, or Dunn age or spacers shall be provided to prevent damage or deformation during transit and handling.
- (iv) All packing cases shall be marked legibly and correctly so as to ensure safe arrival at their destination and to avoid the possibility of goods being lost or wrongly dispatched on account of faulty packing and faulty or illegible markings. Each wooden case /crate /corrugated box shall have all the markings stenciled on it in indelible ink.
- (v) The Manufacturer shall provide instructions regarding handling and storage precautions to be taken at site.

15. GUARANTEE

The Manufacturer of insulators shall guarantee overall satisfactory performance of the insulators. The manufacturer shall furnish as per Annexure-XII all the guaranteed technical particulars.

11KV AIR BREAK SWITCHES

This specification provides for manufacture, testing at works and supply of 11KV AB switches. The 11KV AB switches shall conform to IS: 9920 (Part-I to IV)

1. AB SWITCHES

The 11KV Air Break Switches are required with two poles in each phase. The AB Switches shall be supplied complete with phase coupling shaft, operating rod and operating handle. It shall be manually gang operated and vertically break and horizontal mounting type.

The equipment offered by the bidder shall be designed for a normal current rating of 200 Amps and for continuous service at the system voltage specified as under:

1	11 KV AB Switch	11 KV + 10%	Continuous 50 C/s solidly grounded earthed neutral system
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The length of break in the air shall not be less than 400 mm for 11KV AB Switches.

The 11KV AB Switches are required with post insulators. The AB switches should be suitable for mounting on the structure. The mounting structure will be arranged by the bidder. However, the

AB Switches shall be supplied with base channel for mounting on the structure which will be provided by the owner. The phase to phase spacing shall be 750mm in case of 11KV AB Switches.

2. POST INSULATORS

The complete set of three phase AB Switches shall have stacks of post insulators.

11KV AB Switches : 3 No. 11KV Post Insulator per stack

The post insulators should conform to the latest applicable Indian standards IS: 2544 Specification for Porcelain Post insulator of compact solid core or long rod insulators are also acceptable. Creepage distance should be adequate for highly polluted outdoor atmosphere in open atmosphere. The porcelain used for manufacture of AB Switches should be homogeneous free from flaws or imperfections that might affect the mechanical dielectric quality. They shall be thoroughly vitrified, tough and impervious to moisture. The glazing of the porcelain shall be of uniform brown in colour, free from blisters, burns and other similar defects. Insulators of the same rating and type shall be interchangeable.

The porcelain and metal parts shall be assembled in such a manner that any thermal expansion differential between the metal and porcelain parts through the range of temperature variation shall not loose the parts or create undue internal stresses which may affect the electrical or mechanical strength. Cap and base of the insulators shall be interchangeable with each other. The cap and base shall be properly cemented with insulators to give perfect grip. Excess cementing must be avoided.

Each 11KV Post Insulators should have technical particulars as detailed below:

S. No.	Particulars	11 kV
i	Nominal system voltage kV (rms)	11
ii	Highest system voltage kV (rms.)	12
iii	Dry Power Frequency one kV minute withstand voltage (rms) in KV	35
iv	Wet Power frequency one minute withstand voltage (rms) in KV	35
V	Power Frequency puncture kV (rms) voltage	1.3 times the actual dry flash over voltage of the unit.
vi	Impulse withstand voltage kV (Peak)	75
vii	Visible discharge voltage kV (rms)	9
viii	Creepage distance in mm (minimum)	320

The rated insulation level of the AB Switches shall not be lower than the values specified below:

S. No.	Standard declared voltage KV/RMS	Rated Voltage of the AB Switches	Standard impulse withstand voltage (positive & negative polarity kV (Peak)	One Minute power frequency withstand voltage kV (rms)

			Across the Isolating distance	To earth & between poles	Across the Isolating distance	To earth & between poles
i	11KV	12KV	85KV	75KV	32KV	28KV

3. TEMPERATURE RISE

The maximum temperature attained by any part of the equipment when in service at site under continuous full load conditions and exposed to the direct rays of Sun shall not exceed 45 degree above ambient.

4. MAIN CONTACTS

AB Switches shall have heavy duty self-aligning type contacts made of hard drawn electrolytic copper/brass. The various parts should be accordingly finished to ensure interchangeability of similar components. The moving contacts of the switch shall be made from hard drawn electrolytic copper brass. This contact shall have dimensions as per drawing attached so as to withstand safely the highest short-circuit currents and over voltage that may be encountered during service. The surface of the contact shall be rounded smooth and silver-plated. In nut shell the male and female contact assemblies shall ensure.

- (i) Electro-dynamic withstands ability during short circuits without any risk of repulsion of contacts.
- (ii) Thermal withstands ability during short circuits.
- (iii) Constant contact pressure even when the lower parts of the insulator stacks are subjected to tensile stresses due to linear expansion of connected bus bar of flexible conductors either because of temperature variations or strong winds.
- (iv) Wiping action during closing and opening.
- (v) Fault alignment assuring closing of the switch without minute adjustments.

5. CONNECTORS

The connectors shall be made of hard drawn electrolytic copper or brass suitable for Raccoon/Dog ACSR conductor for 11KV AB Switches. The connector should be 4 -bolt type.

6. OPERATING MECHANISM

All AB Switches shall have separate independent manual operation. They should be provided with ON/OFF indicators and padlocking arrangements for locking in both the end positions to avoid unintentional operation. The isolating distances should also be visible for the AB Switches.

The AB Switch will be supplied with following accessories:

S. No.	Item	Size of 11KV AB Switch
i	Operating Rod (GI dia) ISI mark	Length 5.50 meter dia: 25MM
ii	Phase coupling square rod (GI) ISI mark	Length 1800 mm

		Size 25x25 mm
iii	Hot dip galvanized Operating handle (GI)	1 No.

The AB Switches shall be capable to resist any chance of opening out when in closed position. The operating Mechanism should be of robust constructions, easy to operate by single person and to be located conveniently for local operation in the switchyard. The GI pipe shall conform to ('B' class or Medium class Blue strip) ISS: 1239-68 and ISI marked by embossing. The vertical down rod should be provided with adequate joint in the mid section to avoid bending or buckling. Additional leverage should be provided to maintain mechanical force with minimum efforts.

All iron parts should be hot dip galvanized as per IS 4759-1979 and zinc coating shall not be less than 610 gm/sq. meter. All brass parts should be silver plated and all nuts and bolts should be hot dip galvanized.

7. ARCING HORNS

It shall be simple and replaceable type. They should be capable of interrupting line-charging current. They shall be of first make and after break type.

8. BUSH

The design and construction of bush shall embody all the features required to withstand climatic conditions specified so as to ensure dependable and effective operations specified even after long periods of inaction of these Air Break Switches. They shall be made from highly polished Bronze metal with adequate provision for periodic lubrication through nipples and vent.

9. DESIGN, MATERIALS AND WORKMANSHIP

All materials used in the construction of the equipment shall be of the appropriate class, well finished and of approved design and material. All similar parts should be accurately finished and interchangeable.

Special attention shall be paid to tropical treatment to all the equipment, as it will be subjected during service to extremely severe exposure to atmospheric moisture and to long period of high ambient temperature. All current carrying parts shall be of non-ferrous metal or alloys and shall be designed to limit sharp points/edges and similar sharp faces.

The firm should have the following type test certificate. The type test should be from CPRI or equivalent lab:

- Test to prove capability of rated peak short circuit current and the rated short time current. The rated short time current should correspond to minimum of 10K Amp and the peak short circuit current should correspond to minimum of 25K Amps.
- Lightning impulse voltage test with positive & negative polarity.
- Power Frequency voltage dry test and wet test
- Temperature rise test
- Millivolt drop test

The above tests should be performed on the AB Switches, manufactured as per owner approved drawing with the specification. Along with the type test certificate, the certified copy of the drawing

(from the testing lab) should also be kept for inspection of our officer. Also the test certificates should not be older than 5 years from the date of opening of tender.

Dimension of 11KV AB Switches in (Max.) Tolerance 5%

S. No.	Particulars	11KV AB Switch
i	MS Channel	450x75x40
ii	Creepage distance of Post Insulator	320mm (Min)
iii	Highest of Port shell	254 mm

Fixed contact assembly

i	Base	165x36x8
ii	Contact	70x30x6
iii	GI cover	110x44
iv	Spring	6 Nos.

Moving Contact Assembly

i	Base Assembly	135x25x8
ii	Moving	180x25x9
iii	Bush	Bronze Metal
iv	Thickness of Grooves	7

Connectors

i	Connector	60x50x8 (Moving & fix both)
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The bidder should provide AB Switches with terminal connectors, set of insulators, mechanical inter works and arcing horns sets. The base channel for the mounting of AB Switches shall also be included in the scope of AB Switches. The operating mechanisms together with down pipe operating handle etc. are also included in the scope of supply.

11 KV DROP OUT FUSE CUT OUTS

This specification covers outdoor, open, drop-out expulsion type Fuse Cut outs suitable for installation in 50 Hz, 11 KV distribution system.

1. APPLICATION

The distribution fuse cut outs are intended for use in distribution transformers and have no inherent load break capacity.

2. APPLICABLE STANDARD

Unless otherwise modified in this specification, the cut out shall conform to IS:9385 (Part-I to III) as amended from time to time.

3. RATED VOLTAGE

The rated voltage shall be 12 KV.

4. RATED CURRENT

The rated current shall be 100 A.

5. RATED LIGHTNING IMPULSE WITHSTAND VOLTAGE VALUES FOR THE FUSE BASE

The rated lightning impulse withstand voltages both for positive and negative polarities shall be as given below:

- a) To earth and between poles 75 KV (Peak)
- b) Across the isolating distance of fuse base 85 KV (Peak)

6. RATED ONE MINUTE POWER FREQUENCY WITHSTAND VOLTAGE (DRY & WET) VALUES FOR THE FUSE BASE

- a) To earth and between poles 28 KV (rms)
- b) Across the isolating distance 32 KV (rms)

7. TEMPERATURE RISE LIMIT (In Air)

a)	Copper contacts silver faced	65°C
b)	Terminals	50°C
c)	Metal parts acting as springs.	The temp. shall not reach such a value that elasticity of metal is changed

8. RATED BREAKING CAPACITY

The rated breaking capacity shall be 8 KA (Asymmetrical).

9. GENERAL REQUIREMENTS/CONSTRUCTIONAL DETAILS

- (i) The cutouts shall be of single vent type (downward) having a front connected fuse carrier suitable for angle mounting.
- (ii) All ferrous parts shall be hot dip galvanised in accordance with the latest version of IS:2633. Nuts and bolts shall conform to IS:1364. Spring washers shall be electro-galvanised.
- (iii) Typical constructional details of the fuse cutout are shown in Fig. 1

10. FUSE BASE TOP ASSEMBLY

- (i) The top current carrying parts shall be made of a highly conductive copper alloy and the contact portion shall be silver plated for corrosion resistance and efficient current flow. The contact shall have a socket cavity for latching and holding firmly the fuse carrier until the fault interruption is completed within the fuse.
- (ii) The top contact shall be actuated by a strong steel spring which keeps it under sufficient pressure to maintain a firm contact with the fuse carrier during all operating conditions. The spring shall also provide flexibility and absorbs most of the stresses when the fuse carrier is pushed into the closing position.
- (iii) The current carrying parts of the assembly shall be protected from water and dust formation by a stainless steel top cover.
- (iv) The top contact assembly shall have a robust galvanized steel hook to align and guide the fuse carrier into the socket latch even when the fuse carrier is closed at an off-centre angle.
- (v) The top assembly shall have an aluminum alloy terminal connector (refer clause 19).
- (vi) The top assembly shall be robust enough to absorb bulk of the forces during the fuse carrier closing and opening operations and shall not over-stress the spring contact. It shall also prohibit accidental opening of the fuse carrier due to vibrations or impact.

11. FUSE BASE BOTTOM ASSEMBLY

- (i) The conducting parts shall be made of high strength highly conductive copper alloy and the contact portion shall be silver plated for corrosion resistance and shall provide a low resistance current path from the bottom fuse carrier contacts to the bottom terminal connector.
- (ii) The bottom assembly shall have hinge contacts made from highly conductive, anti-corrosive copper alloy and shall accommodate and make a firm contact with the fuse carrier bottom assembly. The fuse carrier shall be placed easily in or lifted from the hinges without any maneuvering. In addition, the bottom assembly shall perform the following functions:
 - When opened manually or after fault interruption the fuse carrier shall swing through 180° to the vertical and its further travel shall be prevented by the fuse base bottom assembly.
 - The fuse carrier shall be prevented from slipping out of the self-locking hinges during all operating conditions and only when the fuse carrier has reached its fully open position can it be removed from the hinge support.
- (iii) The assembly shall have an aluminium alloy terminal connector (refer clause 18).

12. FUSE CARRIER TOP ASSEMBLY

- (i) The fuse carrier top contact shall have a solid replaceable cap made from highly conductive, anti-corrosive copper alloy and the contact portion shall be silver plated to provide a low resistance current path from the Fuse Base Top Contact to the Fuse Link. It shall make a firm contact with the button head of the fuse link and shall provide a protective enclosure to the fuse link to check spreading of arc during fault interruptions.
- (ii) The fuse carrier shall be provided with a cast bronze opening eye (pull ring) suitable for operation with a hook stick from the ground level to pull-out or close-in the fuse carrier by manual operation.

13. FUSE CARRIER BOTTOM ASSEMBLY

- (i) The fuse carrier bottom assembly shall be made of bronze castings with silver plating at the contact points to efficiently transfer current to fuse base. It shall make smooth contact with the fuse base bottom assembly during closing operation.
- (ii) The bottom assembly shall have a lifting eye for the hook stick for removing or replacing the fuse carrier.
- (iii) The bottom assembly shall have a suitable ejector which shall perform the following functions:
 - It shall keep the fuse link in the centre of fuse tube and keep it tensioned under all operating conditions.

- It shall be capable of absorbing the shock when the fuse carrier is pushed into the closed position and shall not allow the fuse link to be damaged. This is especially important when the fuse link is of low-ampere rating.
- The ejector at the instant of interruption shall retain the fuse carrier in the closed position long enough to ensure that the arc is extinguished within the fuse tube thereby excluding the possibility of arcing and subsequent damage at the contact surfaces.
- The ejector shall help the fuse link separation after fault interruption, allowing the fuse carrier to drop out and clearing the pigtail of the blown fuse link through the bore of fuse tube.

14. FUSE BASE (PORCELAIN)

The fuse base shall be a bird-proof, single unit porcelain insulator with a creepage distance (to earth) not less than 320mm. The top and bottom assemblies as also the middle clamping hardware shall be either embedded in the porcelain insulator with sulphur cement or suitably clamped in position. For embedded components, the pull out strength should be such as to result in breaking of the porcelain before pull out occurs in a test. For porcelain insulators, the beam strength shall not be less than 1000 Kg.

15. FUSE TUBE

The fuse tube shall be made of fibre glass coated with ultraviolet inhibitor on the outer surface and having arc quenching bone fibre liner inside. The tube shall have high bursting strength to sustain high pressure of the gases during fault interruption. The inside diameter of the fuse tube shall be 17.5mm. The solid cap of the fuse carrier shall clamp the button head of the fuse link, closing the top end of the fuse tube and allowing only the downward venting during fault interruption.

16. TYPE TESTS

The cutout shall be subjected to the following type tests:

- Dielectric tests (rated impulse withstands and rated one minute power frequency with stand test voltages)
- Temperature rise test

The above tests shall be carried out in accordance with IS:9385 Part I & II.

For Porcelain Fuse Base only.

- Pull out test for embedded components of the fuse base
- Beam strength of porcelain base

17. MOUNTING ARRANGEMENT

- (i) The cutouts shall be provided with a suitable arrangement for mounting these on 75x40mm or 100x50mm channel cross arm in such a way that the centre line of the fuse base is at an angle of 15° to 20° from the vertical and shall provide the necessary clearances from the support. Mounting arrangement shall be made of high strength galvanised steel flat and shall be robust enough to sustain the various stresses encountered during all operating conditions of the cutout. For more details, see enclosed figure 2.
- (ii) Strength of the component marked 1 (see figure) shall be determined by clamping the member with the shorter leg at the top to a rigid support by M-10 carriage bolts. A downward force shall

be applied along the axis of M-14 carriage bolt parallel to the longer leg and in the direction of longer leg of the member under test. A load of 50 Kg. shall be applied and then removed to take up any slack in the mounting arrangement before the measurement of position is taken, the permanent set measured at the axis of the M-14 carriage bolt shall not exceed 1.6mm when a load of 425 Kg is applied and removed.

- (iii) The strength of the M-14 bolt shall in no case be less than 1900 Kg and the strength of M-10 bolts not less than 3500 Kg.

18. TERMINAL CONNECTIONS

The cut-out shall be provided with two aluminium alloy (alloy designation 2280 (A-11) as per IS:617-1975) terminal connectors at top and bottom of fuse base assemblies to receive aluminium conductors of diameters between 6.3mm to 10.05mm. These terminals shall be easily accessible irrespective of the cut-out location with respect to the pole. The terminals shall meet the test requirements of REC Construction Standard.

19. INSPECTION

All tests and inspection shall be made at the place of manufacture unless otherwise especially agreed upon by the manufacturer and the purchaser at the time to purchase. The manufacturer shall afford the inspector representing the purchaser all reasonable facilities without charge, to satisfy him that the material is being furnished in accordance with this specification.

The purchaser has the right to have the tests carried out at his own cost by an independent agency whenever there is dispute regarding the quality of supply.

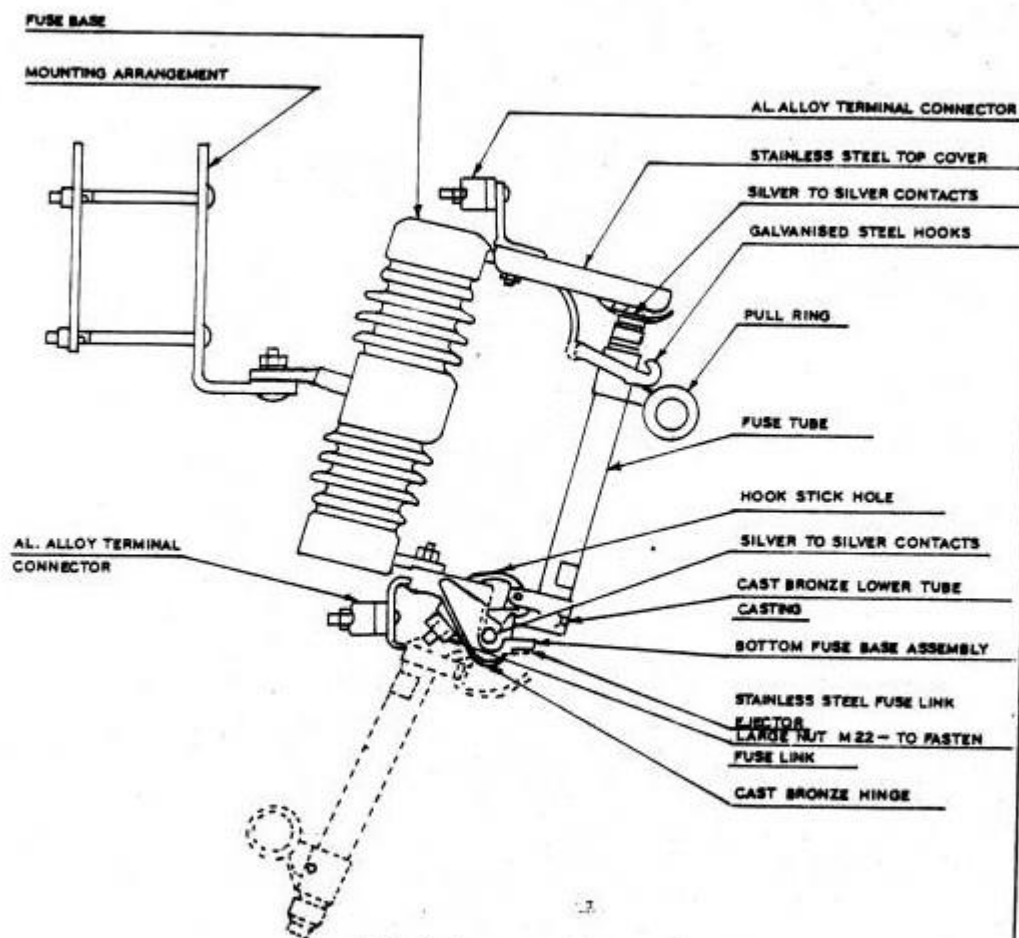


FIG. :- 1

११ के. वी. फ्यूज कट-आउट का प्रारूपिक निर्माण विवरण

TYPICAL CONSTRUCTIONAL DETAILS OF 11KV
FUSE CUT-OUT

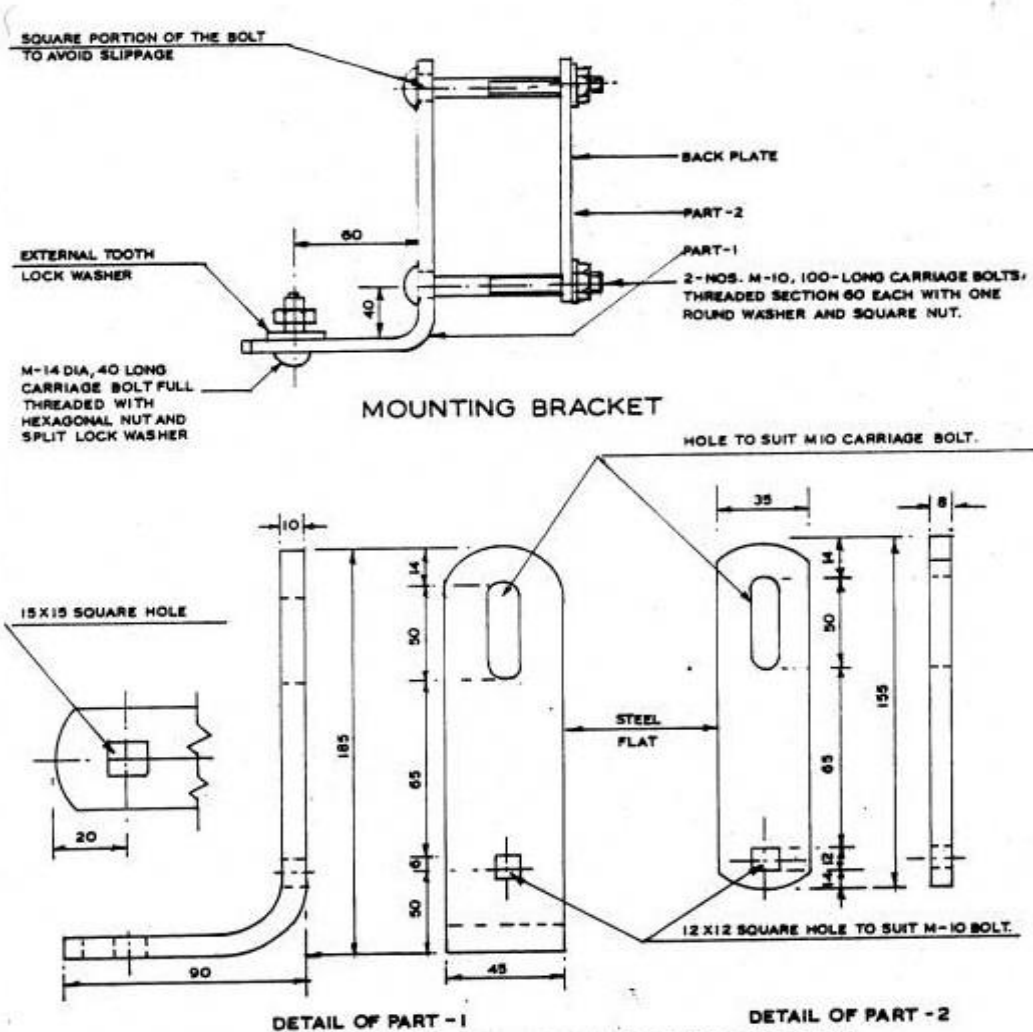


FIG.2:- MOUNTING DETAILS OF 11KV FUSE CUTOUT

ALL DIMENSIONS ARE IN MM.

११ के.वी. ड्रॉप-आउट फ्यूज कटआउट 11KV DROP-OUT FUSE CUTOUT	
SCALE :- N.T.S	JULY, 1987

11kV STATION CLASS SURGE ARRESTORS

This section covers the specification of 11kV voltage station Surge Arrestors for installation on outdoor type 11kV switchgear, transmission lines, transformers etc. 11kV side of which is not enclosed in a cable box. Station class surge arrestors shall be complete with fasteners for stacking units.

1. STANDARDS

The design, manufacture and performance of Surge Arrestors shall comply with IS: 3070 Part-3 and other specific requirements stipulated in the specification. Unless otherwise specified, the equipment, material & processes shall conform to the latest amendments of the following:

IS:2071-1993 (Part-1)	Methods of High Voltage Testing General Definitions & Test Requirements.
IS:2071-1974 (Part-2)	Test Procedures.
IS: 2629-1985	Recommended Practice for hot dip galvanizing on Iron & Steel.
IS: 2633-1986	Method for Testing uniformity of coating of zinc coated Articles.
IS:3070-1993 (Part – 3)	Specification for surge arrestor for alternating current systems. Metal-Oxide lightning Arrestors without gaps.
IS: 4759-1996	Specification for hot dip zinc coating on structural steel and other allied products.
IS: 5621-1980	Hollow Insulators for use in Electrical Equipment.
IS: 6209-1982	Methods of Partial discharge measurement.
IS: 6745	Method for determination of mass of zinc coating on zinc coated iron and steel articles.
ANSI/IEEE-C.62.11	Metal oxide, Surge Arrestor for AC Power Circuits.
IEC –60099-4	Surge Arrestors.

The equipment complying with any other internationally accepted standards shall also be considered if it ensures performance equivalent to or superior to the Indian Standards.

2. GENERAL REQUIREMENT

- (i) The metal oxide gap less Surge Arrestor without any series or shunt gap shall be suitable for protection of 11 kV side of power transformers, associated equipment and 11kV lines from voltage surges resulting from natural disturbance like lightning as well as system disturbances.
- (ii) The surge arrestor shall draw negligible current at operating voltage and at the same time offer least resistance during the flow of surge current.
- (iii) The surge arrestor shall consist of non-linear resistor elements placed in series and housed in electrical grade porcelain housing / silicon polymeric of specified Creepage distance.
- (iv) The assembly shall be hermetically sealed with suitable rubber gaskets with effective sealing system arrangement to prevent ingress of moisture.

- (v) The surge arrestor shall be provided with line and earth terminals of suitable size. The ground side terminal of surge arrestor shall be connected with 25x6mm galvanized strip, one end connected to the surge arrestor and second end to a separate ground electrode. The bidder shall also recommend the procedure which shall be followed in providing the earthing system to the Surge Arrestor.
- (vi) The surge arrestor shall not operate under power frequency and temporary over voltage conditions but under surge conditions, the surge arrestor shall change over to the conducting mode.
- (vii) The surge arrestor shall be suitable for circuit breaker performing 0-0.3 min-CO-3 min-CO- duty in the system.
- (viii) Surge arrestors shall have a suitable pressure relief system to avoid damage to the porcelain/silicon polymeric housing and providing path for flow of rated fault currents in the event of arrestor failure.
- (ix) The reference current of the arrestor shall be high enough to eliminate the influence of grading and stray capacitance on the measured reference voltage.
- (x) The Surge Arrestor shall be thermally stable and the bidder shall furnish a copy of thermal stability test with the bid.
- (xi) The arrestor shall be capable of handling terminal energy for high surges, external pollution and transient over voltage and have low losses at operating voltages.
- (xii) The surge arrestor shall be provided with line and earth terminals of suitable size.

3. ARRESTOR HOUSING

- (i) The arrestor housing shall be made up of porcelain/silicon polymeric housing and shall be homogenous, free from laminations, cavities and other flaws of imperfections that might affect the mechanical and dielectric quality. The housing shall be of uniform brown (for porcelain)/Grey (for silicon polymeric) colour, free from blisters, burrs and other similar defects.
- (ii) Arrestors shall be complete with fasteners for stacking units together and terminal connectors.
- (iii) The housing shall be so coordinated that external flashover shall not occur due to application of any impulse or switching surge voltage upto the maximum design value for arrestor. The arrestors shall not fail due to contamination. The 11kV arrestors housing shall be designed for pressure relief class as given in Technical Parameters of the specification.
- (iv) Sealed housings shall exhibit no measurable leakage.

4. ARRESTOR MOUNTING

The arrestors shall be suitable for mounting on 4 pole/2 pole structure used for pole/plinth mounted transformer and for incoming and outgoing lines. Arrestor may also be required to be mounted on a bracket provided in the Transformers.

5. FITTINGS & ACCESSORIES

- (i) The surge arrestor shall be complete with fasteners and terminal connectors.
- (ii) The terminals shall be non-magnetic, corrosion proof, robust and of adequate size and shall be so located that incoming and outgoing connections are made with minimum possible bends. The top

metal cap and base of surge arrestor shall be galvanized. The line terminal shall have a built in clamping device which can be adjusted for both horizontal and vertical takeoff.

6. TESTS

(i) Test on Surge Arrestors

The Surge Arrestors offered shall be type tested and shall be subjected to routine and acceptance tests in accordance with IS: 3070 (Part-3)-/IEC:600994. In addition, the suitability of the surge arresters shall also be established for the followings.

a) Acceptance tests

- Measurement of power frequency reference voltage of arrester units.
- Lightning impulse residual voltage on arrester units (IEC clause 6.3.2)
- Internal ionization or partial discharge test

b) Special Acceptance tests

- Thermal stability test (IEC clause 7.2.2)
- Watt loss test.

c) Routine tests

- Measurement of reference voltage
- Residual voltage test of arrester unit
- Internal ionization or partial discharge test
- Sealing test
- Verticality check on completely assembled surge arresters as a sample test on each lot if applicable.

(ii) Type Tests

Following shall be type test as per IS 3070 (Part 3): 1993 or its latest amendment

1.	Insulation Withstand test a) Lightning Impulse b) Power Frequency (Dry/Wet)
2.	Residual Voltage Test a) Steep current impulse residual voltage test b) Lightning impulse residual voltage test
3.	Long duration current impulse withstand test
4.	Switching surge operating duty test
5.	Power frequency voltage Vs. Time characteristics
6.	Accelerated Ageing test

7.	Pressure relief test a) High Current b) Low Current
8.	Artificial pollution test (for porcelain housing)
9.	Seismic Test
10.	Partial Discharge test
11.	Bending test
12.	a) Temperature cycle test (for porcelain housing) b) Porosity test (for porcelain housing)
13.	Galvanizing test on metal parts
14.	Seal Leakage test (for porcelain housing)
15.	Seal leak test and operation tests (for surge monitor)
16.	Weather ageing test (for polymer housing)

- (iii) The maximum residual voltages corresponding to nominal discharge current of 10 kA for steep current, impulse residual voltage test, lightning impulse protection level and switching impulse level shall generally conform to Annex-K of IEC-99-4.
- (iv) The contractor shall furnish the copies of the type tests and the characteristics curves between the residual voltage and nominal discharge current of the offered surge arrestor and power frequency voltage v/s time characteristic of the surge arrestor subsequent to impulse energy consumption as per clause 6.6 of IS:3070 (Part-3) offered before start of production.
- (v) The surge arrestor housing shall also be type tested and shall be subjected to routine and acceptance tests in accordance with IS :5621.
- (vi) **GALVANIZATION TEST**
All Ferrous parts exposed to atmospheric condition shall have passed the type tests and be subjected to routine and acceptance tests in accordance with IS:2633 & IS:6745.

7. NAME PLATE

- (i) The name plate attached to the arrestor shall carry the following information:
 - Rated Voltage
 - Continuous Operation Voltage
 - Normal discharge current
 - Pressure relief rated current

- Manufacturers Trade Mark
- Name of Sub-station
- Year of Manufacturer
- Name of the manufacture
- Name of Client
- Purchase Order Number along with date

8. DRAWINGS AND INSTRUCTION MANUALS

Within 15 days of receipt of the order, the successful tenderer shall furnish to the purchaser, the following drawings and literature for approval:

- (i) Outline dimensional drawings of Surge Arrestor and all accessories.
- (ii) Assembly drawings and weights of main component parts.
- (iii) Drawings of terminal clamps.
- (iv) Arrangement of earthing lead.
- (v) Minimum air clearance to be maintained of line components to ground.
- (vi) Name plate
- (vii) Surge monitor, if applicable.
- (viii) Instructions manual
- (ix) Drawing showing details of pressure relief valve
- (x) Volt-time characteristics of surge arrestors
- (xi) Detailed dimensional drawing of porcelain housing/Silicon polymeric i.e. internal diameter, external diameter, thickness, height, profile, creepage distance, dry arcing distance etc.

9. TECHNICAL PARTICULARS

The surge arrestors shall conform to the following standard technical requirements. The Insulation values shall be enhanced considering the altitude of operation & other atmospheric conditions.

(i) System Parameters

i)	Nominal system voltage	11kV
ii)	Highest system voltage	12 kV
iii)	System earthing	Effectively earthed system
iv)	Frequency (Hz)	50
v)	Lightning Impulse withstand	75 Voltage (kVP)
vi)	Power frequency withstand	28 Voltage (kV rms)
vii)	Arrestor duty	
	a) Connection to system	Phase to earth
	b) Type of equipment to be protected	transformers & switchgear

(ii) **Surge Arrestors**

i)	Type	Gapless Metal oxide outdoor
ii)	Arrestor rating (kV rms)	9
iii)	Continuous Operating voltage	7.65 (kV rms)
iv)	Standard Nominal Discharge Current	10 Rating (kA) (8x20 micro impulse shape)
v)	Degree of protection	IP 67
vi)	Line discharge Class	2
vii)	Steep current at 10 kA	45
viii)	Lightning Impulse at 10 kA	40
ix)	Energy capability corresponding to	
a)	Arrestor rating (kj/kV)	4.5
b)	COV (kj/kV)	4.9
x)	Peak current for high current impulse operating duty of Standard TS for arrestor classification 10 kA	100

(iii) **INSULATOR HOUSING**

a)	Power frequency withstand test voltage (Wet) (kV rms)	28
b)	Lightning impulse withstand/tests voltage (kVp)	75

(iv) **GALVANIZATION**

a)	Fabricated Steel Articles	
	5 mm thick cover	610 g/m ²
	Under 5 mm but not less than 2 mm thickness	460 g/ m ²
	Under 2 mm but not less than 1.2 mm thickness	340 g/ m ²
b)	Castings	
	Grey Iron, malleable iron	610 g/ m ²
c)	Threaded works other than tubes & tube fittings	
	Under 10 mm dia.	270 g/ m ²
	10 mm dia. & above	300 g/ m ²

NOTE: 1. Surge Monitor shall have to be provided if covered in BPS.

2. Technical specifications of all other materials mentioned in table at Section -4, A, will be as per latest IS specifications.

20. QUALITY ASSURANCE PLAN:

- (i) The bidder shall invariably furnish following information along with his bid, failing which his bid shall be liable for rejection. Information shall be separately given for individual type of material offered.
- (ii) Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials in presence of bidder's representative and copies of test certificates.
- (iii) Information and copies of test certificates as above in respect of bought out accessories.
- (iv) List of manufacturing facilities available.
- (v) Level of automation achieved and list of areas where manual processing exists.
- (vi) List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.
- (vii) List of testing equipment available with the bidder for final testing of equipment along with valid calibration reports shall be furnished with the bid. Manufacturer shall possess 0.1 accuracy class instruments for measurement of losses.
- (viii) Quality assurance plan with hold points for purchaser's inspection.
- (ix) The successful bidder shall within 30 days of placement of order, submit following information to the purchaser.
- (x) List of raw materials as well as bought out accessories and the names of sub-suppliers selected from those furnished along with offer.
- (xi) Type test certificates of the raw materials and bought out accessories.
- (xii) The successful bidder shall submit the routine test certificates of bought out accessories and central excise passes for raw material at the time of routine testing.
- (xiii) ISI marking on the transformer is mandatory. As per Quality Control Order for Electrical Transformers- 2015, issued by Dept. of Heavy Industries, the Standard / ISI marking on Distribution Transformers is mandatory and the product should be manufactured in compliance with IS:1180 Part-1:(2014).

21. DOCUMENTATION:

- (i) The bidder shall furnish along with the bid the dimensional drawings of the items offered indicating all the fittings.
- (ii) Dimensional tolerances.
- (iii) Weight of individual components and total weight.
- (iv) An outline drawing front (both primary and secondary sides) and end-elevation and plan of the tank and terminal gear, where in the principal dimensions shall be given.
- (v) Typical general arrangement drawings of the windings with the details of the insulation at each point and core construction of transformer.
- (vi) Typical general arrangement drawing showing both primary and secondary sides and end-elevation and plan of the transformer.

22. PACKING & FORWARDING:

- (i) The packing shall be done as per the manufacturer's standard practice. However, he should ensure the packing is such that, the material should not get damaged during transit by rail/road.
- (ii) The marking on each package shall be as per the relevant IS.

23. GUARANTEE:

- (i) The manufacturers shall provide a guarantee of 60 months from the date of receipt of materials at

the stores of the respective DISCOM/ Power Department. In case the material fails within the guarantee period, the supplier will depute his representative within 15 days from date of intimation by respective DISCOM/ Power Department for joint inspection. In case, the failure is due to the reasons attributed to supplier, the material will be replaced/ repaired by the supplier within 2 months from date of joint inspection.

- (ii) The outage period i.e. period from the date of failure till unit is repaired/replaced shall not be counted for arriving at the guarantee period.
- (iii) In the event of the supplier's inability to adhere to the afore said provisions, suitable penal action will be taken against the supplier, which may interalia include blacklisting of the firm for future business with the purchaser for a certain period.

24. **SCHEDULES:** The bidder shall fill in the following schedules as provided in Annexure-XIII which will be part of the offer. If the schedule are not submitted duly filled in with the offer, the offer shall be liable for rejection.

Schedule-A : Guaranteed Technical Particulars

Schedule-B : Schedule of Deviations

25. **DEVIATIONS:**

- (i) The bidders are not allowed to deviate from the principal requirements of the Specifications. However, the bidder is required to submit with his bid in the relevant schedule a detailed list of all deviations without any ambiguity. In the absence of a deviation list in the deviation schedules, it is understood that such bid conforms to the bid specifications and no post-bid negotiations shall take place in this regard.
- (ii) 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 shall not be entertained.
- (iii) 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.
- (iv) All the schedules shall be prepared by vendor and are to be enclosed with the bid.

Note: Bidder shall submit General Technical Particulars (GTP) of materials being offered in the bid as per Annexure-XII along with a valid type test reports for the same design from CPRI/ERDA/NABL accredited laboratory not older than 5 (Five) years and shall be valid at the time of inspection and supply of materials.

B. Conditions of Contract:

1. Sanctioned Period:

- I. Total sanctioned period for complete design, engineering, manufacture, testing of materials as per Scope of Work including transportation & insurance up to sub-divisional headquarters of Namsai District in Arunachal Pradesh in **15 days** from the date of issuance of Letter of Intent/Purchase Order
- II. The Bidder will submit delivery schedule of single phase and three phase distribution transformers in suitable lots along with Technical Bid in compliance with Point-I above. This will be effective subject to approval by RECPDCL.

However, RECPDCL reserves right to modify above schedule on case to case basis as per requirement of the project at its sole discretion.

2. **Insurance:** The bidder shall be responsible and take an Insurance Policy for transit for all the materials to cover all risks and liabilities for supply of materials up to destination stores. Being a difficult terrain and assignment it is desirable that a copy of insurance may be submitted to RECPDCL.
3. **Type & Quality of Materials and Workmanship:** The design, engineering, manufacture, supply, testing and performance of material shall be in accordance with latest appropriate IEC/Indian Standards as detailed in this section above. Any supplies which have not been specifically mentioned in this tender but which are necessary for the design, engineering, manufacture, supply & performance/ completeness of single phase & three phase distribution transformers shall be provided by the bidder without any extra cost and within the time schedule for efficient and smooth operation and maintenance of the system.
4. **Warranty Period:** The bidder shall guarantee the materials/ items supplied against any defect of failure, which arise due to faulty materials, workmanship or design for the entire warranty period. The warranty period shall be 18 months from the date of delivery. Warranty shall be on-site comprehensive. Bidder shall provide a warranty certificate to this effect. If during the warranty period any materials / items are found to be defective, these shall be replaced or rectified by the bidder at his own cost within 45 days from the date of receipt of such intimation from RECPDCL. In case, bidder fails to replace/rectify the defective materials, RECPDCL reserves right to purchase/rectify such materials/ items from any third party at the cost of bidder. The expenditure so incurred shall be deducted from the Bidder's pending claims, security/ performance guarantee deposit or in other lawful manner by RECPDCL.
5. **Coordination & Report:** Bidder shall inform the name, address, contact number of the Nodal Officer(s), assigned by the agency for this work, who will report about their weekly/ fortnightly progress & performance of the assignment. In case, absence of any information is adversely affecting the progress of work, the issue could be escalated to Addl. CEO, RECPDCL. Bidder shall submit the progress report weekly/ fortnightly to RECPDCL in Prescribed Performa as desired. RECPDCL will have the right to depute its representatives to ascertain the progress of supply at the premises of works of the bidder or at site.

In addition to this, bidder should also provide contact details and email id of Management & key Officials of the company.

6. Inspection & Testing:

- The bidder shall comply with the testing requirements as mentioned in Part-A of this section. These tests shall be conducted at no extra cost to the RECPDCL.
- The inspections and tests shall be conducted at the manufacturing unit of the Bidder or its sub-supplier(s), at point of delivery and/or at the Goods final destination. If conducted at the manufacturing unit of the Bidder or its sub-supplier(s), all reasonable facilities and assistance, including access to drawings and production data - shall be furnished to the inspectors at no cost to the RECPDCL.
- Pre dispatch inspection shall be carried out on sampling basis (10% or as specified in applicable Indian Standard) by authorized representative of RECPDCL.
- Should any inspected or tested Goods fail to conform to the specifications, the RECPDCL may reject the goods and the Bidder shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the RECPDCL.

- The RECPDCL's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the RECPDCL or its representative prior to the Goods shipment.
- Nothing in this shall in any way release the Bidder from any warranty/guarantee or other obligations under this Contract.

Note:

1. **Materials may be inspected jointly by REPDCL/REC/DISCOM/Power Department or by RECPDCL alone as the case may be, for which a notice of minimum 5 working days shall be given by the supplier.**
2. **If there is any item(s) for which technical specifications have been mentioned in the Scope of Work, but not included in the Bill of Quantity (BOQ)/Financial Bid, such item(s) shall be included in the financial bid in the event of requirement arises later on.**
3. **Note: Specification of any item not mentioned in NIT, the same shall be as per relevant BIS/ IS/IEC standards/ as per latest or approved practices of DISCOM.**
4. **Bidder should submit GTP as per attached Annexures as per applicable IS & prevailing industry practices. However RECPDCL reserve right to finalize GTP as per requirement of project/DISCOM and may provide the same at the time of issuance of LoA if desired so.**
5. **Note: Bidder shall submit General Technical Particulars (GTP) of materials being offered in the bid as per Annexure-XII along with a valid type test reports for the same design from CPRI/ERDA/NABL accredited laboratory not older than 5 (Five) years and shall be valid at the time of inspection and supply of materials.**

SECTION-V

COMMERCIAL TERMS, CONDITIONS & OTHER PROVISIONS

1. PRICE:

- 1.1 Price should be quoted as per format of Annexure-X which must be inclusive of all costs involved in the supply contract i.e. complete design, engineering, manufacture, testing and supply and supply 11kV Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items with other materials as mentioned in including transportation & insurance up to sub-divisional headquarter in Namsai District in Arunachal Pradesh and all applicable taxes and duties of Central & State Governments etc.
- 1.2 If it is found that the tax quoted is higher than the applicable tax, in that case actual applicable taxes will only be paid by RECPDCL and if the tax quoted is lower than the applicable tax, in that case only the quoted taxes will be paid by the RECPDCL.
- 1.3 Bidder shall ensure timely payment of all taxes as per Income Tax & GST rules of Central & State Governments.
- 1.4 TDS will be deducted from the payment of the Bidder as per the prevalent laws and rules of Central & State Governments as the case may be.
- 1.5 Price quoted by the bidder shall remain firm & fixed and shall be binding on the Successful Bidder till completion of warranty period irrespective of actual cost of supply. No escalation/price variation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever.
- 1.6 The offer must be kept valid for a period of 180 days from the last date of bid submission. No escalation clause would be accepted. The validity can be further extended with mutual consent.
- 1.7 Bids with non-conformity to above will be considered as non-responsive

2. EARNEST MONEY DEPOSIT (EMD):

- 2.1 The Bidder shall furnish Earnest Money Deposit of Rs. 50,000/- (Rupees Fifty Thousand only) in the form of Demand Draft/ Bank Guarantee (BG) from a scheduled bank (as per Annexure-V) drawn in favour of REC Power Distribution Company Ltd.' payable at New Delhi.
- 2.2 In case of inadequacy or non-submission of EMD amount, the submitted bid shall be deemed to be disqualified and summarily rejected in the technical evaluation.
- 2.3 The initial validity of EMD shall be for a period of 180 days from the last date of bid submission. The validity of EMD shall have to be suitably extended, if necessary, on request by RECPDCL, without which the tender/work order shall be rejected.
- 2.4 Request for adjustment of Earnest Money Deposit against any previous dues with RECPDCL will not be considered.
- 2.5 EMD will be refunded to the unsuccessful bidders within 30 days after finalization of the tender without any interest.
- 2.6 EMD of successful bidder will be returned after acceptance of Letter of Intent/ Purchase Order issued by RECPDCL and submission of required PBG.
- 2.7 MSMEs:

- (i) The firms registered with National Small Industries Corporation (NSIC)/ Micro, Small and Medium Enterprises (MSME) are exempted from furnishing bid guarantee/EMD, cost of tender documents provided that such small scale units are registered under single point registration scheme of NSIC / MSME and are valid on the scheduled date of tender opening and the product range mentioned in the certificate is the same or similar to the tender requirement. The NSIC / MSME certificate duly attested by any Notary Public with seal and date shall only be accepted.
 - (ii) The bidders claiming to be MSME and/or MSME-SC/ST and/or Start Ups and/or Domestically Manufactured Producer under Make in India initiatives etc., the relaxations and concessions as per Government of India notifications/ instructions/guidelines issued from time to time and as adopted/allowed by RECPDCL are allowed to same subject to submission and production of requisite documents/proofs etc.
 - (iii) In addition, RECPDCL reserves the right to verify/confirm all original documentary evidence including references and clients as submitted by bidders in support of above mentioned clauses of eligibility criteria.
 - (iv) Bidders claiming exemptions should enclose UAN and submit the same on tender portal and adhere to all Guidelines as issued and amended from time to time by Government of India.
- 2.8 EMD shall be forfeited without prejudice to the Bidder being liable for any further consequential loss or damage incurred to RECPDCL under following circumstances:
- a. Hundred percent (100%) of EMD amount, if a Bidder withdraws/revokes or cancels or unilaterally varies his bid in any manner during the period of bid validity specified in the tender document.
 - b. Hundred percent (100%) of EMD amount, if the Successful Bidder fails to unconditionally accept Letter of Intent/Purchase Order issued by RECPDCL within 3 days from the date of issuance of such Letter of Intent/Purchase Order.
 - c. Hundred percent (100%) of EMD amount, if the Successful Bidder fails to furnish PBG as specified in the tender document.

3. PERFORMANCE BANK GUARANTEE (PBG): The bidder need to submit unconditional & irrevocable Performance Bank Guarantee (PBG) as per Annexure-VII amounting to 10% of total contract value with a validity till completion of warranty period of 18 months plus 3 months' claim period. PBG shall be submitted within 10 days from the date of issuance of Letter of Intent/ Purchase Order. The PBG shall be forfeited as follows without prejudice to the Bidder being liable for any further consequential loss or damage incurred to RECPDCL:

- a. If the Supplier is not able to supply materials to the satisfaction of RECPDCL within sanctioned period, PBG amount submitted shall be forfeited.
- b. If the supplier does not fulfill its obligations as mentioned in the scope of work, PBG amount shall be forfeited.

PBG shall be returned to the bidder on successful completion of warranty period and fulfillment of all responsibilities by the Bidder as furnished in the tender.

4. DELIVERY: The materials must be delivered timely to sub-divisional headquarters of DISCOMs/ Power Departments in Namsai District so as to complete the work within sanctioned period. Materials must be delivered tentatively as per defined schedule or as per requirement of the project.

5. **PERMIT:** The Bidder will arrange for all necessary Permits to supply material as per Tender specified locations. Bidder should note that RECPDCL will not provide Form “C”/ “D”. For any additional Gol/ State Govt. Taxes/ Duties/ Levies etc., the Bidder shall produce original payment receipts for payments.
6. **QUANTITY:** Quantities of items as mentioned in the financial bid are indicative for evaluation purpose only and are not exhaustive. Quantities of items may vary up to +/- 20% of total quantity at same rate, term & conditions. However, RECPDCL reserves right to place order for sub-set or super-set of bill of materials mentioned in the financial bid as per requirement of the project.
7. **TAX EXEMPTIONS:** Bidder shall claim any kind of tax exemption on its own.
8. **LIQUIDATED DAMAGES:** For the delay in supply of materials, the Liquidated Damages (LD) @ 0.5% of the contract value per week or part thereof subject to the maximum of 10% of the contract value shall be deducted from bill of the supplier.
9. **SPLIT OF WORKS:** In view of targeted capacity and limited time available for completion of the task, RECPDCL reserves the right to increase / decrease / split of the work to three agencies (max.) at the sole discretion of the RECPDCL. Suitable amendment / communication shall be issued in the event of variations in quantities.
10. **PAYMENT TERMS:** All Payments shall be made in Indian Rupees only on pro-rata basis towards quantities of items dispatched/ delivered at designated location. Any payment shall be released only after submission of 10% of the purchase/work order value as bank guarantee by the Bidder valid for a period of three months after warranty and verification of the same from issuing bank.

Milestone No.	Milestone	Details of milestone	% payment
1	Advance Payment (On request of supplier, interest bearing adjustable initial advance of 10% shall be released to successful bidder. The annual interest rate shall be calculated based on SBI Base Rate as applicable from time to time.)	Requisites: 1. Submission of unconditional acceptance of LOA 2. Proforma invoice of supplier 3. Unconditional & irrevocable Advance Bank Guarantee as per Annexure-VI with a validity up to sanctioned delivery period plus 3 months' claim period in favor of RECPDCL amounting to 110% of total advance amount 4. Unconditional & irrevocable Performance Bank Guarantee (PBG) as per Annexure-VII for ten percent (10%) of the total Contract price towards Contract Performance with a validity till completion of warranty period of 18 months plus 3 months' claim period.	10% within 5 working days from receipt of eligible invoice along with necessary documents.
2	Dispatch of material from manufacturer's premises after receiving dispatch clearance from RECPDCL	Requisites: 1. Submission of documents except for Advance Bank Guarantee as indicated in milestone-1. 2. Proforma invoice of supplier 3. Material Dispatch Clearance Certificate 4. Evidence of dispatch (GR/LR copy) 5. Packing list identifying contents of each shipment 6. Copy of insurance 7. Warranty Certificate	30% within 5 working days from receipt of eligible invoice along with necessary documents.

		If supplier has opted for advance, the same shall be adjusted proportionately while making payments of this installment. Also, up-to-date accrued interest shall also be recovered.	
3	Receipt and acceptance of Materials at store of respective DISCOM/ Power Department	Requisites: 1. Proforma invoice of supplier 2. Material Receipt Note (MRN)/ Material handing over certificate duly signed by authorized representative of supplier, RECPDCL and respective DISCOM/ Power Department.	60% within 5 working days from receipt of eligible invoice along with necessary documents.
4	After completion of warranty period	Requisites: 1. Proforma invoice of supplier 2. Expiry of warranty period of 18 months from the date of delivery of material	10%
			100%

11. FORCE MAJEURE: Force majeure shall mean any cause, existing or future, which is beyond the reasonable control of Bidder or RECPDCL including, but not limited to, acts of God, storm, fire, floods, explosion, epidemics, quarantine, earthquake, strike, riot, lock out, embargo, interference by civil or military authorities, acts, regulations or orders of any governmental authority in their sovereign capacity, acts of war (declared or undeclared) including any acts of terrorism, and all other such acts of similar or analogous nature (where all such acts to be collectively referred to as "Force Majeure"). RECPDCL and Bidder shall not be liable for the failure to perform any obligation in terms of this Proposal if and to such extent such failure is caused by a Force Majeure, provided that none of such acts of Force Majeure will relieve the Customer from meeting its payment obligations.

12. SUCCESSORS & ASSIGNS: In case RECPDCL or successful bidder may undergo any merger or amalgamation or a scheme of arrangement or similar re-organization & this contract is assigned to any entity (ies) partly or wholly, the contract shall be binding mutatis mutandis upon the successor entities & shall continue to remain valid with respect to obligation of the successor entities.

13. INDEMNITY CLAUSE:

- (i) The bidder shall indemnify and hold harmless the RECPDCL and its employees and officers from and against any and all losses, liabilities, and costs (including losses, liabilities, and costs incurred in defending a claim alleging such a liability), that the RECPDCL or its employees or officers may suffer as a result of any infringement or alleged infringement of any Intellectual Property Rights patent, trademark/copyright or industrial design rights arising from the use of the supplied goods/ materials etc. and related services or any part thereof.
- (ii) Such indemnity shall not cover:
 - a) any use of supplied materials, other than for the purpose indicated by or to be reasonably inferred from the Contract,
 - b) any infringement resulting from the use of goods, products of the material produced thereby in association or combination with any other goods or services not supplied by the bidder,

where the infringement arises because of such association or combination and not because of use of the system in its own right.

- (iii) If any proceedings are brought or any claim is made against the RECPDCL arising out of the matters referred to in Clause (i), the RECPDCL shall promptly give the bidders notice of such proceedings or claims, the bidder shall have sole control on the conduct of such proceedings or claim and any negotiations for the settlement of any such proceedings or claim and the RECPDCL shall provide the bidder with the assistance, information, and authority reasonably necessary to perform the above.
- (iv) If the Goods/ Materials is held or is believed by the bidder to infringe, the bidder shall have the option, at its expense, to
 - a) modify the goods, including the Materials or the Bidder Property to be non-infringing,
 - b) obtain for the RECPDCL a license to continue using the goods/ Material, or
 - c) terminate the license for the infringing part and refund a pro rata portion of the fees paid for that portion. This provides for the bidder's entire liability and the RECPDCL's exclusive remedy for claims of infringement of intellectual property rights related to the goods/ materials and the bidder Properties.

14. NO SUSPENSION OF WORK & RISK PURCHASE:

NO SUSPENSION OF WORK

The obligations of the RECPDCL and the bidder shall not be altered by reasons of conciliation/ arbitration being conducted during the progress of works. Neither party shall be entitled to suspend the work on account of conciliation/arbitration nor shall payments to the bidder continue to be made in terms of the contract. Subject to the above including the sub-clauses that is pending conciliation or arbitration on any issue between the RECPDCL and the bidder, it shall be agreed that the RECPDCL shall be entitled to claim any amount as reimbursement as per the claim in writing for any works done by the RECPDCL from the outside agency for the default of the bidder in respect of any item for which such conciliation or arbitration as stated above is pending and the bidder shall jointly and severally be liable to pay such amount or amounts immediately on receipt of such demand from the RECPDCL without demur, and in case of the award in such arbitration is given by the arbitrators in favour of the bidder, then the amount/s under the award shall be refunded to the bidder, as the case may be by the RECPDCL, immediately on receipt of such award, if not challenged in a court of law.

If the selected bidder is not able to fulfil its obligations under the contract, which includes non-completion of the work, the RECPDCL reserves the right to accomplish the work through another bidder and EMD / Security Deposit of bidder will be forfeited. Also any costs, damages etc. resulting out of the same shall have to be borne by the selected bidder. However, the bidder will continue to offer transition services.

RISK PURCHASE

Notwithstanding what is stated above, it is agreed upon that the bidder will be responsible to RECPDCL for implementation of the contract. In case of non-performance of contract by the bidder or the bidder fails to take proper corrective action to perform the contract satisfactorily within a reasonable period as given by RECPDCL, RECPDCL in addition to levy of liquidated damages, may terminate the contract and award the same to any other party at the risk and cost of the bidder for carrying out the balance work after giving due notice to the bidder. This clause may be invoked during the period of project implementation as well as warranty period with effect from the date of acceptance of Letter of Intent or Letter of Award by the Bidder. The limitation of liability of bidder in case of risk purchase will be to

the extent of immediate next higher financial quote (total bid value as per price schedule). The percentage of liability of Risk Purchase will be quantified while placing the letter of award.

15. TERMINATION OF CONTRACT:

- a. In case of award of work to successful bidder, the contract shall remain in force as per the timeline of award of work or till satisfactory completion of awarded work, whichever is earlier.
- b. However, in case, in the opinion of RECPDCL if the Supplier is not likely to make up for the delay or test checks by RECPDCL are indicating poor quality work or the Supplier is acting in anyway prejudicial to the completion of project or on adoption of unethical practices, the contract may be terminated partly or fully by giving 15 days' notice and the balance supply shall get executed at the risk & cost of the Supplier.
- c. In case of default in services or denial of services, RECPDCL, at its sole discretion, will be free to avail services of other service providers at the "Risk & Cost" of the defaulter.

16. DISPUTE:

- Disputes under the agreement shall be settled by mutual discussion.
- However, in the event amicable resolution or settlement is not reached between the parties, the differences of disputes shall be referred to and settled by the Sole Arbitrator to be appointed by Chairman, RECPDCL.
- The arbitration proceedings shall be in accordance with the prevailing Arbitration and Conciliation Act, 1996 and Laws of India as amended or enacted from time to time.
- The venue of the arbitration shall be New Delhi, India.
- The fee & other charges of Arbitrator shall be shared equally between the parties.
- The Arbitrator will give the speaking & reasoned award. The party will not be entitled to any Pendent late interest during arbitration proceedings.

SECTION-VI

FINANCIAL BID EVALUATION METHODOLOGY

1. OPENING AND EVALUATION OF FINANCIAL BID:

Opening of financial bids will be through online mode only.

- a. Bidders have to submit documents as per Section-III, Clause-C (Submission of Bid Documents).
- b. Financial Bids duly submitted, will be opened on the date and time indicated in this document in the presence of bidders or their authorized representatives who desire to present. The bidders' representatives present there, shall sign a register evidencing their attendance.
- c. Price Bids (Financial Bids) of Bidders whose EMDs received in original (DD or BG) within due date/time will only be opened. Rest of the Financial bids without submission of requisite EMDs in original (DD or BG) within due date/time will not be opened.
- d. If due date of receipt of Financial Bids/ opening of Financial Bids happens to be a closed holiday, the bids would be received and opened on the next working day.
- e. RECPDCL reserves the right to postpone and/or extend the date of receipt/opening of Financial Bids or to withdraw the Financial Bid notice, without assigning any reason thereof. In any such cases, the bidders shall not be entitled to any form of compensation from the Company.
- f. Financial Bids shall be evaluated on the basis of total price inclusive of all taxes and duties quoted as per Annexure-XIII. Based on total price quoted by the bidders, RECPDCL shall award the work to L-1 bidder (L1 being the lowest quote).
- g. RECPDCL reserves the right to award or not to award work to the L1 bidder based on the assessment by RECPDCL for implementation of the project as may be deemed fit by company.
- h. RECPDCL may or may not conduct reverse auction.

SECTION-VII

GENERAL CONDITIONS OF BID

1. Each bidder should submit **ONLY SINGLE** bid.
2. The bidder shall ensure that deputed personnel are trained and experienced for jobs as defined in scope of work for ensuring the high quality and correctness of jobs and to be carried out in a highly professional, safe, and sound managerial manner.
3. RECPDCL reserves the right to accept or reject any or all Bid requests without assigning any reason.
4. RECPDCL reserves the right to waive off any shortfalls; accept the whole, accept part of or reject any or all responses to this tender.
5. RECPDCL reserves the right to cancel the bids at any stage and call for fresh tender.
6. RECPDCL reserves the right to modify, expand, restrict, scrap, re-float the tender without assigning any reason for the same.
7. The responder shall bear all costs associated with the preparation and submission of its Bid and RECPDCL will in no case be responsible or liable for these costs, regardless of the conduct or the outcome of the tender process.
8. The Bidder shall be well capable of supplying desired quantum of materials as mentioned in the tender within permissible timeline. RECPDCL reserves right to conduct capacity & capability assessment of participating bidders at the time of technical evaluation process.
9. RECPDCL reserves the right to withdraw the work & get it completed at the risk & cost of the agency, if performance of the agency is unsatisfactory, to whom work has been awarded. Further, the said agency may be black-listed for a period of one year or more for participating in any of the bids invited by RECPDCL. Also, RECPDCL would be free to intimate such black-listing to various state/central utilities/ Ministry of Power/ State Governments/ Other agencies not to consider the said agency for any assignment including of the same on websites.
10. RECPDCL reserves the right to conduct reverse auction.
11. Bidder has to submit test certificates/reports as specified in technical specifications from IECQ / NABL accredited laboratory for relevant IEC/ Equivalent BIS Standard as applicable.
12. In case of supply of any defect material or substandard material, the materials will be rejected & it will be the responsibility of the bidder for taking back & replacing the rejected materials at their own cost.
13. The supplied materials should be strictly as per specifications mentioned in this tender, otherwise the material would be liable for rejection.
14. Validity of Bid shall be 180 days from the last date of bid submission. The Bid with validity of less than 180 days from the last date of bid submission shall not be considered. The validity can be further extended with mutual consent.
15. No price escalation is applicable on account of any statutory payments increase or fresh imposition of custom duty, excise duty, sales tax or duty leviable in respect of the major components in the said acceptance of the tender.
16. Bidder's quoted rates should be firm and fixed. No price variation and escalation will be allowed.
17. Bids must be submitted in English language only.
18. Incomplete, telegraphic or conditional tenders are not accepted.
19. Canvassing in any manner is strictly prohibited. The same will lead to rejection of the submitted bid.

20. The last date of receipt of financial bids from bidders is XX.07.2018 at XX:00 Hrs. Original, Sealed EMD will only be accepted during office hours on working days through deposit in the tender box kept for the purpose at REC Power Distribution Corporation Ltd. (RECPDCL), 4th Floor, KRIBHCO Bhawan, A10, Sector-1, Noida (U.P.)-201301.
21. EMDs received after due date & time due to any reason including postal delay will not be considered.
22. If due to any reason, the due date is declared as a holiday, the tender will be opened on next working day at the same time.
23. The Price bid shall be opened on XX.07.2018 at XX:00 Hrs in RECPDCL office, Noida in the presence of such Bidders /their representatives, who desire to be present at the time of opening.
24. Any or all Bids may be rejected or accepted partially or fully without assigning any reason thereof by Chief Executive Officer, RECPDCL.
25. There are no actions, suits or proceedings pending, or to the knowledge of the bidder threatened, against the bidder, in any court, or before any arbitrator of any kind, or before or by any Governmental Authority. The bidder is not in default with respect to any order of any court, arbitrator or Governmental Authority.
26. The Bidder should not be black-listed by any Central/State Govt. organization, PSU etc. Bidders are requested to watch out RECPDCL website for change of events/additional information from time to time.
27. Bidders should take cognizance of geography, terrain, all site conditions, factors etc. at their discretion/will, if they desire so before quoting the rate. However, in any case, it will be assumed that bidder has understood all site conditions, factors etc. for this work before submission of bid.
28. It will be imperative on each bidder to fully acquaint itself of all the local conditions and factors which would have effect on the performance of the work and its cost. And it will be deemed that while quoting all such factors have been taken into account.

LETTER FOR SUBMISSION OF BID*(To be submitted on Company's letterhead duly signed)*

To,

Addl. Chief Executive Officer
 REC Power Distribution Company Ltd.
 4th Floor, KRIBHCO Bhawan,
 A10, Sector-1, Noida (U.P.)-201301

Sub.: Engagement of Agency for Supply of 11kV Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items in North-Eastern States for electrification work under SAUBHAGYA/DDUGJY

Dear Sir,

We wish to submit bid against RECPDCL's NIT No: RECPDCL/TECH/Arunachal-HW/18-19/1914 Date: 01.08.2018 for "Supply of 11kV Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items in the State of Arunachal Pradesh for electrification work under SAUBHAGYA/DDUGJY" as per the requirements of RECPDCL.

Further, I hereby certify that:

1. I have read the provisions of all clauses and confirm that notwithstanding anything stated elsewhere to the contrary, the stipulation of all clauses of Bid are acceptable to me and I have not taken any deviation to any clause.
2. I, Confirm that, there are no actions, suits or proceedings pending, or to the knowledge of the bidder threatened, against the bidder, in any court, or before any arbitrator of any kind, or before or by any Governmental Authority. We, are not in default with respect to any order of any court, arbitrator or Governmental Authority.
3. I further confirm that any deviation to any clause of Tender found anywhere in my Bid, shall stand unconditionally withdrawn, without any cost implication whatsoever to the RECPDCL.
4. Our bid shall remain valid for period of 180 days from the last date of bid submission.
5. I, hereby give undertaking that we, as a company are not black-listed by any Central/ State Government/ Semi-Government Organization/ Public Sector Undertaking/ Private Institution in India.
6. I Further confirm that if information furnished above stands false at any stage, we shall be completely liable for actions taken by RECPDCL as per terms & conditions of the tender including disqualification and exclusion from future contracts/assignments

Date:**Place:****Signature:****Full Name:****Designation:****Address:**

Note: In absence of above declaration/certification, the Bid is liable to be rejected and shall not be taken into account for evaluation.

BIDDER'S GENERAL DETAILS*(To be submitted on Company's letterhead duly signed)***NIT No: RECPDCL/TECH/Arunachal-HW/18-19/1914****Date: 01.08.2018**

Name of Work: Supply of 11kV Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items in the State of Arunachal Pradesh for electrification work under SAUBHAGYA/DDUGJY

GENERALDETAILS

1. **Name of Company:** _____
2. **Year of Incorporation:** _____
3. **Name of Authorized Person:** _____
4. **Regd. Address:**
 - a) **Address of Office:** _____

 - b) **Contact Person's**
 - i. **Name & Designation:** _____
 - ii. **Address:** _____

 - iii. **Tel. No. (Landline& Mobile):** _____
 - iv. **Email ID :** _____
5. **Type of Firm (Please tick):** Private Ltd./ Public Ltd./ LLP/ Joint Venture Company
6. **Permanent Account Number:** _____
7. **GSTIN:** _____
8. **EMD Details:** **Rs.** _____

DD/BG No. _____**Name & Address of Bank:** _____
_____**Signature**.....**Full Name**.....**Designation**.....**Address**.....

LETTER OF TRANSMITTAL

To,

Addl. Chief Executive Officer
REC Power Distribution Company Ltd.
4th Floor, KRIBHCO Bhawan,
A10, Sector-1, Noida (U.P.)-201301

Dear Sir,

I/We, the undersigned, have examined the details given in your Tender No. NIT No: RECPDCL/TECH/Arunachal-HW/18-19/1914 Date: 01.08.2018 for Supply of 11kV Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items in the State of Arunachal Pradesh for electrification work under SAUBHAGYA/DDUGJY. We accept all the terms & conditions of the bid document without any deviation and submit the Bid. We hereby certify that M/s _____ or its group companies have not been awarded any work for & shall not be a competitor to REC during contract period in case the contract is awarded.

Also, M/s _____ or its group companies is not executing or providing any type of consultancy services either directly or as a sub-contractor for the particular work for which Bid is submitted.

It is confirmed that M/s. _____ is not banned or blacklisted by any Govt./Pvt. Institutions in India.

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

BID BANK GUARANTEE (EARNEST MONEY DEPOSIT) FORMAT

This deed of Guarantee made this day of 2018 by
 **(Name of the Bank)** having one its branch at
 acting through its Manager (hereinafter called the "Bank") which
 expression shall wherever the context so requires includes its successors and permitted assigns in favour
 of REC Power Distribution Company Ltd., registered under the Companies Act, 1956, having its office at 4th
 Floor, KRIBHCO Bhawan, A10, Sector-1, Noida (U.P.)-201301 (hereinafter called "RECPDCL") which
 expression shall include its successors and assigns.

WHEREAS RECPDCL has invited tender vide their Tender Notice No:
 Dated to be opened on
 AND WHEREAS M/s
 **(Name of Tenderer)** having its office at
 (hereinafter called the "Tenderer"), has/have
 in response to aforesaid tender notice offered to supply/ do the job of Supply of 11kV Air Break Switch,
 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items in the State of
 Arunachal Pradesh for electrification work under SAUBHAGYA/DDUGJY as contained in the tender.

AND WHEREAS the Tender is required to furnish to RECPDCL a Bank Guarantee for a sum of ₹ /-
 (Rupees..... only) as Earnest Money for participation in the Tender
 aforesaid.

AND WHEREAS, we
 **(Name of Bank)** have at the request of the tender agree to give RECPDCL this as
 hereinafter contained.

NOW, THEREFORE, in consideration of the promises we, the undersigned, hereby covenant that, the
 aforesaid Tender shall remain open for acceptance by RECPDCL during the period of validity as mentioned
 in the Tender or any extension thereof as RECPDCL and the Tender may subsequently agree and if the
 Tender for any reason back out, whether expressly or impliedly, from his said Tender during the period of
 its validity or any extension thereof as aforesaid or fail to furnish Bank Guarantee for performance as per
 terms of the aforesaid Tender, we hereby undertake to pay RECPDCL, New Delhi on demand without demur
 to the extent of ₹ /-(Rupees only).

We further agree as follows:

1. That RECPDCL may without affecting this guarantee extend the period of validity of the said Tender or
 grant other indulgence to or negotiate further with the Tender in regard to the conditions contained in the
 said tender or thereby modify these conditions or add thereto any further conditions as may be mutually
 agreed to in between RECPDCL and the Tender AND the said Bank shall not be released from its liability

under these presents by an exercise by RECPDCL of its liberty with reference to the matters aforesaid or by reason of time being given to the Tender or any other forbearance, act or omission on the part of the RECPDCL or any indulgence by RECPDCL to the said Tender or any other matter or thing whatsoever.

2. The Bank hereby waive all rights at any time in consistent with the terms of this Guarantee and the obligations of the Bank in terms thereof shall not be otherwise affected or suspended by reason of any dispute or dispute having been raised by the Tender (whether or not pending before any arbitrator, tribunal or court) or any denial of liability by the Tender stopping or preventing or purporting to stop or prevent any payment by the Bank to RECPDCL in terms thereof.

3. We the said Bank, lastly undertake not to revoke this Guarantee during its currency except with the previous consent of RECPDCL in writhing and agree that any charges in the constitution, winding up, dissolution or insolvency of the Tender, the said Bank shall not be discharged from their liability.

NOTWITHSTADING anything contained above, the liability of the Bank in respect of this Guarantee is restricted to the said sum of ₹ /-(Rupees only).and this Guarantee shall remain in force till unless a claim under this guarantee is filed with the bank within 30 (thirty) days from this date or the extended date, as the case may be i.e. up to all rights under Guarantee shall lapse and the Bank be discharged from all liabilities hereunder.

In witness whereof the Bank has subscribed and set its name and seal here under.

Note: The date shall be thirty (30) days after the last date for which the bid is valid.

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

(a) Power of Attorney to be provided by the Bidding Company in favour of its representative as evidence of authorized signatory's authority.

Know all men by these presents, We (name and address of the registered office of the Bidding Company as applicable) do hereby constitute, appoint and authorize Mr./Ms. (name & residential address) who is presently employed with us and holding the position of as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid for Supply of 11kV Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items in the State of Arunachal Pradesh for electrification work under SAUBHAGYA/DDUGJY in response to the NIT No. dated issued by REC Power Distribution Company Ltd. (RECPDCL), Noida including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which RECPDCL may require us to submit. The aforesaid Attorney is further authorized for making representations to REC Power Distribution Company Ltd., Noida and providing information/responses to RECPDCL representing us in all matters before RECPDCL and generally dealing with RECPDCL in all matters in connection with Bid till the completion of the bidding process as per the terms of the above mentioned NIT.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the NIT.

Signed by the within named

..... (Insert the name of the executant company)

through the hand of

Mr.

duly authorized by the Board to issue such Power of Attorney

Dated this day of

Accepted

.....

Signature of Attorney

(Name, designation and address of the Attorney)

Attested

.....

(Signature of the executant)
(Name, designation and address of the executant)

.....
Signature and stamp of Notary of the place of execution

Common seal of has been affixed in my/our presence pursuant to Board of Director's Resolution dated.....

WITNESS

1.

(Signature)

Name.....

Designation

2.

(Signature)

Name.....

Designation

Notes:

The mode of execution of the power of attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and the same should be under common seal of the executant affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by the executant(s) in this regard.

The person authorized under this Power of Attorney, in the case of the Bidding Company / Lead Member being a public company, or a private company which is a subsidiary of a public company, in terms of the Companies Act, 1956, with a paid up share capital of more than Rupees Five crores, should be the Managing Director / whole time director/manager appointed under section 269 of the Companies Act, 1956. In all other cases the person authorized should be a director duly authorized by a board resolution duly passed by the Company.

Also, wherever required, the executant(s) should submit for verification the extract of the chartered documents and documents such as a Board resolution / power of attorney, in favour of the person executing this power of attorney for delegation of power hereunder on behalf of the executant(s).

ADVANCE BANK GUARANTEE (PBG) FORMAT

M/s REC Power Distribution Company Ltd.,
 Core-4, Scope Complex, Lodhi Road,
 New Delhi — 110003 (INDIA)
 (With due stamp duty if applicable)

OUR LETTER OF GUARANTEE NO.: _____

In consideration of REC Power Distribution Company Ltd., having its office at _____
 _____ (hereinafter referred to
 as "RECPDCL" which expression shall unless repugnant to the content or meaning thereof include all its
 successors, administrators and executors) and having issued Work Order No.
 _____ dated _____ with/on M/s
 _____ (hereinafter referred to as "The Agency" which
 expression unless repugnant to the content or meaning thereof, shall include all the successors,
 administrators, and executors).

WHEREAS the Agency having unequivocally accepted to perform the services as per terms and conditions
 given in the Letter of Intent/ Purchase Order No. _____
 dated _____ and RECPDCL having agreed that the Agency shall furnish to RECPDCL an Advance
 Bank Guarantee for the advance taken (to the extent of 10% of contract amount), of the value of
 ₹ _____.

We, _____ ("The Bank") which shall include
 OUR successors, administrators and executors herewith establish an irrevocable Letter of Guarantee No.
 _____ in your favor for account of _____
 _____ (The Agency) in cover of performance guarantee in accordance
 with the terms and conditions of the Work Order/ Sanction Order.

Hereby, we undertake to pay up to but not exceeding _____ (say _____
 _____ only) upon receipt by us of your first written demand
 accompanied by your declaration stating that the amount claimed is due by reason of the Agency having
 failed to perform the Work Order/ Sanction Order and despite any contestation on the part of above
 named-agency.

This letter of Guarantee will expire on _____ including 90 days of claim period and any
 claims made hereunder must be received by us on or before expiry date after which date this Letter of
 Guarantee will become of no effect whatsoever whether returned to us or not.

 Authorized signature
 Chief Manager/ Manager
 Seal of Bank

Note: ABG shall be valid till completion of sanctioned delivery period plus 3 months' claim period.

PERFORMANCE BANK GUARANTEE (PBG) FORMAT

M/s REC Power Distribution Company Ltd.,
 Core-4, Scope Complex, Lodhi Road,
 New Delhi — 110003 (INDIA)
 (With due stamp duty if applicable)

OUR LETTER OF GUARANTEE NO.: _____

In consideration of REC Power Distribution Company Ltd., having its office at _____ (hereinafter referred to as "RECPDCL" which expression shall unless repugnant to the content or meaning thereof include all its successors, administrators and executors) and having issued Work Order No. _____ dated _____ with/on M/s _____ (hereinafter referred to as "The Agency" which expression unless repugnant to the content or meaning thereof, shall include all the successors, administrators, and executors).

WHEREAS the Agency having unequivocally accepted to perform the services as per terms and conditions given in the Letter of Intent/ Purchase Order No. _____ dated _____ and RECPDCL having agreed that the Agency shall furnish to RECPDCL a Performance Guarantee for the faithful performance during the entire contract, of the value of ₹ _____.

We, _____ ("The Bank") which shall include OUR successors, administrators and executors herewith establish an irrevocable Letter of Guarantee No. _____ in your favor for account of _____ (The Agency) in cover of performance guarantee in accordance with the terms and conditions of the Work Order/ Sanction Order.

Hereby, we undertake to pay up to but not exceeding _____ (say _____ only) upon receipt by us of your first written demand accompanied by your declaration stating that the amount claimed is due by reason of the Agency having failed to perform the Work Order/ Sanction Order and despite any contestation on the part of above named-agency.

This letter of Guarantee will expire on _____ including 90 days of claim period and any claims made hereunder must be received by us on or before expiry date after which date this Letter of Guarantee will become of no effect whatsoever whether returned to us or not.

 Authorized signature
 Chief Manager/ Manager
 Seal of Bank

Note: PBG shall be valid till completion of warranty period of 18 months plus 3 months' claim period.

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT*(To be signed and stamped by the bidder)*

In a bid to make our entire procurement process more fair and transparent, RECPDCL intends to use the reverse auctions in case to case at sole discretion of RECPDCL when financial bids are invited later on. Techno-Commercially acceptable bidders up to the level of L6 or lower as the case may be shall be allowed to participate in the Reverse Auctioning at sole discretion of RECPDCL.

The following terms and conditions are accepted by the bidder on participation in the bid event:

1. RECPDCL shall provide the user id and password to the authorized representative of the bidder. (Authorization Letter in lieu of the same shall be submitted along with the signed and stamped Acceptance Form).
2. RECPDCL decision to award the work would be final and binding on the supplier.
3. The bidder agrees to non-disclosure of trade information regarding the purchase, identity of RECPDCL, bid process, bid technology, bid documentation and bid details to any other party.
4. The bidder is advised to fully make aware itself of auto bid process and ensure its participation in the event of reverse auction and failing to which RECPDCL will not be liable in any way.
5. In case of bidding through Internet medium, bidders are further advised to ensure availability of the infrastructure as required at their end to participate in the auction event. Inability to bid due to telephone line glitch, internet response issues, software or hardware hangs, power failure or any other reason shall not be the responsibility of RECPDCL.
6. In case of intranet medium, RECPDCL shall provide the infrastructure to bidders. Further, RECPDCL has sole discretion to extend or restart the auction event in case of any glitches in infrastructure observed which has restricted the bidders to submit the bids to ensure fair & transparent competitive bidding. In case an auction event is restarted, the best bid as already available in the system shall become the basis for determining start price of the new auction.
7. In case the bidder fails to participate in the auction event due any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid as submitted by the bidder as a part of the tender shall be considered as the bidder's final no regret offer. Any offline price bids received from a bidder in lieu of non-participation in the auction event shall be out rightly rejected by RECPDCL.
8. The bidder shall be prepared with competitive price quotes on the day of the bidding event.
9. The prices as quoted by the bidder during the auction event shall be inclusive of all the applicable taxes, duties and levies and shall be FOR at site.
10. The prices submitted by a bidder during the auction event shall be binding on the bidder.
11. No requests for time extension of the auction event shall be considered by RECPDCL.
12. The original price bids of the bidders shall be reduced on pro-rata basis against each line item based on the final all inclusive prices offered during conclusion of the auction event for arriving at Contract amount.

**Signature & Seal of the Bidder
(Authorized Signatory)**

TECHNICAL Parameters
(To be submitted through Online)

NIT No: RECPDCL/TECH/Arunachal-HW/18-19/1914

Date: 01.08.2018

Name of Work: Supply of 11kV Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items in the State of Arunachal Pradesh for electrification work under SAUBHAGYA/DDUGJY

**SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS FOR COMPOSITE INSULATOR UNIT 11KV
(45KN) / 11KV (70KN)**

Sr. No	Parameter Name	Parameter type
1.	Type of insulator	Text
2.	Standard according to which the insulators manufactured and tested	Text
3.	Name of material used in manufacture of the insulator with class/grade	Text
3.1	Material of core (FRP rod) i) E-glass or ECR-glass ii) Boron content	
3.2	Material of housing & weather sheds (Silicon content by weight)	
3.3	Material of end fittings	Text
3.4	Sealing compound for end fitting	Text
4.0	Colour	Text
5.	Electrical characteristics	
5.1.	Nominal system voltage KV (rms)	Numeric
5.2	Highest system voltage KV (rms)	Numeric
5.3	Dry Power frequency withstand voltage KV (rms)	Numeric
5.4	Wet Power frequency withstand voltage KV (rms)	Numeric
5.5	Dry flashover voltage KV (rms)	Numeric
5.6	Wet flash over voltage KV (rms)	Numeric
5.7	Dry lighting impulse withstand voltage a) Positive KV (peak) b) Negative KV (peak)	Numeric
5.8	Dry lighting impulse flashover voltage a) Positive KV (peak) b) Negative KV (peak)	Numeric
5.9	RIV at 1 MHz when energized at 10 kV/ 30 kV (rms) under dry condition Micro volts	Numeric
6.0	Creepage distance (Min.) (320mm) (mm)	Numeric
6.1	Center to center distance between tongue & clevis (300mm) (mm)	Numeric
6.2	Shed diameter (100mm) (mm)	Numeric
7.0	Mechanical characteristics: KN	Numeric
	Minimum failing load	

Sr. No	Parameter Name	Parameter type
8.0	Dimensions of insulator	
8.1	Weight Kg	Numeric
8.2	Dia. of FRP rod: Mm	Numeric
8.3	Length of FRP rod Mm	Numeric
8.4	Dia. of weather sheds (100mm) Mm	Numeric
8.5	Thickness of housing Mm	Numeric
8.6	Dry arc distance Mm	Numeric
8.7	Dimensioned drawings of insulator (including weight with tolerances in weight) enclosed.	Boolean
9.0.	Method of fixing of sheds to housing (Specify): Single mould or Modular construction (Injection molding / compression molding)	Text
10.0	No of weather sheds	Text
11.0	Type of sheds	
11.1	Aerodynamic	Text
11.2	With under ribs	Text
12.	Packing details	
12.1	Type of packing	Text
12.2	No. of insulators in each pack	Text
12.3	Gross weight of package	Text
13.0	Design Test Report, Type Test Report of insulator enclosed.	Boolean
14.0	Any other particulars which the Manufacturer may like to give	File

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS FOR LT PIN AND SHACKLE INSULATOR

Sl. No.	Characteristics	LT Pin Insulators
1.	Maker's Name Address and Country	
2.	Type of insulator	
3.	Minimum failing load	
4.	Standard according to which the material shall confirm	
5.	Type of Glaze	
6.	DIMENSIONS (mm)	
	a). Overall height	
	b). Maximum Diameter of Insulator	
	c). Top	
	d). Neck	
7.	Creepage distance minimum	
8.	Working Voltage	
9.	Dry power Frequency 1 min. withstand Voltage	

10.	Wet power Frequency 1 min. withstand Voltage	
11.	Dry power Frequency Flashover Voltage	
12.	Wet power Frequency Flashover Voltage	
13.	Power Frequency puncture withstand Voltage	
14.	Impulse flash over voltage a). positive KV b). negative KV	
	Impulse withstand Voltage	
15.	Visible discharge test voltage	
16.	No. of threads per mm.	
17.	Type of threads	
18.	Thimble:	
	I). Type of material	
	II). Type	
19.	Net weight of insulator	
20.	Tolerance as per specification	

21.	Packing details	
	Making details	
	Minimum failing load	
	I). Type of packing	
	II). No. of Insulators/crate	
	III). Weight of each packing approx in Kg	
22.	Marking details	
23.	Furnished drawing No./relevant information if any	

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS FOR 9KV STATION CLASS SURGE ARRESTOR, 11

KV THREE POLE DROP OUT FUSE AND GANG OPERATED AIR BREAK SWITCH UNIT

(to be furnished by the bidder, if any)

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS FOR Other MS items

(to be furnished by the bidder, if any)

Note: Bidder shall furnish relevant/ necessary drawings and a valid type test reports for the same design from CPRI/ERDA/NABL accredited laboratory not older than 10 (TEN) years and shall be valid at the time of inspection and supply of materials.

(AUTHORIZED SIGNATORY)

NAME:

SEAL

FINANCIAL BID

(To be submitted through Online)

NIT No: RECPDCL/TECH/Arunachal-HW/18-19/1914**Date: 01.08.2018**

Name of Work: Supply of and supply of 11kV Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items in the State of Arunachal Pradesh for electrification work under SAUBHAGYA/DDUGJY

S. N o.	Item Description	U nit	Quan tity	Pe r Un it Ra te (in Rs.)	Total Amo unt with out GST (in Rs.)	GST Percen tage	GST Amo unt (in Rs.)	Total Amo unt inclu ding GST (in Rs.)	Freigh t & Insura nce (inclu ding taxes) (in Rs.)	Total Amo unt (inclu ding GST, Freigh t & Insura nce) (in Rs.)
A	B	C	D	E	F = D x E	G	H = F x G	I = F + H	J	K = I + J
1	Manufact uring and supply of galvanised stay set complete with galvanised MS anchor plate of size 300 X 300 mm and thickness 5 mm, anchor rod of	N os.	281		0		0	0		0

	length 1800 mm dia, 18 mm along with stay wire, thimble, bow,guy strain insulator, nut and bolts etc(for 11 kV line)									
2	Manufact uring and supply of Galvanize d stay set complete with galvanized MS anchor plate of size 230mmx230mm and thickness 5mm, anchor rod of length 1800mm dia 18mm alongwith stay wire, thimble, bow, guy strain	N os.	459		0		0	0		0

	insulator, nuts and bolts etc. (For LT line)								
3	Designing, manufacturing and supply of 11 kV, 50 Hz Air break switch conforming to IS:9920(part-I to IV) with rated voltage 12 kV and rated normal current shall be 400 Amps provided with bimetallic connector on the incoming side to accommodate ACSR of sizes (30 to 50 sq mm.) on the	Set	20		0		0	0	0

	outstation side.								
4	Desinging, Manufact uring and supply of out door, drop out expulsion type of 11 kV drop out fuse suitable for insulation in 50 Hz, 11kV distributio n system conformin g to IS:9385 (part-I to III) with rated voltage shall be 12 kV and rated current shall be 100 amps and also been	Se t	20		0		0	0	0

	provided with a suitable arrangement these on 100X50 mm cross arm.									
5	Designing, manufacturing and Supply of 11 kV non linear type lightning arrestors with rated voltage shall be 9 kV and will be applicable to the effectively earthed 11 kV syatem with all the Transform er neutral directly earthed. The normal discharge current rating	N os.	60		0		0	0		0

	shall be 5 KVA which shall be applicable both for protection of transformers and line. The lightning arrestors shall comply with IS:3070(Pt -I)- 1985 or the latest version thereof.								
6	Designing, Manufacturing and supply of Disc insulator, comprising with ball and pocket type as per IS:731 & Is:3188.				0		0		0

a	45 KN Disc insulator for 11 kV line.	N os.	844		0		0	0		0
b	Hardware fitting consisting of cross arm strap, ball eye, socket eye, strain clamp, cotter pins for 45 KN disc insulator complete as required.	N os.	844		0		0	0		0
7	Designing Manufacturing and supply of 11 kV pin insulator having steel head type as per IS: 2486 Part-III and having stalk	N os.	603		0		0	0		0

	length 165 mm and shank length 150 mm i/c nut and bolts.								
8	Manufact uring, fabricatio n and supply of danger plate made of mild steel or atleast 1.6 mm thick and vitreous enameled white with letters figures and the conventio nal skill and cross bones signal red colour on the front side for 433 volts and size 200 X 150 mm	N os.	221		0		0	0	0

9	Manufacturing and supplying of 8 SWG GI wire for Earth Connection	KG	448.4		0		0	0		0
10	Supplying of 40 mm dia GI pipe of length 3 mtr for earthing	N os.	201		0		0	0		0
11	Supply of copper earth plate of size 600 mm X 600 X 6 mm for earthing of transformers	N os.	40		0		0	0		0
12	Supply of copper strip of size 25 X 4 mm	M tr.	500		0		0	0		0

1 3	Supplying, fitting and fixing of chain link fencing of 6 SWG GI wire (50 X 50 X5 mm Mesb) i/c corner and end post with MS angle of Size 50 X 50 X5 mm and length not less than 1800 mm intermedi cate post of MS angle of size 40 X 40 X 5 mm and length not less than 1800 mm i/c supplying fitting and fixing of hook, eye bolt with nuts, staples and bolts etc as required	R M	320		0		0	0		0
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	with 1 verticle line to each fencing and erect complete i/c the cost of painting MS angle iron post in PCC base etc and 2 coats of aluminiu m paints on foundatio n of post with PCC works of 1:2:4 Misc as per approved drawing								
14	Fabricatio n and supply of standard size MS gate as per approved drawing	N os.	20		0		0	0	0
15	Fabricatio n and supply of following				0		0	0	0

	sizes of cross arms								
a	MS cross arm 2.8 mtr long (75 X 40 X 8 mm) i/c clamps nuts and bolts with all accessorie s.	Se t	60		0		0	0	0
b	V type , X- Arm, 11 kV with MS channel 75 X 40 X 4.8 mm i/c nuts and bolts and clamps	N os.	121		0		0	0	0
c	Pole Top Bracket made of MS channel 0.20 mtr long of size 75 X 40 X 4.8 mm.	N os.	121		0		0	0	0

16	Manufacturing and supply of MS angle bracing set 3.1 mtr long 65 X 65 X 6 mm complete with all accessories i/c nuts and bolts.	N os.	60		0		0	0		0
17	Fabrication and supply of Guard bracket 3.5m 100 X50X6 mm complete with clamps	N os.	40		0		0	0		0
18	Manufacturing and supply of guard wire 6 X 8 SWG GI for guarding	Kg	1005		0		0	0		0
19	Fabrication and supply of miscellaneous items like coil earthing,	LS	46		0		0	0		0

	bolts, nuts etc.								
20	Febrication and supply of MS channel 100 X 50 X 6 mm for AB switch,Top bracket transformer mounting and DO fuse 18 X 2 X 16 mm and nut and bolts.	Set	20		0		0	0	0
21	Manufacturing fabrication and supply of barbed wire for anti climbing device for 11 kV lines	KG	602		0		0	0	0
Sub-Total (in Rs.)									₹ 0.00
Grand Total in figure(in Rs.)				₹ 0.00					

Note:

1. Price should be quoted as per format of Annexure-X which must be inclusive of all costs involved in the supply contract i.e. complete design, engineering, manufacture, testing and supply and supply 11kV

Air Break Switch, 11kV Drop out Fuse set, Disc Insulators, MS Channel, V-Cross Arms and other MS items with other materials as mentioned in including transportation & insurance up to sub-divisional headquarter in Namsai District in Arunachal Pradesh and all applicable taxes and duties of Central & State Governments etc.

2. If it is found that the tax quoted is higher than the applicable tax, in that case actual applicable taxes will only be paid by RECPDCL and if the tax quoted is lower than the applicable tax, in that case only the quoted taxes will be paid by the RECPDCL.
3. Bidder shall ensure timely payment of all taxes as per Income Tax & GST rules of Central & State Governments.
4. TDS will be deducted from the payment of the Bidder as per the prevalent laws and rules of Central & State Governments as the case may be.
5. Price quoted by the bidder shall remain firm & fixed and shall be binding on the Successful Bidder till completion of warranty period irrespective of actual cost of supply. No escalation/price variation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever.
6. The offer must be kept valid for a period of 180 days from the last date of bid submission. No escalation clause would be accepted. The validity can be further extended with mutual consent.
7. Bids with non-conformity to above will be considered as non-responsive