Maharashtra State Electricity Distibution Co. Ltd.

Tender Details	02-08-2023 05:28:38
Tender Code	MMD/T-HTM1-06/0823
Tender Type	Procurement Tender
Type Of Bid	Two Bid
Description	Procurement of 11 KV, 400 A & 800 A and 33 KV, 1600 A Outdoor Vacuum Circuit Breaker
Estimated Cost (In Lakhs)	6587.72
Basis of prices	Firm Price Basis
Tender Validity	120
Delivery Requirement (In Months)	3
Tender on rate contract basis	NO
Tender Fee (In INR)	25000
GST In INR (@18% on Tender Fee: SAC No.	4500
Total Tender Fee Amount including GST in INR.	29500
Contact	Shri Kirankumar Shinde , 7045791361 ,cemmcmsedcl@gmail.com
Pre-Qualifying Req	As per tender documents
Budget Type	NA
Scheme Code	null
Scheme Name	
Department	Material Management Cell
Office Type	HO
Location Type	Corporate Office
Designation	Executive Engineer(Distribution)
Pre-Bid Meeting Address	OFFICE OF THE CHIEF ENGINEER, Maharashtra State Electricity Distribution Co. Ltd. Material Management Department, Plot No. G-9, “Prakashgad” First floor, Prof. A.K. Marg,Bandra (E), Mumbai – 400 051.
Bid Opening Address	OFFICE OF THE CHIEF ENGINEER, Maharashtra State Electricity Distribution Co. Ltd. Material Management Department, Plot No. G-9, “Prakashgad” First floor, Prof. A.K. Marg,Bandra (E), Mumbai – 400 051.
Version No	1
Call for Deviation	YES
Is Annexure C1 Applicable	YES
Is Manufacturer Applicable	YES
Is Trader Applicable	NO
Minimum % of Offered Quantity	20
Is Power Supplier Applicable	NO
Tender Sale Start Date	02-08-2023 18:00
Tender Sale End Date	09-08-2023 12:00
Bid Start Date	02-08-2023 18:30
Bid End Date	09-08-2023 15:00
Pre-Bid Meeting Date	04-08-2023 16:00
Techno-Commercial Bid opening on	09-08-2023 15:30
Price Bid opening on	Will be declared later

Annexure C1 Opening Date	Will be declared later
Winner Selection Date	02-08-2023 14:27
Can Bidder opt for EMD Exemption	YES
Is Annexure-E [Consent for MSEDCL Standard Technical Specifications and GTP] Applicable ?	NO

==========

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd.

MATERIAL MANAGEMENT DEPARTMENT
MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.
Tender No. MMD/T-HTM1-06/0823

SHORT TENDER BID NOTICE

The Chief Engineer, Material Management Department (MMD), on behalf of Maharashtra State Electricity Distribution Company Limited (the Purchaser), hereby invites sealed bids from eligible bidders for procurement of 11 KV, 400 A & 800 A and 33 KV, 1600 A Outdoor Vacuum Circuit Breaker. Entire bidding document is available online on https://etender.mahadiscom.in/eatApp/ as per date indicated below. Any changes in the Bid Schedule, corrigendum etc. shall also be notified via MSEDCL's website. Prospective bidders are therefore requested to regularly check the website for any updates.

Tender No. MMD/T-HTM1-06/0823

Estimated Tender Cost: Rs. 65.87 Crore inclusive of 18% GST.

Tender Fee: Rs. 25,000.00 + 18% GST

The bidder should submit non-refundable Bid Fee of Rs. 25,000.00 + 18% GST paid through online payment only, prior to the dead line for submission of bids as per the procedure laid by the MSEDCL.

Earnest Money Deposit: The bid must be accompanied with EMD @ 0.5% (Half Percent) value of the estimated cost of offered quantity of the tender in the form of BG as per the Annexure–M enclosed with tender documents having validity of 120 days from opening of tender. Interest shall not be allowed on EMD.

The scanned copy of the online payment receipt / Demand Drafts / BG should be uploaded (in e-tendering) and the Demand Drafts/BGs should be submitted to this office on or before submission date and time.

Calendar of Events Event	Date and Time
Begin Sale of Bid Document	02.08.2023
Date and time of submission of Bids	09.08.2023 at 15:00 hrs.
Date and time of Bid Opening	09.08.2023 at 15:30 hrs.
Date and time of Pre bid meeting	04.08.2023 at 16:00 hrs. Online Google Meet joining info : https:// meet.google.com/zzd-hzjf-kow

THE CHIEF ENGINEER
Maharashtra State Electricity Distribution Co. Ltd.
Material Management Department,
Plot No. G-9, "Prakashgad" First floor, Prof. A. K. Marg,
Bandra(E), Mumbai–400051.
E-mail- cemmcmsedcl@mahadiscom.in, cemmcmsedcl@gmail.com

==========

MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.

TENDER FOR

Procurement of 11 KV, 400 A & 800 A and 33 KV, 1600 A
Outdoor Vacuum Circuit Breaker.

Tender No: MMD/T-HTM1-06/0823

OFFICE OF THE CHIEF ENGINEER,
Maharashtra State Electricity Distribution Co. Ltd.
Material Management Department,
Plot No. G-9, "Prakashgad" First floor, Prof. A. K. Marg,
Bandra (E), Mumbai – 400 051.
E-mail- cemmcmsedcl@mahadiscom.in
cemmcmsedcl@gmail.com

==========

INDEX

==========

SR. NO.	CLAUSE NO.	DESCRIPTION
46	3	MATERIAL AND COMPONENTS
47	4	ACCEPTANCE OF SUPPLIES/INSPECTION
48	5	RIGHT TO CARRY OUT INSPECTION DURING MANUFACTURING
49	6	RIGHT TO REVISE DESPATCH INSTRUCTIONS, DELIVERY SCHEDULE AND TO DEFER SUPPLIES
50	7	WAGAN LOADS/TRUCK LOADS
51	8	ROAD TRANSPORT
52	9	DESPATCH INTIMATION
53	10	BILL OF MATERIALS
54	11	PACKING LIST
55	12	REPLACEMENT OF GOODS LOST, BROKEN OR DAMAGED
56	13	REPLACEMENT OF REJECTED MATERIALS
57	14	MATERIAL DESPATCHED AND PROGRAMME
58	15	MATERIAL RECEIPT & SUBMISSION OF BILLS AT CONSIGNEE
59	16	PAYMENT OF BILLS
60	17	TAXES
61	18	DEDUCTION
62	19	GUARANTEE
63	20	(I)LIFTING OF REJECTED/DAMAGED MATERIALS FROM STORES AND (II)LIFTING OF FAILED TRANSFORMERS FROM DIVISION FILTER UNIT
64	21	LIQUIDATED DAMAGES FOR LATE DELIVERY
65	22	ORDER PLACED ON TIME PREFERENCE BASIS (WHEREVER APPLICABLE)
66	23	FORCE MAJEURE CLAUSE
67	24	ACCEPTANCE OF LOWER FORD RATE OFFERED IN SUBSEQUENT TENDER
68	25	PERFORMANCE OF CONTRACT:
69	26	CONTRACT PERFORMANCE DEPOSIT
70	27	POWER OF ATTORNEY:
71	28	SETTLEMENT OF DISPUTE
72	29	JURISDICTION:
73	30	TERMINATION OF CONTRACT
74	31	DEBAR / BLACKLISTING OF MANUFACTURER
75	32	TAX DEDUCTED AT SOURCE
76		**Section III:**
77	I	QUANTITY PROCUREMENT
78	II	QUALIFYING REQUIREMENT
79		**Formats:**
80	-	ANNEXURE B- QUANTITY, PRICE AND DELIVERY PERIOD
81	-	ANNEXURE C-1 : MATCHING RATE
82	-	ANNEXURE – D : TECHNICAL SPECIFICATION
83		ANNEXURE – E : CONSENT FOR MSEDCL STANDARD TECHNICAL SPECIFICATIONS & GTP
84		ANNEXURE – F : LEGAL LITIGATION UNDERTAKING BY BIDDER
85	-	ANNEXURE – G :PRICE VARIATION
86	-	ANNEXURE – H :GUARANTEED TECHNICAL PARTICULAR
87		ANNEXURE – I: DECLARATION FORMAT.
88	-	ANNEXURE – J : DISPATCH INSTRUCTIONS
89	-	ANNEXURE – K : LIST OF STORES
90		ANNEXURE – L : INSPECTION CALL FORMAT
91	-	ANNEXURE – M : BANK GUARANTEE FORMAT FOR EMD

SR. NO.	CLAUSE NO.	DESCRIPTION
92	-	ANNEXURE – N : BANK GUARANTEE FORMAT FOR CONTRACT PERFORMANCE DEPOSIT
93		FORMAT-1 : ANNEXURE – U-I - INDEMNITY BOND
94		FORMAT-2 : UNDERTAKING FOR NOT APPROACHED ANY ONE FOR UNDUE INFLUENCE
95		FORMAT-3 : CERTIFICATE FROM CHARTERED ACCOUNTEANT FOR NOT HAVE CONTROLLING STACK IN MORE THAN ONE ENTITY APPLIED FOR THE TENDER / BID
96		FORMAT-4 : CERTIFICATE FROM CHARTERED ACCOUNTANT FOR AVERAGE ANNUAL TURNOVER
97		FORMAT-5 : CERTIFICATE FOR NO DEVIATION

==========

SECTION-I

INVITATION TO SHORT TENDER AND INSTRUCTION TO BIDDERS

TENDER FORM (NOT TRANSFERABLE)

(TO BE SUBMITTED ONLINE DULY FILLED IN AND DIGITALLY SIGNED)

To be submitted online not later than the date mentioned in the tender details. For participating in tender opening, the bidder can login at the specified time and date of opening of the tender, if he desires so.

The bidder is requested to quote his lowest rates F.O.R. destination for the supply of materials. The material is required at various places in the State of Maharashtra. The tender documents duly filled-in and digitally signed, are to be submitted online before due time & date of the submission of tender in prescribed form.

The modifications made to the terms & conditions shall applicable to this tender only.

FOR CHIEF ENGINEER (M.M.DEPARTMENT)

==========

INSTRUCTIONS TO THE BIDDERS

I SCOPE OF WORK:

The scope of work under this tender is for design, engineering (wherever applicable), manufacture, inspection & testing before dispatch, packing and supply of material / equipment as specified in Annexure-D (Technical Specifications) at various destination sites / stores centers of the purchaser in Maharashtra.

The actual quantity that will be procured may vary depending upon the site requirement. The quantity advertised against various capacities can undergo change.

The list of various destination sites / stores centers of the purchaser is enclosed as Annexure K.

II Qualifying Requirements:

Qualifying requirement will be as per Section-III.

III PRICES:

(i) Prices are acceptable only on F.O.R. destination basis inclusive of Goods and Service Tax (GST for brevity) i.e. Integrated GST (IGST) for outside State / Central GST+ State GST (CGST+SGST) for within State, risk in transit, freight showing the break-up as desired in the Annexure 'B'. It shall be noted that quotations not conforming to F.O.R. destination basis inclusive of IGST/(CGST+SGST) etc. and to the unit as specified in Annexure 'B', shall be rejected even though the bidder's offer may be lowest. The bidder shall quote Ex-Works Price and element of freight and insurance along with applicable rate of IGST/(CGST+SGST). The F.O.R. destination price i.e. up to site or the Store Centre of the purchaser as the case may be inclusive of IGST/(CGST+SGST), risk in transit and freight will be programmatically calculated. While raising the invoices, however, IGST/(CGST+SGST) should be shown separately in the invoice raised.

(ii) For each of the items quoted, bidder shall specify offered quantity. However, the offered quantity shall not be less than 20% of the advertised quantity (Advertised quantity means the quantity required as indicated in Annexure 'B' / Price Bid) so as to deliver the said quantity within the delivery requirement of the Purchaser as indicated in the tender documents.

IV TAXES:

(i) The Purchaser shall be registered under Goods and Service Tax Act and should comply with all the statutory compliance requirements of GST Law diligently.

(ii) It is imperative for the bidder to indicate the amount of IGST/(CGST+SGST) included in their price while giving the break-up of F.O.R. destination price in Annexure 'B', failing which, the offer will be treated as ambiguous and will be rejected as per the provisions of clause X of tender form.

(iii) After awarding the contract, the supplier shall not charge any additional amount towards GST; during the currency of contract except statutory variation by Central / State Government in normal (full) rate of integrated GST. In case the GST is decreased than the rate indicated in the price bid, the benefits of the

reduction in the GST shall be passed on to the purchaser. The increase in the GST rate due to increase in turnover during the contractual delivery period shall not be charged to the purchaser.

(iv) Necessary documentary evidence for the GST claimed shall be submitted along with the bills.

V BASIS OF PRICES:

The bidder shall quote the prices on firm price basis, as has been specifically brought out in the Tender Details. For any deviation in this regard, the offer shall be summarily rejected.

VI PRICE VARIATION:

Not applicable.

VII DELIVERY:

(i) Bidder is requested to quote delivery F.O.R. DESTINATION only & only in the unit of the item specified in Annexure 'B' i.e. if the quantity is in sets or in tones or in numbers or in kilometers or in coils, the rate of delivery shall only be in the same unit.

(ii) It is mandatory on the part of the tenderer to quote the delivery on monthly basis. If the offered delivery is indicated on quarterly basis, then the delivery would be counted proportionately in three equal installments per month for liabilities of the contract including levy of liquidated damages. If ordered quantity is less than offered quantity, delivery schedule will not be changed as per ordered quantity. Delivery schedule will be fixed as per offered quantity only.

(iii) Size mix for the purpose of delivery, when delivery is quoted in assorted items, shall be determined by the Purchaser while issuing the A/T or dispatch instructions and will be binding on the bidder. The Purchaser will also have the liberty of modifying the size mix for the purpose of delivery, even after the A/T is issued.

(iv) If the commencement period and rate of delivery per month is not indicated, the delivery period will be considered in equal installment per month on offered quantity.

(v) The scheduled delivery period is 3 months from the letter of award in equated monthly lots as per offered quantity.

(vi) MSEDCL may issue dispatch instructions as per requirement. The quantity demanded per consignee may be less than or equal to monthly lot specified in contract. Wherever as per demand, if the quantity to be supplied to a consignee in a particular month is less than monthly lot quantity; the said quantity will be treated as lot quantity for the purpose of delivery and payment.

(vii) MSEDCL may instruct the supplier to withhold entire or part of monthly supply of material for a specified period by giving two months advance instruction.

(viii) Time being the essence of contract, the supplier shall strictly maintain monthly delivery schedule.

The bidder is advised to get their type tests & drawing approval immediately after placement of LoA from Chief Engineer (Testing & QC) so that the material is received by the purchaser well within the committed delivery period. If there is any delay in delivery of material as per schedule, the undelivered quantity as per schedule can be diverted to other good performing bidder.

VIII OFFERING THE MATERIAL:

(A) The bidder shall offer the material as per MSEDCL technical specifications as per Annexure-D and shall have to fill the entire GTP.

(B) The person / entity should not have controlling stake in more than one entity applied for the tender / bid. **Necessary certificate duly certified by Chartered Accountant to this effect shall be submitted along with the tender documents**.

(C) Factory address, from which the bidder intends to supply the material against the tender, shall be as indicated in the latest approved online vendor registration form on e-tendering through which the vendor is submitting the offer.

(D) The bidder shall offer the rates, taxes as applicable for the factory location indicated in his latest approved online vendor registration form on e-tendering through which he is submitting his offer.

IX CONFLICT OF INTEREST

A bidder may be considered to have a conflict of interest with one or more parties in a bidding process if they:

(a) Have controlling shareholders in common; or

(b) Receive or have received any director in direct subsidy from any of them; or

(c) Have the same legal representative for purposes of a bid; or

(d) Have a relationship with each other, directly or through common third parties, that puts the mina position to have access to information about or influence on a bid of another bidder, or influence the decisions of the purchaser regarding the bidding process.

Bidders found to be in conflict of interest, shall be disqualified.

X QUOTATION:

(i) Bidder shall quote his rate per unit specified in Annexure 'B' / Price Bid in figures.

(ii) Bidder's printed terms and conditions will not be considered as forming part of the tender.

XI AMBIGUITY IN QUOTATION:

The bidder is requested to please make a note that in case of ambiguous terms in respect of offered quantity in Annexure- B and schedule 'C', F.O.R. condition, GST, basis of price (i.e. firm / variable) or if the blanks are left out in the offer, the item / tender shall be rejected.

XII FILLING IN OF ANNEXURE:

The bidder is requested to ensure that the comments against each and every item/clause of Annexure shall be clearly filled in and answered. Any item/clause shall not be left

blank or unanswered. If any item /clause is not applicable, the "Not Applicable (N.A.)" check box shall be selected.

XIII ADDITIONS/ALTERATIONS PROHIBITED:

The bidder shall not make any additions, alterations or changes in the Tender Form and the Conditions of Tender & Supply (Annexure 'A') including the description of material mentioned in Annexure 'B'. They should quote rate for the material described or click the check box 'Not quoted' against each of the item in Annexure 'B'/ Price Bid.

XIV B.I.S. LICENCE AND BEE CERTIFICATE : (If applicable)

A scanned copy of valid BIS License & BEE certifications for offered items ratings duly sealed & signed must be uploaded and submitted along with offer, failing which, the offer shall be rejected.

In case the validity of the BIS license / BEE certifications is expiring before date of submission of tender, necessary documentary proof of having applied for renewal of validity of the BIS license / BEE certifications must be uploaded while submitting the bid. The renewed copy of the BIS License / BEE certifications shall be submitted before commencement of supply.

However, valid BIS license / BEE certifications scan copy of offered material must be submitted by the qualifying bidders before commencement of supply, failing which their order will be cancelled with financial liability on supplier.

XV MANDATORY REQUIREMENT OF SUBMISSION OF OFFER:

The offer shall be submitted online duly filled in; attaching all the required documents, completed in all respects and should be digitally signed.

XVI SUBMISSION OF DRAWING & BILL OF MATERIAL:

The bidder shall submit the drawings and bill of material conforming to the tender specification wherever applicable. In such cases, the offer without the drawings and bill of material shall not be evaluated and considered. The drawings and bill of material submitted along with the bid shall not be considered for evaluation of the offer but the drawings and bill of material of the successful bidder shall be scrutinized when the Purchaser decides to accept such bid. It may, however, be noted that Purchaser's action of evaluation of the tendered bid would not mean approval of the drawings and bill of material submitted along with the tender bid.

The bidder shall depute his authorized representative for discussion on the drawings, either immediately on hearing from the Purchaser or after receipt of Letter of Award. The formalities like submission of drawings, bill of material etc. and getting the same approved by the Purchaser shall be completed by the successful bidder within TEN DAYS from the date of Letter of Award of the contract. The approval to drawings complete in all respects mentioned in technical specifications (Annexure-D) will be accorded within SEVEN working days thereafter. Any delay in this regard shall lead to cancellation of the Letter of Award at the risk and cost of the bidder. The supplies against the contract shall conform to the approved detailed drawings / bill of material and the detailed technical specifications.

==========

XVII NAME OF AUTHORIZED REPRESENTATIVE:

The digital certificate shall be in the name of person authorized by the firm. In case, the digital certificate is compromised or the person holding the digital certificate is no longer authorized to digitally sign the tender, it is the responsibility of the bidder to revoke this certificate and obtain the fresh certificate. While submitting the bids online only valid digital certificate shall be used. The vendors are requested to check the validity of digital signature and prior to the expiry date & they are requested to get their Digital signature key validated before expiry of the same. MSEDCL shall not be responsible for Non-submission of any of the Bids (Techno Commercial Bid, Deviation Bid, Price Bid, Annexure - C-1) by vendors due to expired/Invalid Digital signature.

The bidder is responsible for all the contractual liabilities and responsibilities thereof.

In case the bidder authorizes the representative to deal on behalf of the bidder, the name and address of such person should be informed to the purchaser. The bidder shall submit the power of Attorney in favour of representative duly executed before the Notary. In the absence of the Power of Attorney, the purchaser shall not deal with the representative.

XVIII (A) Offer of Micro & Small Enterprises: (If matching is called)

The bidder registered with Directorate of Industries of Government of Maharashtra for manufacturing the items tendered/offered and those who have attached valid certificate at the time of vendor registration shall be considered for concessions applicable and procurement of reserved items as per GoM G. R. dtd. 30-10-2015 amended up to date. These benefits shall be available only to those items approved during the registration process and subsequent updates in registration up to the submission of this tender.

Based on concession of Central Government's Micro &Small Enterprises office order dtd. 23-03-2012, 241 items are being kept reserved. As per above reservation of items 100% reserved items to be purchased from Micro & Small Enterprises out of which 20% reserved items to be purchased from S.C./S.T. enterprises. Reservation is applicable for a limited period unless & until re-examined. If Micro & Small Enterprises participated in the tender and the tendered item is not reserved, then 20% order with L-1rate to be given to Micro & Small Enterprises and out of this 20%, 4% to be given to S.C./S.T. enterprises.

If there are any specific Government Directives such as reservation of items for units in Maharashtra, non-eligibility of preference to SSI units etc. for particular items, price and purchase preference etc. the same would be applicable irrespective of the fact that it has not been specifically incorporated in the tender notice and/or tender documents.

(B) PREFERENCE TO INDUSTRIAL UNITS LOCATED IN MAHARASHTRA AND OFFERS BY MATCHING RATES WITH LOWEST ACCEPTABLE BIDDER

The lowest acceptable rate will be the unit rate worked out without considering IGST/(CGST+SGST) as applicable and the same rate will be considered as applicable to the respective bidder who has agreed to accept order at lowest acceptable rate.

(C) Matching of rates:

The confirmation for acceptance of the order at the lowest acceptable rate shall be given in the format as per Annexure -'C-l' of the tender documents by the bidder

other than L-1. The same should be submitted online on or before the due time and date of submission of Annexure- 'C-1'. The confirmation shall be opened online on due time and date of opening of Annexure-'C-1'. Item wise and bidder wise schedule for submission and opening of Annexure 'C-1' shall be communicated separately by auto generated e-mail and on the website. MSEDCL reserves the right to call & open the Annexure 'C-1' of limited bidders as per their price ranking and preference to industrial units located in Maharashtra.

In the above confirmation, if the bidder indicates any rate, then the confirmation given by the bidder will not be considered as valid.

Above confirmation for the quantity less than as indicated in Clause III (ii) (offered quantity shall not be less than 20 %) of Instructions to the bidder shall not be acceptable.

The prices indicated in the original offer shall not be considered as valid once offer for acceptance of order by matching rates is given. In the event of withdrawal of offer by matching rates within the validity period, the entire offer against the tender shall become invalid and shall be summarily rejected and the earnest money paid by the bidder shall be forfeited.

The lowest acceptable tenderer would be considered for awarding order for quantity subject to his capacity and capability as under.

XIX QUANTITY ALLOCATION:

1) If L-1 bidder is within Maharashtra State and if total tender quantity for quoted item is offered by L-1 then 100% quantity will be awarded to L-1 bidder for quoted item.

2) If L-1 bidder is within Maharashtra State and offered quantity is less than the tender quantity for quoted item then,

    a) Quantity allotted to L-1 bidder will be equal to quantity offered by him.

    b) Balance quantity after allotment as (a) above, will be distributed among Maharashtra State bidders as per their price ranking (if ready to match with L-1 rate) subject to maximum 50% of total tender quantity for quoted item to Maharashtra State bidders including L-1 bidder.

    c) Any balance quantity after allotment as (a) & (b) above, will be distributed as per their price ranking (if ready to match with L-1 rate) irrespective of bidder is Maharashtra or out of Maharashtra state bidder including partial allotment if any to Maharashtra bidder in (b) above.

3) If L-1 bidder is outside Maharashtra State then,

    a) If the L-1 bidder offered more than 50% of tendered quantity for quoted item then maximum of 50% of tender quantity for quoted item will be allotted to L-1 bidder.

    b) If the L-1 bidder offered less than 50% of tendered quantity for quoted item then quantity equal to offered quantity for quoted item will be allotted to L-1 bidder.

    c) Balance quantity after allotment as (a) or (b) above, will be distributed among Maharashtra State bidders as per their price ranking for 50% of required quantity (if ready to match with L-1 rate).

d) Any balance quantity after allotment as (a), (b) & (c) above, will be distributed as per their price ranking (if ready to match with L-1 rate) irrespective of bidder is Maharashtra or out of Maharashtra state bidder including partial allotment if any.

e) If all bidders including L-1 bidder are from outside Maharashtra state and if the offered quantity of L-1 bidder is 100 % then entire quantity will be allotted to L-1 bidder. If quantity offered by L-1 bidder is less than 100 %, then after allotting to L-1 bidder balance quantity will be allocated to remaining bidder who matched the L-1 rates as per price ranking & quantity quoted.

f) In spite of above the quantity allocation will be at the sole discretion of MSEDCL.

4) If new suppliers are allowed then maximum 20% of tender quantity will be reserved for new supplier as per their price ranking.

XX EARNEST MONEY DEPOSIT (EMD):

The bidder should pay the Earnest Money @ 0.5% (Half Percent) value of the estimated cost of offered quantity of the tender in the form of Demand Draft or Bank Guarantee as per the Annexure–M enclosed with tender documents having validity of 120 days from opening of tender. Interest shall not be allowed on EMD. EMD shall be forfeited (i) in case the bidder withdraws the tender / offer during the validity period (ii) in case the bidder fails to pay the performance deposit if the contract is awarded.

However, bidders from the following categories are exempted from payment of earnest money deposit.

1) All Government and semi Government institutions under Govt. of Maharashtra and Zilla Parishad in Maharashtra and fully owned undertaking of any State Govt. and Govt. of India only for the items manufactured by such institutions.

2) Micro and Small Enterprises registered under Micro, Small and Medium Enterprises Development Act-2006 only for the items mentioned in their permanent registration certificate at the time of vendor registration.

3) The bidder registered with N.S.I.C. and those who have attached valid N.S.I.C. Registration Certificate for the items mentioned in their permanent registration certificate at the time of vendor registration.

The benefits mentioned in (1) to (3) above shall be available only to those items approved during the registration process and subsequent updates in registration up to the date of submission of this tender.

Exempted bidders should upload a latest valid certificate issued by any approved body of 'Ministry of Small & Medium Enterprises' (MSME) such as 'National Small Industries Corporation' (NSIC) or 'Udyam registration' for EMD exemption.

XXI SIGNING OF THE TENDER DOCUMENTS:

Offer shall be submitted along with the tender documents and duly filled in with all Sections / Annexures / Appendixes / Schedules etc. The offer shall be signed with valid digital signature.

==========

XXII SUBMISSION / SUPERSCRIBING OF THE TENDER DOCUMENTS:

The offer is to be submitted as follows.

(a) **Online Submission:**

(i) Techno-Commercial Bid (Part-I): This part shall contain all technical and commercial aspects of the bid and documents supporting the same except the Price Bid.

The bidder is requested to please make a note that in case of the Price Bid (Part-II) is submitted instead of Techno-Commercial Bid in Part-I or submitted Price Bid (Part-II) along with Techno-Commercial Bid in Part-I, the offer shall be rejected.

(ii) Price Bid (Part-II)

This part shall contain only the Price Bid strictly in the prescribed format, i.e. Annexure'B'.

(b) Off line Submission:

Physical submission of documents (Part-III) – Not mandatory.

Envelope for this part shall contain documents like Type Test Reports, Drawings, Bill of Material, Catalogues etc. wherever applicable as per technical specification and they shall be scanned and these scanned documents to be taken into PDF format on CD media (2 sets) and are to be submitted to Executive Engineer (HTM-1) in the office of Chief Engineer, Material Management Department in sealed envelope on or before due date & time of submission.

METHOD OF SUBMISSION OF PART-III AND THEIR OPENING:

This envelope shall be individually sealed and shall be superscribed with the name and address of bidders and the following information before posting or delivering the same:

i. Tender No.

ii. Due date and time of submission.

iii. Due date and time of opening.

Envelope as above shall be submitted on or before the prescribed due date and time of submission and shall be opened on due date and time of opening as prescribed.

In case of bidders whose techno-commercial bid is acceptable, their Price Bids will be opened at a later date. This date shall be intimated to such bidders separately.

XXIII TIMELY SUBMISSION OF OFFER:

(a) The bid is to be submitted online on or before due date and time of submission to the Purchaser at website.

(b) It is advisable to submit the digitally signed offer sufficiently in advance of due date and time so as to avoid last minute congestion of network / server.

(c) Offer received after the due date and time of submission shall not be accepted.

(d) In case, the due date of opening of tender happens to be holiday, the offer shall be opened on the next working day at the same time.

XXIV PURCHASERS RIGHT:

The Purchaser reserves the right to reject any offer without assigning any reason whatsoever.

The Purchaser reserves the right to make any changes in terms & condition at any stage of the process without assigning any reason whatsoever.

If any type of legal litigation against MSEDCL is pending in any court/Forum against/by the bidder or its sister concern/Director/Partner/Proprietor, then purchaser reserves the right to reject partly or fully their bid without assigning any reasons thereof.

Bidder has to submit the declaration as per Annexure-F regarding no any type of legal litigation against MSEDCL is pending in any court/Forum against/by the bidder or its sister concern/Director/Partner/Proprietor.

XXV DISREGARD OF TENDER CONDITIONS:

Tender containing any deviations / additions / alterations / changes in the conditions of the tender and supply as stated in Annexure 'A', 'B', 'C-I', 'D', 'E' and schedule 'C' shall not be acceptable.

The bidder having digitally signed all the tender documents indicates any deviations / additions / alterations / changes in the covering letter, unrelated annexure and schedules of the offer or elsewhere, the same shall be ignored and the offer shall be treated as meeting with all specified tender conditions.

XXVI PROHIBITION FOR POST TENDER CORRESPONDENCE:

The Bidder should note that no correspondence shall be entertained or considered after the due date and time of submission of tender unless otherwise sought by the Purchaser.

The Bidder should also note that no correspondence shall be entertained or considered after the placement of LoA/AT unless otherwise sought by the Purchaser.

XXVII RIGHT TO ORDER OUT QUANTITY IN VARIANCE TO OFFERED QUANTITY:

The Purchaser reserves the right to order out / procure any quantity in excess of the offered quantity with change in delivery period with mutual consent. The quantity specified may be for dispatch to one destination or several places.

XXVIII ACCEPTANCE OF TENDER:

The Purchaser does not bind itself to accept the lowest or any tender; neither will any reasons be assigned for the rejection of any tender or part of tender. It is also not binding on the Purchaser to disclose any analysis report on tender/samples. The bidder on his part binds himself to supply any item or items selected from his offer in part or whole at the option of the Purchaser.

XXIX NOTIFICATION OF AWARD:

Notification of Award of contract will be made by a letter of Award, to be sent by registered post or given by hand or by E-mail to the successful bidder by the Purchaser. It could also be made by e-mail to be confirmed in writing by registered post to the successful bidder by the Purchaser.

XXX EARNEST MONEY OF UNSUCCESSFUL BIDDER:

Earnest money deposit will be returned to the unsuccessful bidder by RTGS within 7 (seven) working days after the tender has been decided and on submission of receipt of E.M.D. payment to the G.M. (F&A-SB), MSEDCL, Prakashgad, Prof. A.K. Marg, Bandra (East), Mumbai-400051. Earnest money deposit in the form of BG will be returned to the unsuccessful bidder within 7 (seven) working days by Chief Engineer, Material Management Department after the tender has been decided.

XXXI VALIDITY OF OFFERS:

The bidder shall keep the offer valid for acceptance up to and including last date of calendar month, covering the date of completion of 120 days (one hundred and Twenty days) from the date of opening of the tender and shall also agree to extend the period of validity required by the Purchaser. The bidder shall not be allowed to modify or change the conditions of the tender while extending the period of validity.

XXXII DECLARATION FROM BIDDER:

In order to ensure participation of reliable and honest bidders / contractors / vendors, etc. the bidder shall submit the declaration along with the bid in Annexure-I.

XXXIII CORRUPT OR FRAUDULENT PRACTICES:

The Maharashtra State Electricity Distribution Company Ltd. and the State require that bidders / suppliers / contractors observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, MSEDCL:

(a) defines for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and / or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and

(ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.

(b) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

(c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded an MSEDCL contract if at any time it determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, an MSEDCL contract.

XXXIV INFLUENCE:

Any efforts by the bidders to influence the owner during evaluation process before order placement will be rejected. Similarly deviation in the term of payments, penalty,

performance deposit, delivery period will be treated as non-responsive quotation/offer and will not be considered for evaluation/order placement.

Bidder shall submit the undertaking certifying that they have not approached any one for undue influence.

XXXV TENDER FEES EXEMPTION:

Tender fee to be paid at the time of uploading / online submission of the tender. Bidders from the following categories are exempted from payment of Tender fees:

1) All Government and semi Government institutions under Govt. of Maharashtra and Zilla Parishad in Maharashtra and fully owned undertaking of any State Govt. and Govt. of India only for the items manufactured by such institutions.
2) Micro and Small Enterprises registered under Micro, Small and Medium Enterprises Development Act-2006 only for the items mentioned in their permanent registration certificate at the time of vendor registration.
3) The bidder registered with N.S.I.C. and those who have attached valid N.S.I.C. Registration Certificate at the time of vendor registration.

The benefits mentioned in (1) to (3) above shall be available only to those items approved during the registration process and subsequent updates in registration up to the date of submission of this tender.

The tender fee paid against the particular tender shall not be refunded / transferred /adjusted at all.

XXXVI PRE-BID MEETING:

1) The bidder or its official representative is invited to attend pre-bid meeting (s) which will take place at the place, date and time designated in the Bidding Data.
2) The purpose of the pre-bid meeting(s) will be to present the salient features of the bidding documents to the bidders, including the bid submittal requirements, the Conditions of Contract (including payment terms and conditions), the technical features of the project, and to clarify issues and to answer questions on any matter that may be raised by the bidders.
3) The bidder is advised to visit the Site and study the bid document thoroughly, and is requested to submit any questions in writing or by E-mail, to reach the Employer not later than one week before the pre-bid meeting.
4) Minutes of the meetings, including the text of the questions raised and the responses given will be transmitted without delay to all the prospective bidders through the website https://etender.mahadiscom.in/eatApp/. Any modification of the bidding documents listed which may become necessary as a result of the pre-bid meetings shall be made by the Purchaser exclusively through the issue of an Addendum pursuant to Clause and not through the minutes of the pre-bid meetings.
5) Non attendance at the pre-bid meeting will not be a cause for disqualification of a bidder. Nevertheless, senior representatives of the bidders are strongly encouraged to participate in the pre-bid meeting to help ensure that they fully understand the key concerns of the Employer and the Employer's requirements.

==========

XXXVII CLARIFICATION ON DEVIATIONS:

The purchaser, if necessary, shall obtain clarifications on deviations within 1 or 2 working days by requesting for such information from any or all the bidders in writing, as may be necessary.

The same should be submitted online on or before the due time and date of submission of Deviation Bid. The clarification shall be opened online on due time and date of opening of Deviation Bid.

The Schedule for submission and opening of Deviation Bid shall be communicated by auto generated e-mail of the e-tender website.

CERTIFICATE:

I / We agree to supply the materials at the rates herein tendered by me / us subject to the conditions of tender and supply in Annexure 'A' of this tender which I / We have carefully read and which I / we have thoroughly understood and to which I / we agree. I / we hereby agree to keep this offer open up to the date mentioned in tender details and shall be bound by communication of acceptance dispatched within the validity period.

Seal & Signature of bidder

==========

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd.

SECTION-II

CONDITIONS OF SUPPLY

1) EFFECT OF CONTRACT:

The contract shall be considered as having come in to force and shall be in operation for a period of 3 months from the date of Notification of Award. The bidder whose offer is accepted is hereinafter called "the supplier".

2) QUALITY OF SUPPLIES:

All materials supplied shall be strictly as per specification laid down by MSEDCL and in accordance with the approved standard Guaranteed Technical Particulars (GTP), drawings and type test reports.

3) MATERIAL AND COMPONENTS:

The material and components not specifically stated in this specification but which are necessary for satisfactory operation of the equipment / items specified, shall be deemed to be included unless specifically excluded and shall be supplied without any extra cost.

4) ACCEPTANCE OF SUPPLIES / INSPECTION:

i) The supplier shall normally offer at a time, the entire quantity required to be delivered every month as per the delivery schedule indicated at Annexure 'B' of A/T for the purpose of inspection by the Purchaser.

Time being the essence of contract; the supplier shall strictly maintain the monthly delivery schedule.

ii) Materials shall be inspected by the Purchaser's Executive Engineer / or the representative authorized by the Purchaser before dispatch. An intimation in the prescribed Proforma about the date on which materials shall be ready for inspection, indicating quantity, shall have to be given to the Executive Engineer / or the representative authorized by the Purchaser before dispatch so as to reach him 10 working days in advance, failing which, the supplier shall be responsible for delay in delivery on account of inspection.

The intimation in the prescribed proforma (Inspection call) shall be forwarded on MSEDCL Material Inspection Portal i.e. https://mip.mahadiscom.in/InspectionPortal/. Inspection calls sent via any other media will not be entertained and the supplier will be responsible for delay in delivery on account of inspection.

The inspection call should reach to MSEDCL maximum 7 days prior to date of readiness. On receipt of such intimation, the materials shall be inspected within 10 working days from the date of receipt of inspection call. The materials shall be dispatched only after inspection and approval of same by the Inspector. The inspection approval letter shall be valid for a period of 30 days from the date of issue of letter to enable the supplier pack the material and arrange transportation thereof so that material should be reached at the respective consignee within scheduled delivery period.

After this period of 30 days, the validity of this inspection approval letter will lapse. If the material is not reached within scheduled delivery period to respective consignees, the approval of purchaser is to be sought by the supplier for revalidation of inspection approval letter at the sole discretion of MSEDCL.

For quantity supplied beyond contractual delivery period, statutory variations is applicable only when the delayed delivery is attributed to MSEDCL.

iii) The supplier shall notify the names of the consignees as per DI, to whom the inspected lot would be dispatched. The supplier shall get the copies of inspection approval letter together with witness certificate duly signed by the concerned Inspecting Officer and also mention reference or inspection approval letter on the challan / invoice, failing which any delay occurred in getting the S.R. Notes from the consignees would be solely to supplier's account. The inspection report shall be filled in online on the same day by the Inspector from the site on MSEDCL web portal after the inspection.

iv) Factory address, from which the bidder has to supply the material, shall be as indicated in the latest approved on line vendor registration form on e-tendering through which the bidder has submitted the offer.

v) The supplier shall offer inspection call intimation of readiness of material as per the monthly schedule only. In the event, during the inspection by the Purchaser's Inspecting Officer, if it is observed that the quantity actually offered for inspection is less than the quantity indicated for inspection in the inspection call, the Purchaser shall be entitled to recover from the supplier, the actual expenses incurred for arranging the inspection, and the supplier shall not dispute the amount to be recovered.

vi) The supplier shall submit the test certificates / reports from any NABL approved laboratory or the laboratory of his own for the respective quantity of material, before dispatch. The material shall not be dispatched unless and until the test certificates are approved by the Purchaser.

vii) All the necessary help shall be extended by the supplier to the authorized representative of the Purchaser to carry out testing of equipment / materials. Testing equipment's shall be arranged by the supplier.

viii) MSEDCL may issue the dispatch instructions (DI) to deliver the ordered quantity to the bidders in Maharashtra within same districts of factory location of the supplier. However, it will not be binding on the MSEDCL; supplier has to deliver the material in other districts as per MSEDCL requirement. Further outside Maharashtra bidders have to deliver the material as per MSEDCL requirement to the designated consignee.

ix) MSEDCL on its sole discretion may get material / equipment inspected and tested by third party NABL lab.

5) RIGHT TO CARRY OUT INSPECTION DURING MANUFACTURING:

The Purchaser at its option, will inspect the material ordered during its process of manufacturing including the inspection of raw materials and will request the supplier to carry out such tests as may be necessary to ensure proper quality of the material. The samples of components of the material shall be subject to quality check by the inspecting officer during manufacturing.

==========

6) RIGHT TO REVISE DESPATCH INSTRUCTIONS, DELIVERY SCHEDULE AND TO DEFER SUPPLIES:

i) The Purchaser reserves its right to revise the dispatch instructions issued along with the order, at the time of giving final clearance for dispatch after inspection of the material. If such change in destination is not intimated at the time of inspection approval or waiver of inspection, the supplier shall dispatch the material as per the dispatch instruction in accordance with A/T. indicated by him in the inspection call letter.

ii) The Purchaser reserves its right to change the delivery schedule of the contract either by reducing the monthly lot up to 60% of the agreed lot or by increasing the same up to 120% of the agreed lot with prior two months' notice and the Purchaser shall not be liable to pay any compensation/damages on account of such change in delivery schedule.

iii) The Purchaser reserves its right to defer the balance supply to be received against the order by giving two months' notice for a maximum period of 6 months. In such an event, the delivery period for the deferred material shall be deemed to be extended proportionate to the period of deferment and the Purchaser shall not be liable to pay any compensation/damages on account of such deferment of deliveries.

7) WAGON LOADS / TRUCK LOADS:

Quantity to be dispatched to consignee should be minimum in two full truck loads and may be part load as per the Purchaser's requirements may not necessarily be in full wagon load / truck load and may be part load as per the Purchaser's requirement.

8) ROAD TRANSPORT:

In case the supplier prefers to dispatch the materials by road transport at his risk and cost and without any extra cost to the Purchaser, the materials shall be accepted only during office hours on working days. The supplier should ensure that the goods reach the stores in first half so as to arrange their unloading during office hours, failing which, the Purchaser shall not be liable for delay in unloading and for inconvenience caused to the transport contractor in the form of detention etc. Unloading at stores will be arranged by the consignee.

9) DESPATCH INTIMATION:

The supplier shall inform by e-mail to the consignee details of dispatch along with e-way bill receipt in hard & soft format giving RR / LR No., Wagon / Truck No., Type of wagon, craneable consignment or otherwise, total value of consignment, etc. to facilitate the consignee to arrange for clearance of goods on cemmcmsedcl@mahadiscom.in or cemmcmsedcl@gmail.com.

10) BILL OF MATERIALS: (WHEREVER APPLICABLE)

The supplier shall furnish bill of materials for each type of equipment / material offered which should be consistent with the drawing, specification and guaranteed technical particulars. The copies of the bill of materials should always be enclosed along with the bill submitted by the supplier for payment wherein he should specifically mention the materials / components dispatched out of the bill of materials, if the equipment is not sent in totality. Where the equipment / material to be supplied consist of more than one component, the supplier claiming payment for equipment / materials shall certify that all components of the equipment / material have been supplied in full for the quantity indicated in the invoice. Part payment shall not be allowed.

==========

11) PACKING LIST:

Each package shall contain, in waterproof cover, the detailed list indicating the order reference, date, list of content and reference to the approved bill of materials. Each item contained in the package shall be described sufficiently to enable identification of the quantity, weight etc. There should not be any alteration in the packing list incorporated in the order, soft copy of the packing list should be sent to all the consignees and hard copy to G.M. (F&A-SB) should be enclosed with the bills along with other documents.

12) REPLACEMENT OF GOODS LOST, BROKEN OR DAMAGED:

Notwithstanding anything herein contained, the supplier undertakes to be responsible for the safe arrival of the materials in good condition and without any loss or damage at the final destination and until the same be actually delivered to and received by the Purchaser at its stores or other place of final destination and for this purpose, materials carried by railways or other carrier shall be deemed to be so carried at the risk of the supplier. In case of transit damage / shortages, the payment shall be made only for the quantity received in good and working condition and the consignee shall lodge claims with carriers and transfer the same to the supplier with all necessary documents for settlement of the same with carriers at the supplier's end. The transit damages / shortages / losses reported by the consignee shall be repaired / replaced by the supplier duly inspected, free of cost, within one month from the date of such intimation of breakages / shortages / losses without waiting for settlement of the claims from carrier or insurance co. etc.

However, rectification of minor defects at store locations are allowed for following minor defects only.

i. Leakages.

ii. Bushing replacement

iii. LA replacement

iv. Nut bolt tightening etc.

13) REPLACEMENT OF REJECTED MATERIALS:

If, on inspection at the final destination, the Purchaser discovers any loss in the materials supplied or that they are received in damaged condition or that in the opinion of the Purchaser, they are not of the contracted quality or specification, the Purchaser shall be entitled (notwithstanding that the property in the materials shall have passed on to the Purchaser) to refuse to accept or reject the materials altogether and claim damages or cancel the contract and buy its requirements from any of its suppliers stipulating earliest possible delivery and in accordance with its tender system against the supplier and recover the damages if any, from the supplier from any outstanding sums that may be due to the supplier from the Purchaser against this contract or against any of the contract entered into with the supplier, without prejudice to other rights and remedies available to it in law and reserving always to itself the right to forfeit the performance deposit placed by the supplier for the due fulfillment of the contract.

In case the stores / materials are found not in accordance with the prescribed specifications and / or the approved sample, the same will be rejected and the supplier shall replace the rejected stores / materials free of cost within one month from the date of intimation. The replacement of goods shall also have to be got inspected as per inspection clause. Further if the stores / equipment supplied becomes incomplete on account of either

rejection or short supply of its components, the complete cost of the stores / equipment shall be recovered from supplier's bills without notice.

14) MATERIAL DESPATCHED AND PROGRAMME:

A statement as under indicating dispatches effected during every month shall be furnished to this office along with the programme of manufacturing / dispatches during the following two months. In the event of no dispatch, the statement shall contain nil information.

MONTHLY STATEMENT:

I. Name of Supplier:

II. Reporting Month:

Sr. No.	A/T No.	Material	Item No. as Per A/T	Consignee	RR / LR Delivery Challan No. With date	Date of Actual Receipt of Material	Qty. Dispatched Between 26th of Preceding Month and 25th of the Reporting month	Programme of supply during the next 2 months
1	2	3	4	5	6	7	8	9

Consolidated details of the above information shall be furnished to office of the Chief Engineer (M.M. Dept.) after completing the supplies of a particular order. The copy of this consolidated information shall invariably be forwarded to the respective consignees, failing which; security deposit paid against the contract shall not be released.

15) MATERIAL RECEIPT & SUBMISSION OF BILLS AT CONSIGNEE:

On receipt of material at destination of consignee as per DI, Additional Executive Engineer (MM DEPT.) of respective store should ensure the receipt of material in good & healthy condition. While receiving the material, store in charge should ensure the receipt of material as per Dispatch Instructions issued by MM Dept. Further, the store in charge should ensure the receipt of original & scan copies of following documents:

a) Tax invoice.

b) Detailed packing list.

c) Bill of Material.

d) Delivery challan.

e) E-way bill receipt.

f) Dispatch document (RR/LR).

On confirmation & validity of above documents, store in charge will generate Provisional SR Note through ERP system immediately for receipt of material at stores thereof.

Where required by the Purchaser, the successful bidder must send the operation and maintenance manuals, test certificates, drawings etc. for the material ordered. These should be sent immediately after dispatch of material and a statement to that effect should be made in the invoice.

After successful RST of supplied each lot, store in charge will generate final SR note through ERP system immediately from receipt of RST report at stores.

16) PAYMENT OF BILLS:

(a) Terms of payment:

a. The Bidder shall be paid 100% payment within 60 days from the date of receipt of material in good condition, against Stores Receipt Notes (S.R. Notes) issued by the concerned consignee.

b. However, in respect of only those entities which qualify for 45 days payment period under the Micro, Small and Medium Enterprises Development Act, 2006, 100% payment of the Contract price will be paid within 45 days from the date of receipt of material at Consignee Store in good condition, against Stores Receipt Notes (S.R. Notes) issued by the concerned consignee.

c. In respect of Micro, Small and Medium Enterprises, best efforts will be made for payment within 45 days from date of submission of invoice along with requisite documents after the delivery of entire lot. However, no claim for interest will be entertained in case of delay in payment beyond 45 days. The Micro, Small and Medium Enterprises who are ready to accept this payment term may only quote. No dispute in this regard will be entertained. After completion of order, the claims of whatsoever nature lodged after 30 days from the last date of payment will not be entertained.

d. The payment shall be effected by A/C payee cheques / RTGS. Following documents as required in terms of order, will have to be forwarded to the G.M. (F&A-SB), Maharashtra State Electricity Distribution Co. Ltd., Prakashgad, Station Road, Bandra (East), Mumbai - 400 051 along with bills in triplicate to facilitate payment with a copy to the Chief Engineer of respective Zone.

(i) Invoice (on the basis of rates accepted as per A/T) issued in accordance with the provisions of GST Invoice Rules.

(ii) Inspection and Test Certificate approval.

(iii) E Way Bill

(iv) Copy of Acceptance letter of Permanent Bank Guarantee / Security Deposit Certificate.

(v) Packing list.

(vi) Approved Bill of Material.

(vii) Certificate of having dispatched Operation & Maintenance Manual, copies of Test Certificates and approved drawings / Bill of Material to consignees wherever applicable.

The supplier shall forward the original R.R. / L.R. direct to the consignee along with relevant documents. The original bill shall be forwarded to The G.M. (F&A-SB), MSEDCL, Prakashgad, Bandra (E) and marked ORIGINAL. The bill should indicate the GST registration no. and date held by him under the GST Law. The Purchaser shall not be responsible for delay in payment of bills if the supplier fails to comply with any of the above requirements.

Supplier's copy of S.R. Note will be forwarded by the consignees through their

respective Common Stores for supplier's record towards acknowledgement of receipt of material. Accounts copy of S.R. Note will be forwarded by the respective Common Stores to G.M. (F&A-SB) for payment.

Wherever the payment is to be effected against Material Receipt Intimation (MRI) and if the supplier fails to forward the documents such as inspection report, bill of materials, approved drawings, etc. wherever required along with the invoice to the respective consignees and no payment shall be made against the said MRI.

The whole of the first lot as well as monthly lot when delivered in installments, the date of delivery and due date of payment will be counted after the receipt of the entire lot.

Any amount more than Rs. One Lakh can be transferred to the bank Account of the supplier electronically. For this RTGS (Real Time Gross Settlement) provision, following information is to be furnished by the bidder in the required documents of the online offer.

1. Name of the Company
2. Name of the Bank & Branch with address where the amount is to be transferred.
3. Current Account Number (15 digits)
4. RTGS No. / (IFSC Code) (Indian Financial Security Code)
5. MICR Code of the Bank
6. Company's email ID
7. Contact Name & Telephone No.

17) TAXES:

(A) Notwithstanding the fact that contract price is inclusive of GST:

(i) GST shall be paid at actual on the basis of due date of delivery or actual date of supply whichever is lower against documentary evidence.

(ii) Variation in GST on bought out items shall not be entertained.

(B) Structural changes in and due to 'Input Tax Credit' Scheme: -

(i) In the event of any structural change occurred in the Input Tax Credit Scheme after the date of submission of the tender till the currency of the contract, the benefit out of such change shall be passed on to the purchaser.

(ii) In the event of 'Input Tax Credit' being extended by the GST Law which were otherwise ineligible for claiming Input tax credit thereof, the seller should advise the purchaser about the additional benefits accrued or any variation thereof, through a letter containing such details and computation within such time as may be agreed between both the parties i.e. Supplier & MSEDCL.

18) DEDUCTION:

Any amount or amounts which become payable by the supplier to the purchaser under a particular contract, shall be deducted by the purchaser from any amount/amounts due or becoming due to the supplier under the same or any other contract and shall be adjusted against dues to the Purchaser.

==========

19)GUARANTEE:

Material offered shall be guaranteed for a period 66 months from the date of receipt at the consignee's Stores Center or 60 months from the date of commissioning, whichever is earlier. In case of failure of material within the above guarantee period, tenderer shall make available other new conditioned / repaired material / equipment, free of cost at Division / Stores/Site for replacement within 45 days from the date of intimation from Division filter unit / Stores/Site and lift the failed material / equipment for repair rejected material after replacement. For this purpose, bidder shall maintain spare stock in adequate quantity of ordered ratings of material / equipment. If the defective material is not replaced / repaired within the specified period as above, the Maharashtra State Electricity Distribution Company Ltd. shall retain an equivalent end cost of material plus 15% supervision charges from any of the bills of the supplier or encashing available performance bank guarantee submitted against guarantee period or through any available sources, till the return of the equipment. No interest will be paid on the amount so retained / recovered. In case of material / item not returned duly repaired within 45 days, penalty shall be imposed @ 0.5% per week or part thereof maximum up to 10% of the cost of undelivered material / equipment beyond specified time limit. In case of material / item not returned duly repaired within 5 months, total cost of the material / item along with penalty will be adjusted / recovered from the pending bills of the supplier or encashing available performance bank guarantee submitted against guarantee period or through any available sources with MSEDCL.

The guarantee period failed material / equipment will be made available at MSEDCL filter unit. Loading and unloading of guarantee period failed material / equipment should be arranged by the supplier.

The clause itself shall be the notice to the supplier about encashment of PBG to adhere to the timelines.

The outage period, i.e. the period from the date of failure till unit is repaired / replaced shall not be counted for arriving at the guarantee period. Thus supplier has to extend the guarantee period by outage period.

Further, in case of repeated failures of equipments / material, the Purchaser reserves the right to debar / disqualify the supplier for future tenders / orders.

20) LIFTING OF MATERIALS:

A) LIFTING OF REJECTED/DAMAGED MATERIALS FROM STORES:

(a) On failure to replace or repair the transit damaged or rejected material within one month from the date of intimation as required under tender, it shall be deemed to have concluded that such material is finally rejected. The damaged / rejected material shall be lifted by the supplier within 30 days from the date of receipt of notice to that effect from the concerned consignee on reimbursement to the Purchaser of the cost of the material / equipment, if any, already paid in terms of payment clause in the contract and actual expenses incurred by the consignee towards handling, demurrage / wharfage / undercharges, freight, insurance premium etc. The Purchaser shall not be responsible in any case for the loss, destruction, damage, deterioration of the material after expiry of the said 30 days period.

(b) If the supplier fails to lift the material within this period, the material will remain with the Purchaser at the cost and risk of the supplier. Supplier shall, therefore, be liable to

pay ground rent @ 0.1% (Plus GST as may be applicable) per day of purchase cost of the material to be lifted from the date of intimation of rejection till the actual date of lifting.

(c) The Purchaser will give 7 days' notice for lifting of rejected material and if not lifted, will be also free to Scrap / dispose of such material, after the period of said 37 days, by Public auction/Tender notice/Destruction as may be deemed fit and storage charges @ 0.1 % (Plus GST as may be applicable) per day of purchase cost will be recovered from the date of intimation of rejection of materials till the date of realization of the sale amount/physical removal of the material besides the actual expenses incurred as referred to at (a) above. The amount received from the sale of scrap/rejected material will be adjusted in the penalty.

Notwithstanding what is contended in the foregoing clauses, the supplier shall be liable to pay the Purchaser the cost and expenses incurred by the Purchaser, if any, including ground rent and the same shall be appropriated and recovered from the sale proceeds.

B) LIFTING OF FAILED MATERIAL / EQUIPMENT FROM DIVISION FILTER UNIT/SITE:(If applicable)

a) If the supplier fails to lift the failed material within specified period, the material will remain with the Purchaser at the cost and risk of the supplier (By recovering end cost of failed transformer). The Purchaser will be also free to dispose of such material, after the period of 5 months from the date of intimation of failure by Public auction / Tender notice / Destruction as may be deemed fit or repaired departmentally and recovered cost will not be refunded to supplier.

b) Process for lifting of rejected / damaged / failed materials from Divisions / Stores/Site:

i. The communication / correspondence shall only be made by specified e-mail id cemmcmsedcl@gmail.com by MSEDCL field offices / the supplier.

ii. As soon as the material/equipment is failed within guarantee period, the concerned Executive Engineer of O&M Division / Stores-in-charge shall inform the intimation of such failure immediately to Supplier as well as Material Management Department, Head Office on specified e-mail id in Format A (failure report).

iii. The Material Management Department will forward the format A to SB Section, Head office to withhold the payment equivalent to the cost of material/equipment with 15% supervision Charges from any of the bills of the supplier. If the supplier fails to return repaired material/equipment at concern O&M Division / Store/Site within 45 days from the date of intimation, penalty to be imposed @ 0.5% per week or part thereof maximum up to 10%.

iv. On receipt of material/equipment against replacement or repairs, the Executive Engineer, O&M Division / Store-in-charge will issue Format C (Rectification report) to concern supplier with copy to Material Management Department Head Office through specified e-mail id.

v. The supplier shall note that the guarantee period for the delayed period taken for replacement / repairing of material/equipment will be automatically extended.

vi. Material Management Department Head Office shall inform the SB Section, Head office to release the payment withheld against that material/equipment.

vii. From the date of intimation, if supplier fails to return repaired material/equipment at O&M Division / concern store within 5 months, concerned Executive Engineer of O & M Division / Stores-in-charge shall inform the intimation of such failure immediately to Material Management Department, Head Office on specified e-mail id.

viii. The Material Management Department Head Office shall forward the same to SB Section, Head office to recover the payment equivalent to the cost of material/equipment from any of the bills of the supplier with penalty to be imposed @ 0.5% per week or part thereof maximum up to 10% for final recovery as per clause 19.

21) LIQUIDATED DAMAGES FOR LATE DELIVERY:

In case the materials are not delivered within the period stipulated in the order, the supplier shall be liable to pay at the discretion of the competent authority of the Purchaser, the liquidated damages to the Purchaser @ 1% per week or part of week on the value of delayed material / unexecuted quantity plus taxes as applicable, if any on the price subject to a maximum of cumulative ceiling of 10% reckoned on the contract value of such complete portion or section of the plant, equipment or material delayed and also the portion supplied which could not be brought into commission due to any part thereof not having been delivered in time. In addition to above if bidder fails to supply the material within contractual delivery period continuously for 3 lots, then the order shall be liable for cancellation.

Due consideration may be given in the levy of liquidated damages for reasons absolutely beyond the control of the supplier, for which documentary evidence shall be produced to the satisfaction of the competent authority of the Purchaser.

The Purchaser shall be entitled to deduct/recover the amount of liquidated damages from the current bill payable to the supplier or any other amount due or payable to him against this or any other contract.

For computing the liquidated damages for delayed supplies, the date of railway receipt or the date of receipt of materials at stores in case of road transport, shall be the date of delivery.

In case the Purchaser does not arrange for inspection of material within 10 days from the date of receipt of inspection call to MSEDCL wherever applicable, the period of more than 10 days till inspection will not be considered for levy of liquidated damages. For computing the period taken for inspection in such cases, the relevant date mentioned in the inspection certificate issued by the inspecting officer would be considered.

22) ORDER PLACED ON TIME PREFERENCE BASIS (WHEREVER APPLICABLE):

In case of order on time preference basis (i.e. orders given at higher rate on delivery period considerations only) if order is given at higher rate of L-2 (or L-3 etc.), then the payment at higher rates will be made provided the firm makes supplies within the stipulated time period. In case of delay in supplies, the payment will be made at the rates offered by L-1. In addition, Clause No.21 above for Liquidated Damages for late delivery will also be applicable. However, the quantity allocation for order under this clause shall be at the sole discretion of MSEDCL & the specified quantity allocation for this tender will not be applicable in this case.

23) FORCE MAJEURE CLAUSE:

If, at any time, during the continuance of this contract the performance in whole or in part by either party of any obligation under this contract shall be prevented of delayed by reason of any war, hostility, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restriction, strikes, lock-outs or acts of God (herein after referred to as

"events"), provided notice of happening of any such eventuality is given by either party to the other within 21 days from the date of occurrence thereof, neither party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance; and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the purchasing officer as to whether the deliveries have been so resumed or not, shall be final and conclusive, provided further that if the performance in whole or part of any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 60 days, either party may at its option terminate the contract PROVIDED ALSO that it the contract is terminated under this clause, the purchaser shall be at liberty take over from the contract at a price to be fixed by the purchasing Officer which shall be final all unused, undamaged and acceptable materials, bought out components and stores in course of manufacture in the possession of the contractor at the time of such termination or such portion thereof as the purchaser may deem fit accepting such material, bought out components and stores as the contractor may with the concurrence of the purchaser elect to retain.

24) ACCEPTANCE OF LOWER FORD RATE OFFERED IN SUBSEQUENT TENDER :

During contractual delivery period of supply, the quoted rates shall remain the same, however for same specification of material if the rates will receive lower in another subsequent tender in extended period of contract then it is binding on the supplier to supply the same material at lower rate for balance quantity of material i.e. in case if price bid of next subsequent tender of similar technical specification is opened and FORD rate found lower than the ongoing contracts this FORD rate shall be made applicable for the balance quantity beyond contractual delivery period. Further the purchaser reserves the right to allow the supplier to deliver the quantity or otherwise beyond the contractual delivery period.

However other stipulations of clause No. 23 of Section-II i.e. Annexure-A will remain unchanged.

25) PERFORMANCE OF CONTRACT:

The Purchaser will not be in any way liable for non-performance either in whole or in part of any contract or for any delay in performance thereof in consequence of strikes, shortage, non-availability of raw materials, combination of labour or workmen or lockout, breakdown or accident to machinery or accidents of whatever nature, failure on the part of the railways to supply sufficient wagons to carry essential raw materials etc. and finished products from the stores, subject to the provision and stipulation made in condition No. 21 as stated above i.e. Liquidated damages for late delivery.

26) CONTRACT PERFORMANCE DEPOSIT:

a) The supplier will have to furnish contract performance deposit as per Annexure - N in the form of unconditional & irrevocable BG within ~~15~~ 10 days from the date of issue of LoA.

b) The contract performance deposit shall be an amount equal to 5% of the contract value and shall be valid for a period of 90 days beyond guarantee period of the last lot of the equipment supplied.

c) The contract performance deposit shall be refunded within 90 days from the date of expiry of the guarantee period of the equipment supplied. The purchaser shall not be liable to pay any interest or compensation to the contractor for retaining the deposit after the end of the said period.

d) The contract performance deposit is intended to secure the performance of the contract for guarantee period of the equipment supplied. However, it is not to be construed as limiting the damages stipulated in other clauses of the contract.

27)POWER OF ATTORNEY:

It will be obligatory on the supplier to communicate the revocation of Power of Attorney, if any, after submission of offer till the execution of contract failing which the act/s & action done by the agent / representative shall be deemed to be the valid act/s & action of the bidder / supplier.

28)SETTLEMENT OF DISPUTE:

Permanent Dispute Resolution Committee (PDRC) comprises of Chief Engineer (MM Dept.), one member of Accounts Department and representative of supplier will resolve the dispute arise if any.

29)JURISDICTION:

Any disputes or difference arising under, out of or in connection with this tender or contract if concluded, shall be subject to the exclusive jurisdiction of the "Courts" in Mumbai.

30)TERMINATION OF CONTRACT

1) The decision of the Purchaser shall be final as regards the acceptability of the stores supplied by the supplier and the Purchaser shall not be required to give any reason in writing or otherwise at any time for the rejection of the stores/materials.
2) In case the contractor/supplier fails to deliver the stores/material or any consignment thereof within the contracted period of delivery as per delivery schedule or in case the stores/materials are found not in accordance with the prescribed specification and the performance of the supplied material is not found satisfactory, the Purchaser shall exercise in discretionary power either,
   a) To purchase from elsewhere, after giving 15 days due notice to the contractor, at the risk of contractor, such stores/material not so delivered or other of similar description, without cancelling the contract in respect of consignment not yet due for delivery,

      OR

   b) To cancel the contract reserving Purchaser's right to recover damages Plus GST as may be applicable.
   c) notwithstanding that the powers under (a) and (b) referred above are in addition to the rights and remedy available to the Purchaser under the General Law of India relating to contract.
   d) Purchaser reserves right to recover damages against risk purchase or 10% value of non-supplied material plus applicable taxes, if any whichever is higher.

   In the event of risk purchase of stores of similar description, the option of the Purchaser shall be final. In the event of action taken under (a) or (b) above, the supplier shall be liable for any loss which the Purchaser may sustain on that account but the supplier shall not be entitled to any saving on such purchases made against default.
3) Further contract can be terminated in case of sub-standard /poor quality material.

==========

31) DEBAR / BLACKLISTING OF MANUFACTURER:

In the event of fraudulent practices / non-compliance / non fulfilment of any obligation as required by MSEDCL at any stage of tendering or execution, the bidder is liable to be debarred / blacklisted at the discretion of MSEDCL.

32) TAX DEDUCTED AT SOURCE:

The purchaser shall deduct tax at source in accordance with the provisions of the laws as and when the same is notified.

==========

SECTION-III

I. Quantity procurement :

The quantity for procurement is as below.

Sr. No.	Item code	Item description	Unit	Tender quantity in nos.	Estimated cost of tender (Crores)
1	81001345281	33 KV Vacuum Circuit Breaker 1600 A (Outdoor)	No.	740	20.66
2	82155000484	11 KV Vacuum Circuit Breaker 800 A (Outdoor)	No.	1114	18.64
3	82155000214	11 KV Vacuum Circuit Breaker 400 A (Outdoor)	No.	1800	26.57

II. Qualifying Requirements:

1. The bidder shall be an Original Equipment Manufacturer (OEM).

   Upload:

   a) Udyam adhar / Certificate of Incorporation etc.

2. The bidder should have experience for supply of similar or higher rating of material / equipment to any Electricity Distribution Utility, Electricity Distribution Franchisee or Public Sector Undertaking and should have executed orders of 30% of tender quantity for offered item during last three financial years.

   Bidders who supplied the material in MSEDCLs projects viz; INFRA - II, IPDS, DDUGJY, DPDC, DDF, Non DDF, HVDS or any other scheme shall also be considered & bidder shall produce the order completion / quantity supplied certificate from concern Superintending Engineer (Infra/O&M).

   Upload:

   a) Copies of orders executed by the bidder and the Certificate from the purchaser with regards to successful execution of the order / supply of quantity for preceding three financial years.

   b) List of orders in hand.

3. For all tendered material, valid Type test certificates (If applicable) as per MSEDCLs technical specifications (Annexure-D) which are carried out within 5 years prior to the date of opening of tender from NABL accredited lab such as CPRI / ERDA shall be uploaded in the bid. Bids without the Type test certificates shall not be considered for further evaluation.

   Upload:

   a) Type test certificates from NABL accredited lab such as CPRI/ERDA valid for a period of five years.

4. Average Annual Turnover – The Average annual turnover of last three financial years of the bidder shall be 30% of the tender estimated cost of offered quantity. The bidder has to submit the annual turnover certificate of the company of last three financial years duly certified by Chartered Accountant.

==========

Upload:

a) Documentary evidence showing annual turnover of last 3 years, certified by Chartered Accountant for preceding three financial years. (As per attached Format-4)

5. The bidder should have in-house testing facilities for conducting acceptance & routine tests in accordance with the procedures laid down in relevant IS /IEC amended up to date.

Upload:

a) List of in house manufacturing and testing facilities as well as quality control set up.

6. The bidder shall have ISO certification for quantity management system & environmental management system.

Upload:

a) ISO for quantity management system.

b) ISO for environmental management system.

7. Following Documents should be submitted by the bidder along with the bid.

Upload:

a) Documentary evidence (for e.g. Udyam Registration/NSIC/Chartered Accountant/Engineer Certificate) for manufacturing capacity to cover the quantity offered by the bidder and considering orders in hand.

b) Certificate from Charted Accountant for not having controlling stake in more than one entity as per attached Format-3.

c) Annexure-F regarding declaration of legal litigations.

d) Annexure-I regarding debar undertaking.

e) Self-undertaking on bidders letter head for not approaching any one for undue influence as per attached Format-2.

f) GST registration certificate.

g) EMD receipt (Bank Guarantee or Demand Draft)

h) Power of attorney.

i) Certificate for No Deviation as per attached Format-5.

==========

ANNEXURE - "B"

QUANTITY, PRICE AND DELIVERY PERIOD

ANNEXURE - "B" to be submitted online against commercial bid; attached separately

==========

ANNEXURE'C-1'

[To be submitted later on as per as per Clause XVIII (B) of Instructions]

CONFIRMATION FOR ACCEPTING ORDER BY MATCHING RATES WITH LOWEST ACCEPTABLE BIDDER

APPLICABLE FOR INDUSTRIAL UNITS FROM MAHARASHTRA ONLY Marketing Assistance and Purchase Preference to the units from Maharashtra (refer Clause XVIII of Instructions to Bidders):-

1. (a) In case your unit is located in Maharashtra and the lowest acceptable rate received against the tender is from the unit outside Maharashtra, please confirm whether you are agreeable to accept order at that lowest acceptable rate limited to 50% (fifty percent) of our requirement. .....

APPLICABLE FOR ALL BIDDERS INCLUDING THOSE ELIGIBLE UNDER THE ABOVE CLAUSES:

1. (b) Please confirm whether you are agreeable to accept order at the lowest acceptable rate received against the tender. .....

[Industrial units from Maharashtra can give option under 1(b) above for balance quantity]

Note:-

1. If the bidder gives the above confirmation for the quantity less than as indicated in Clause X (iii) of the Instructions to the Bidders, then the above confirmation shall not be acceptable.
2. Bidders may confirm matching for one or more items originally tendered.
3. Any withdrawal of confirmation for order by matching rate within validity of offer will render the entire offer invalid and shall be summarily rejected and Earnest Money Deposit shall stand forfeited.
4. A bidder will not be entitled to the benefit of offers by matching rates and will not be considered for orders if his original offer is rejected on the ground of ambiguity or because of not accepting /noncompliance of the terms & conditions of the tender.
5. In the above confirmation, if the bidder indicates any rate, then the above confirmation given by the bidder will not be considered as valid.

==========

ANNEXURE- 'D'

TECHNICAL SPECIFICATION

As Indicated in E-Tendering

==========

ANNEXURE-E

CONSENT FOR MSEDCL STANDARD TECHNICAL SPECIFICATIONS & GTP

Not Applicable

==========

ANNEXURE-F

(On supplier's Letter Head)

I, ... certify that,

The business dealings with our firm / agency M/s…….. and its sister concern/Director/Partner/Proprietor have no any type of legal litigation against MSEDCL is pending in any court/Forum against/by the bidder or its sister concern/Director/Partner/Proprietor.

If it is found at any stage of tendering and order execution process then as per the tender conditions our offer will be rejected and I /We don't have any objection on the same.

I hereby certify that I am duly authorized representative of M/s.---------- whose name appears above my signature.

Bidders Name:

Authorized representative's signature:

Authorized representative's Name:

Seal of the company

Name and address of the Bidder

Date:

==========

ANNEXURE -G

PRICE VARIATION CLAUSE

Not Applicable

==========

ANNEXURE - H

GUARANTEED TECHNICAL PARTICULARS

As indicated in E-Tendering GTP Parameter

==========

ANNEXURE - I

(On supplier's Letter Head)

I, ... certify that,

a. The business dealings with our firm / agency M/s…….. have not been debarred by any Ministry of GoI / GoM / state owned electricity distribution utility and still in force.

b. The Directors, Proprietors, Partners, Employee(s) or owner of our firm / agency M/s…….. have not been either jointly or severally guilty of malpractices in relation to its business dealings with the Government or MSEDCL during the last five years.

I hereby certify that I am duly authorized representative of M/s.---------- whose name appears above my signature.

Bidders Name:

Authorized representative's signature:

Authorized representative's Name:

Seal of the company

Name and address of the Bidder

Date:

==========

ANNEXURE - J

(On MSEDCL Letter Head)

Dispatch Instructions

BY R. P. A. D. / ORD. POST /E-MAIL

(SAP CONTRACT No: ----------)

To,

M/s. ----------

Email: ----------

Sub: Supply of ---------- against A/T No. ---------- dt. ----------

Ref: Final Inspection Call letter No. ---------- dt. ----------.

(I.W. Regn. No. ------- dt. ----------)

Your readiness of material letter no. …….. dtd……..

Dear Sir,

With reference to the above, you are requested to dispatch …….. VCB as given below:

Sr. No.	Consigned to	Meant for Circle	Meant for Zone	Qty. in Nos.

Further, you are requested to contact concerned S.E. (O&M) Circle / E.E. (O&M) Division / Addl. E.E. (MM Section) before dispatching / unloading the above material.

This is issued without prejudice to all other terms and conditions of the order.

Yours Sincerely,

Chief Engineer (M M Dept.)

Copy f.w.cs.to: The C.E., MSEDCL, ----------.

Copy to:

The G.M. (F & A – SB), MSEDCL, Mumbai.

The E.E. (IW), MSEDCL, Mumbai.

The E.E. (O & M Division), MSEDCL, ----------

The Addl.E.E. (MM Section), MSEDCL, ----------

==========

ANNEXURE - K

List of Stores

Sr. No.	Name of Stores	Address
1	Common Stores Ahmednagar	Nagar-Pune Road, Opp. Arti Hotel, Kedgaon, Ahmednagar.
2	Common Stores Airoli	Power House, Thane-Belapur Road, Airoli, Navi Mumbai.
3	Common Stores Akola	Major Store Babhulgaon NH No 6 Akola.
4	Common Stores Amravati	Major Store MSEDCL Power House, Mulshi Road, Amravati.
5	Common Stores Chhatrapati Sambhajinagar	MIDC Plot No. J-13, Opp. Garware Stadium, Naregaon Phata, Chikhalthana, Chhatrapati Sambhajinagar.
6	Common Stores Beed	Near 132 kV Sub-station, Idgah Nagar, Nalvandi Naka, Beed.
7	Common Stores Chandrapur	Near Vidyut Bhavan, Bagala Chaowk, Babu Peth, Chandrapur.
8	Common Stores Jalgaon	Old MIDC Area, Behind Ajanta Lawns, Ajanta Road, Aurangabad Highway, Jalgaon.
9	Common Stores Kalyan (Netivali)	MIDC Phase 1, Near Tata Power House, Kalyan - Dombivali Road.
10	Common Stores Kamptee	Maldhakka Godown, Behind Railway Station Kamatee, Nagpur.
11	Common Stores Khamgaon	Manav Dharm Bld. Near 132 kV Sub-Station, Shegaon Road, Khamgaon, Dist. Buldhana.
12	Common Stores Kolhapur	Kaneri Math Road, A/P Gokulshirgaon, Tal. Karveer, Dist. Kolhapur.
13	Common Stores Kudal	Malwan Road, MIDC Pinguli-Nerur, Kudal, Sidhudurg.
14	Common Stores Latur	MIDC Plot No. P-21/P, In Front of Kirti Gold Oil Mill, Latur.
15	Common Stores Mulshi	Phursungi-Saswad Road, Near Overhead Bridge, Mulshi/ Phursungi, Dist. Pune.
16	Common Stores Nanded	Taroda Naka Main Road, Nanded.
17	Common Stores Nashik	Aringale Plot, Hanuman Nagar, Jail Road, JunaSaykheda Road, Panchak, Nasik.
18	Common Stores Dharashiv	Near MSEDCL Rest House, Tuljapur Road, Dharashiv.
19	Common Stores Palghar	Near 33/11 kV Sub-Station, MSEB Coloney, Boisar Road, Palghar.
20	Common Stores Parabhani	Old Power House Jintur Road, Parbhani.
21	Common Stores Ratnagiri	MIDC Area Mirjole, Kuwarbav, Ratnagiri.
22	Common Stores Sangli	Near Walchand Engineering College, VishramBaug, Sangli.
23	Common Stores Satara	A/P Satara, Tal. Koregaon, Dist. Satara.
24	Common Stores Solapur	Plot No P-4, MIDC Chincholi, Behind Post Office, Solapur
25	Common Stores Tumsar	Near Power House, Nakaq Dongari Road, Old Bus Stop, Tumser, Bhandara.
26	Common Stores Yavatmal	MIDC Lohara, Yavatmal.

==========

ANNEXURE – L

Format for Inspection Call Readiness of Material

Ref. No. **Date:**

To,
The CE (MMD),
Prakashgad, Bandra (E),
Mumbai - 400051.

Sub: Inspection Readiness of material against A/T No. ---------- dated. ---------- for Supply of ----------.

……

1. Brief description of the material Offered for inspection:
2. Reference of drawing Approval :
3. a) Reference of approval of type test:
   b) Reference of approval of balance type test (If applicable):
4. Whether it is a joint inspection with Testing SE (TQA) etc. (if applicable):
5. a) Whether Performance Deposit has been paid against the order:
   b) if paid, please give details:
6. Sr. No. of the items as per A/T:
7. Total Quantity of the items Ordered:
8. Total quantity of the items inspected so far:
9. a) Quantity monthly committed in delivery schedule:
   b) Lot No. for which the Quantity is offered for inspection now:
   c) Due date of delivery as per A/T for offered quantity:
10. Date of readiness of Material:
11. Complete address of the factory where materials is to be inspected:
12. Name of the person to be contacted in connection with inspection & his Office/Factory/Residence Tel. No.:
13. Staggering holiday of Factory/Office at the place of inspection:
14. a) Whether Dispatch Instructions are available (Say Yes or No):
    b) Quote Letter No.:
    c) Brief destination & Qty. per consignee of this present lot offered:
15. Last visit of our Inspecting Officer:
16. a) Whether the entire material is dispatched against last inspection. (Our EE[IW] will ensure before inspection of this lot that the earlier inspected lot is already dispatched)
    b) Quantity dispatched
17. Further programme of production Quantity likely to be offered & by what date:

Authorized Signature
For (Name of the Firm).

==========

ANNEXURE – M

BANK GUARANTEE FORMAT

EARNEST MONEY DEPOSIT BANK GUARANTEE AGAINST TENDER

B.G. No. & DATE:

The Bank of _____(full address of Branch) hereby agree unequivocally and unconditionally to pay, at Mumbai within 48 hours, on demand in writing from the MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION CO. LTD. (name of the company formerly known as M.S.E.B.) on behalf of M/s _____(Address as per MSEDCL REGISTRATION) who have tendered and/or contracted or may tender or contract hereafter for supply of materials. Equipments or services to the MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION CO. LTD. against Tender No. ---------- dated ---------- total value of Tender is Rs. ----------

This agreement shall be valid and binding on this Bank up to and including validity (date) and shall not be terminable by notice or any change in the constitution of the Bank or the firm of contractors or any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made given conceded or agreed with or without our knowledge or consent by or between parties to the said within written contract. The validity of this Bank Guarantee will be extended by us for the further period of six months, one month prior to its present validity period at the request of MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION CO. LTD.(name of the company-formerly known as M.S.E.B.).

In case of any dispute arising out or it connection with the extension or encashment of Bank Guarantee, the Courts in Mumbai will have jurisdiction.

Our liability under this Guarantee is restricted to Rs.----------/- (Rupees---------- only). Our Guarantee shall remain in force until (date). Unless a suit or action to enforce a claim under the guarantee is filed against us within six months from the aforesaid date, all your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liability there under.

Place:

Date: Sign----------

For----------

(Banker's Rubber Seal & Bank Code No. of signatory)

Please note that:

1. The value of non-judicial stamp paper for this Bank Guarantee is Rs.200/- should be purchased in the name of Guarantor Bank.
2. The Bank Guarantee should be furnished from any Scheduled Bank/Nationalized Bank.
3. Please state the full and complete postal address of the Bank undertaken the guarantee.
4. The Bank Guarantee may be valid as per terms and condition of A.T.
5. B.G. should be submitted along with covering letter of Bank.

==========

ANNEXURE – N

BANK GUARANTEE FORMAT

FORM OF BANK GUARANTEE FOR THE PERFORMANCE OF THE EQUIPMENT

B.G. No.& Date:

This deed of Guarantee is made this ……..day of……. By……branch having at H.O. at…….. (here in after called "the Surety" which expression shall where the context so admits include its permitted assign) in favour of MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION COMPANY LTD. (name of the company formerly known as M.S.E.B.) being a government company formed as per the provisions of the Maharashtra Electricity Reforms Transfer Scheme. 2005 having its registration no. U40109 MH 2005 SGC 153645 (here in after called the "Creditor" which expression shall include its permitted assigns). WHERE AS M/s. (Name of Party)…….. (Postal address as per A/T) have entered into a contract to supply (Name of Material) to the MAHARASHTRA STATE ELECTRICITY DISTRIBUTUION COMPANY LTD. (Name of the Company formerly known as M.S.E.B.). vide contract No. ……dtd……..on the terms and conditions in the said contract. (here in after for brevity sake called "the said contract").

In accordance with terms of the said contract, the creditor has agreed to pay to M/s……..(|Name of Party)……. the said sum representing the 5% of the total contract price for the Rs……../- and WHEREAS M/s. …….. (Name of Party)…….is required under the terms of contract to furnish a Bank Guarantee for Rs……../- (Rupees:…….Only) the said sum representing the 5 % …….price as given in the said contract.

The surety as he requests of M/s. ……(Name of Party)…. has agreed to give this guarantee.

NOW THEREFORE THIS DEED WITNESS AS FOLLOWS:

1. In consideration of the creditor agreeing to make to the debtor at Mumbai the payment of Rs…….. (Rupees……only) being the value of 10% of the total contract ……price as given in the said contract on supplying the complete material as per the contract by the debtor failing which the surety does undertake to pay to the creditor on demand such amount of amounts as the surety may be called upon to pay not exceeding in the aggregate sum of Rs. ……../- (Rupees……..only).
2. The surety hereby guarantee to the creditor the due performance and observance by the debtor of the terms and conditions of the contract.
3. The surety also agrees that it shall not during the currency of the guarantee herein given or during the period of its execution revoke the same even by giving notice to the creditor.
4. On account of the non-fulfillment of the contractual obligation by the debtor or in case the surety or contractor do not renew this guarantee bond as herein provided, the surety will on simple demand from the creditor, pay at Mumbai the creditor, the sum of Rs……..(Rupees …… .only) as indicated under clause -1 above, without demure and without the creditor to invoke any legal remedy that may be available to them to compel the surety to pay the same even if the debtor consider such demand of the creditor unjustified.
5. The surety agrees and declares that notwithstanding anything contained in Section 133 to 135 of the Indian Contract Act 1872 (IX of 1972) or any other rule of law or equity in the view of any variance in the terms of the said contract shall not operate as a discharge of

his obligations hereunder or shall any composition made by the creditor with debtor in respect of any breach of the terms and conditions of the said contract operate as a discharge of the surety's obligation and surety further expressly agrees and declares that though as between the creditor and surety, the surety shall be liable for sum payable or falling due hereunder equally with the debtor and the surety save as otherwise herein provided hereby waives all his rights which he might as guarantor be entitled to claim and enforce.

6. The decision of the creditor that any sum has become payable shall be final and binding on the surety.
7. The guarantee shall come into force on supply of material shall remain in force till the end of ……(date) ….The surety, at the request of the creditor shall extend the validity of the Bank Guarantee for a further period of 12 months, one month prior to its present validity period.
8. In case of any dispute arising out of or in connection with the extension or encashment of the Bank Guarantee, the courts in Mumbai will have the jurisdiction.
9. The guarantee herein contained shall not be effected, by the change in the constitution of the surety or the debtor.
10. Our liability under this guarantee is restricted to Rs. ……..(Rupees……only) and our guarantee shall remain in force until (Date….) unless a claim under this guarantee is lodged with us within six months from the date of expiry of guarantee i.e. on or before ..(date)…all your rights under this guarantee shall be forfeited and we shall be relieved and discharged from all our liabilities there under.

IN WITNESS WHERE OF THE surety has executed this deed in presence of

Place: Signature……..

Date: for……..

(Banker's Rubber Seal & Code No. of signatory)

Witnessed (2 witness is required from bank only)

1) Name & Address

   Signature

2) Name & Address

   Signature

Please Note:

1. The value of non-judicial stamp paper for this bank guarantee is Rs. 200/- should be purchased in the name of Guaranteed Bank.
2. The bank guarantee should be furnished from any Scheduled bank
3. Please state the full and complete postal address of the bank undertaking the guarantee.
4. B.G. may be valid as per terms of A/T including guarantee period of material.
5. B.G. should be submitted along with covering letter of Bank.

==========

FORMAT 1

ANNEXURE – U-I

"INDEMNITY BOND"

UNDERTAKING TO BE SUBMITTED BY THE PARENT COMPANY SITUATED ABROAD IN CASE OF THE PARTICIPANT BIDDER WHO IS AN INDIAN BASED SUBSIDIARY ON GENERAL STAMP OF `200.00.

The Chief Engineer,
Maharashtra State Electricity Distribution Co. Ltd.,
Material Management Department,
1st Floor, Prakashgad, Bandra (E),
Mumbai – 400 056.

Dear Sir:

Sub: Undertaking against Tender No. _____ for procurement of _____

We, M/s. _____ having registered office at _____ are the Parent Company of M/s. _____ who have participated against your tender no. _____ for procurement of _____.
We have carefully read and have thoroughly understood and agree to the terms and conditions of the subject tender.

We hereby undertake that in case of placement of order against the subject tender on our subsidiary company, M/s. _____, in the event of we accept all the responsibilities and liabilities for supply of quality equipments as per specification of the tender and execution of the contract. We further hereby undertake that we shall be responsible for any liability arising out of the contract placed on M/s. _____ and to pay MSEDCL on demand the sum of rupees as per agreement in the event of any breach of condition of the purchase order, loss and damage of the material till expiry of guarantee period as stipulated in the order.
Our liability here under shall not be impaired or discharged by extension of time or variation or alteration made with or without our knowledge or consent by or between the parties to the said contract. This undertaking shall be valid and binding on us upto and including the execution and guarantee period of the order and shall not be terminable by notice or change in the constitution of any of the companies. In case of any dispute arising out of or in connection with this tender or contract, if concluded, the same shall be subject to the exclusive jurisdiction of the **"Court in Mumbai (India)."**

Yours faithfully,

(Authorised Signatory)
For _____

==========

FORMAT-2

Undertaking for not approached any one for undue influence.

(To be submitted on letter head of the bidder)

Tender No. MMD/T-…… for supply of ……..

TO WHOM SO EVER IT MAY CONCEREN

I / We _____ hereby submit the undertaking that our firm or our partners or directors have not approached any one for undue influence against the Tender/Bid.

If it is found that we have given wrong or misleading information then our offer shall be summarily rejected.

Date:
Place:

(Signature, Name of Authorized Representative & Company Seal)

==========

FORMAT-3

Format of Certificate from Chartered Accountant for not have controlling stake in more than one entity applied for the Tender/Bid.

(To be submitted on Letter Head of the Chartered Accountant)

Tender No. MMD/T-…… for supply of ……..

TO WHOM SO EVER IT MAY CONCEREN

I _____ hereby certify that the firm M/s _____or its partners or directors does not have controlling stake in more than one entity applied for the Tender/Bid.

If it is found that they have given wrong or misleading information then their offer shall be summarily rejected.

Date:
Place:

(Seal, Signature & Name of C.A.with Regn. No. & UDIN No.)

==========

FORMAT-4

Format of Certificate from Chartered Accountant for Average Annual Turnover
(To be submitted on Letter Head of the Chartered Accountant)

Tender No. MMD/T-…… for supply of ……..

TO WHOM SO EVER IT MAY CONCEREN

We have examined the audited financials of M/s_____, having its registered office at _____, for the financial years. Based on our examination, we hereby certify that Annual Turnover for respective financial year mentioned below is in accordance with the audited financial statements:

Financial Year	Assessment Year	Annual Turnover Amount In Rupees Lakhs.
Total. Rs.		
(Rs. .. …Figure in words)		
Average Annual Turnover Of Last Three Financial Years		

This certificate is given on the basis of copy of audited financial reports for profit/loss account and balance sheet.

Date:
Place:

(Seal, Signature & Name of C.A. with Regn. No. & UDIN No.)

==========

FORMAT-5

Format for No Deviation Form

(To be submitted on letter head of the bidder)

Tender No. MMD/T-…….. for supply of ……..

CERTIFICATE FOR NO DEVIATION

We, (Bidder's Name), hereby certify that there is no technical or commercial deviation from the Conditions mentioned in Tender Document and I am agreeing to all the terms and conditions mentioned in the Tender Specification.

Bidders Name:
Authorized representative's signature:
Authorized representative's Name:
Seal of the company
Name and address of the Bidder
Date:

Annexure 'B'(Price Schedule)

Sr.No	Item Code	Material Description	Unit	Quantity Required	HSN	Quantity Offered	Unit ExWorks including packaging charges but excluding duties & taxes etc (In Rupees)	Freight Charges Per Unit (In Rupees)	Transit Insurance Charges Per Unit (In Rupees)	Integrated GST for outside State Transaction on (Ex-Works Price+Freight Charges + Transit Insurance Charges)(In Rupees)	Central GST for within State Transaction on (Ex-Works Price + Freight Charges + Transit Insurance Charges)(In Rupees)	State GST for within State Transaction on (Ex-Works Price + Freight Charges + Transit Insurance Charges)(In Rupees)	Free Door Delivery Price Per Unit by Road upto Destination/Stores/Sub Station (In Rupees)
1	2	3	4	5	6	7	8	9	10	11	12	13	14=(8+9+10+11+12+13)
1	82155000214	11 KV VCB 400 A OUTDOOR	NO	1800	85352121								
2	81001345281	33KV 1600 AMP.VCB3PH.30V	NO	740	85352122								
3	82155000484	11 KV VCB 800 A OUTDOOR	NO	1114	85352121								

Delivery Details

[Delivery must in the units specified for the items as per Price Schedule]

First lot of ___ in assorted sizes will be delivered within 1 Months from the date of LOA Award.After this period supply will be completed at the rate of ___ in assorted sized per month

Confirmation Details

We Confirm The Following :

I) Goods and Services Tax(GST) i.e Integrated GST / (Central GST+ State GST):

The GST is included in our prices quoted in price bid (Central GST+ State GST) for within Maharashtra State/Integrated GST for outside State and we shall not charge any additional amount towards Integrated GST / (Central GST+ State GST), during currency of contract except statutory variation by Central / State Government in normal (full) rate of Integrated GST / (Central GST+ State GST), in case of Integrated GST / (Central GST+ State GST) Rate is increased. In case the Integrated GST / (Central GST+ State GST) is decreased than the rate indicated in the price bid, the benefits of the reduction in the Integrated GST / (Central GST+ State GST) shall be passed on to the Purchaser.The increase in the Integrated GST / (Central GST+ State GST) rate due to increase in turnover during the contractual delivery period shall not be charged to the Purchaser .If the Integrated GST / (Central GST+ State GST) is not payable at present,we shall not charge the same, if it becomes applicable during the currency of contract due to expiry / withdrawal of tax concessions and incentives during the currency of contract except for statutory variation by Central / State Government.

(i) Necessary documentary evidence for the GST claimed by us shall be submitted along with the bills.

(ii) We here by declare that while quoting the price in the Price Bid, we have taken into account the entire credit on inputs available under the GST Act.

Technical Specification Item: 33KV 1600 AMP.VCB3PH.30V

Maharashtra State Electricity Distribution Company Limited

SPECIFICATION NO.MMC: MSC/DB/01 /2018

TECHNICAL SPECIFICATION

For

33KV 1600 AMP.VCB3PH.30V

For

DISTRIBUTION SYSTEM

IN

MSEDCL

Maharashtra State Electricity Distribution Company Limited

SPECIFICATION NO. T&QC: MSC-I/ 33 kV, 400 Amps /800 Amps /1600 Amps Outdoor Vacuum Circuit Breaker with Breaker Cabinet/2019/06

Technical Specification

Of

33 kV, 400 Amps /800 Amps /1600 Amps Outdoor Vacuum Circuit Breaker with Breaker Cabinet

For

Distribution System

In

MSEDCL

I N D E X

31.	Qualifying Requirements
32.	Requirement of Documents
33.	Annexure-I : Price and Delivery Schedule
34	Annexure-II : Specific technical requirement for 33 kV, 400 Amps ,800 Amps and 1600 Amps Outdoor Vacuum Circuit Breaker
35.	Annexure-III : Guaranteed Technical Particulars
36.	Annexure-IV : Details of type tests conducted for Circuit Breaker

MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.

Technical Specification for 33 kV, 400 Amps /800 Amps /1600 Amps Outdoor Vacuum Circuit Breaker with Breaker Cabinet

1.0 Scope :-

i) This specification covers design, manufacture, assembly, testing before supply, inspection, packing and delivery of outdoor type Vacuum circuit breakers of rated insulation class of 33 kV. The Vacuum Circuit Breakers shall be complete with all the accessories and auxiliary equipments required for their satisfactory operation in various sub-stations of MSEDCL in Maharashtra State, India.

ii) It is not the intent to specify, completely here in all the details of design and construction of the circuit breaker. However, the breaker shall conform, in all respects to high standards of engineering, design and workmanship as per recent Indian standards or International standards. It shall be capable of performing in continuous commercial operation up to the supplier's guaranteed life of equipment in a manner acceptable to the purchaser who will interpret the meanings of drawings and specifications and shall have power to reject any work or material which, in his judgment, is not in accordance therewith. The Vacuum circuit breaker offered shall be complete with all components necessary for its effective and trouble free operation. Such components shall be deemed to be within the scope of supplier's supply, irrespective of whether those are specifically brought out in this specification and/or in the commercial order or not.

iii) The equipment offered shall be complete with all parts necessary for their effective and trouble-free operation. Such parts will be deemed to be within the scope of the supply irrespective of whether they are specifically indicated in the commercial order or not.

iv) The Bidder/supplier shall bind himself to abide by these considerations to the entire satisfaction of the purchaser and will be required to adjust such details at no extra cost to the purchaser over and above the tendered rates and prices.

v) Only Vacuum circuit breaker manufacturer can quote against this specification.

vi) The Vacuum circuit breaker offered shall conform to the relevant standards and be of high quality, sturdy, robust and of good design and workmanship complete in all respects and capable to perform continuous and satisfactory operations in the actual service conditions at site and shall have sufficiently long life in service as per statutory requirements.

vii) Tolerances:

Tolerances on all the dimensions shall be in accordance with provisions made in the relevant Indian /IEC standards and in these specifications. Otherwise the same will be governed by good engineering practice in conformity with required quality of the product.

2.0 System Particulars:-

2.1 Nominal System Voltage	:	33 kV
2.2 Voltage variation on supply side	:	±10 %
2.3 Corresponding Highest System Voltage:		36 kV
2.4 Frequency	:	50 Hz with ± 3 % tolerance
2.5 Transient condition	:	-20 % or + 10 % combined variation of voltage and frequency.

2.6	Number of Phase	:	3 Phases
2.7	Neutral earthling	:	Solidly earthed.
2.8	Fault level (minimum)	:	25 kA for 3 sec.

3.0 Service Conditions :-

A) The Vacuum circuit breaker to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions.

3.1	Maximum ambient temperature (Degree C)	50
3.2	Maximum temperature in shade (Degree C)	45
3.3	Minimum Temperature (Degree C)	3.5
3.4	Relative Humidity (percent)	10 to 95
3.5	Maximum Annual rain fall (mm)	1450
3.6	Maximum wind pressure (kg/sq.m)	150
3.7	Maximum altitude above mean sea level (Meter)	1000
3.8	Isoceranic level (days per year)	50
3.9	Seismic level (Horizontal Acceleration)	0.3 g

Moderately hot and humid tropical climate conductive to rust and fungus growth ….

B) The climatic conditions are prone to wide variations in ambient conditions and hence the Vacuum circuit breaker shall be of suitable design to work satisfactorily under these conditions.

4.0 Auxiliary Power Supply:

The rating, quality and location of electrical supply system that will be made available by the purchaser for operation of the circuit breaker are described below. The auxiliary electrical equipments provided by the bidder for specified operation of the circuit breaker, shall be suitable for operation on the Ratings as below:

a) For A. C. Control & Protective devices, lighting fixtures, space heaters and motors:

A.C. supply 1 phase 2 wire, AC supply with one point grounded.

Voltage : 250 V±10%

Frequency : 50 Hz ±3%

b) For D.C. alarm, control and protective device:

D.C. supply 2 wire, DC source from batteries with midpoint grounded. The available DC supply voltage is 30 V DC.

Voltage : 30 V, -15% to +10%.

5.0 Applicable Standards :-

i) The design, manufacture and performance of the Vacuum circuit breaker shall comply with all currently applicable statutes, regulations and safety codes.

Nothing in this specification shall be construed to relieve the bidder off his responsibilities.

ii) The Vacuum circuit breaker meeting with the stipulations of equivalent IEC,ANCI, CSA, DIN standards, which ensure equal or better quality than the standards listed below, shall also be acceptable. In such case the Bidder should submit along with his offer, two copies of such standards in authentic English translation, if the language of the standard is other than English. In case of dispute, the stipulations in the English translation, submitted by the Bidder, shall prevail. Further, in the event of conflict between the stipulations of standard adopted by the Bidder and the corresponding Indian Standard Specification, he stipulation of Indian Standard Specification shall prevail.

iii) Unless otherwise specified, the Vacuum circuit breaker offered shall conform to the latest applicable Indian, IEC, British, U.S.A. or International Standards and in particular, to the following:-

Sr. No.	Standards	Particulars
1.	IS 13118/ IEC 62271 -100 amended upto date	High-voltage alternating-current circuit-breakers.
2.	IEC 694	Common clauses for switchgear
3.	IS 2099/IEC:815 IS 5621:1980	Porcelain Bushings.
4.	IS 2544	Porcelain Post Insulators
5.	IE C-2331	High Voltage porcelain bushings.
6.	IS 325 -	Specification for 1phase induction motor
7.	IS 12063/ 1987 IEC: 529	Degree of protection provided by enclosures of electrical equipment.
8.	IS 5	Colour for ready mixed paints and enamels.
9.	IEC - 60 -	High voltage test techniques
10.	IS 5578 & IS:11353	Marking and arrangements for switchgears, busbars, main connections and auxiliary wiring.
11.	IS 4794	Push button switches.
12.	IEC - 71 Part-I & II -	Insulation co-ordination, Terms, definitions, principles and rules
13.	IEC 270-	Partial discharge measurements.
14.	IS 2629 -	Recommended practice for hot dip galvanizing of iron and steel.
15.	Indian Electricity Rules.	2005

6.0 Principal Technical Parameters :-

The Vacuum circuit breaker covered under this specification shall conform to specific parameters given below:

Sr. No.	Property	Requirement
1.	Rated voltage of the breaker (KV rms.) Rated System Voltage Highest System voltage	 33 kV 36 kV
2.	System frequency	50 HZ
3.	System Neutral grounding	Effectively earthed
4.	Continuous current rating (Amps)	For Incomer : 1600 Amps For Bus Coupler: 800 Amps For Feeder : 400 Amps
5.	Installation	Outdoor
6.	Rated voltage of the breaker (KV rms.) Rated System Voltage Highest System voltage	 33kV 36kV
7.	Type of breaker	Vacuum
8.	Mounting	On hot dip galvanized steel support structure or on the operating mechanism box, as the case may be, to be supplied by the bidder.
9.	Number of Poles	3
10.	Type of operation Individual-	Mechanically coupled Three poles gang operated
11.	a) Minimum Clearance between adjacent pole b) Minimum clearance between lowest live part to earth in mm c) Minimum clearance between upper live part (terminal) to lower live part in mm	430 mm (minimum) 450 430
12.	Required clearance from the lowest live part of breaker to ground level	3700 mm
13.	Height of concrete plinth above ground level (mm) (To be provided by the Purchaser).	300
14.	Minimum height of the lowest part of the support insulator from ground level (mm).	3250
15.	Operating mechanism	spring operated
16.	Auto reclosing duty	Three phase

17.	Rated operating duty cycle.	O-0.3 seconds-CO-3-minutes-CO
18.	"First pole to clear" factor	1.5
19.	Max. closing time (ms)	<80 ms
20.	Max. total break(Tripping) time at rated breaking capacity excluding relay time	45-50 ms
21.	1.2/50 micro second impulse withstand voltage:	
	i) to earth (KVP)	170
	ii) Across open contacts: Impulse on one terminal, power frequency voltage on opposite terminal (kvp)	170
22.	One minute power frequency with-stand voltage (KV rms.)	70
23.	Rated symmetrical short circuit breaking current (for 3 seconds) of outdoor circuit breaker in kA (rms)	25 kA
	a) AC component (kA (rms) b) percentage of DC component	25kA Corresponding to minimum opening time as per standard IEC -62271-100
24.	Permissible limit of temperature rise.	As per given below.
25.	Minimum creepage distance of insulator (mm)	900
26	Out of phase breaking capacity	100 % of rated breaking capacity

7.0 General Technical Requirements of Vacuum circuit breaker:-

i) Vacuum Circuit breakers shall be Porcelain clad Vacuum type. Vacuum circuit breaker shall be M2 class.

ii) The Vacuum Circuit breakers offered shall be 3-pole mechanically coupled gang operated having rating 25 kA for 3 seconds. Incomer Vacuum Circuit Breaker shall have 1600 Amps continuous current rating; Bus coupler Vacuum Circuit Breaker shall have 800 Amps continuous current rating whereas the feeder (outgoing circuit) Vacuum Circuit breaker shall be of 400Amps. For similar rated Vacuum Circuit breakers, it shall be possible to interchange the CBs if required in future.

iii) C.B. shall be suitable for rapid reclosing cycle O-0.3 sec - CO - 3 min-CO. clear factor shall be 1.5

iv) Similar parts of the breaker, especially the removable ones, shall be freely interchangeable without the necessity of any modification at site.

8.0 Breaker Contacts:

i) Main contacts shall have ample area and contact pressure for carrying the rated continuous and short time currents of the breaker without excessive temperature

rise which may cause pitting or welding. Main contacts shall be the first to open and the last to close so that there will be little contact burning and wear.

ii) The inside operating rod or insulated fiber glass connecting rods wherever used, shall be sturdy and shall not break during the entire life period of the breaker. The insulated rods shall have anti tracking quality towards electrical stresses.

9.0 Specification for Operating Mechanism Housing and Control Cabinets:

i) The specification covers the requirements of control cabinets and associated control and equipment. Cabinets shall preferably be of the free standing floor mounting type for HV CBs.

ii) Control cabinets shall be sheet steel enclosed and shall be dust, water and vermin proof. Sheet steel shall be at least 3.0 mm thick when control cabinets are intended for outdoor operation. There shall be sufficient reinforcement to provide level surfaces, resistance to vibrations and rigidity during transportation and installation. Control cabinets shall be provided with double hinged door and padlocking arrangement. The door hinges shall be of union joint type to facilitate easy removal and the distance between hinges shall not exceed 350 mm. Door shall be properly braced to prevent wobbling. It shall be painted white on the interior and Dark Admiralty Grey to shade no 632 of IS-5 on exterior surface. The enclosures shall be dust, moisture and vermin proof, to provide a Degree of protection to IP 55 in accordance with IS 12063/1987. 15mm thick neoprene or better type of gaskets shall be provided to ensure degree of protection of at least IP55 as per IEC: 529. It shall have backwards slanting rain hood of 2 mm thick (14 SWG) sheet for protection against rain water. It shall be accommodate following items:

Sr. No.	Item	Quantity
1.	Mechanical ON & OFF knobs (TNC).	1 No.
2.	Electrical ON/OFF push buttons	1 No. each
3.	CB Mechanical ON/OFF indicator	1 No. each
4.	CB Electrical ON/OFF indicator	1 No. each
5.	Mechanical spring charged indicator.	1 No.
6.	Electrical spring charge indicator	1 No.
7.	Auxiliary A.C./D.C. supply indication	1 No. each
8.	Conveniently located manual emergency trip	1 No.
9.	Auxiliary switches as specified elsewhere in this Specification	1 Set.
10.	Control cable termination connector blocks with stud type brass terminals of min 4 mm dia	1 Set.
11.	One power plug along with control switch (240V,10A).	1 Set.
12.	Space heater along with ON/OFF switch and Thermostat.	1 Set.
13.	Cubical illumination lamp with switch.	1 Set.
14.	Mechanical Operation counter to register the	1 No.

	number of breaker operations.	
15.	Local/Remote(For future requirement) switch	1 No.
16.	Trip circuit Healthy-1 indication	1 No.
17.	Trip circuit Helthy-2 indication	1 No.

iii) **Auxiliary Switches:**

a) Operating mechanism of the circuit breaker shall be provided with adequate number of Cam/Snap type auxiliary switches of normally open and normally closed contacts for the control and operation of the equipment with continuous current rating of 10 Amp. The Breaking capacity of the contacts shall be minimum 2 A with circuit time constant less than 20 milli seconds at the rated D.C. voltage. Normal position of auxiliary switches refers to contact position when circuit breaker is open.

b) All spare auxiliary contacts of the circuit breakers shall be wired up and brought to the terminal block. Minimum 4 N/O + 4 N/C contacts shall be available on each breaker for this purpose. Auxiliary contact multiplier, if any used, shall be connected to the DC supply only.

c) Insulation level of auxiliary contacts shall be 1100 volts, 2.5 kV for 1 min.

d) All the electrical control equipments/switches, the operating point for manual spring charging handle etc. shall not be more than at a height of 1200 mm from ground level OR from a suitable platform which shall be provided by bidder on the structure at a height not more than 985 mm from ground level. It will be possible to reach the control cubicle/operating mechanism box conveniently. Further, electrical ON/OFF push buttons/switch shall be accessible from the ground.

e) The two steps platform structure with M S angle of size 40mm x 40mm x 6mm shall be provided to breaker structure. The platform shall be such that the working space on the top platform shall not be less than 500 mm x 1000mm for second step top and 300mm X1000 for first step. The total height of the plat form shall be 985mm (485 mm height for first step and 500 mm for second step).The bidder shall specifically confirm that the offered breaker meets this requirement and furnish the G. A. Drawing showing the arrangement.

f) The circuit breaker shall be provided with motor operated spring charged closing. Spring charging motor shall be suitable for 250V, 50 Hz, single phase AC. Suitable rating starter shall be provided for Motor protection. Spring release coil for closing shall be suitable for 30V DC. Provision shall be available for charging the springs manually as well, and to close CB mechanically.

g) Tripping of the circuit breakers shall be through "Shunt trip" coils rated for 30V DC operation. It shall be possible to trip the breaker manually in case of necessity.

h) In each circuit breaker, one potential free contact of the limit switch of spring charging motor shall be provided for remote indication of spring charged. This contact shall be wired up and brought to the terminal block.

i) Electrical anti-pumping device shall be provided for breaker.

iv) **Circuit Breakers control switch:**

a) Switches should have finger touch proof terminals. For the convenience of maintenance, screw driver guide should be from top/bottom of the switch and not from the side. Terminal wire should be inserted from the side of the switch terminal.
b) Terminal screws must be captive to avoid misplace during maintenance.
c) Switch shall be with 48 mm x 48 mm escutcheon plate marked with Trip & Close.
d) Circuit Breakers control switch shall be Non- discrepancy type
e) Trip-neutral-close, with pistol grip handle must be pushed in to spring return to either trip or close position from Neutral position for safety and not just turn to trip.
f) One contact to close in each position of Trip and Close. Contact not required in Neutral position. Contact rating shall be 12 A at 30 V DC.

v) Equipments and devices shall be suitable for operation on specified auxiliary A.C. supply system.
vi) Push button shall be rated for not less than 10 Amps, 250 Volts A.C. or 10 Amp, 30 V D.C. and shall be flush mounted on the cabinet door and provided with appropriate name plates. Red, green and amber indicating lamps shall be flush mounted and provided with series resistors to eliminate the possibility of short circuiting of control supply in the event of fusing of lamps.
vii) Breaker cabinet shall be provided with 250 V, 1-phase 50 Hz, 20 W Fluoresent lighting fixture with on /off switch and a suitably rated 250 V, 1 phase, 5 amp, 3 pin socket for hand lamp.
viii) All AC control equipment shall be suitable for operation on 250V, 1 Phase two wire 50 Hz system, with one pole grounded.
ix) Items inside the cabinet made of organic material shall be coated with a fungus resistant varnish.
x) For protection of AC/DC aux. circuits, MCBs of suitable capacity & reputed make to be provided.

10.0 Operating Mechanism & Associated Equipments:

i) The circuit breaker shall be designed for electrical local as well as remote control. In addition there shall be provision for local mechanical control.
ii) The operating mechanism shall be of spring charging type by electrical control under normal operation. The mechanism shall be adequately designed for the specified tripping and reclosing duty. The entire operating mechanism control circuitry, spring charging motor etc., as required, shall be housed in an outdoor type, steel enclosure processed as per cl.no.9.0 (ii).
iii) All metal parts in the mechanism shall be of corrosion resistant material. All bearings which require greasing shall be equipped with pressure grease fittings.
iv) The design of the operating mechanism shall be such that it shall be practically maintenance free. The guaranteed number of years in maintenance free operation, the number of possible full load and full rated short circuit current breaking operations without requiring any maintenance or overhauling shall be clearly stated in the tender bid. As far as possible, the need for lubricating the operating mechanism shall be kept to the minimum and eliminated altogether, if possible.

v) The operating mechanism shall be anti-pumping and trip free There shall be no rebounds in the mechanism and it shall not require any critical adjustments at site. Operation of the power operated closing device, when the circuit breaker is already closed, shall not cause damage to the circuit breaker or endanger the operator. Provision shall be made for attaching an operation analyzer to facilitate testing of breaker at site.

vi) The technical requirement of spring type operating mechanism shall be as below.

vii) Spring Operating Mechanism:

a) The spring operating mechanism shall have adequate energy stored in the operating spring to close and latch the circuit breaker against the rated making current and also to provide required energy for the tripping mechanism in case the tripping energy is derived from the operating mechanism. The mechanism shall be capable of performing the rated operating duty cycle of O-0.3 Sec - CO - 3 min - CO. The spring charging motor shall not take more than 30 sec for fully charge the closing springs and provision shall be made for automatic charging of the closing springs as soon as they are discharged in a closing operation. For this, mechanism shall be such that charging of springs by motor does not interfere with the operation of the breaker.

b) The motor shall be adequately rated to carry out a minimum of 10 close and open operations continuously. Also provision shall be made to protect the motor against overloads.

c) In case of failure of power supply of spring charging motor, the mechanism shall be capable of performing one sequence of 0 - 0.3 Sec - CO.

d) Mechanical interlocks shall be provided in operating mechanism to prevent discharging of closing springs when breaker is already in closed position. Provision shall also be made to prevent a closing operation to be carried out with the spring partially charged.

e) Facility shall be provided for manual charging of closing springs. The actuating force required for manually spring charging shall be less than 250N. In support of this requirement the bidder shall furnish test report for actual requirement of force based on actual measurement.

11.0 Limits of Temperature and Temperature Rise for various parts of Material and Dielectrics:

Sr. No.	Nature of the part of the material and dielectric	Maximum Permissible Values of temperature (^{0}C)	Temperature rise at a max. air temperature not exceeding 50^{0}C
1.	Contacts (see note 4) Bare copper and bare copper alloy in air	75	25
	Silver coated or nickel coated (see note 5) -in air	105	55
	Tin coated (see note 5 & 6) in air	90	40
2.	Connections, bolted or the equivalent (see		

	note 7) Bare copper, bare copper alloy or aluminum alloy. -in air Silver coated or nickel coated-in air - Tin coated in air	 90 115 105	 40 65 55
3.	All other contacts or connections made of bare metals or coated with other materials	See Note 8	See Note 8
4.	Terminals for the connection to external conductors by screws or bolts(see note 9)		
	-bare	90	40
	-silver, nickel or tin coated	105	55
	-other coatings	See Note 8	See Note 8
5.	Metal parts acting as springs	See Note 12	See Note 12
6.	Material used as insulation and metal parts in contact with insulation of the following classes	See Note 13	
	-Y (for non-impregnated materials)	90	40
	-A (for materials immersed in oil or impregnated)	100	50
	-E	120	70
	-B	130	80
	-F	155	105
	-Enamel: oil base	100	50
	Synthetic	120	70
	-H	180	130
	-C	See Note 14	See Note 14

NOTES :

1.1. According to its function, the same part may belong to several categories as listed in table. In this case the permissible maximum value of temperature and temperature rise to be considered are the lowest among the relevant categories.

1.2. For vacuum switching devices the values of temperature and temperature rise limits are not applicable for parts in vacuum. The remaining parts shall not exceed the values of temperature and temperature rise given in table.

1.3. Care shall be taken to ensure that no damage is caused to the surrounding insulating material.

1.4. When contact parts have different coating, the permissible temperature & temperature rises shall be those of the part having the lower value permitted in table.

1.5. The quality of the coated contacts shall be such that a layer of coating material remains at the contact area:

i). After making and breaking tests (if any):

ii). After short time withstand current test:

iii). After the mechanical endurance test:

According to the relevant specification for each equipment. Otherwise, the contacts shall be regarded as "bare".

1.6. For fuse contacts, the temperature rise shall be in accordance with IEC publications on High Voltage Fuses.

1.7. When connection parts have different coatings, the permissible temperature rises shall be those of the parts having the higher value permitted in table.

1.8. When materials other than those given in table are used, their properties shall be considered, notably in order to determine the maximum permissible temperature rises.

1.9. The values of temperature and temperature rise are valid even if the conductor connected to the terminals is bare.

1.10. At the upper of the oil.

1.11. Special consideration should be given when low flash point oil is used in regard to vaporization and oxidation.

1.12. The temperature shall not reach a value where the elasticity of the material is impaired.

1.13. The following classification of insulating materials is in accordance with IEC-85.

Class Y: Insulation consists of materials or combinations of materials such as cotton, silk and paper when suitably impregnated. Other materials may be included in this classes if by experience or accepted tests they can be shown to be capable of operation at Class Y temperatures.

Class A: Insulation consists of materials or combinations of materials such as cotton, silk and paper when suitably impregnated or coated or when immersed a dielectric liquid such as oil. Other materials or combination of materials may be included in this class if by experience or accepted tests they can shown to be capable of operation at Class A temperatures.

Class E: Insulation consists of materials which by experience or accepted tests can be shown to be capable of operation at Class E temperatures.

Class B: Insulation consisting of materials or combinations of materials such as mica, glass fiber, asbestos, etc. with suitable bonding substances. Other materials or combinations of materials, not necessarily inorganic, may be included in this class if by experience or accepted tests they can be shown to be capable of operation at Class B temperatures.

Class F: Insulation consists of materials or combination of materials such as mica, glass fiber, and asbestos with suitable bonding substances. Other materials or combinations of materials not necessarily inorganic may be included in this class if by experience or by accepted tests they can be shown to be capable of operation at class F temperatures.

Class H: Insulation consists of materials such as silicone elastomeric and combination of materials such mica, glass fiber, asbestos etc. with suitable bonding substances such as appropriate silicone resin. Other materials or combination of materials may be included in this class if by

experience or by accepted tests they can be shown to be capable of operation at Class H temperatures.

Class C: Insulation consists of materials or combination of materials such as mica, porcelain, glass and quartz with or without an inorganic binder. Other materials or combinations of materials may be included in this class if by experience or accepted tests they can be shown to be capable of operation at temperatures above the Class H limit. Specific materials or combinations of materials in this class will have a temperature limit which is dependent upon their physical, chemical and electrical properties.

1.14. Limited only by requirement to any damage to surrounding parts.

12.0 Take Off Terminal Pads:

i) Terminal pads shall be provided with silver plating of at least 25 microns thickness if these are made of metal other than aluminum. No such plating shall be required if the terminal pad is made out of Aluminum. The pads shall be suitably designed to take the appropriate terminal loads. The terminal connectors required for connecting the Circuit Breaker to purchaser's Bus Bars shall be provided by the purchaser for mounting on aforesaid terminal pad.

ii) The breaker shall be designed to withstand the rated terminal load, wind load/Earth quake load and short circuit forces. The short circuit forces to be considered for the design shall be based on length of bus bars consisting of conductors and phase to phase spacing as per IS Standard

iii) The current density adopted for the design of the terminal pad shall in no case exceed 1.6A/sq.mm for copper pad and 1.0 A/ sq. mm for pad made of other material.

iv) The vertical clearance of lowest live part from ground level (including concrete foundation plinth) shall be as given below:

33 kV Breaker - 3700 mm (min)

In no case the height less than that indicated as above will be accepted.

13.0 Porcelain Housing:

a) **Porcelain Housing for the Interrupter:**

The porcelain housing for the interrupter shall be of a single piece construction without any joint. It shall be made of homogeneous, vitreous porcelain of high mechanical and dielectric strength. Glazing of porcelain shall be of uniform brown or dark brown colour with a smooth surface arranged to shed away rain water or condensed water particles (fog).

b) **Support insulator:**

Breaking units shall be mounted on insulator column of not more than two insulators in each column. For 33 kV class circuit breaker, to take care of bird fault, the clearance in the air from the lowest live part to earth shall be minimum 450 mm and between live parts of poles shall be minimum 430 mm. However if insulating barrier is provided around the live portion of middle pole to take care of bird fault, the spacing between live parts of poles less than 430 mm shall be acceptable subject to withstanding the lightning impulse voltage test in absence of barrier on any pole.

14.0 Surface Finish:

All metal sheet surfaces exposed to atmosphere shall be given two primer coats of zinc phosphate and two coats of epoxy paint with epoxy base thinner. All metal parts not accessible for painting shall be made of corrosion resisting material. All machine finished or bright surfaces shall be coated with a suitable preventive compound and suitably wrapped or otherwise protected.

All paints shall be carefully selected to withstand tropical heat and extremes of weather within the limits specified. The paints shall be battleship gray shade No.632 of IS 5. The paint shall not scale off or wrinkle or be removed by abrasion due to normal handling.

15.0 Galvanizing:

All ferrous parts including nuts, bolts, plain and spring washers of size M 10 and above, support channels, structures, etc. shall be hot dip-galvanized to conform to latest version of IS 2629 or any other equivalent authoritative standard. All other fixing nuts, bolts, washers of size below M 10 shall be made out of stainless steel.

16.0 Earthing:

The operating mechanism housing, support structures etc. shall be provided with two separate earthing terminals for bolted connection to 50 x 8 mm MS flat to be provided by the purchaser for connection to station earth mat. The connecting point shall be marked with "earth" symbol No.86 of IEC publication 117-1 part 1.

17.0 Name and Rating Plate:

a) Circuit Breaker and its operating device shall be provided with rating plate/s made out of corrosion proof metal, marked with the following data. The data shall be either punched or engraved on the plate/s.
b) Manufacturer's name or trade mark by which he may be readily identified.
c) Serial number and type designation of CB & Operating mechanism
d) Year of manufacture
e) Voltage
f) Lightning impulse withstand voltage
g) Normal current
h) Short circuit breaking current
i) Duration of short circuit
j) Mass of circuit breaker with support structure.
k) Auxiliary D.C. supply voltage of closing and opening devices
l) Out of phase making & breaking current
m) A.C. supply voltage of auxiliary circuits.
n) Insulation level
o) Frequency
p) Purchase order reference
q) Operating sequence.

The rating plates shall be installed in such positions that the same shall be clearly visible to a man standing on ground. i.e. at the level of eye site.

18.0 Control Cabinet:

The control circuit shall include the following features:

a) Two electrically independent trip circuits including two trip coils (one for local & one for remote) per CB as the case may be along with 2 bus arrangement for DC system protected with two separate MCBs.
b) One local/remote selector switch.
c) Conveniently located manual emergency trip
d) Anti-pumping feature
e) Auxiliary switches as specified elsewhere.
f) The closing coil shall operate satisfactorily at all values of control supply voltage between 80-110% of the rated voltage. The trip coil shall operate satisfactorily under all operating conditions of the circuit breaker up to its rated short circuit breaking current at all values of control supply voltage between 70-110% of the rated voltage. The trip coil shall be so designed that it does not get energized when its healthiness is monitored by indicating lamps and trip coil supervision relay.
g) The time taken for charging of closing spring shall not exceed 30 seconds. The spring charging shall take place automatically preferably after a closing operation. Breaker operation shall be independent of the spring charging motor which shall only charge the closing spring. Opening spring shall get charged automatically during closing operation. As long as power supply is available to the charging motor, a continuous sequence of closing and opening operations (CO) shall be possible. Spring charging motors shall be capable of starting and charging the closing spring twice in quick succession without exceeding acceptable winding temperature when the supply voltage is anywhere between 80-110% of rated voltage. The initial temperature shall be as prevalent in the switchgear panel during full load operation with 55 deg. C ambient air temperature. The motor shall be provided with over load protection.
h) Motor windings shall be provided with class E insulation or better. The insulation shall be given tropical and fungicidal treatment for successful operation of the motor in a hot, humid and tropical climate.
i) Independence of trip circuit from local/remote selection with one spare trip coil.
j) Trip circuit supervision for pre trip as well as post trip. Trip circuit supervision scheme shall be such that testing of trip circuit healthiness is possible irrespective of whether the C.B. is in the closed or open position. The trip circuit Healthy lamp should glow continuously in C.B. 'ON' position and on demand in C.B. "OFF" position. The rating of dropping resistance in series with Trip Circuit Healthy lamp shall be such that the Trip coil should not get damaged because of continuous current flowing through it.
k) The coils of operating devices shall be marked clearly with the catalogue number/reference number as indicated in control wiring diagram.
l) One spare trip coil shall be supplied with one breaker.

19.0 Interlocks:

It is proposed to electrically interlock the circuit breaker with Purchaser's air break isolating switches in the switch yard in accordance with switchyard safety interlocking scheme.

The details of the scheme shall be furnished to the successful bidder. The requirement of auxiliary contacts to be provided in breaker operating mechanism by the bidder for successful operation of the scheme has been specified in clause 9.3.

20.0 Mounting:

a) The design and supply of support structure, required for mounting the Circuit Breaker in Purchaser's switch yard, shall be in the bidder's scope. The bidder's scope shall also include foundation bolts, nuts, plain washers, spring washers etc necessary for the support structure. The support structure can be lattice type or tubular type and shall be made out of hot dip galvanized steel. Wheel mounted type support shall not be accepted. The support structure shall be installed on a concrete plinth of 300 mm height to be arranged by the Purchaser. The height of the support structure shall meet the following requirements.

i) Vertical clearance of lowest live part as specified in clause 6.

ii) Minimum height of 2950 mm above the top of concrete plinth (This is a Statutory Regulation).

b) The Circuit Breaker shall be connected to adjacent equipment in the switch yard through ACSR conductor.

c) The loading data to be considered by the bidder for design of support structure shall include the following.

1 Dead weight of the Circuit Breaker, Structure, Bus Bars
2 Operational steady state and impact loading
3 Wind load on a Circuit Breaker, Structure, Bus Bars
4 Short circuit forces

The support structure shall be designed on the basis of applicable Indian/International Standards and codes of practice.

21.0 Spares:

a) **Optional Spares:**

The list of optional spares required are indicated below. The tenderer shall quote separate rates for these spares which should be valid for two years from the date of issue of detail A/T. However the quantity of these spares shall be ordered separately, if required, on the basis of prices accepted by the Company. These prices shall not be considered for tender evaluation.

List of Optional Spares 33 kV Vacuum Circuit Breaker

Sr.No.	Particulars	Unit	Make & Type design.	Unit Price
1.	Breaking Chamber interrupter with insulator	No.		
2.	Vacuum Interrupter	No.		.
3.	Trip coils	No.		
4.	Closing coils	No.		
5.	Set of gasket	Set		
6.	Support insulator	No.		

7.	Rectifier	No.		
8	Support Structure along with foundation bolts for 3 phases of C.B.			

b) **Recommended spares:**

The bidder shall furnish in his offer, a list of recommended spares with unit rates for each circuit breaker that may be necessary for satisfactory operation and maintenance of the circuit breaker for a period of 5 years. The purchaser reserves the right of selection of items and quantities of these spares to be ordered. The cost of such spares shall not be considered for tender evaluation. The unit prices should be valid for two years from the date of issue of detail A/T.

c) **Erection and maintenance tools:**

The bidder shall submit a list and unit rates of all the special tools, equipments and instruments required for erection, testing, commissioning and maintenance of the breaker. The purchaser shall decide the quantity of tools to be ordered. Prices of these tools shall not be considered for tender evaluation. However the list of necessary tools/equipments which will be supplied free of cost with each CB may be furnished separately.

22.0 Tests and Type Tests:

A) Tests:

The Breaker offered should have been type tested for the following tests:

Sr. Nos.	Type test
1	Basic short circuit duties tests.
2	Out of phase making and breaking tests.
3	Short time and peak current withstand tests.
4	Lightening impulse voltage withstand test.
5	Power Frequency Voltage withstand test (dry & wet).
6	Temperature rise test.
7	Mechanical operation test.
8	Degree of protection (IP55) for all cabinets.
9	Single phase short circuit test (for 3 phase mechanically gang operated breaker).

NOTE:

All above type tests as per relevant IEC/IS standards shall be carried out on offered 33 kV VCB at any 3rd party National/International Laboratories accredited by National/International Accreditation Board for Testing & Calibration Laboratories (NABL).

B) Type Tests:

a) All the equipments offered shall be fully type tested as per the relevant standards, amended up-to-date. The supplier shall furnish the type test reports and certificate of accreditation issued by the testing authority along with the offer. These tests must not have been conducted earlier than five years from the date of opening of bids.

b) In case these type tests are conducted earlier than five years, all the type tests as per the relevant standards shall be carried out by the successful bidder in the presence of purchaser's representative at free of cost before commencement of supply. The undertaking to this effect should be furnished along with the offer without which the offer shall be liable for rejection.

c) The Purchaser reserves the right to demand repetition of some or all the type tests in the presence of his representative. For this purpose the supplier may quote unit rates for carrying out each type test.

d) For any change in the design/type already type tested and the design/type offered against this specification, the purchaser reserves the right to demand repetition of tests without any extra cost before commencement of supply. In this case the bidder shall bring out in his offer all such changes made in components, materials, design etc. as the case may be.

e) The company shall have the option to carry out various tests including type tests as per specification on the samples selected at random from the supplies effected, to ensure that the supplies conform in quality and workmanship to the relevant specification. The testing shall be done at an independent laboratory at company's cost. Due notice shall be given to supplier for such sample selection and such testing thereof to enable him to be present for the same if so desired by him. If the supplier or his authorized representative fails to attend the sample selection and testing, the same shall be carried out unilaterally by the company and the result thereof shall be binding upon the supplier. In case the sample selected from the supplies fails to withstand the required tests, then :-

   i) For first time failure of sample, supplier shall have to replace the full quantity of the respective inspected lot supplied to various Stores and lying unused at Stores.

   ii) For the quantity already accepted against the order and used, deduction in price of 10% of the value of material supplied shall be made.

   iii) In respect of further supplies made against the order, if failure of samples is noticed (i.e., second time failure against the order) then the quantity lying unused at various Stores shall be rejected.

   iv) For the quantity already accepted against the order and used, deduction in price of 10% of the value of material supplied shall be made.

   v) Balance quantity against the order including the rejected qty. shall be cancelled without any liability on either side.

   vi) The firm will be debarred from dealing with the company upto a period of three years from the date of rejection.

23.0 Acceptance & Routine Tests:

a) All acceptance and routine tests as stipulated in relevant standards, amended up to date, shall be carried out by the supplier in the presence of purchaser's representative without any extra cost to the purchaser

(Note:- All measuring/testing equipments shall be of appropriate class of accuracy and shall have valid calibration certificates which shall be produced to the Inspecting Officer for verification.)

b) After finalization of the program of type/acceptance/routine testing, the supplier shall give three weeks advance intimation to the purchaser, to enable him to depute his representatives for witnessing the tests.

24.0 Inspection:

i) The inspection may be carried out by the purchaser or his representative at any stage of manufacture. The successful Bidder shall grant free access to the purchaser's representative/s at a reasonable notice when the work is in progress. Inspection and acceptance of any equipment under this specification by the purchaser, shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective.

ii) The supplier shall keep the purchaser informed in advance, about the manufacturing program so that arrangement can be made for stage inspection.

iii) The purchaser reserves the right to insist for witnessing the acceptance/routine testing of the bought out items. The supplier shall keep the purchaser informed, in advance, about such testing program.

iv) Chief Engineer (MM Cell) shall depute his representatives i.e. Executive Engineers from Testing Division and Inspection Wing for final inspection of Circuit Breaker Assembly at manufacturers works.

25.0 Quality Assurance Plan:

1) The bidder shall invariably furnish following information along with his offer, failing which his offer shall be liable for rejection.

i) Statement giving information about names of sub-suppliers, list of testing standards, list of tests normally carried out in presence of bidder's representative and copies of test certificates in respect of following items of raw-materials.

a) Contact material

b) Porcelain

ii) Information and copies of test certificates as in (i) above in respect of bought out accessories.

iii) List of areas in manufacturing process, where joint stage inspections are normally carried out by the bidder/purchaser for quality control and details of such tests and inspections.

iv) Special features provided in the equipment to make it maintenance free.

v) List of testing equipments available with the bidder for final testing of breakers vis-à-vis. the type, special, acceptance and routine tests specified herein. The limitations in testing facilities shall be very clearly brought out in schedule-E i.e. schedule of deviation from specified test requirement.

2) The successful bidder shall, within 30 days of placement of order, submit following information to the purchaser.

a) List of raw materials as well as bought out accessories and the names of sub-suppliers selected from those furnished along with the offer.

b) Type test certificates of the raw material and bought out accessories.

c) Quality assurance plan (QAP) with hold points for purchaser's inspection. The quality assurance plan and purchaser's hold points shall be discussed between the purchaser and supplier, before it is finalized.

3) The successful bidder shall submit the routine test certificates of bought out accessories at the time of routine testing of the fully assembled breaker for the goods manufactured within purchaser's country. The supplier shall also submit the central excise passes for the raw material at the time of routine testing of the fully assembled breaker.

26.0 Performance Guarantee:

The Vacuum Circuit Breakers offered shall be guaranteed for satisfactory performance for a period of 66 months from the date of receipt of complete Vacuum Circuit Breakers at destination store/site in good condition or 60 months from the date of satisfactory commissioning of Vacuum Circuit Breakers whichever is earlier. The equipments found defective/failed within the above guarantee period shall be replaced /repaired by the supplier free of cost within one month of receipt of intimation. If the defective/failed Vacuum Circuit Breakers are not replaced /repaired as per the above guarantee clause, the company shall recover an equivalent amount plus 15 % supervision charges from any of the supplier's bills.

27.0 Documentation:

i) All drawings shall conform to international standards organization (ISO) 'A' series of drawing sheet/Indian Standards Specification IS 656. All drawings shall be in ink and suitable for micro filming. All dimensions and data shall be in System International Units.

ii) Drawings:

The bidder shall furnish four sets of relevant descriptive and illustrative published literature/pamphlets and the following drawings for preliminary study:

a. General outline drawings showing outside dimensions, shipping dimensions, weights, quantity of insulating media air receiver capacity and such other prominent details.

b. Sectional views showing the general constructional features of the circuit breaker including operating mechanism, arcing chambers, contacts, with lifting dimensions for maintenance.

c. Schematic diagrams of the scheme for control, supervision and reclosing.

d. Structural drawing, design calculations and loading data for support structures.

e. Foundation drilling plan and loading data for foundation design.

f. Bill of Materials.

g. Type test reports of circuit breakers along with a separate list showing all the tests carried out with date & place of test.

h. Test reports, literatures and pamphlets of bought out items and raw materials.

iii) The successful bidder shall, within 6 weeks of placement of order, submit THREE sets of final versions of all the above said drawings in A-3 size, bill of material, packing list & all type test reports for purchaser's approval to the office of Chief Engineer (Testing and Quality Control). The purchaser shall communicate his comments/approval on the drawings to the supplier within reasonable period. The supplier shall, if necessary, modify

the drawings and resubmit four copies of the modified drawings for purchaser's approval within two weeks from the date of purchaser's comments. After receipt of purchaser's approval, the supplier shall, within three weeks, submit 10 prints & two good quality reproducible of the approved drawings and 10 sets of instructions manuals in respect of Circuit breaker to the office of Chief Engineer (MM Cell).

iv) The successful bidder shall furnish in the form of nicely bound volumes, the manuals covering erection, commissioning, operation and maintenance instructions and all relevant information and drawings pertaining to the Vacuum Circuit Breakers as well as auxiliary devices. Marked erection drawings shall identify the component parts of the equipment as shipped to enable Engineer/Purchaser to carry out erection with his own personnel. Each manual shall also contain one set of all the approved drawings type test reports as well as acceptance test reports to corresponding consignment dispatched. The total quantity of the operating manuals/approved drawings sets to be supplied by the supplier shall be equal to the number of three phase breakers of rating, ordered.

v) The manufacturing of the Vacuum Circuit Breakers shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the purchaser. All manufacturing and fabrication work in connection with the Vacuum Circuit Breakers prior to the approval of the drawings shall be at the supplier's risk.

vi) Approval of drawings/work by the purchaser shall not relieve the supplier of any of his responsibility and liability for ensuring correctness and correct interpretation of the drawings for meeting the requirements of the latest revisions of applicable standards, rules and codes of practices.

28.0 Packing and Forwarding:

i) The Vacuum Circuit Breakers shall be packed in suitable crates so as to withstand handling during transport and outdoor storage during transit. The supplier shall be responsible for any damage to the equipment during transit, due to improper and inadequate packing. The easily damageable materials shall be carefully packed and marked with the appropriate caution symbols. Wherever necessary, proper lifting arrangement such as lifting hooks etc. shall be provided. Any material found short inside the packing cases shall be supplied by supplier without any extra cost.

ii) Each consignment shall be accompanied by a detailed packing list containing the following information:

a) Name of the consignee.
b) Details of consignment.
c) Destination.
d) Total weight of consignment.
e) Sign showing upper/lower side of the crate.
f) Handling and unpacking instructions.
g) Bill of materials indicating contents of each package and spare materials

The supplier shall ensure that the packing list and bill of materials are approved by the purchaser before dispatch.

29.0 Training of Engineers:

i) The successful bidder shall be required to provide facilities for in-plant training at no extra cost to the purchaser to at least four engineers to be nominated by the purchaser for a period of three weeks(i.e. 12 man weeks) at his works, where the Vacuum Circuit Breakers offered shall be manufactured. The scope of the training shall cover assembly, factory testing, site Testing, periodical maintenance, operation and trouble shooting of the breakers.

ii) If the Vacuum Circuit Breakers offered, is being designed and manufactured in collaboration with any other manufacturer, the supplier shall provide facilities for additional two engineers to be nominated by the purchaser, for in-plant training in the collaborator's work, for a period of 3 weeks(i.e.6 man weeks).

iii) In case of training within India, the to and fro travel expenses, lodging and boarding charges as well as allowances for out of pocket expenses in respect of the trainees, shall be borne by the purchaser. However, the supplier shall provide for suitable facilities for lodging and boarding as well as to and fro transport to place of training.

iv) In case of training outside India, the to and fro journey expenses from India to the place of training shall be borne by the purchaser. However the cost of deferment of the expenses of the trainees for lodging and boarding, out of pocket allowance, local transport as per the rates prevailing at the time of training shall be initially borne by the supplier for which he shall quote rates while submitting his offer. Separate set of rates may preferably be quoted for providing facilities to Senior Managers and Intermediate Grade Managers commensurate with their status. The acceptance of the rates shall be decided while finalizing tender. The expenditure incurred by the successful bidder in this regard shall be paid to him by the purchaser. This amount, however, will not be considered for loading his offer.

v) The period and the program of the training (generally for three weeks) shall be mutually discussed and finalized by the purchaser with the supplier/s.

30.0 Supervisory Erection and Commissioning:

i) The erection and commissioning of the breakers shall be supervised, if required by the Purchaser, through one work-trained Engineer/foreman who shall direct the sequence of erection and make necessary adjustments to the apparatus and correct in the field any errors or omissions on the part of the bidder in order to make the equipment and material properly perform in accordance with the intent of this specification. The representative shall also instruct the plant operators in the operation and maintenance of breakers furnished. Skilled workers, all the ordinary tools, equipment and cranes required for breaker erection, shall be provided by the purchaser. Apart from the above, the purchaser shall not be responsible for any other expenses incurred by the bidder and expenses such as Erector's salary, insurance against personal injuries to the Erector etc., shall be to bidder's account. Special tools, if required for erection and commissioning shall be arranged by the supplier at his cost. The supplier shall be responsible for any damage to the breaker on commissioning, if it results from faulty or improper assembly unless the erector can conclusively prove that the damage has occurred on account of intentional mistake on the part of the skilled workers provided by the purchaser.

ii) The bidder shall quote the lump-sum rate per breaker for the service of the erector, which should be valid for 3 years from the date of issue of detailed A/T. The bidder shall also

indicate estimated time period for erection, testing and commissioning of each type of breaker. The separate rates shall be quoted for following works at purchaser's premises.

a) Supervision of only erection work of the Circuit Breakers.

b) Inspection of the erected breaker, testing and commissioning of the same.

31.0 Qualifying Requirements: As per tender

32.0 Requirement of Documents:

Following documents should be furnished electronically:

i) Following information shall be furnished along with the offer in Electronic Form:

a) List of type test reports for the offered equipment shall invariably be furnished in the Annexure-III enclosed herewith. (in electronic form)

b) Calculations of loading data for mechanical design of support structure for foundation and design of breaker terminal pads (in electronic form).

c) Certificate of accreditation of the testing laboratory where the type tests are conducted (in electronic form).

d) List of Past Experience of supplies for each type of Breaker offered for evaluation of Qualifying requirements (in electronic form).

e) Test report of actual measurement of actuating force required for charging manually (N).

f) Performance certificate for the Breakers offered for evaluation of Qualifying requirements (in electronic form).

ii) Following information/documents (in duplicate) duly sealed and signed on each page shall be submitted in physical form on or before the scheduled date of submission of the tender.

a) Details of precautions to be taken in the use of breaker.

b) Details of Quality Assurance plan

c) Type test reports as per Cl. 22.0 duly sealed and signed on each.

d) General arrangement drawing for C.Bs.

All documents in physical form shall be submitted.

ANNEXURE - I

PRICE AND DELIVERY SCHEDULE

ITEM NO.	DESCRIPTION	QUAN-TITY	UNIT PRICE		TOTAL PRICE		GUARANTEED DELIVERY IN MONTHS EX-WORKS FROM DATE OF ORDER
			EX-WORKS	FOR DESTI-NATION	EX-WORKS	FOR DESTI-NATION	
1.	For Bus Coupler 33kV, 25kA, 800A, 3 Phase Reclosing type Mechanically gang operated Circuit Breakers.						
2.	For Incomer 33kV, 25kA, 1600A, 3 Phase Reclosing type Mechanically gang operated Circuit Breakers.						

ANNEXURE - II

Specific Technical Requirement for 33 KV 400A, 800A and 1600 A Outdoor Vacuum Circuit Breaker with Breaker Cabinet

Sr. No	Description	33 KV
1	Name of Manufacturer	Mfg to give details
2	Type	Porcelain clad type Outdoor Circuit breaker
3	Reference Standard	IEC 62271- 100 amended up to date / IS: 13118:1991
4	Number of poles of outdoor circuit	Three
5	Rated voltage of outdoor circuit breaker in kV.	33
6	Suitable Rated frequency for Outdoor circuit breaker in Hz	50± 3
7	Type of operation	Mechanically coupled gang operated
8	Operating mechanism	A. C. Control & Protective devices, lighting fixtures, space heaters and motor operating on supply single phase, 250 Volts ± 10% A.C., 50 Hz , two pole with one pole grounded
9	Maximum continuous voltage of outdoor circuit breaker in kV	36 KV
10	Rated continuous current of outdoor circuit breaker in amps.	1600 Amp for Incomer 800 Amp for Buscoupler . 400 Amp for Feeder
11	Earthing Offered for VCB suitable	for solid neutral earthing
12	Rated symmetrical short circuit breaking current (for 3 seconds) of outdoor circuit breaker in kA (rms)	25 kA
	a) AC component (kA (rms)	25kA
	b) percentage of DC component	Corresponding to minimum opening time as per standard IEC -62271-100
13	Rated operating sequence of outdoor circuit breaker	o-0.3 sec-co-3 min - co
14	Amplitude factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity	1.4

15	First pole to clear factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity	1.5
16	Rate of rise of restriking voltage of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity in kv/microsecs)	70
17	Dry-1 minute power frequency withstand voltage of outdoor circuit breaker between line terminal and earth in kvrms	70
18	Dry-1 minute power frequency withstand test voltage for outdoor circuit breaker between terminal with breaker contacts open in kvrms	70
19	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between line terminal and earth in kvp	170
20	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between terminals with breaker contacts open in kvp	170
21	Out of phase breaking capacity	100 % of rated breaking capacity
22	Material of main contacts of outdoor circuit breaker	Silver / Nickel coated Copper
23	Material of terminal pad of outdoor circuit breaker (copper/Aluminum)	Copper/Aluminum
24	If Terminal Pads are made of metal other than aluminum, thickness of silver plating on terminal pads	25 microns (Minimum)
25	The current density for copper terminal pad	1.6 A/sq.mm(Maximum)
26	The current density for other than copper terminal pad	1.0 A/sq.mm(Maximum)
27	Net cross section of terminal pad of outdoor circuit breaker in sq mm	Mfg to give details
28	Material of make –break contacts in Vacuum Interrupter	Mfg to give details
29	Material of tips of Main contacts of circuit breaker	Mfg to give details
30	No. Of normally open auxiliary contacts provided for outdoor circuit breaker available	4
31	No. Of normally close auxiliary contacts provided for outdoor circuit breaker available	4
32	Voltage rating of bushing used for outdoor circuit breaker in kv.	36kV
33	Dry-1 minute power frequency withstand voltage of bushing used for outdoor circuit breaker in kvrms	70
34	Dry flashover voltage of bushing used for outdoor circuit breaker in kvrms	70
35	Wet flashover voltage of bushing used for outdoor circuit breaker in kvrms	70
36	1.2/50 micro second impulse withstand voltage of bushing used for outdoor circuit breaker	170
37	Total creepage distance of bushing used for outdoor circuit breaker	900 mm.
38	Center to center minimum clearances in air between phases of outdoor circuit breaker in mm	Mfg to give details

39	Minimum Clearances provided in air between two Phases : in mm	Mfg to give details
40	Minimum clearances in air between live part to live part of phases of outdoor circuit breaker.	430 mm
41	Minimum clearances in air between live part to earth of outdoor circuit breaker	450 mm
42	Minimum clearances in air between live part of outdoor circuit breaker to ground level	3700 mm
43	Minimum height of the lowest part of the support insulator from ground level	3250 mm
44	Class of Insulating Material	B
45	Max. closing time	< 80 ms
46	Max. total break time at 100 % rated interrupting breaking capacity :	45-50 ms
47	Type of closing mechanism of outdoor circuit breaker	Motor assisted spring charged mechanism.
48	Type of tripping mechanism of outdoor circuit breaker	Motor assisted spring charged mechanism with shunt trip coil.
49	Burden of trip coil of outdoor circuit breaker at 30 v d.c. in watts	Mfg to give details
50	Burden of closing coil of outdoor circuit breaker at 30 v d.c. in watts	Mfg to give details
51	On/off and "spring charged" indications for outdoor circuit breaker	Mechanical
52	Trip/close of outdoor circuit breaker	Manual
53	Spring charging for outdoor circuit breaker	Mechanical
54	Voltage rating of spring charging motor of outdoor circuit breaker in volts	Mfg to give details
55	Burden of spring charging motor of outdoor circuit breaker in VAmp	Mfg to give details
56	Control circuit voltage of outdoor circuit breaker	30 volts d. C.
57	The surface finish paints of non galvanized metallic part of VCB	Battleship gray shade No.632 of IS 5.
58	Process of painting of parts of outdoor circuit breaker	Two primer coats of zinc phosphate and two coats of epoxy paint with epoxy base thinner
59	Type of primer used for painting of parts of outdoor circuit breaker	Mfg to give details
60	Type of finish paint used for painting of parts of outdoor circuit breaker	Mfg to give details
61	Degree of protection of Operating Mechanism enclosure	IP 55 as per IEC529/ IS 2147

ANNEXURE - III

GUARANTEED TECHNICAL PARTICULARS FOR 33 kV, 800A/1600A, 25 kA for 3 sec VACUUM CIRCUIT BREAKERS		
1	Name of Manufacturer	Text
2	Type of Outdoor switchgear	Text
3	Designation of outdoor circuit breaker	Numeric
4	VCB conforms to IEC 62271- 100 amended upto date / IS: 13118:1991 : Yes/No	Boolean
5	Whether offered outdoor circuit breaker is porcelain clad type (yes/no)	Boolean
6	Shall outdoor circuit breaker provided 3 number of poles (yes/no)	Boolean
7	Rated voltage of outdoor circuit breaker in k Text kV.	Numeric
8	Is offered out door circuit breaker suitable for 50 Hz rated frequency.(Yes/No)	Boolean
9	Type of operation - Mechanically coupled gang operated : Yes/No	Boolean
10	Operating mechanism, A. C. Control & Protective devices, lighting fixtures, space heaters and motor operating on supply single phase, 250 Volts ± 10% A.C., 50 Hz , two pole with one pole grounded : Yes/No	Boolean
11	Maximum continuous voltage of outdoor circuit breaker in kV	Numeric
12	Rated continuous current of outdoor circuit breaker in amps.	Numeric
13	Offered VCB shall be suitable for solid neutral earthing : Yes/No	Boolean
14	Rated symmetrical short circuit breaking current (for 3 seconds) of outdoor circuit breaker in ka (rms) 25 kA	Numeric
15	Rated operating sequence of outdoor circuit breaker shall be o-0.3 sec-co-3 min - co	Text
16	Amplitude factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.4	Numeric
17	First pole to clear factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.5	Numeric
18	Rate of rise of restriking voltage of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity in kv/microsecs) 50/70	Numeric
19	Dry-1 minute power frequency withstand voltage of outdoor circuit breaker between line terminal and earth in kvrms shall be 50/70kV	Numeric
20	Dry-1 minute power frequency withstand test voltage for outdoor circuit breaker between terminal with breaker contacts open in kvrms	Numeric
21	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between line terminal and earth in kvp	Numeric
22	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between terminals with breaker contacts open in kvp	Numeric
23	Material of main contacts of outdoor circuit breaker	Text
24	Material of terminal pad of outdoor circuit breaker (copper/Aluminium)	Text
25	If Terminal Pads are made of metal other than aluminum, thickness of silver plating on terminal pads shall be at least 25 microns.	Numeric
26	The current density for copper terminal pad shall not be more than 1.6 A/sq. mm.	Text
27	The current density for other than copper terminal pad shall not be more than 1 A/sq. mm.	Text

28	Net cross section of terminal pad of outdoor circuit breaker in sq mm	Numeric
29	Material of make –break contacts in Vacuum Interrupter	Text
30	Material of tips of Main contacts of circuit breaker	Text
31	Whether electrical anti pumping device provided for outdoor circuit breaker (yes/no)	Boolean
32	Size of auxiliary contacts of outdoor circuit breaker in sq. Mm.	Numeric
33	Material of auxiliary contacts of outdoor circuit breaker	Text
34	Continuous current capacity of auxiliary contacts of outdoor circuit breaker in amps.	` Numeric
35	Breaking current capacity of auxiliary contacts of outdoor circuit breaker in amps.	Numeric
36	Insulation level of auxiliary contacts of outdoor circuit breaker in volts.	Numeric
37	1 minute p. F. Withstand voltage of auxiliary contacts of outdoor circuit breaker in kvrms.	Numeric
38	Whether any contact multiplier are used for outdoor circuit breaker (yes/no) (if *yes* then fill 39 to 42)	Text
39	Make of contact multiplier used for circuit breaker	Text
40	Making and breaking capacity of contact multiplier used for outdoor circuit breaker in ka	Text
41	Voltage rating of contact multiplier used for outdoor circuit breaker in kv	Text
42	Capacity of coil of contact multiplier used for outdoor circuit breaker in watts	Numeric
43	No. Of normally open auxiliary contacts provided for outdoor circuit breaker available for use in remote C&R panels	Numeric
44	No. Of normally close auxiliary contacts provided for outdoor circuit breaker available for use in remote C&R panels	Numeric
45	Whether potential free contact available for remote indication of spring charged" of outdoor circuit breaker (yes/no)	
46	Voltage rating of bushing used for outdoor circuit breaker in kv.	Numeric
47	Dry-1 minute power frequency withstand voltage of bushing used for outdoor circuit breaker in kvrms	Numeric
48	Dry flashover voltage of bushing used for outdoor circuit breaker in kvrms	Numeric
49	Wet flashover voltage of bushing used for outdoor circuit breaker in kvrms	Numeric
50	1.2/50 micro second impulse withstand voltage of bushing used for outdoor circuit breaker shall be 125/170 kvp	Numeric
51	Total creepage distance of bushing used for outdoor circuit breaker shall be 300 mm.	Numeric
52	Center to center minimum clearances in air between phases of outdoor circuit breaker in mm	Numeric
53	Minimum Clearances provided in air between two Phases : in mm	Numeric
54	Minimum clearances in air between live part to live part of phases of outdoor circuit breaker shall be 430 mm.	Numeric
55	Minimum clearances in air between live part to earth of outdoor circuit breaker shall be 450mm	Numeric
56	Minimum clearances in air between live part of outdoor circuit breaker to ground level shall be 3700 mm	Numeric
57	Height of the lowest part of the support insulator from ground level (min 2500mm)	Numeric

58	Class of Insulating Material	Text
59	Max. closing time in ms (Max.150 ms)	Numeric
60	Max. total break time at 100 % rated interrupting breaking capacity : 100 ms	Numeric
61	Type of closing mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism.	Text
62	Type of tripping mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism with shunt trip coil.	Text
63	Burden of trip coil of outdoor circuit breaker at 30 v d.c. in watts	Numeric
64	Burden of closing coil of outdoor circuit breaker at 30 v d.c. in watts	Numeric
65	Whether mechanical on/off and "spring charged" indications for outdoor circuit breaker provided (yes/no)	Boolean
66	Whether manual trip/close of outdoor circuit breaker possible (yes/no)	Boolean
67	Whether mechanical spring charging for outdoor circuit breaker possible (yes/no)	Boolean
68	Voltage rating of spring charging motor of outdoor circuit breaker in volts	Numeric
69	Burden of spring charging motor of outdoor circuit breaker in VAmp	Numeric
70	Control circuit voltage of outdoor circuit breaker shall be 30 volts d. C. (yes/no)	Boolean
71	The surface finish paints of non galvanized metallic part of VCB shall be battleship gray shade No.632 of IS 5.	Text
72	Process of painting of parts of outdoor circuit breaker	Text
73	Type of primer used for painting of parts of outdoor circuit breaker	Text
74	Type of finish paint used for painting of parts of outdoor circuit breaker	Text
75	Degree of protection of Operating Mechanism enclosure is IP 55 as per IEC529/ IS 2147	Text
76	Mounting of CB On hot dip galvanized steel support structure or on the operating mechanism box, as the case may be, to be supplied by the tenderer	Text
77	Whether all type tests are carried out on outdoor circuit breaker at nabl laboratories within five years from date of opening of tender(yes/No)	Text
78	Whether type tested on offered design of outdoor circuit breaker (yes / no).	Text
79	A list of recommended spares with unit rates for each circuit breaker that may be necessary for satisfactory operation and maintenance of the circuit breaker for a period of 5 years shall be submitted.	Numeric
80	A list and unit rates of all the special tools, equipments and instruments required for erection, testing, commissioning and maintenance of the breaker shall be submitted	Text
81	The list of necessary tools/equipments which will be supplied free of cost with each CB furnished separately.	Text
82	Are following Type test reports submitted with offer for offered equipment	Text
	a. Lightening impulse withstand voltage test. :Yes/No	
	b. Power Frequency Voltage withstand test (dry & wet). :Yes/No	
	c. Temperature rise test. :Yes/No	Boolean

	d. Measurement of resistance of Circuit: Yes/No	Boolean
	e. Short time and peak withstand current tests. :Yes/No	Boolean
	f. Mechanical operation test. :Yes/No	Boolean
	g. Degree of protection (IP55) for all cabinets. :Yes/No	Boolean
	h. Out of phase making and breaking tests. :Yes/No	Boolean
	i. Short Circuit Making and Breaking current Tests a) No load operation before and after test b) Basic test duties no. 1 to 5 c) Single Phase Short circuit test d) Condition of breaker after short circuit tes	Boolean
83	Are the following drawing submitted	Text
	a. General outline drawings showing outside dimensions, shipping dimensions, weights, quantity of insulating media air receiver capacity and such other prominent details. :Yes/No	Boolean
	b. Sectional views showing the general constructional features of the circuit breaker including operating mechanism, arcing chambers, contacts, with lifting dimensions for maintenance. :Yes/No	Boolean
	c. Schematic diagrams of the scheme for control, supervision and reclosing :Yes/No	Boolean
	d.Structural drawing, design calculations and loading data for support structures. :Yes/No	Boolean
	e. Foundation drilling plan and loading data for foundation design. :Yes/No	Boolean
	f.Type test reports of circuit breakers along with a separate list showing all the tests carried out with date & place of test. :Yes/No	Boolean
	g.Test reports, literatures and pamphlets of bought out items and raw materials. :Yes/No	Boolean
84	Whether bidder adequate in-house testing facilities for conducting acceptance tests in accordance with relevant IS.	Text
85	Type of operation shall be suitable for 3 phase reclosing : Yes/No.	Boolean

ANNEXURE - IV

Details of type tests conducted for Circuit Breaker

Sr. Nos.	Description of Type Test	Type & Make of Circuit Breaker& its rating	IS/IEC Clause No.	Testing Lab. & Date of Date of Testing	Type test report No., dt. & pages	Whether certificate of compliance with IS/IEC is enclosed with T.R.
1	Basic short circuit duties tests.					
2	Out of phase making and breaking tests.					
3	Short time and peak current withstand tests.					
4	Lightening impulse voltage withstand test.					
5	Power Frequency Voltage withstand test (dry & wet).					
6	Temperature rise test.					
7	Mechanical operation test.					
8	Degree of protection (IP55) for all cabinets.					
9	Single phase short circuit test (for 3 phase mechanically gang operated breaker).					

Technical Specification Item: 11 KV VCB 800 A Outdoor

Maharashtra State Electricity Distribution Company Limited

SPECIFICATION NO.MMC: MSC/DB/01 /2018

TECHNICAL SPECIFICATION

For

11 KV VCB 800 A OUTDOOR

For

DISTRIBUTION SYSTEM

IN

MSEDCL

Maharashtra State Electricity Distribution Company Limited

SPECIFICATION NO. T&QC: MSC-I/ 11 kV, 400A and 800A Outdoor Vacuum Circuit Breaker with Breaker Cabinet 2019/06

Technical Specification

Of

11 kV, 400A and 800A Outdoor Vacuum Circuit Breaker with Breaker Cabinet

For

Distribution System

In

MSEDCL

I N D E X

31.	Qualifying Requirements
32.	Requirement of Documents
33.	Annexure-I : Price and Delivery Schedule
34	Annexure-II : Specific technical requirement for 11kV, 400 Amps and 800 Amps Outdoor Vacuum Circuit Breaker
35.	Annexure-III : Guaranteed Technical Particulars
36.	Annexure-IV : Details of type tests conducted for Circuit Breaker

MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.

Technical Specification for 11 kV, 400A and 800A Outdoor Vacuum Circuit Breaker with Breaker Cabinet

1.0 Scope :-

i) This specification covers design, manufacture, assembly, testing before supply, inspection, packing and delivery of outdoor type circuit breakers of rated insulation class of 11KV.The Vacuum Circuit Breakers shall be complete with all the accessories and auxiliary equipments required for their satisfactory operation in various sub-stations of MSEDCL in Maharashtra State, India.

ii) It is not the intent to specify, completely here in all the details of design and construction of the circuit breaker. However, the breaker shall conform, in all respects to high standards of engineering, design and workmanship as per recent Indian standards or International standards. It shall be capable of performing in continuous commercial operation up to the supplier's guaranteed life of equipment in a manner acceptable to the purchaser who will interpret the meanings of drawings and specifications and shall have power to reject any work or material which, in his judgment, is not in accordance therewith. The Vacuum circuit breaker offered shall be complete with all components necessary for its effective and trouble free operation. Such components shall be deemed to be within the scope of supplier's supply, irrespective of whether those are specifically brought out in this specification and/or in the commercial order or not.

iii) The equipment offered shall be complete with all parts necessary for their effective and trouble-free operation. Such parts will be deemed to be within the scope of the supply irrespective of whether they are specifically indicated in the commercial order or not.

iv) The Bidder/supplier shall bind himself to abide by these considerations to the entire satisfaction of the purchaser and will be required to adjust such details at no extra cost to the purchaser over and above the tendered rates and prices.

v) Only Vacuum circuit breaker manufacturer can quote against this specification.

vi) The Vacuum circuit breaker offered shall conform to the relevant standards and be of high quality, sturdy, robust and of good design and workmanship complete in all respects and capable to perform continuous and satisfactory operations in the actual service conditions at site and shall have sufficiently long life in service as per statutory requirements.

vii) Tolerances:

Tolerances on all the dimensions shall be in accordance with provisions made in the relevant Indian /IEC standards and in these specifications. Otherwise the same will be governed by good engineering practice in conformity with required quality of the product.

2.0 System Particulars:-

2.1 Nominal System Voltage	:	11 kV
2.2 Voltage variation on supply side	:	±10 %
2.3 Corresponding Highest System Voltage:		12kV
2.4 Frequency	:	50 Hz with ± 3 % tolerance
2.5 Transient condition	:	-20 % or + 10 % combined variation of voltage and frequency.

2.6	Number of Phase	:	3 Phases
2.7	Neutral earthling	:	Solidly earthed.
2.8	Fault level (minimum)	:	12.5 kA for 3 sec.

3.0 Service Conditions :-

A) The Vacuum circuit breaker to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions.

3.1	Maximum ambient temperature (Degree C)	50
3.2	Maximum temperature in shade (Degree C)	45
3.3	Minimum Temperature (Degree C)	3.5
3.4	Relative Humidity (percent)	10 to 95
3.5	Maximum Annual rain fall (mm)	1450
3.6	Maximum wind pressure (kg/sq.m)	150
3.7	Maximum altitude above mean sea level (Meter)	1000
3.8	Isoceranic level (days per year)	50
3.9	Seismic level (Horizontal Acceleration)	0.3 g

Moderately hot and humid tropical climate conductive to rust and fungus growth ….

B) The climatic conditions are prone to wide variations in ambient conditions and hence the Vacuum circuit breaker shall be of suitable design to work satisfactorily under these conditions.

4.0 Auxiliary Power Supply:

The rating, quality and location of electrical supply system that will be made available by the purchaser for operation of the circuit breaker are described below. The auxiliary electrical equipments provided by the bidder for specified operation of the circuit breaker, shall be suitable for operation on the Ratings as below:

a) For A. C. Control & Protective devices, lighting fixtures, space heaters and motors:

A.C. supply 1 phase 2 wire, AC supply with one point grounded.

Voltage : 250 V±10%

Frequency : 50 Hz ±3%

b) For D.C. alarm, control and protective device:

D.C. supply 2 wire, DC source from batteries with midpoint grounded. The available DC supply voltage is 30 V DC.

Voltage : 30 V, -15% to +10%.

5.0 Applicable Standards :-

i) The design, manufacture and performance of the Vacuum circuit breaker shall comply with all currently applicable statutes, regulations and safety codes.

Nothing in this specification shall be construed to relieve the bidder off his responsibilities.

ii) The Vacuum circuit breaker meeting with the stipulations of equivalent IEC,ANCI, CSA, DIN standards, which ensure equal or better quality than the standards listed below, shall also be acceptable. In such case the Bidder should submit along with his offer, two copies of such standards in authentic English translation, if the language of the standard is other than English. In case of dispute, the stipulations in the English translation, submitted by the Bidder, shall prevail. Further, in the event of conflict between the stipulations of standard adopted by the Bidder and the corresponding Indian Standard Specification, he stipulation of Indian Standard Specification shall prevail.

iii) Unless otherwise specified, the Vacuum circuit breaker offered shall conform to the latest applicable Indian, IEC, British, U.S.A. or International Standards and in particular, to the following:-

Sr. No.	Standards	Particulars
1.	IS 13118/ IEC 62271 - 100 amended upto date	High-voltage alternating-current circuit- breakers.
2.	IEC 694	Common clauses for switchgear
3.	IS 2099/IEC:815 IS 5621:1980	Porcelain Bushings.
4.	IS 2544	Porcelain Post Insulators
5.	IE C-2331	High Voltage porcelain bushings.
6.	IS 325 -	Specification for 1phase induction motor
7.	IS 12063/ 1987 IEC: 529	Degree of protection provided by enclosures of electrical equipment.
8.	IS 5	Colour for ready mixed paints and enamels.
9.	IEC - 60 -	High voltage test techniques
10.	IS 5578 & IS:11353	Marking and arrangements for switchgears, busbars, main connections and auxiliary wiring.
11.	IS 4794	Push button switches.
12.	IEC - 71 Part-I & II -	Insulation co-ordination, Terms, definitions, principles and rules
13.	IEC 270-	Partial discharge measurements.
14.	IS 2629 -	Recommended practice for hot dip galvanizing of iron and steel.
15.	Indian Electricity Rules.	2005

6.0 Principal Technical Parameters :-

The Vacuum circuit breaker covered under this specification shall conform to specific parameters given below:

Sr. No.	Property	Requirement
1.	Rated voltage of the breaker (KV rms.) Rated System Voltage Highest System voltage	 11kV 12kV
2.	System frequency	50 HZ
3.	System Neutral grounding	Effectively earthed
4.	Continuous current rating (Amps)	For Incomer:800 Amps For Feeder: 400 Amps
5.	Installation	Outdoor
6.	Rated voltage of the breaker (KV rms.) Rated System Voltage Highest System voltage	 11kV 12kV
7.	Type of breaker	Vacuum
8.	Mounting	On hot dip galvanized steel support structure or on the operating mechanism box, as the case may be, to be supplied by the tenderer.
9.	Number of Poles	3
10.	Type of operation	Mechanically coupled Three poles gang operated
11.	a) Minimum Clearance between adjacent pole b) Minimum clearance between lowest live part to earth in mm c) Minimum clearance between upper live part (terminal) to lower live part in mm	280mm (minimum) 370 280
12.	Required clearance from the lowest live part of breaker to ground level	3100 mm
13.	Height of concrete plinth above ground level (mm) (To be provided by the Purchaser).	300
14.	Minimum height of the lowest part of the support insulator from ground level (mm).	2730 mm
15.	Operating mechanism	Spring operated
16.	Auto reclosing duty	Rapid
17.	Rated operating duty cycle.	O-0.3 seconds-CO-3-minutes-CO
18.	"First pole to clear" factor	1.5

19.	Max. closing time (ms)	<80 ms
20.	Max. total break(Tripping) time at rated breaking capacity excluding relay time	45-50 ms
21.	1.2/50 micro second impulse withstand voltage:	
	i) to earth (kVp)	75
	ii) Across open contacts: Impulse on one terminal, power frequency voltage on opposite terminal (kVp)	75
22.	One minute power frequency with-stand voltage (kV rms.)	28
23	Rated symmetrical short circuit breaking current (for 3 seconds) of outdoor circuit breaker in kA (rms)	12.5 kA
	a) AC component (kA (rms) b) percentage of DC component	12.5 kA Corresponding to minimum opening time as per standard IEC -62271-100
24.	Rated short circuit making current capacity (kAp)	62.5
25.	Permissible limit of temperature rise.	As per given in clause No. 11
26.	Minimum creepage distance of insulator (mm)	300
27	Out of phase breaking capacity	100 % of rated breaking capacity

7.0 General Technical Requirements of Vacuum circuit breaker:-

i) Vacuum Circuit breakers shall be Porcelain clad Vacuum type. Vacuum circuit breaker shall be M2 class.

ii) The Vacuum Circuit breakers offered shall be 3-pole mechanically coupled gang operated having rating 12.5 kA for 3 seconds. Incomer Vacuum Circuit Breaker shall have 800 Amps continuous current rating whereas the feeder (outgoing circuit) Vacuum Circuit breaker shall be of 400Amps. For similar rated Vacuum Circuit breakers, it shall be possible to interchange the CBs if required in future.

iii) C.B. shall be suitable for rapid reclosing cycle O-0.3 sec - CO - 3 min-CO. clear factor shall be 1.5

iv) Similar parts of the breaker, especially the removable ones, shall be freely interchangeable without the necessity of any modification at site.

8.0 Breaker Contacts:

i) Main contacts shall have ample area and contact pressure for carrying the rated continuous and short time currents of the breaker without excessive temperature rise which may cause pitting or welding. Main contacts shall be the first to open and the last to close so that there will be little contact burning and wear.

ii) The inside operating rod or insulated fiber glass connecting rods wherever used, shall be sturdy and shall not break during the entire life period of the breaker. The insulated rods shall have anti tracking quality towards electrical stresses.

9.0 Specification for Operating Mechanism Housing and Breaker Cabinets:

i) The specification covers the requirements of control cabinets and associated equipment. Cabinets shall preferably be of the free standing floor mounting type for HV CBs.

ii) Control cabinets shall be sheet steel enclosed and shall be dust, water and vermin proof. Sheet steel shall be at least 3.0 mm thick when control cabinets are intended for outdoor operation. There shall be sufficient reinforcement to provide level surfaces, resistance to vibrations and rigidity during transportation and installation. Control cabinets shall be provided with double hinged door and padlocking arrangement. The door hinges shall be of union joint type to facilitate easy removal and the distance between hinges shall not exceed 350 mm. Door shall be properly braced to prevent wobbling. It shall be painted white on the interior and Dark Admiralty Grey, shade no 632 of IS-5 on exterior surface. The enclosures shall be dust, moisture and vermin proof, to provide a Degree of protection to IP 55 in accordance with IS 12063/1987. 15mm thick neoprene or better type of gaskets shall be provided to ensure degree of protection of at least IP55 as per IEC: 529. It shall have backwards slanting rain hood of 2 mm thick (14 SWG) sheet for protection against rain water. It shall be accommodate following items:

Sr. No.	Item	Quantity
1.	Mechanical ON & OFF knobs (TNC).	1 No.
2.	Electrical ON/OFF push buttons	1 No. each
3.	CB Mechanical ON/OFF indicator	1 No. each
4.	CB Electrical ON/OFF indicator	1 No. each
5.	Mechanical spring charged indicator.	1 No.
6.	Electrical spring charge indicator	1 No.
7.	Auxiliary A.C./D.C. supply indication	1 No. each
8.	Conveniently located manual emergency trip	1 No.
9.	Auxiliary switches as specified elsewhere in this Specification	1 Set.
10.	Control cable termination connector blocks with stud type brass terminals of min 4 mm dia.	1 Set.
11.	One power plug along with control switch (240V, 10A).	1 Set.
12.	Space heater along with ON/OFF switch and Thermostat.	1 Set.
13.	Cubical illumination lamp with switch.	1 Set.
14.	Mechanical Operation counter to register the number of breaker operations.	1 No.
15.	Local/Remote(For future requirement) switch	1 No.
16.	Trip circuit Healthy-1 indication	1 No.

17.	Trip circuit Helthy-2 indication	1 No.

iii) **Auxiliary Switches:**

a) Operating mechanism of the circuit breaker shall be provided with adequate number of Cam/Snap type auxiliary switches of normally open and normally closed contacts for the control and operation of the equipment with continuous current rating of 10 Amp. The Breaking capacity of the contacts shall be minimum 2 A with circuit time constant less than 20 milli seconds at the rated D.C. voltage. Normal position of auxiliary switches refers to contact position when circuit breaker is open.

b) All spare auxiliary contacts of the circuit breakers shall be wired up and brought to the terminal block. Minimum 4 N/O + 4 N/C contacts shall be available on each breaker for this purpose. Auxiliary contact multiplier, if any used, shall be connected to the DC supply only.

c) Insulation level of auxiliary contacts shall be 1100 volts, 2.5 kV for 1 min.

d) All the electrical control equipments/switches, the operating point for manual spring charging handle etc. shall not be more than at a height of 1200 mm from ground level OR from a suitable platform which shall be provided by bidder on the structure at a height not more than 750 mm from ground level. It will be possible to reach the control cubicle/operating mechanism box conveniently. Further, electrical ON/OFF push buttons/switch shall be accessible from the ground.

e) The two steps platform structure with M S angle of size 40mm x 40mm x 6mm shall be provided to breaker structure. The platform shall be such that the working space on the top platform shall not be less than 500 mm x 1000mm for second step top and 300mm X1000 for first step . The total height of the plat form shall be 750mm (400 mm height for first step, and 350 mm for second step). The bidder shall specifically confirm that the offered breaker meets this requirement and furnish the G. A. Drawing showing the arrangement.

f) The circuit breaker shall be provided with motor operated spring charged closing. Spring charging motor shall be suitable for 250V, 50 Hz, single phase AC. Suitable rating starter shall be provided for Motor protection. Spring release coil for closing shall be suitable for 30V DC. Provision shall be available for charging the springs manually as well, and to close CB mechanically.

g) Tripping of the circuit breakers shall be through "Shunt trip" coils rated for 30V DC operation. It shall be possible to trip the breaker manually in case of necessity.

h) In each circuit breaker, one potential free contact of the limit switch of spring charging motor shall be provided for remote indication of spring charged. This contact shall be wired up and brought to the terminal block.

i) Electrical anti-pumping device shall be provided for breaker.

j) Adequate quantity of cable glands of suitable size shall be provided.

k) Design, materials selection and workmanship shall be such as to result in a neat appearance both inside and outside, with no welds, rivets or bolt heads apparent from outside. Steel sheets shall be suitably treated to achieve neat appearance and long life.

l) Breaker Cabinet shall be provided with cubicle illumination lamp in shrouded holder, controlled by door operated switch. Space heater of 80 W rating along with control

switch shall be provided inside each panel. Cubicle lamp and space heater shall be suitable to work on 250 V AC supply. In each panel, one 3-pin 10 Amp industrial type power plug along with control switch shall be provided for extending 240 V AC supply.

m) Each panel shall be provided with one earth bus of size 25x3mm.(minimum). The earth bus shall be of tinned/nickel plated copper. All metallic cases of relays, meters, instruments etc. shall be connected to this bus independently for their effective earthing.

iv) **Circuit Breakers control switch:**

a) Switches should have finger touch proof terminals. For the convenience of maintenance, screw driver guide should be from top/bottom of the switch and not from the side. Terminal wire should be inserted from the side of the switch terminal.

b) Terminal screws must be captive to avoid misplace during maintenance.

c) Switch shall be with 48 mm x 48 mm escutcheon plate marked with Trip & Close.

d) Circuit Breakers control switch shall be Non- discrepancy type.

e) Trip-neutral-close, with pistol grip handle must be pushed in to spring return to either trip or close position from Neutral position for safety and not just turn to trip.

f) One contact to close in each position of Trip and Close. Contact not required in Neutral position. Contact rating shall be 12 A at 30 V DC.

v) Equipments and devices shall be suitable for operation on specified auxiliary A.C. supply system.

vi) Push button shall be rated for not less than 10 Amps, 250 Volts A.C. or 10 Amp, 30 V D.C. and shall be flush mounted on the cabinet door and provided with appropriate name plates. Red, green and amber indicating lamps shall be flush mounted and provided with series resistors to eliminate the possibility of short circuiting of control supply in the event of fusing of lamps.

vii) Breaker cabinet shall be provided with 250 V, 1-phase 50 Hz, 20 W Fluorescent lighting fixture with on /off switch and a suitably rated 250 V, 1 phase, 5 amp, 3 pin socket for hand lamp.

viii) All AC control equipment shall be suitable for operation on 250V, 1 Phase two wire 50 Hz system, with one pole grounded.

ix) Items inside the cabinet made of organic material shall be coated with a fungus resistant varnish.

x) For protection of AC/DC aux. circuits, MCBs of suitable capacity & reputed make to be provided

10.0 Operating Mechanism & Associated Equipments:

i) The circuit breaker shall be designed for electrical local as well as remote control. In addition there shall be provision for local mechanical control.

ii) The operating mechanism shall be of spring charging type by electrical control under normal operation. The mechanism shall be adequately designed for the specified tripping and reclosing duty. The entire operating mechanism control circuitry, spring

charging motor etc., as required, shall be housed in an outdoor type, steel enclosure processed as per cl.no.9.0 (ii).

iii) All metal parts in the mechanism shall be of corrosion resistant material. All bearings which require greasing shall be equipped with pressure grease fittings.

iv) The design of the operating mechanism shall be such that it shall be practically maintenance free. The guaranteed number of years in maintenance free operation, the number of possible full load and full rated short circuit current breaking operations without requiring any maintenance or overhauling shall be clearly stated in the tender bid. As far as possible, the need for lubricating the operating mechanism shall be kept to the minimum and eliminated altogether, if possible.

v) The operating mechanism shall be anti-pumping and trip free There shall be no rebounds in the mechanism and it shall not require any critical adjustments at site. Operation of the power operated closing device, when the circuit breaker is already closed, shall not cause damage to the circuit breaker or endanger the operator. Provision shall be made for attaching an operation analyzer to facilitate testing of breaker at site.

vi) The technical requirement of spring type operating mechanism shall be as below.

vii) Spring Operating Mechanism:

a) The spring operating mechanism shall have adequate energy stored in the operating spring to close and latch the circuit breaker against the rated making current and also to provide required energy for the tripping mechanism in case the tripping energy is derived from the operating mechanism. The mechanism shall be capable of performing the rated operating duty cycle of O-0.3 Sec - CO - 3 min - CO. The spring charging motor shall not take more than 30 sec for fully charge the closing springs and provision shall be made for automatic charging of the closing springs as soon as they are discharged in a closing operation. For this, mechanism shall be such that charging of springs by motor does not interfere with the operation of the breaker.

b) The motor shall be adequately rated to carry out a minimum of 10 close and open operations continuously. Also provision shall be made to protect the motor against overloads.

c) In case of failure of power supply of spring charging motor, the mechanism shall be capable of performing one sequence of 0 - 0.3 Sec - CO.

d) Mechanical interlocks shall be provided in operating mechanism to prevent discharging of closing springs when breaker is already in closed position. Provision shall also be made to prevent a closing operation to be carried out with the spring partially charged.

e) Facility shall be provided for manual charging of closing springs. The actuating force required for manually spring charging shall be less than 250N. In support of this requirement the bidder shall furnish test report for actual requirement of force based on actual measurement.

11.0 Limits of Temperature and Temperature Rise for various parts of Material and Dielectrics:

Sr. No.	Nature of the part of the material and dielectric	Maximum Permissible Values of temperature (^{0}C)	Temperature rise at a max. air temperature not exceeding 50^{0}C
1.	Contacts (see note 4) Bare copper and bare copper alloy in air	75	25
	Silver coated or nickel coated (see note 5) -in air	105	55
	Tin coated (see note 5 & 6) in air	90	40
2.	Connections, bolted or the equivalent (see note 7) Bare copper, bare copper alloy or aluminum alloy.		
	-in air	90	40
	Silver coated or nickel coated-in air	115	65
	- Tin coated in air	105	55
3.	All other contacts or connections made of bare metals or coated with other materials	See Note 8	See Note 8
4.	Terminals for the connection to external conductors by screws or bolts(see note 9)		
	-bare	90	40
	-silver, nickel or tin coated	105	55
	-other coatings	See Note 8	See Note 8
5.	Metal parts acting as springs	See Note 12	See Note 12
6.	Material used as insulation and metal parts in contact with insulation of the following classes	See Note 13	
	-Y (for non-impregnated materials)	90	40
	-A (for materials immersed in oil or impregnated)	100	50
	-E	120	70
	-B	130	80
	-F	155	105
	-Enamel: oil base	100	50
	Synthetic	120	70
	-H	180	130
	-C	See Note 14	See Note 14

NOTES :

1.1. According to its function, the same part may belong to several categories as listed in table. In this case the permissible maximum value of temperature and temperature rise to be considered are the lowest among the relevant categories.

1.2. For vacuum switching devices the values of temperature and temperature rise limits are not applicable for parts in vacuum. The remaining parts shall not exceed the values of temperature and temperature rise given in table.

1.3. Care shall be taken to ensure that no damage is caused to the surrounding insulating material.

1.4. When contact parts have different coating, the permissible temperature & temperature rises shall be those of the part having the lower value permitted in table.

1.5. The quality of the coated contacts shall be such that a layer of coating material remains at the contact area:

i).After making and breaking tests (if any):

ii). After short time withstand current test:

iii). After the mechanical endurance test:

According to the relevant specification for each equipment. Otherwise, the contacts shall be regarded as "bare".

1.6. For fuse contacts, the temperature rise shall be in accordance with IEC publications on High Voltage Fuses.

1.7. When connection parts have different coatings, the permissible temperature rises shall be those of the parts having the higher value permitted in table.

1.8. When materials other than those given in table are used, their properties shall be considered, notably in order to determine the maximum permissible temperature rises.

1.9. The values of temperature and temperature rise are valid even if the conductor connected to the terminals is bare.

1.10. At the upper of the oil.

1.11. Special consideration should be given when low flash point oil is used in regard to vaporization and oxidation.

1.12. The temperature shall not reach a value where the elasticity of the material is impaired.

1.13. The following classification of insulating materials is in accordance with IEC-85.

Class Y: Insulation consists of materials or combinations of materials such as cotton, silk and paper when suitably impregnated. Other materials may be included in these classes if by experience or accepted tests they can be shown to be capable of operation at Class Y temperatures.

Class A: Insulation consists of materials or combinations of materials such as cotton, silk and paper when suitably impregnated or coated or when immersed a dielectric liquid such as oil. Other materials or combination of materials may be included in this class if by experience or accepted tests they can shown to be capable of operation at Class A temperatures.

Class E: Insulation consists of materials which by experience or accepted tests can be shown to be capable of operation at Class E temperatures.

Class B: Insulation consisting of materials or combinations of materials such as mica, glass fiber,

asbestos, etc. with suitable bonding substances. Other materials or combinations of materials, not necessarily inorganic, may be included in this class if by experience or accepted tests they can be shown to be capable of operation at Class B temperatures.

Class F: Insulation consists of materials or combination of materials such as mica, glass fiber, and asbestos with suitable bonding substances. Other materials or combinations of materials not necessarily inorganic may be included in this class if by experience or by accepted tests they can be shown to be capable of operation at class F temperatures.

Class H: Insulation consists of materials such as silicone elastomeric and combination of materials such mica, glass fiber, asbestos etc. with suitable bonding substances such as appropriate silicone resin. Other materials or combination of materials may be included in this class if by experience or by accepted tests they can be shown to be capable of operation at Class H temperatures.

Class C: Insulation consists of materials or combination of materials such as mica, porcelain, glass and quartz with or without an inorganic binder. Other materials or combinations of materials may be included in this class if by experience or accepted tests they can be shown to be capable of operation at temperatures above the Class H limit. Specific materials or combinations of materials in this class will have a temperature limit which is dependent upon their physical, chemical and electrical properties.

1.14. Limited only by requirement to any damage to surrounding parts.

12.0 Take Off Terminal Pads:

i) Terminal pads shall be provided with silver plating of at least 25 microns thickness if these are made of metal other than aluminum. No such plating shall be required if the terminal pad is made out of Aluminum. The pads shall be suitably designed to take the appropriate terminal loads. The terminal connectors required for connecting the Circuit Breaker to purchaser's Bus Bars shall be provided by the purchaser for mounting on aforesaid terminal pad.

ii) The breaker shall be designed to withstand the rated terminal load, wind load/Earth quake load and short circuit forces. The short circuit forces to be considered for the design shall be based on length of bus bars consisting of conductors and phase to phase spacing as per IS Standard

iii) The current density adopted for the design of the terminal pad shall in no case exceed 1.6A/sq.mm for copper pad and 1.0 A/ sq. mm for pad made of other material.

iv) The vertical clearance of lowest live part from ground level (including concrete foundation plinth) shall be as given below:

11 kV Breaker - 3100 mm (min)

In no case the height less than that indicated as above will be accepted.

13.0 Porcelain Housing:

a) **Porcelain Housing for the Interrupter:**

The porcelain housing for the interrupter shall be of a single piece construction without any joint. It shall be made of homogeneous, vitreous porcelain of high mechanical and dielectric strength. Glazing of porcelain shall be of uniform brown or dark brown colour with a smooth surface arranged to shed away rain water or condensed water particles.(fog).

b) **Support insulator:**

Breaking units shall be mounted on insulator column of not more than two insulators in each column. For 11 KV class circuit breaker, to take care of bird fault, the clearance in the air from the lowest live part to earth shall be minimum 370 mm and between live parts of poles shall be minimum 280 mm. However if insulating barrier is provided around the live portion of middle pole to take care of bird fault, the spacing between live parts of poles less than 280 mm shall be acceptable subject to withstanding the lightning impulse voltage test in absence of barrier on any pole.

14.0 Surface Finish:

All metal sheet surfaces exposed to atmosphere shall be given two primer coats of zinc phosphate and two coats of epoxy paint with epoxy base thinner. All metal parts not accessible for painting shall be made of corrosion resisting material. All machine finished or bright surfaces shall be coated with a suitable preventive compound and suitably wrapped or otherwise protected.

All paints shall be carefully selected to withstand tropical heat and extremes of weather within the limits specified. The paints shall be Dark Admiralty Grey, shade no No.632 of IS 5. The paint shall not scale off or wrinkle or be removed by abrasion due to normal handling.

15.0 Galvanizing:

All ferrous parts including nuts, bolts, plain and spring washers of size M 10 and above, support channels, structures, etc. shall be hot dip-galvanized to conform to latest version of IS 2629 or any other equivalent authoritative standard. All other fixing nuts, bolts, washers of size below M 10 shall be made out of stainless steel.

16.0 Earthing:

The operating mechanism housing, support structures etc. shall be provided with two separate earthing terminals for bolted connection to 50 x 8 mm MS flat to be provided by the purchaser for connection to station earth mat. The connecting point shall be marked with "earth" symbol No.86 of IEC publication 117-1 part 1.

17.0 Name and Rating Plate:

a) Circuit Breaker and its operating device shall be provided with rating plate/s made out of corrosion proof metal, marked with the following data. The data shall be either punched or engraved on the plate/s.
b) Manufacturer's name or trade mark by which he may be readily identified.
c) Serial number and type designation of CB & Operating mechanism
d) Year of manufacture
e) Voltage
f) Lightning impulse withstand voltage
g) Normal current
h) Short circuit breaking current
i) Duration of short circuit
j) Mass of circuit breaker with support structure.
k) Auxiliary D.C. supply voltage of closing and opening devices

l) Out of phase making & breaking current
m) A.C. supply voltage of auxiliary circuits.
n) Insulation level
o) Frequency
p) Purchase order reference
q) Operating sequence.

The rating plates shall be installed in such positions that the same shall be clearly visible to a man standing on ground. i.e. at the level of eye site.

18.0 Breaker Cabinet:

The Breaker Cabinet shall include the following features:

a) Two electrically independent trip circuits including two trip coils (one for local & one for remote) per CB as the case may be along with 2 bus arrangement for DC system protected with two separate MCBs.
b) One local/remote selector switch.
c) Conveniently located manual emergency trip
d) Anti-pumping feature
e) Auxiliary switches as specified elsewhere.
f) The closing coil shall operate satisfactorily at all values of control supply voltage between 80-110% of the rated voltage. The trip coil shall operate satisfactorily under all operating conditions of the circuit breaker up to its rated short circuit breaking current at all values of control supply voltage between 70-110% of the rated voltage. The trip coil shall be so designed that it does not get energized when its healthiness is monitored by indicating lamps and trip coil supervision relay.
g) The time taken for charging of closing spring shall not exceed 30 seconds. The spring charging shall take place automatically preferably after a closing operation. Breaker operation shall be independent of the spring charging motor which shall only charge the closing spring. Opening spring shall get charged automatically during closing operation. As long as power supply is available to the charging motor, a continuous sequence of closing and opening operations (CO) shall be possible. Spring charging motors shall be capable of starting and charging the closing spring twice in quick succession without exceeding acceptable winding temperature when the supply voltage is anywhere between 80-110% of rated voltage. The initial temperature shall be as prevalent in the switchgear panel during full load operation with 55 deg. C ambient air temperature. The motor shall be provided with over load protection.
h) Motor windings shall be provided with class E insulation or better. The insulation shall be given tropical and fungicidal treatment for successful operation of the motor in a hot, humid and tropical climate.
i) Independence of trip circuit from local/remote selection with one spare trip coil.
j) Trip circuit supervision for pre trip as well as post trip. Trip circuit supervision scheme shall be such that testing of trip circuit healthiness is possible irrespective of whether the C.B. is in the closed or open position. The trip circuit Healthy lamp should glow continuously in C.B. 'ON' position and on demand in C.B. "OFF" position. The rating of dropping resistance in series with Trip Circuit Healthy lamp shall be such that the Trip

coil should not get damaged because of continuous current flowing through it.

k) The coils of operating devices shall be marked clearly with the catalogue number/reference number as indicated in control wiring diagram.

l) One spare trip coil shall be supplied with one breaker.

19.0 Interlocks:

It is proposed to electrically interlock the circuit breaker with Purchaser's air break isolating switches in the switch yard in accordance with switchyard safety interlocking scheme. The details of the scheme shall be furnished to the successful bidder. The requirement of auxiliary contacts to be provided in breaker operating mechanism by the bidder for successful operation of the scheme has been specified in clause 9.3.

20.0 Mounting:

a) The design and supply of support structure, required for mounting the Circuit Breaker in Purchaser's switch yard, shall be in the bidder's scope. The bidder's scope shall also include foundation bolts, nuts, plain washers, spring washers etc necessary for the support structure. The support structure can be lattice type or tubular type and shall be made out of hot dip galvanized steel. Wheel mounted type support shall not be accepted. The support structure shall be installed on a concrete plinth of 300 mm height to be arranged by the Purchaser. The height of the support structure shall meet the following requirements.

   i) Vertical clearance of lowest live part as specified in clause 6.

   ii) Minimum height of 2430 mm above the top of concrete plinth (This is a Statutory Regulation).

b) The Circuit Breaker shall be connected to adjacent equipment in the switch yard through ACSR conductor.

c) The loading data to be considered by the bidder for design of support structure shall include the following.

   1 Dead weight of the Circuit Breaker, Structure, Bus Bars

   2 Operational steady state and impact loading

   3 Wind load on a Circuit Breaker, Structure, Bus Bars

   4 Short circuit forces

The support structure shall be designed on the basis of applicable Indian/International Standards and codes of practice.

21.0 Spares:

a) **Optional Spares:**

The list of optional spares required are indicated below. The tenderer shall quote separate rates for these spares which should be valid for two years from the date of issue of detail A/T. However the quantity of these spares shall be ordered separately, if required, on the basis of prices accepted by the Company. These prices shall not be considered for tender evaluation.

List of Optional Spares for 11 kV Vacuum Circuit Breaker

Sr.No.	Particulars	Unit	Make & Type	Unit Price

			desgn.	
1.	Breaking Chamber interrupter with insulator	No.		
2.	Vacuum Interrupter	No.		.
3.	Trip coils	No.		
4.	Closing coils	No.		
5.	Set of gasket	Set		
6.	Support insulator	No.		
7.	Rectifier	No.		
8	Support Structure along with foundation bolts for 3 phases of C.B.			

b) **Recommended spares:**

The bidder shall furnish in his offer, a list of recommended spares with unit rates for each circuit breaker that may be necessary for satisfactory operation and maintenance of the circuit breaker for a period of 5 years. The purchaser reserves the right of selection of items and quantities of these spares to be ordered. The cost of such spares shall not be considered for tender evaluation. The unit prices should be valid for two years from the date of issue of detail A/T.

c) **Erection and maintenance tools:**

The bidder shall submit a list and unit rates of all the special tools, equipments and instruments required for erection, testing, commissioning and maintenance of the breaker. The purchaser shall decide the quantity of tools to be ordered. Prices of these tools shall not be considered for tender evaluation. However the list of necessary tools/equipments which will be supplied free of cost with each CB may be furnished separately.

22.0 Tests and Type Tests:

A) Tests:

The Breaker offered should have been type tested for the following tests:

Sr. Nos.	Type test
1	Basic short circuit duties tests.
2	Out of phase making and breaking tests.
3	Short time and peak current withstand tests.
4	Lightening impulse voltage withstand test.
5	Power Frequency Voltage withstand test (dry & wet).
6	Temperature rise test.
7	Mechanical operation test.

8	Degree of protection (IP55) for all cabinets.
9	Single phase short circuit test (for 3 phase mechanically gang operated breaker).

NOTE:

All above type tests as per relevant IEC/IS standards shall be carried out on offered 11 kV VCB at any 3rd party National/International Laboratories accredited by National/International Accreditation Board for Testing & Calibration Laboratories (NABL).

B) Type Tests:

a) All the equipments offered shall be fully type tested as per the relevant standards, amended up-to-date. The supplier shall furnish the type test reports and certificate of accreditation issued by the testing authority along with the offer. These tests must not have been conducted earlier than five years from the date of opening of bids.

b) In case these type tests are conducted earlier than five years, all the type tests as per the relevant standards shall be carried out by the successful bidder in the presence of purchaser's representative at free of cost before commencement of supply. The undertaking to this effect should be furnished along with the offer without which the offer shall be liable for rejection.

c) The Purchaser reserves the right to demand repetition of some or all the type tests in the presence of his representative. For this purpose the supplier may quote unit rates for carrying out each type test.

d) For any change in the design/type already type tested and the design/type offered against this specification, the purchaser reserves the right to demand repetition of tests without any extra cost before commencement of supply. In this case the bidder shall bring out in his offer all such changes made in components, materials, design etc. as the case may be.

e) The company shall have the option to carry out various tests including type tests as per specification on the samples selected at random from the supplies effected, to ensure that the supplies conform in quality and workmanship to the relevant specification. The testing shall be done at an independent laboratory at company's cost. Due notice shall be given to supplier for such sample selection and such testing thereof to enable him to be present for the same if so desired by him. If the supplier or his authorised representative fails to attend the sample selection and testing, the same shall be carried out unilaterally by the company and the result thereof shall be binding upon the supplier. In case the sample selected from the supplies fails to withstand the required tests, then :-

   i) For first time failure of sample, supplier shall have to replace the full quantity of the respective inspected lot supplied to various Stores and lying unused at Stores.

   ii) For the quantity already accepted against the order and used, deduction in price of 10% of the value of material supplied shall be made.

AND

   iii) In respect of further supplies made against the order, if failure of samples is noticed (i.e., second time failure against the order) then the quantity lying unused

at various Stores shall be rejected.

iv) For the quantity already accepted against the order and used, deduction in price of 10% of the value of material supplied shall be made.

v) Balance quantity against the order including the rejected qty. shall be cancelled without any liability on either side.

vi) The firm will be debarred from dealing with the company up to a period of three years from the date of rejection.

23.0 Acceptance & Routine Tests:

a) All acceptance and routine tests as stipulated in relevant standards, amended up to date, shall be carried out by the supplier in the presence of purchaser's representative without any extra cost to the purchaser

(Note:- All measuring/testing equipments shall be of appropriate class of accuracy and shall have valid calibration certificates which shall be produced to the Inspecting Officer for verification.)

b) After finalization of the program of type/acceptance/routine testing, the supplier shall give three weeks advance intimation to the purchaser, to enable him to depute his representatives for witnessing the tests.

24.0 Inspection:

i) The inspection may be carried out by the purchaser or his representative at any stage of manufacture. The successful Bidder shall grant free access to the purchaser's representative/s at a reasonable notice when the work is in progress. Inspection and acceptance of any equipment under this specification by the purchaser, shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective.

ii) The supplier shall keep the purchaser informed in advance, about the manufacturing program so that arrangement can be made for stage inspection.

iii) The purchaser reserves the right to insist for witnessing the acceptance/routine testing of the bought out items. The supplier shall keep the purchaser informed, in advance, about such testing program.

iv) Chief Engineer (MM Cell) shall depute his representatives i.e. Executive Engineers from Testing Division and Inspection Wing for final inspection of Circuit Breaker Assembly at manufacturers works.

25.0 Quality Assurance Plan:

1) The bidder shall invariably furnish following information along with his offer, failing which his offer shall be liable for rejection. Information shall be separately given for 11 kV rating of circuit breaker.

i) Statement giving information about names of sub-suppliers, list of testing standards, list of tests normally carried out in presence of bidder's representative and copies of test certificates in respect of following items of raw-materials.

a) Contact material

b) Porcelain

ii) Information and copies of test certificates as in (i) above in respect of bought out accessories.

iii) List of areas in manufacturing process, where joint stage inspections are normally carried out by the bidder/purchaser for quality control and details of such tests and inspections.

iv) Special features provided in the equipment to make it maintenance free.

v) List of testing equipments available with the bidder for final testing of breakers vis-à-vis. the type, special, acceptance and routine tests specified herein. The limitations in testing facilities shall be very clearly brought out in schedule-E i.e. schedule of deviation from specified test requirement.

2) The successful bidder shall, within 30 days of placement of order, submit following information to the purchaser.

a) List of raw materials as well as bought out accessories and the names of sub-suppliers selected from those furnished along with the offer.

b) Type test certificates of the raw material and bought out accessories.

c) Quality assurance plan (QAP) with hold points for purchaser's inspection. The quality assurance plan and purchaser's hold points shall be discussed between the purchaser and supplier, before it is finalized.

3) The successful bidder shall submit the routine test certificates of bought out accessories at the time of routine testing of the fully assembled breaker for the goods manufactured within purchaser's country. The supplier shall also submit the central excise passes for the raw material at the time of routine testing of the fully assembled breaker.

26.0 Performance Guarantee:

The Vacuum Circuit Breakers offered shall be guaranteed for satisfactory performance for a period of 66 months from the date of receipt of complete Vacuum Circuit Breakers at destination store/site in good condition or 60 months from the date of satisfactory commissioning of Vacuum Circuit Breakers whichever is earlier. The equipments found defective/failed within the above guarantee period shall be replaced /repaired by the supplier free of cost within one month of receipt of intimation. If the defective/failed Vacuum Circuit Breakers are not replaced /repaired as per the above guarantee clause, the company shall recover an equivalent amount plus 15 % supervision charges from any of the supplier's bills.

27.0 Documentation:

i) All drawings shall conform to international standards organization (ISO) 'A' series of drawing sheet/Indian Standards Specification IS 656. All drawings shall be in ink and suitable for micro filming. All dimensions and data shall be in System International Units.

ii) Drawings:

The bidder shall furnish four sets of relevant descriptive and illustrative published literature/pamphlets and the following drawings for preliminary study:

a. General outline drawings showing outside dimensions, shipping dimensions, weights, quantity of insulating media air receiver capacity and such other prominent details.

b. Sectional views showing the general constructional features of the circuit breaker including operating mechanism, arcing chambers, contacts, with lifting dimensions for maintenance.

c. Schematic diagrams of the scheme for control, supervision and reclosing.

d. Structural drawing, design calculations and loading data for support structures.

e. Foundation drilling plan and loading data for foundation design.

f. Bill of Materials.

g. Type test reports of circuit breakers along with a separate list showing all the tests carried out with date & place of test.

h. Test reports, literatures and pamphlets of bought out items and raw materials.

iii) The successful bidder shall, within 6 weeks of placement of order, submit THREE sets of final versions of all the above said drawings in A-3 size, bill of material, packing list & all type test reports for purchaser's approval to the office of Chief Engineer (Testing and Quality Control). The purchaser shall communicate his comments/approval on the drawings to the supplier within reasonable period. The supplier shall, if necessary, modify the drawings and resubmit four copies of the modified drawings for purchaser's approval within two weeks from the date of purchaser's comments. After receipt of purchaser's approval, the supplier shall, within three weeks, submit 10 prints & two good quality reproducible of the approved drawings and 10 sets of instructions manuals in respect of Circuit breaker to the office of Chief Engineer (MM Cell).

iv) The successful bidder shall furnish in the form of nicely bound volumes, the manuals covering erection, commissioning, operation and maintenance instructions and all relevant information and drawings pertaining to the Vacuum Circuit Breakers as well as auxiliary devices. Marked erection drawings shall identify the component parts of the equipment as shipped to enable Engineer/Purchaser to carry out erection with his own personnel. Each manual shall also contain one set of all the approved drawings type test reports as well as acceptance test reports to corresponding consignment dispatched. The total quantity of the operating manuals/approved drawings sets to be supplied by the supplier shall be equal to the number of three phase breakers of rating, ordered.

v) The manufacturing of the Vacuum Circuit Breakers shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the purchaser. All manufacturing and fabrication work in connection with the Vacuum Circuit Breakers prior to the approval of the drawings shall be at the supplier's risk.

vi) Approval of drawings/work by the purchaser shall not relieve the supplier of any of his responsibility and liability for ensuring correctness and correct interpretation of the drawings for meeting the requirements of the latest revisions of applicable standards, rules and codes of practices.

28.0 Packing and Forwarding:

i) The Vacuum Circuit Breakers shall be packed in suitable crates so as to withstand handling during transport and outdoor storage during transit. The supplier shall be responsible for any damage to the equipment during transit, due to improper and inadequate packing. The easily damageable materials shall be carefully packed and marked with the appropriate caution symbols. Wherever necessary, proper lifting arrangement such as lifting hooks etc. shall be provided. Any material found short inside the packing cases shall be supplied by supplier without any extra cost.

ii) Each consignment shall be accompanied by a detailed packing list containing the following information:

a) Name of the consignee.

b) Details of consignment.

c) Destination.

d) Total weight of consignment.

e) Sign showing upper/lower side of the crate.

f) Handling and unpacking instructions.

g) Bill of materials indicating contents of each package and spare materials

The supplier shall ensure that the packing list and bill of materials are approved by the purchaser before dispatch.

29.0 Training of Engineers:

i) The successful bidder shall be required to provide facilities for in-plant training at no extra cost to the purchaser to at least four engineers to be nominated by the purchaser for a period of three weeks(i.e. 12 man weeks) at his works, where the Vacuum Circuit Breakers offered shall be manufactured. The scope of the training shall cover assembly, factory testing, site Testing, periodical maintenance, operation and trouble shooting of the breakers.

ii) If the Vacuum Circuit Breakers offered, is being designed and manufactured in collaboration with any other manufacturer, the supplier shall provide facilities for additional two engineers to be nominated by the purchaser, for in-plant training in the collaborator's work, for a period of 3 weeks(i.e.6 man weeks).

iii) In case of training within India, the to and fro travel expenses, lodging and boarding charges as well as allowances for out of pocket expenses in respect of the trainees, shall be borne by the purchaser. However, the supplier shall provide for suitable facilities for lodging and boarding as well as to and fro transport to place of training.

iv) In case of training outside India, the to and fro Journey expenses from India to the place of training shall be borne by the purchaser. However the cost of deferment of the expenses of the trainees for lodging and boarding, out of pocket allowance, local transport as per the rates prevailing at the time of training shall be initially borne by the supplier for which he shall quote rates while submitting his offer. Separate set of rates may preferably be quoted for providing facilities to Senior Managers and Intermediate Grade Managers commensurate with their status. The acceptance of the rates shall be decided while finalizing tender. The expenditure incurred by the successful bidder in this regard shall be paid to him by the purchaser. This amount, however, will not be considered for loading his offer.

v) The period and the program of the training (generally for three weeks) shall be mutually discussed and finalized by the purchaser with the supplier/s.

30.0 Supervisory Erection and Commissioning:

i) The erection and commissioning of the breakers shall be supervised, if required by the Purchaser, through one work-trained Engineer/foreman who shall direct the sequence of erection and make necessary adjustments to the apparatus and correct in the field

any errors or omissions on the part of the bidder in order to make the equipment and material properly perform in accordance with the intent of this specification. The representative shall also instruct the plant operators in the operation and maintenance of breakers furnished. Skilled workers, all the ordinary tools, equipment and cranes required for breaker erection, shall be provided by the purchaser. Apart from the above, the purchaser shall not be responsible for any other expenses incurred by the bidder and expenses such as Erector's salary, insurance against personal injuries to the Erector etc., shall be to bidder's account. Special tools, if required for erection and commissioning shall be arranged by the supplier at his cost. The supplier shall be responsible for any damage to the breaker on commissioning, if it results from faulty or improper assembly unless the erector can conclusively prove that the damage has occurred on account of intentional mistake on the part of the skilled workers provided by the purchaser.

ii) The bidder shall quote the lump-sum rate per breaker for the service of the erector, which should be valid for 3 years from the date of issue of detailed A/T. The bidder shall also indicate estimated time period for erection, testing and commissioning of each type of breaker. The separate rates shall be quoted for following works at purchaser's premises.

a) Supervision of only erection work of the Circuit Breakers.

b) Inspection of the erected breaker, testing and commissioning of the same.

31.0 Qualifying Requirements:

As per Tender.

32.0 Requirement of Documents:

Following documents should be furnished electronically:

i) Following information shall be furnished along with the offer in Electronic Form:

a) List of type test reports for the offered equipment shall invariably be furnished in the Annexure-IV enclosed herewith. (in electronic form)

b) Calculations of loading data for mechanical design of support structure for foundation and design of breaker terminal pads (in electronic form).

c) Certificate of accreditation of the testing laboratory where the type tests are conducted (in electronic form).

d) List of Past Experience of supplies for each type of Breaker offered for evaluation of Qualifying requirements (in electronic form).

e) Test report of actual measurement of actuating force required for charging manually (N).

f) Performance certificate for the Breakers offered for evaluation of Qualifying requirements (in electronic form).

ii) Following information/documents (in duplicate) duly sealed and signed on each page shall be submitted in physical form on or before the scheduled date of submission of the tender.

a) Details of precautions to be taken in the use of breaker.

b) Details of Quality Assurance plan

c) Type test reports as per Cl. 23.0 duly sealed and signed on each.

d) General arrangement drawing for C.Bs.

All documents in physical form shall be submitted.

ANNEXURE - I

PRICE AND DELIVERY SCHEDULE

ITEM NO.	DESCRIPTION	QUAN-TITY	UNIT PRICE		TOTAL PRICE		GUARANTEED DELIVERY IN MONTHS EX-WORKS FROM DATE OF ORDER
			EX-WORKS	FOR DESTI-NATION	EX-WORKS	FOR DESTI-NATION	
1.	For Incomer 11kV, 12.5kA, 800A, 3 Phase Reclosing type Mechanically gang operated Circuit Breakers.						
2.	For Feeder 11kV, 12.5kA, 400A, 3 Phase Reclosing type Mechanically gang operated Circuit Breakers.						

ANNEXURE - II

Specific Technical Requirement for 11KV , 400 A and 800A Outdoor Vacuum Circuit Breaker with Breaker Cabinet

Sr. No	Description	Particulars
1	Name of Manufacturer	Mfg to give details
2	Type	Porcelain clad type Outdoor Circuit breaker
3	Reference Standard	IEC 62271- 100 amended up to date / IS: 13118:1991
4	Number of poles of outdoor circuit	Three
5	Rated voltage of outdoor circuit breaker in kV.	12
6	Suitable Rated frequency for Outdoor circuit breaker in Hz	50± 3
7	Type of operation	Mechanically coupled gang operated
8	Operating mechanism	A. C. Control & Protective devices, lighting fixtures, space heaters and motor operating on supply single phase, 250 Volts ± 10% A.C., 50 Hz , two pole with one pole grounded
9	Maximum continuous voltage of outdoor circuit breaker in kV	12 KV
10	RATED CONTINUOUS CURRENT OF OUTDOOR CIRCUIT BREAKER IN AMPS.	800 Amp for Incomer and 400 Amp for Feeder
11	Earthing Offered for VCB suitable	for solid neutral earthing
12	Rated symmetrical short circuit breaking current (for 3 seconds) of outdoor circuit breaker in ka (rms)	12.5 kA
	a) AC component (kA (rms) b) percentage of DC component	12.5 kA Corresponding to minimum opening time as per standard IEC -62271-100
13	Rated operating sequence of outdoor circuit breaker	o-0.3 sec-co-3 min - co
14	Amplitude factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity	1.4
15	First pole to clear factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity	1.5
16	Rate of rise of restriking voltage of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity in kv/microsecs)	28

17	Dry-1 minute power frequency withstand voltage of outdoor circuit breaker between line terminal and earth in kvrms	28kV
18	Dry-1 minute power frequency withstand test voltage for outdoor circuit breaker between terminal with breaker contacts open in kvrms	28
19	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between line terminal and earth in kvp	75
20	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between terminals with breaker contacts open in kvp	75
21	Out of phase breaking capacity	100 % of rated breaking capacity
23	Material of main contacts of outdoor circuit breaker	Silver / Nickel coated Copper
24	Material of terminal pad of outdoor circuit breaker (copper/Aluminum)	Copper/Aluminum
25	If Terminal Pads are made of metal other than aluminum, thickness of silver plating on terminal pads	25 microns (Minimum)
26	The current density for copper terminal pad	1.6 A/sq.mm(Maximum)
27	The current density for other than copper terminal pad	1.0 A/sq.mm(Maximum)
28	Net cross section of terminal pad of outdoor circuit breaker in sq mm	Mfg to give details
29	Material of make –break contacts in Vacuum Interrupter	Mfg to give details
30	Material of tips of Main contacts of circuit breaker	Mfg to give details
31	No. Of normally open auxiliary contacts provided for outdoor circuit breaker available	4
32	No. Of normally close auxiliary contacts provided for outdoor circuit breaker available	4
33	Voltage rating of bushing used for outdoor circuit breaker in kv.	12 kv
34	Dry-1 minute power frequency withstand voltage of bushing used for outdoor circuit breaker in kvrms	28 kvrms
35	Dry flashover voltage of bushing used for outdoor circuit breaker in kvrms	28 kvrms
36	Wet flashover voltage of bushing used for outdoor circuit breaker in kvrms	28 kvrms
37	1.2/50 micro second impulse withstand voltage of bushing used for outdoor circuit breaker	75 kvp
38	Total creepage distance of bushing used for outdoor circuit breaker	300 mm.
39	Center to center minimum clearances in air between phases of outdoor circuit breaker in mm	Mfg to give details
40	Minimum Clearances provided in air between two Phases : in mm	Mfg to give details
41	Minimum clearances in air between live part to live part of phases of outdoor circuit breaker.	280 mm

42	Minimum clearances in air between live part to earth of outdoor circuit breaker	370 mm
43	Minimum clearances in air between live part of outdoor circuit breaker to ground level	3100 mm
44	Minimum height of the lowest part of the support insulator from ground level	2730 mm
45	Class of Insulating Material	B
46	Max. closing time	<80 ms
47	Max. total break time at 100 % rated interrupting breaking capacity :	45-50 ms
48	Type of closing mechanism of outdoor circuit breaker	Motor assisted spring charged mechanism.
49	Type of tripping mechanism of outdoor circuit breaker	Motor assisted spring charged mechanism with shunt trip coil.
50	Burden of trip coil of outdoor circuit breaker at 30 v d. c. in watts	Mfg to give details
51	Burden of closing coil of outdoor circuit breaker at 30 v d.c. in watts	Mfg to give details
52	On/off and "spring charged" indications for outdoor circuit breaker	Mechanical
53	Trip/close of outdoor circuit breaker	Manual
54	Spring charging for outdoor circuit breaker	Mechanical
56	Voltage rating of spring charging motor of outdoor circuit breaker in volts	Mfg to give details
57	Burden of spring charging motor of outdoor circuit breaker in VAmp	Mfg to give details
58	Control circuit voltage of outdoor circuit breaker	30 volts d. C.
60	The surface finish paints of non galvanized metallic part of VCB	Battleship gray shade No.632 of IS 5.
61	Process of painting of parts of outdoor circuit breaker	Two primer coats of zinc phosphate and two coats of epoxy paint with epoxy base thinner
62	Type of primer used for painting of parts of outdoor circuit breaker	Mfg to give details
63	Type of finish paint used for painting of parts of outdoor circuit breaker	Mfg to give details
64	Degree of protection of Operating Mechanism enclosure	IP 55 as per IEC529/ IS 2147

ANNEXURE - III

GUARANTEED TECHNICAL PARTICULARS FOR 11 KV, 400A/800A, 12.5 kA for 3 sec OUTDOOR VACUUM CIRCUIT BREAKERS		
1	Name of Manufacturer	Text
2	Type of Outdoor switchgear	Text
3	Designation of outdoor circuit breaker	Numeric
4	VCB conforms to IEC 62271- 100 amended upto date / IS: 13118:1991 : Yes/No	Boolean
5	Whether offered outdoor circuit breaker is porcelain clad type (yes/no)	Boolean
6	Shall outdoor circuit breaker provided 3 number of poles (yes/no)	Boolean
7	Rated voltage of outdoor circuit breaker in k Text kV.	Numeric
8	Is offered outdoor circuit breaker suitable for 50 Hz rated frequency.(Yes/No)	Boolean
9	Type of operation - Mechanically coupled gang operated : Yes/No	Boolean
10	Operating mechanism, A. C. Control & Protective devices, lighting fixtures, space heaters and motor operating on supply single phase, 250 Volts ± 10% A.C., 50 Hz , two pole with one pole grounded : Yes/No	Boolean
11	Maximum continuous voltage of outdoor circuit breaker in kV	Numeric
12	RATED CONTINUOUS CURRENT OF OUTDOOR CIRCUIT BREAKER IN AMPS.	Numeric
13	Offered VCB shall be suitable for solid neutral earthing : Yes/No	Boolean
14	Rated symmetrical short circuit breaking current (for 3 seconds) of outdoor circuit breaker in ka (rms) 12.5 kA	Numeric
15	Rated operating sequence of outdoor circuit breaker shall be o-0.3 sec-co-3 min - co	Text
16	Amplitude factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.4	Numeric
17	First pole to clear factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.5	Numeric
18	Rate of rise of restriking voltage of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity in kv/microsecs) 28	Numeric
19	Dry-1 minute power frequency withstand voltage of outdoor circuit breaker between line terminal and earth in kvrms shall be 28kV	Numeric
20	Dry-1 minute power frequency withstand test voltage for outdoor circuit breaker between terminal with breaker contacts open in kvrms	Numeric
21	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between line terminal and earth in kvp	Numeric
22	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between terminals with breaker contacts open in kvp	Numeric
23	Material of main contacts of outdoor circuit breaker	Text
24	Material of terminal pad of outdoor circuit breaker (copper/Aluminum)	Text
25	If Terminal Pads are made of metal other than aluminum, thickness of silver plating on terminal pads shall be at least 25 microns.	Numeric
26	The current density for copper terminal pad shall not be more than 1.6 A/sq. mm.	Text
27	The current density for other than copper terminal pad shall not be more	Text

	than 1 A/sq. mm.	
28	Net cross section of terminal pad of outdoor circuit breaker in sq mm	Numeric
29	Material of make –break contacts in Vacuum Interrupter	Text
30	Material of tips of Main contacts of circuit breaker	Text
31	Whether electrical anti pumping device provided for outdoor circuit breaker (yes/no)	Boolean
32	Size of auxiliary contacts of outdoor circuit breaker in sq. Mm.	Numeric
33	Material of auxiliary contacts of outdoor circuit breaker	Text
34	Continuous current capacity of auxiliary contacts of outdoor circuit breaker in amps.	` Numeric
35	Breaking current capacity of auxiliary contacts of outdoor circuit breaker in amps.	Numeric
36	Insulation level of auxiliary contacts of outdoor circuit breaker in volts.	Numeric
37	1 minute p. F. Withstand voltage of auxiliary contacts of outdoor circuit breaker in kvrms.	Numeric
38	Whether any contact multiplier are used for outdoor circuit breaker (yes/no) (if *yes* then fill 39 to 42)	Text
39	Make of contact multiplier used for circuit breaker	Text
40	Making and breaking capacity of contact multiplier used for outdoor circuit breaker in ka	Text
41	Voltage rating of contact multiplier used for outdoor circuit breaker in kv	Text
42	Capacity of coil of contact multiplier used for outdoor circuit breaker in watts	Numeric
43	No. Of normally open auxiliary contacts provided for outdoor circuit breaker available	Numeric
44	No. Of normally close auxiliary contacts provided for outdoor circuit breaker available	Numeric
45	Whether potential free contact available for indication of spring charged" of outdoor circuit breaker (yes/no)	
46	Voltage rating of bushing used for outdoor circuit breaker in kv.	Numeric
47	Dry-1 minute power frequency withstand voltage of bushing used for outdoor circuit breaker in kvrms	Numeric
48	Dry flashover voltage of bushing used for outdoor circuit breaker in kvrms	Numeric
49	Wet flashover voltage of bushing used for outdoor circuit breaker in kvrms	Numeric
50	1.2/50 micro second impulse withstand voltage of bushing used for outdoor circuit breaker shall be 75 kvp	Numeric
51	Total creepage distance of bushing used for outdoor circuit breaker shall be 300 mm.	Numeric
52	Center to center minimum clearances in air between phases of outdoor circuit breaker in mm	Numeric
53	Minimum Clearances provided in air between two Phases : in mm	Numeric
54	Minimum clearances in air between live part to live part of phases of outdoor circuit breaker shall be 280 mm.	Numeric
55	Minimum clearances in air between live part to earth of outdoor circuit breaker shall be 370 mm	Numeric
56	Minimum clearances in air between live part of outdoor circuit breaker to ground level shall be 3100 mm	Numeric
57	Height of the lowest part of the support insulator from ground level (min 2730	Numeric

	mm).	
58	Class of Insulating Material	Text
59	Max. closing time in ms for incomer /feeder	Numeric
60	Max. total break time in ms at 100 % rated interrupting breaking capacity	Numeric
61	Type of closing mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism.	Text
62	Type of tripping mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism with shunt trip coil.	Text
63	Burden of trip coil of outdoor circuit breaker at 30 v d.c. in watts	Numeric
64	Burden of closing coil of outdoor circuit breaker at 30 v d.c. in watts	Numeric
65	Whether mechanical on/off and "spring charged" indications for outdoor circuit breaker provided (yes/no)	Boolean
66	Whether manual trip/close of outdoor circuit breaker possible (yes/no)	Boolean
67	Whether mechanical spring charging for outdoor circuit breaker possible (yes/no)	Boolean
68	Voltage rating of spring charging motor of outdoor circuit breaker in volts	Numeric
69	Burden of spring charging motor of outdoor circuit breaker in VAmp	Numeric
70	Control circuit voltage of outdoor circuit breaker shall be 30 volts d. C. (yes/no)	Boolean
71	The surface finish paints of non galvanized metallic part of VCB shall be battleship gray shade No.632 of IS 5.	Text
72	Process of painting of parts of outdoor circuit breaker	Text
73	Type of primer used for painting of parts of outdoor circuit breaker	Text
74	Type of finish paint used for painting of parts of outdoor circuit breaker	Text
75	Degree of protection of Operating Mechanism enclosure is IP 55 as per IEC529/ IS 2147	Text
76	Mounting of CB On hot dip galvanized steel support structure or on the operating mechanism box, as the case may be, to be supplied by the bidder	Text
77	Whether all type tests are carried out on outdoor circuit breaker at NABL laboratories within five years from date of opening of tender(yes/No)	Text
78	Whether type tested on offered design of outdoor circuit breaker (yes / no).	Text
79	A list of recommended spares with unit rates for each circuit breaker that may be necessary for satisfactory operation and maintenance of the circuit breaker for a period of 5 years shall be submitted.	Numeric
80	A list and unit rates of all the special tools, equipments and instruments required for erection, testing, commissioning and maintenance of the breaker shall be submitted	Text
81	The list of necessary tools/equipments which will be supplied free of cost with each CB furnished separately.	Text
82	Are following Type test reports submitted with offer for offered equipment	Text
	a. Lightening impulse withstand voltage test. :Yes/No	Boolean
	b. Power Frequency Voltage withstand test (dry & wet). :Yes/No	Boolean
	c. Temperature rise test. :Yes/No	Boolean

	d. Measurement of resistance of Circuit: Yes/No	Boolean
	e. Short time and peak withstand current tests. :Yes/No	Boolean
	f. Mechanical operation test. :Yes/No	Boolean
	g. Degree of protection (IP55) for all cabinets. :Yes/No	Boolean
	h. Out of phase making and breaking tests. :Yes/No	Boolean
	i. Short Circuit Making and Breaking current Tests a) No load operation before and after test b) Basic test duties no. 1 to 5 c) Single Phase Short circuit test d) Condition of breaker after short circuit tes	Boolean
83	Are the following drawing submitted	Text
	a. General outline drawings showing outside dimensions, shipping dimensions, weights, quantity of insulating media air receiver capacity and such other prominent details. :Yes/No	Boolean
	b.Sectional views showing the general constructional features of the circuit breaker including operating mechanism, arcing chambers, contacts, with lifting dimensions for maintenance. :Yes/No	Boolean
	c. Schematic diagrams of the scheme for control, supervision and reclosing :Yes/No	Boolean
	d.Structural drawing, design calculations and loading data for support structures. :Yes/No	Boolean
	e. Foundation drilling plan and loading data for foundation design. :Yes/No	Boolean
	f.Type test reports of circuit breakers along with a separate list showing all the tests carried out with date & place of test. :Yes/No	Boolean
	g.Test reports, literatures and pamphlets of bought out items and raw materials. :Yes/No	Boolean
84	Whether bidder adequate in-house testing facilities for conducting acceptance tests in accordance with relevant IS.	Text
85	Type of operation shall be suitable for 3 phase reclosing : Yes/No.	Boolean

ANNEXURE - IV

Details of type tests conducted for Circuit Breaker

Sr. Nos.	Description of Type Test	Type & Make of Circuit Breaker& its rating	IS/IEC Clause No.	Testing Lab. & Date of Date of Testing	Type test report No., dt. & pages	Whether certificate of compliance with IS/IEC is enclosed with T.R.
1	Basic short circuit duties tests.					
2	Out of phase making and breaking tests.					
3	Short time and peak current withstand tests.					
4	Lightening impulse voltage withstand test.					
5	Power Frequency Voltage withstand test (dry & wet).					
6	Temperature rise test.					
7	Mechanical operation test.					
8	Degree of protection (IP55) for all cabinets.					
9	Single phase short circuit test (for 3 phase mechanically gang operated breaker).					

Technical Specification Cont	
Item	Technical Specification
11 KV VCB 400 A Outdoor(82155000214)	Refer To The Following Item Specification: 11 KV VCB 800 A Outdoor(82155000484)

33KV 1600 AMP.VCB3PH.30V

GTP Order Sequence	GTP Parameters	Date Type
1	Name of Manufacturer	TEXT
2	Type of Outdoor switchgear	TEXT
3	Designation of outdoor circuit breaker	NUMERIC
4	VCB conforms to IEC 62271- 100 amended upto date / IS: 13118:1991 : Yes/No	BOOLEAN
5	Whether offered outdoor circuit breaker is porcelain clad type (yes/no)	BOOLEAN
6	Shall outdoor circuit breaker provided 3 number of poles (yes/no)	BOOLEAN
7	Rated voltage of outdoor circuit breaker in k Text kV.	NUMERIC
8	Is offered outdoor circuit breaker suitable for 50 Hz rated frequency.(Yes/No)	BOOLEAN
9	Type of operation - Mechanically coupled gang operated : Yes/No	BOOLEAN
10	Operating mechanism, A. C. Control & Protective devices, lighting fixtures, space heaters and motor operating on supply single phase, 250 Volts ± 10% A.C., 50 Hz , two pole with one pole grounded : Yes/No	BOOLEAN
11	Maximum continuous voltage of outdoor circuit breaker in kV	NUMERIC
12	Rated continuous current of outdoor circuit breaker in amps.	NUMERIC
13	Offered VCB shall be suitable for solid neutral earthing : Yes/No	BOOLEAN
14	Rated symmetrical short circuit breaking current (for 3 seconds) of outdoor circuit breaker in ka (rms) 25 kA	NUMERIC
15	Rated operating sequence of outdoor circuit breaker shall be o-0.3 sec-co-3 min -co	TEXT
16	Amplitude factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.4	NUMERIC
17	First pole to clear factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.5	NUMERIC
18	Rate of rise of restriking voltage of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity in kv/microsecs) 50/70	NUMERIC
19	Dry-1 minute power frequency withstand voltage of outdoor circuit breaker between line terminal and earth in kvrms shall be 50/70 kV	NUMERIC
20	Dry-1 minute power frequency withstand test voltage for outdoor circuit breaker between terminal with breaker contacts open in kvrms	NUMERIC
21	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between line terminal and earth in kvp	NUMERIC
22	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between terminals with breaker contacts open in kvp	NUMERIC
23	Material of main contacts of outdoor circuit breaker	TEXT
24	Material of terminal pad of outdoor circuit breaker (copper/Aluminum)	TEXT
25	If Terminal Pads are made of metal other than aluminum, thickness of silver plating on terminal pads shall be at least 25 microns.	NUMERIC
26	The current density for copper terminal pad shall not be more than 1.6 A/sq. mm.	TEXT

27	The current density for other than copper terminal pad shall not be more than 1 A/sq. mm.	TEXT
28	Net cross section of terminal pad of outdoor circuit breaker in sq mm	NUMERIC
29	Material of make –break contacts in Vacuum Interrupter	TEXT
30	Material of tips of Main contacts of circuit breaker	TEXT
31	Whether electrical anti pumping device provided for outdoor circuit breaker (yes/no)	BOOLEAN
32	Size of auxiliary contacts of outdoor circuit breaker in sq. Mm.	NUMERIC
33	Material of auxiliary contacts of outdoor circuit breaker	TEXT
34	Continuous current capacity of auxiliary contacts of outdoor circuit breaker in	NUMERIC
35	Breaking current capacity of auxiliary contacts of outdoor circuit breaker in amps.	NUMERIC
36	Insulation level of auxiliary contacts of outdoor circuit breaker in volts.	NUMERIC
37	1 minute p. F. Withstand voltage of auxiliary contacts of outdoor circuit breaker in kvrms.	NUMERIC
38	Whether any contact multiplier are used for outdoor circuit breaker (yes/no) (if *yes* then fill 39 to 42)	TEXT
39	Make of contact multiplier used for circuit breaker	TEXT
40	Making and breaking capacity of contact multiplier used for outdoor circuit breaker in ka	TEXT
41	Voltage rating of contact multiplier used for outdoor circuit breaker in kv	TEXT
42	Capacity of coil of contact multiplier used for outdoor circuit breaker in watts	NUMERIC
43	No. Of normally open auxiliary contacts provided for outdoor circuit breaker available for use in remote C&R panels	NUMERIC
44	No. Of normally close auxiliary contacts provided for outdoor circuit breaker available for use in remote C&R panels	NUMERIC
45	Whether potential free contact available for indication of spring charged" of outdoor circuit breaker (yes/no)	BOOLEAN
46	Voltage rating of bushing used for outdoor circuit breaker in kv	NUMERIC
47	Dry-1 minute power frequency withstand voltage of bushing used for outdoor circuit breaker in kvrms	NUMERIC
48	Dry flashover voltage of bushing used for outdoor circuit breaker in kvrms	NUMERIC
49	Wet flashover voltage of bushing used for outdoor circuit breaker in kvrms	NUMERIC
50	1.2/50 micro second impulse withstand voltage of bushing used for outdoor circuit breaker shall be 125/170 kvp	NUMERIC
51	Total creepage distance of bushing used for outdoor circuit breaker shall be 300 mm.	NUMERIC
52	Center to center minimum clearances in air between phases of outdoor circuit breaker in mm	NUMERIC
53	Minimum Clearances provided in air between two Phases : in mm	NUMERIC
54	Minimum clearances in air between live part to live part of phases of outdoor circuit breaker shall be 430 mm.	NUMERIC
55	Minimum clearances in air between live part to earth of outdoor circuit breaker shall be 450 mm	NUMERIC
56	Minimum clearances in air between live part of outdoor circuit breaker to ground level shall be 3700 mm	NUMERIC

57	Height of the lowest part of the support insulator from ground level (min 2500 in mm)	NUMERIC
58	Class of Insulating Material	TEXT
59	Max. closing time in ms (Max. 150 ms)	NUMERIC
60	Max. total break time in ms at 100 % rated interrupting breaking capacity: 100 ms	NUMERIC
61	Type of closing mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism.	TEXT
62	Type of tripping mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism with shunt trip coil.	TEXT
63	Burden of trip coil of outdoor circuit breaker at 30 v d.c. in watts	NUMERIC
64	Burden of closing coil of outdoor circuit breaker at 30 v d.c. in watts	NUMERIC
65	Whether mechanical on/off and "spring charged" indications for outdoor circuit breaker provided (yes/no)	BOOLEAN
66	Whether manual trip/close of outdoor circuit breaker possible (yes/no)	BOOLEAN
67	Whether mechanical spring charging for outdoor circuit breaker possible (yes/no)	BOOLEAN
68	Voltage rating of spring charging motor of outdoor circuit breaker in volts	NUMERIC
69	Burden of spring charging motor of outdoor circuit breaker in VAmp	NUMERIC
70	Control circuit voltage of outdoor circuit breaker shall be 30 volts d. C. (yes/no)	BOOLEAN
71	The surface finish paints of non galvanized metallic part of VCB shall be battleship gray shade No.632 of IS 5.	TEXT
72	Process of painting of parts of outdoor circuit breaker	TEXT
73	Type of primer used for painting of parts of outdoor circuit breaker	TEXT
74	Type of finish paint used for painting of parts of outdoor circuit breaker	TEXT
75	Degree of protection of Operating Mechanism enclosure is IP 55 as per IEC529/ IS 2147	TEXT
76	Mounting of CB On hot dip galvanized steel support structure or on the operating mechanism box, as the case may be, to be supplied by the tenderer	TEXT
77	Whether all type tests are carried out on outdoor circuit breaker at NABL laboratories within five years from date of opening of tender(yes/No)	TEXT
78	Whether type tested on offered design of outdoor circuit breaker (yes / no).	TEXT
79	A list of recommended spares with unit rates for each circuit breaker that may be necessary for satisfactory operation and maintenance of the circuit breaker for a period of 5 years shall be submitted.	NUMERIC
80	A list and unit rates of all the special tools, equipments and instruments required for erection, testing, commissioning and maintenance of the breaker shall be submitted	TEXT
81	The list of necessary tools/equipments which will be supplied free of cost with each CB furnished separately.	TEXT
82	Are following Type test reports submitted with offer for offered equipment	TEXT
83	Lightening impulse withstand voltage test. :Yes/No	BOOLEAN
84	Power Frequency Voltage withstand test (dry & wet). :Yes/No	BOOLEAN
85	Temperature rise test. :Yes/No	BOOLEAN
86	Measurement of resistance of Circuit: Yes/No	BOOLEAN

87	Short time and peak withstand current tests. :Yes/No	BOOLEAN
88	Mechanical operation test. :Yes/No	BOOLEAN
89	Degree of protection (IP55) for all cabinets. :Yes/No	BOOLEAN
90	Out of phase making and breaking tests. :Yes/No	BOOLEAN
91	Short Circuit Making and Breaking current Tests a) No load operation before and after test b) Basic test duties no. 1 to 5 c) Single Phase Short circuit test d) Condition of breaker after short circuit tes	BOOLEAN
92	Are the following drawing submitted	TEXT
93	General outline drawings showing outside dimensions, shipping dimensions, weights, quantity of insulating media air receiver capacity and such other prominent details. :Yes/No	BOOLEAN
94	Sectional views showing the general constructional features of the circuit breaker including operating mechanism, arcing chambers, contacts, with lifting dimensions for maintenance. :Yes/No	BOOLEAN
95	Schematic diagrams of the scheme for control, supervision and reclosing :Yes/No	BOOLEAN
96	Structural drawing, design calculations and loading data for support structures. :Yes/No	BOOLEAN
97	Foundation drilling plan and loading data for foundation design. :Yes/No	BOOLEAN
98	Type test reports of circuit breakers along with a separate list showing all the tests carried out with date & place of test. :Yes/No	BOOLEAN
99	Test reports, literatures and pamphlets of bought out items and raw materials. :Yes/No	BOOLEAN
100	Whether bidder adequate in-house testing facilities for conducting acceptance tests in accordance with relevant IS.	TEXT
101	Type of operation shall be suitable for 3 phase reclosing : Yes/No.	BOOLEAN

11 KV VCB 800 A Outdoor

GTP Order Sequence	GTP Parameters	Date Type
1	Name of Manufacturer	TEXT
2	Type of Outdoor switchgear	TEXT
3	Designation of outdoor circuit breaker	NUMERIC
4	VCB conforms to IEC 62271- 100 amended upto date / IS: 13118:1991 : Yes/No	BOOLEAN
5	Whether offered outdoor circuit breaker is porcelain clad type (yes/no)	BOOLEAN
6	Shall outdoor circuit breaker provided 3 number of poles (yes/no)	BOOLEAN
7	Rated voltage of outdoor circuit breaker in k Text kV.	NUMERIC
8	Is offered outdoor circuit breaker suitable for 50 Hz rated frequency.(Yes/No)	BOOLEAN
9	Type of operation - Mechanically coupled gang operated : Yes/No	BOOLEAN
10	Operating mechanism, A. C. Control & Protective devices, lighting fixtures, space heaters and motor operating on supply single phase, 250 Volts ± 10% A.C., 50 Hz , two pole with one pole grounded : Yes/No	BOOLEAN
11	Maximum continuous voltage of outdoor circuit breaker in kV	NUMERIC

12	RATED CONTINUOUS CURRENT OF OUTDOOR CIRCUIT BREAKER IN AMPS.	NUMERIC
13	Offered VCB shall be suitable for solid neutral earthing : Yes/No	BOOLEAN
14	Rated symmetrical short circuit breaking current (for 3 seconds) of outdoor circuit breaker in ka (rms) 12.5 kA	NUMERIC
15	Rated operating sequence of outdoor circuit breaker shall be o-0.3 sec-co-3 min -co	TEXT
16	Amplitude factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.4	NUMERIC
17	First pole to clear factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.5	NUMERIC
18	Rate of rise of restriking voltage of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity in kv/microsecs) 28	NUMERIC
19	Dry-1 minute power frequency withstand voltage of outdoor circuit breaker between line terminal and earth in kvrms shall be 28kV	NUMERIC
20	Dry-1 minute power frequency withstand test voltage for outdoor circuit breaker between terminal with breaker contacts open in kvrms	NUMERIC
21	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between line terminal and earth in kvp	NUMERIC
22	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between terminals with breaker contacts open in kvp	NUMERIC
23	Material of main contacts of outdoor circuit breaker	TEXT
24	Material of terminal pad of outdoor circuit breaker (copper/Aluminum)	TEXT
25	If Terminal Pads are made of metal other than aluminum, thickness of silver plating on terminal pads shall be at least 25 microns.	NUMERIC
26	The current density for copper terminal pad shall not be more than 1.6 A/sq. mm.	TEXT
27	The current density for other than copper terminal pad shall not be more than 1 A/sq. mm.	TEXT
28	Net cross section of terminal pad of outdoor circuit breaker in sq mm	NUMERIC
29	Material of make –break contacts in Vacuum Interrupter	TEXT
30	Material of tips of Main contacts of circuit breaker	TEXT
31	Whether electrical anti pumping device provided for outdoor circuit breaker (yes/no)	BOOLEAN
32	Size of auxiliary contacts of outdoor circuit breaker in sq. Mm.	NUMERIC
33	Material of auxiliary contacts of outdoor circuit breaker	TEXT
34	Continuous current capacity of auxiliary contacts of outdoor circuit breaker in	NUMERIC
35	Breaking current capacity of auxiliary contacts of outdoor circuit breaker in amps.	NUMERIC
36	Insulation level of auxiliary contacts of outdoor circuit breaker in volts.	NUMERIC
37	1 minute p. F. Withstand voltage of auxiliary contacts of outdoor circuit breaker in kvrms.	NUMERIC
38	Whether any contact multiplier are used for outdoor circuit breaker (yes/no) (if *yes* then fill 39 to 42)	TEXT
39	Make of contact multiplier used for circuit breaker	TEXT
40	Making and breaking capacity of contact multiplier used for outdoor circuit breaker in ka	TEXT
41	Voltage rating of contact multiplier used for outdoor circuit breaker in kv	TEXT

42	Capacity of coil of contact multiplier used for outdoor circuit breaker in watts	NUMERIC
43	No. Of normally open auxiliary contacts provided for outdoor circuit breaker available	NUMERIC
44	No. Of normally close auxiliary contacts provided for outdoor circuit breaker available	NUMERIC
45	Whether potential free contact available for indication of spring charged" of outdoor circuit breaker (yes/no)	BOOLEAN
46	Voltage rating of bushing used for outdoor circuit breaker in kv	NUMERIC
47	Dry-1 minute power frequency withstand voltage of bushing used for outdoor circuit breaker in kvrms	NUMERIC
48	Dry flashover voltage of bushing used for outdoor circuit breaker in kvrms	NUMERIC
49	Wet flashover voltage of bushing used for outdoor circuit breaker in kvrms	NUMERIC
50	1.2/50 micro second impulse withstand voltage of bushing used for outdoor circuit breaker shall be 75 kvp	NUMERIC
51	Total creepage distance of bushing used for outdoor circuit breaker shall be 300 mm.	NUMERIC
52	Center to center minimum clearances in air between phases of outdoor circuit breaker in mm	NUMERIC
53	Minimum Clearances provided in air between two Phases : in mm	NUMERIC
54	Minimum clearances in air between live part to live part of phases of outdoor circuit breaker shall be 280 mm.	NUMERIC
55	Minimum clearances in air between live part to earth of outdoor circuit breaker shall be 370 mm	NUMERIC
56	Minimum clearances in air between live part of outdoor circuit breaker to ground level shall be 3100 mm	NUMERIC
57	Height of the lowest part of the support insulator from ground level (min 2730 in mm)	NUMERIC
58	Class of Insulating Material	TEXT
59	Max. closing time in ms for incomer /feeder	NUMERIC
60	Max. total break time in ms at 100 % rated interrupting breaking capacity	NUMERIC
61	Type of closing mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism.	TEXT
62	Type of tripping mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism with shunt trip coil.	TEXT
63	Burden of trip coil of outdoor circuit breaker at 30 v d.c. in watts	NUMERIC
64	Burden of closing coil of outdoor circuit breaker at 30 v d.c. in watts	NUMERIC
65	Whether mechanical on/off and "spring charged" indications for outdoor circuit breaker provided (yes/no)	BOOLEAN
66	Whether manual trip/close of outdoor circuit breaker possible (yes/no)	BOOLEAN
67	Whether mechanical spring charging for outdoor circuit breaker possible (yes/no)	BOOLEAN
68	Voltage rating of spring charging motor of outdoor circuit breaker in volts	NUMERIC
69	Burden of spring charging motor of outdoor circuit breaker in VAmp	NUMERIC
70	Control circuit voltage of outdoor circuit breaker shall be 30 volts d. C. (yes/no)	BOOLEAN
71	The surface finish paints of non galvanized metallic part of VCB shall be battleship gray shade No.632 of IS 5.	TEXT

72	Process of painting of parts of outdoor circuit breaker	TEXT
73	Type of primer used for painting of parts of outdoor circuit breaker	TEXT
74	Type of finish paint used for painting of parts of outdoor circuit breaker	TEXT
75	Degree of protection of Operating Mechanism enclosure is IP 55 as per IEC529/ IS 2147	TEXT
76	Mounting of CB On hot dip galvanized steel support structure or on the operating mechanism box, as the case may be, to be supplied by the bidder	TEXT
77	Whether all type tests are carried out on outdoor circuit breaker at NABL laboratories within five years from date of opening of tender(yes/No)	TEXT
78	Whether type tested on offered design of outdoor circuit breaker (yes / no).	TEXT
79	A list of recommended spares with unit rates for each circuit breaker that may be necessary for satisfactory operation and maintenance of the circuit breaker for a period of 5 years shall be submitted.	NUMERIC
80	A list and unit rates of all the special tools, equipments and instruments required for erection, testing, commissioning and maintenance of the breaker shall be submitted	TEXT
81	The list of necessary tools/equipments which will be supplied free of cost with each CB furnished separately.	TEXT
82	Are following Type test reports submitted with offer for offered equipment	TEXT
83	Lightening impulse withstand voltage test. :Yes/No	BOOLEAN
84	Power Frequency Voltage withstand test (dry & wet). :Yes/No	BOOLEAN
85	Temperature rise test. :Yes/No	BOOLEAN
86	Measurement of resistance of Circuit: Yes/No	BOOLEAN
87	Short time and peak withstand current tests. :Yes/No	BOOLEAN
88	Mechanical operation test. :Yes/No	BOOLEAN
89	Degree of protection (IP55) for all cabinets. :Yes/No	BOOLEAN
90	Out of phase making and breaking tests. :Yes/No	BOOLEAN
91	Short Circuit Making and Breaking current Tests a) No load operation before and after test b) Basic test duties no. 1 to 5 c) Single Phase Short circuit test d) Condition of breaker after short circuit tes	BOOLEAN
92	Are the following drawing submitted	TEXT
93	General outline drawings showing outside dimensions, shipping dimensions, weights, quantity of insulating media air receiver capacity and such other prominent details. :Yes/No	BOOLEAN
94	Sectional views showing the general constructional features of the circuit breaker including operating mechanism, arcing chambers, contacts, with lifting dimensions for maintenance. :Yes/No	BOOLEAN
95	Schematic diagrams of the scheme for control, supervision and reclosing :Yes/No	BOOLEAN
96	Structural drawing, design calculations and loading data for support structures. :Yes/No	BOOLEAN
97	Foundation drilling plan and loading data for foundation design. :Yes/No	BOOLEAN
98	Type test reports of circuit breakers along with a separate list showing all the tests carried out with date & place of test. :Yes/No	BOOLEAN
99	Test reports, literatures and pamphlets of bought out items and raw materials. :Yes/No	BOOLEAN

100	Whether bidder adequate in-house testing facilities for conducting acceptance tests in accordance with relevant IS.	TEXT
101	Type of operation shall be suitable for 3 phase reclosing : Yes/No.	BOOLEAN

11 KV VCB 400 A Outdoor

GTP Order Sequence	GTP Parameters	Date Type
1	Name of Manufacturer	TEXT
2	Type of Outdoor switchgear	TEXT
3	Designation of outdoor circuit breaker	NUMERIC
4	VCB conforms to IEC 62271- 100 amended upto date / IS: 13118:1991 : Yes/No	BOOLEAN
5	Whether offered outdoor circuit breaker is porcelain clad type (yes/no)	BOOLEAN
6	Shall outdoor circuit breaker provided 3 number of poles (yes/no)	BOOLEAN
7	Rated voltage of outdoor circuit breaker in k Text kV.	NUMERIC
8	Is offered outdoor circuit breaker suitable for 50 Hz rated frequency.(Yes/No)	BOOLEAN
9	Type of operation - Mechanically coupled gang operated : Yes/No	BOOLEAN
10	Operating mechanism, A. C. Control & Protective devices, lighting fixtures, space heaters and motor operating on supply single phase, 250 Volts ± 10% A.C., 50 Hz , two pole with one pole grounded : Yes/No	BOOLEAN
11	Maximum continuous voltage of outdoor circuit breaker in kV	NUMERIC
12	RATED CONTINUOUS CURRENT OF OUTDOOR CIRCUIT BREAKER IN AMPS.	NUMERIC
13	Offered VCB shall be suitable for solid neutral earthing : Yes/No	BOOLEAN
14	Rated symmetrical short circuit breaking current (for 3 seconds) of outdoor circuit breaker in ka (rms) 12.5 kA	NUMERIC
15	Rated operating sequence of outdoor circuit breaker shall be o-0.3 sec-co-3 min -co	TEXT
16	Amplitude factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.4	NUMERIC
17	First pole to clear factor of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity shall be 1.5	NUMERIC
18	Rate of rise of restriking voltage of outdoor circuit breaker on restriking voltage at 100% rated breaking capacity in kv/microsecs) 28	NUMERIC
19	Dry-1 minute power frequency withstand voltage of outdoor circuit breaker between line terminal and earth in kvrms shall be 28kV	NUMERIC
20	Dry-1 minute power frequency withstand test voltage for outdoor circuit breaker between terminal with breaker contacts open in kvrms	NUMERIC
21	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between line terminal and earth in kvp	NUMERIC
22	1.2 / 50 micro second impulse with-stand voltage for outdoor circuit breaker between terminals with breaker contacts open in kvp	NUMERIC
23	Material of main contacts of outdoor circuit breaker	TEXT
24	Material of terminal pad of outdoor circuit breaker (copper/Aluminum)	TEXT

25	If Terminal Pads are made of metal other than aluminum, thickness of silver plating on terminal pads shall be at least 25 microns.	NUMERIC
26	The current density for copper terminal pad shall not be more than 1.6 A/sq. mm.	TEXT
27	The current density for other than copper terminal pad shall not be more than 1 A/sq. mm.	TEXT
28	Net cross section of terminal pad of outdoor circuit breaker in sq mm	NUMERIC
29	Material of make –break contacts in Vacuum Interrupter	TEXT
30	Material of tips of Main contacts of circuit breaker	TEXT
31	Whether electrical anti pumping device provided for outdoor circuit breaker (yes/no)	BOOLEAN
32	Size of auxiliary contacts of outdoor circuit breaker in sq. Mm.	NUMERIC
33	Material of auxiliary contacts of outdoor circuit breaker	TEXT
34	Continuous current capacity of auxiliary contacts of outdoor circuit breaker in	NUMERIC
35	Breaking current capacity of auxiliary contacts of outdoor circuit breaker in amps.	NUMERIC
36	Insulation level of auxiliary contacts of outdoor circuit breaker in volts.	NUMERIC
37	1 minute p. F. Withstand voltage of auxiliary contacts of outdoor circuit breaker in kvrms.	NUMERIC
38	Whether any contact multiplier are used for outdoor circuit breaker (yes/no) (if *yes* then fill 39 to 42)	TEXT
39	Make of contact multiplier used for circuit breaker	TEXT
40	Making and breaking capacity of contact multiplier used for outdoor circuit breaker in ka	TEXT
41	Voltage rating of contact multiplier used for outdoor circuit breaker in kv	TEXT
42	Capacity of coil of contact multiplier used for outdoor circuit breaker in watts	NUMERIC
43	No. Of normally open auxiliary contacts provided for outdoor circuit breaker available	NUMERIC
44	No. Of normally close auxiliary contacts provided for outdoor circuit breaker available	NUMERIC
45	Whether potential free contact available for indication of spring charged" of outdoor circuit breaker (yes/no)	BOOLEAN
46	Voltage rating of bushing used for outdoor circuit breaker in kv	NUMERIC
47	Dry-1 minute power frequency withstand voltage of bushing used for outdoor circuit breaker in kvrms	NUMERIC
48	Dry flashover voltage of bushing used for outdoor circuit breaker in kvrms	NUMERIC
49	Wet flashover voltage of bushing used for outdoor circuit breaker in kvrms	NUMERIC
50	1.2/50 micro second impulse withstand voltage of bushing used for outdoor circuit breaker shall be 75 kvp	NUMERIC
51	Total creepage distance of bushing used for outdoor circuit breaker shall be 300 mm.	NUMERIC
52	Center to center minimum clearances in air between phases of outdoor circuit breaker in mm	NUMERIC
53	Minimum Clearances provided in air between two Phases : in mm	NUMERIC
54	Minimum clearances in air between live part to live part of phases of outdoor circuit breaker shall be 280 mm.	NUMERIC

55	Minimum clearances in air between live part to earth of outdoor circuit breaker shall be 370 mm	NUMERIC
56	Minimum clearances in air between live part of outdoor circuit breaker to ground level shall be 3100 mm	NUMERIC
57	Height of the lowest part of the support insulator from ground level (min 2730 in mm)	NUMERIC
58	Class of Insulating Material	TEXT
59	Max. closing time in ms for incomer /feeder	NUMERIC
60	Max. total break time in ms at 100 % rated interrupting breaking capacity	NUMERIC
61	Type of closing mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism.	TEXT
62	Type of tripping mechanism of outdoor circuit breaker shall be motor assisted spring charged mechanism with shunt trip coil.	TEXT
63	Burden of trip coil of outdoor circuit breaker at 30 v d.c. in watts	NUMERIC
64	Burden of closing coil of outdoor circuit breaker at 30 v d.c. in watts	NUMERIC
65	Whether mechanical on/off and "spring charged" indications for outdoor circuit breaker provided (yes/no)	BOOLEAN
66	Whether manual trip/close of outdoor circuit breaker possible (yes/no)	BOOLEAN
67	Whether mechanical spring charging for outdoor circuit breaker possible (yes/no)	BOOLEAN
68	Voltage rating of spring charging motor of outdoor circuit breaker in volts	NUMERIC
69	Burden of spring charging motor of outdoor circuit breaker in VAmp	NUMERIC
70	Control circuit voltage of outdoor circuit breaker shall be 30 volts d. C. (yes/no)	BOOLEAN
71	The surface finish paints of non galvanized metallic part of VCB shall be battleship gray shade No.632 of IS 5.	TEXT
72	Process of painting of parts of outdoor circuit breaker	TEXT
73	Type of primer used for painting of parts of outdoor circuit breaker	TEXT
74	Type of finish paint used for painting of parts of outdoor circuit breaker	TEXT
75	Degree of protection of Operating Mechanism enclosure is IP 55 as per IEC529/ IS 2147	TEXT
76	Mounting of CB On hot dip galvanized steel support structure or on the operating mechanism box, as the case may be, to be supplied by the bidder	TEXT
77	Whether all type tests are carried out on outdoor circuit breaker at NABL laboratories within five years from date of opening of tender(yes/No)	TEXT
78	Whether type tested on offered design of outdoor circuit breaker (yes / no).	TEXT
79	A list of recommended spares with unit rates for each circuit breaker that may be necessary for satisfactory operation and maintenance of the circuit breaker for a period of 5 years shall be submitted.	NUMERIC
80	A list and unit rates of all the special tools, equipments and instruments required for erection, testing, commissioning and maintenance of the breaker shall be submitted	TEXT
81	The list of necessary tools/equipments which will be supplied free of cost with each CB furnished separately.	TEXT
82	Are following Type test reports submitted with offer for offered equipment	TEXT
83	Lightening impulse withstand voltage test. :Yes/No	BOOLEAN

84	Power Frequency Voltage withstand test (dry & wet). :Yes/No	BOOLEAN
85	Temperature rise test. :Yes/No	BOOLEAN
86	Measurement of resistance of Circuit: Yes/No	BOOLEAN
87	Short time and peak withstand current tests. :Yes/No	BOOLEAN
88	Mechanical operation test. :Yes/No	BOOLEAN
89	Degree of protection (IP55) for all cabinets. :Yes/No	BOOLEAN
90	Out of phase making and breaking tests. :Yes/No	BOOLEAN
91	Short Circuit Making and Breaking current Tests a) No load operation before and after test b) Basic test duties no. 1 to 5 c) Single Phase Short circuit test d) Condition of breaker after short circuit tes	BOOLEAN
92	Are the following drawing submitted	TEXT
93	General outline drawings showing outside dimensions, shipping dimensions, weights, quantity of insulating media air receiver capacity and such other prominent details. :Yes/No	BOOLEAN
94	Sectional views showing the general constructional features of the circuit breaker including operating mechanism, arcing chambers, contacts, with lifting dimensions for maintenance. :Yes/No	BOOLEAN
95	Schematic diagrams of the scheme for control, supervision and reclosing :Yes/No	BOOLEAN
96	Structural drawing, design calculations and loading data for support structures. :Yes/No	BOOLEAN
97	Foundation drilling plan and loading data for foundation design. :Yes/No	BOOLEAN
98	Type test reports of circuit breakers along with a separate list showing all the tests carried out with date & place of test. :Yes/No	BOOLEAN
99	Test reports, literatures and pamphlets of bought out items and raw materials. :Yes/No	BOOLEAN
100	Whether bidder adequate in-house testing facilities for conducting acceptance tests in accordance with relevant IS.	TEXT
101	Type of operation shall be suitable for 3 phase reclosing : Yes/No.	BOOLEAN

Required Documents (To be uploaded online)				
Sr. No.	NAME	SECTION	ITEM	DESCRIPTION
1	Type test reports	Technical Section	11 KV VCB 400 A Outdoor	Valid Type test certificates from NABL accredited lab such as CPRI / ERDA as per clause II (3) of Section III.
2	Type test reports	Technical Section	11 KV VCB 800 A Outdoor	Valid Type test certificates from NABL accredited lab such as CPRI / ERDA as per clause II (3) of Section III.
3	Type test reports	Technical Section	33KV 1600 AMP.VCB3PH.	Valid Type test certificates from NABL accredited lab such as CPRI / ERDA as per clause II (3) of Section III.
4	Undue influence certificate	Commercial Section		The bidder shall submit the undertaking certifying that you have not approached any one for undue influence (As per format-2).
5	GST registration	Commercial Section		Documentary evidence in respect of registered under the GST Law.
6	Certificate for no deviation.	Commercial Section		Certificate for no deviation (As per attached Format-5).
7	Manufacturing and testing facilities	Commercial Section		List of in house manufacturing and testing facilities as well as quality control set up.
8	List of orders in hand	Commercial Section		List of orders in hand certified by CA.
9	Declaration of legal litigations	Commercial Section		Annexure-F regarding declaration of legal litigations.
10	Experience	Commercial Section		Copies of orders executed by the bidder & the Certificate from the purchaser with regards to successful execution of the order for preceding three financial years as per clause II (2) of Section-III.
11	EMD receipt (Bank guarantee or demand draft)	Commercial Section		Upload Copy of EMD receipt (Bank guarantee or demand draft).
12	Power of attorney if any.	Commercial Section		Notarized power of attorney in favor of appointed agent/representative.
13	Turnover certificate	Commercial Section		Copy of latest turnover certificate for last 3 years duly certified by Chartered accountant as per clause II (4) of Section-III. (as per format 4)
14	ISO certification	Commercial Section		ISO certification for quantity management system & environmental management system.
15	Debar undertaking.	Commercial Section		Annexure-I regarding declaration along with the bid that bidder is not blacklisted/ debarred by any organization for last 3 years.
16	Controlling stake certificate	Commercial Section		Certificate duly certified by C.E./C.A. that the person/entity does not have controlling stake in more than one entity applied for the Tender/Bid.(as per format 3).
17	Manufacturing capacity.	Commercial Section		Documentary evidence (e.g. Udyam Registration/NSIC/Chartered Accountant/Engineer Certificate) for manufacturing capacity to cover the quantity offered by the bidder and considering orders in hand.
18	Udyam registration certificate	Commercial Section		Documentary evidence in respect of classification of your unit as per Micro, Small and

Sr. No.	NAME	SECTION	ITEM	DESCRIPTION
				Enterprises Development Act 2006.