

## ANNEXURE - A

TECHNO - COMMERCIAL TERMS AND CONDITIONS

Description of the Material:	SCANNER AIR FAN DC STARTER BOX							
BHEL Tender No. & Date								
Vendor Name & Address								
Contact Person Name, Mobile & Email								
<b>GENERAL INFORMATION</b>								
IMPORTANT INSTRUCTION: Interested bidders / Suppliers shall submit their offer through e-Procurement mode at <a href="https://eprocurebhel.co.in">https://eprocurebhel.co.in</a> . Offers in any other mode will not be accepted.								
The bidder has to keep track of any changes by viewing the addendum / Corrigendum's Issued by the Purchaser on time-to- time basis in the E-Procurement platform. The Company calling for tenders shall not be responsible for any claims/problems arising out of this.								
Sl. No.	Terms and conditions	Vendor's confirmation						
1	<table border="1"> <tr> <td>Material Code</td> <td>L172819619302001</td> </tr> <tr> <td>Item Description</td> <td>DC MOTOR STARTER BOX - RATING 11 KW</td> </tr> <tr> <td>Detailed Description</td> <td> <p>Scanner air fan DC motor Starter box of rating 220 V DC, 11 KW, meeting the requirements, as per the technical specification TCI:248, Rev. 07, Drawings 3-96-193-15949 to 3-96-193-15952, Rev. 00 and Project specific requirements - CI:DSCB:PANKI, Rev. 00.</p> <p>Inspection and testing shall be as per the quality plan QA:CI:STD:QP:15, Rev. 05.</p> <p>Make of the accessories shall be as per the quality plan QA:CI:STD:QP:34, Rev. 04.</p> <p>Packing shall be as per the procedure QA:CI:STD:PR:02, Rev. 03</p> </td> </tr> </table>	Material Code	L172819619302001	Item Description	DC MOTOR STARTER BOX - RATING 11 KW	Detailed Description	<p>Scanner air fan DC motor Starter box of rating 220 V DC, 11 KW, meeting the requirements, as per the technical specification TCI:248, Rev. 07, Drawings 3-96-193-15949 to 3-96-193-15952, Rev. 00 and Project specific requirements - CI:DSCB:PANKI, Rev. 00.</p> <p>Inspection and testing shall be as per the quality plan QA:CI:STD:QP:15, Rev. 05.</p> <p>Make of the accessories shall be as per the quality plan QA:CI:STD:QP:34, Rev. 04.</p> <p>Packing shall be as per the procedure QA:CI:STD:PR:02, Rev. 03</p>	Quoted
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2	<p><b>Firm Price:</b> The quoted / finalised rates shall be Firm till execution of the supplies. Vendor has to quote price according to the requirement as detailed in the attached technical documents. Unless there is a change in technical specification from BHEL side, impact price will not be allowed.</p> <ul style="list-style-type: none"> <li>➤ BHEL will finalize the rates through price bid opening. Hence, Tenderers are requested to give their best prices at the first instant itself.</li> <li>➤ In the event of the final L1 prices are not reasonable / acceptable to BHEL; BHEL also may resort to short closure of this Tender.</li> <li>➤ In case of more than one L1 bidders, BHEL will get fresh revised reduced price bids from all such L1 bidders &amp; ranking will be decided based on these revised bids. The new rates quoted should be lower than their previous L1 rates. If L1 could not be decided by this process, ranking will be decided by draw of lots in the presence of all such L1 bidders</li> </ul> <p>Any pre-bid query, kindly contact: <b>Mr. Kevin Ark Kumar</b>, Manager/Materials Management/BOI Tel: 0431-2578109, email: <a href="mailto:kevin@bhel.in">kevin@bhel.in</a> ; <b>Mr. N Mohan</b>, Asst./Engineer/Materials Management/BOI Tel: 0431-2577446, email: <a href="mailto:mohann@bhel.in">mohann@bhel.in</a> and get your queries cleared before submitting the offer in EPS. Rates/ other price elements once quoted in the online in the Enterprise Procurement System (EPS) cannot be changed after due date shall remain final.</p>	Accepted / Not Accepted						
3	The tender is floated as a Single Package.	Noted						
4	<p>Delivery term: F.O.R Basis inclusive of Packing &amp; Forwarding and Freight</p> <p><u>Insurance will in BHEL Scope</u></p> <p>Delivery Destination: Proect Site, Panki, UP</p>	Accepted						
5	Payment term: 100% NEFT after 60 days from the date of Site acknowledgement	Accepted						
6	Deviation in Payment Terms: Any deviation in the above Payment Terms (Sl No. 5), any other conditions in payment terms or any other payment term will not be accepted and offers are liable to be commercially rejected.	Noted						

7	<b>Liquidated damages:</b> Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional LD at the rate of 0.5% of the Total order value per week of the delay or part thereof, subject to a maximum of 10% of the total order value.	Accepted
8	<b>Loading Criteria LD / Penalty:</b> Any deviation on BHEL LD / Penalty clause, loading (Basic material Value) will be applied to the extent to which it is not agreed by the bidder. LD is for Total Order Value and not for undelivered goods. If LD for undelivered portion is only acceptable then a loading of 10% on Basic Material Value will be applied.	Noted
9	<b>Guarantee / Warranty Period :</b> Guarantee clause 18 months from the date of supply or 12 months from the date of actual put in use, whichever is earlier.	Accepted
10	<b>Deviation in Guarantee / Warranty Period:</b> No Deviation is permitted. If still vendor offered any deviation on the Guarantee / warranty period. Their offer will be rejected.	Noted
11	<b>Delivery Period:</b> BHEL standard delivery is <b>Eight weeks from document approval</b> . Vendor quoted delivery period shall include all activities i.e. manufacturing / production, Inspection, Packing, Forwarding, dispatch.	Accepted
12	<b>Validity:</b> 90 days from techno commercial bid opening date	Accepted
13	<p><b>RISK PURCHASE:</b> In case of abnormal delays (beyond the maximum late delivery period as per LD clause) or non-fulfilment of any other terms and conditions given in work order, BHEL may cancel the work order in full or part thereof, and may also make a contract of such work/service from elsewhere / alternative source at the risk and cost of the original contractor. BHEL will take all reasonable steps to complete the contract obligations from alternate source at optimum cost. If bidder does not agree to the above Risk Purchase Clause, BHEL reserves the right to reject the offer. In case for compelling reasons BHEL accepts the offer without acceptance of this clause by the bidder and in the eventuality of Risk Purchase, appropriate action will be taken as per BHEL extant rules. This will be without prejudice to any other right of BHEL under the contract. Risk &amp; cost clause, in line with conditions of contract may be invoked in any of the following cases:</p> <ol style="list-style-type: none"> <li>1. Contractor's poor progress of the work vis-à-vis execution timeline as stipulated in the contract, backlog attributable to contractor/ supplier including unexecuted portion of work/ supply does not appear to be executable within balance available period (#) considering its performance of execution.</li> <li>2. Withdrawal from or abandonment of the work by contractor before completion of the work as per contract.</li> <li>3. Non completion of work / Non-supply by the contractor within scheduled completion/delivery period as per contract or as extended from time to time, for the reason attributable to the contractor.</li> <li>4. Termination of contract on account of any other reason (s) attributable to contractor.</li> <li>5. Assignment, transfer, subletting of contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.</li> <li>6. Non-compliance to any contractual condition or any other default attributable to contractor.</li> </ol> <p>Risk and Cost amount against balance work will be calculated as follows:  <math>Risk \ \&amp; \ Cost \ Amount = [(A-B) + (A \times H/100)]</math>  Where,  A= Value of Balance scope of Work/ Supply (*) as per rates of new contract  B= Value of Balance scope of Work/ Supply (*) as per rates of old contract being paid to the contractor/ supplier at the time of termination of contract i.e. inclusive of PVC &amp; ORC, if any.  H = Overhead Factor to be taken as 5  In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).  *(Balance scope of work/ supply)  Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for 'Termination of Contract', shall be taken as balance scope of Supply for calculating risk &amp; cost amount. Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.  Items for which total quantities to be executed have exceeded the Contract Quantities based on drawings issued to contractor from time to time till issue of Termination letter, then for these items total Quantities as per issued drawings would be deemed to be contract quantities.  Substitute/ extra items whose rates have already been approved would form part of contract quantities for this purpose. Substitute/ extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions. However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.  NOTE: In case portion of work is being withdrawn, contract quantities pertaining to portion of work withdrawn shall be considered as 'Balance scope of work/supply' for calculating Risk &amp; Cost amount.</p>	Accepted
14	GST DETAILS, BHEL TRICHY GST No. 33AAACB4146P2ZL	Noted
15	Please mention your GSTIN Number	
16	MSE Status	
17	HSN Codes for Quoted Material:	
17 a	Applicable GST Rate:	
18	<b>Implementation of GST</b> For supplies after implementation of New GST Return System i.e. from 01/10/2019, the following conditions will apply and supplier shall fully comply to the below points.	

	<p>Indigenous suppliers:</p> <ol style="list-style-type: none"> <li>Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration No (GSTIN) which should be clearly mentioned in the offer. If the dealer is exempted from GST registration, a declaration with due supporting documents need to be furnished for considering the offer. Dealers under composition scheme should declare that he is a composition dealer supported by the screen shot taken from GST portal. The dealer has to submit necessary documents if there is any change in status under GST.</li> <li>Supplier shall mention their GSTIN in all their invoices (incl. credit Notes, Debit Notes) and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No. which is linked/uploaded in GSTN network shall be clearly indicated), Billed to party (with GSTIN) &amp; Shipped to party details, item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST &amp; UTGST) separately, HSN/ SAC Code, Place of Supply etc.</li> <li>All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).</li> <li>Invoices will be processed only upon completion of statutory requirement and further subject to following:             <ol style="list-style-type: none"> <li>Vendor declaring such invoice in Form GST ANX-1</li> <li>Receipt of Goods or Services and Tax invoice by BHEL</li> </ol> </li> <li>As the continuous uploading of tax invoices in GSTN portal (in GST ANX-1) is available for all (i.e. both Small &amp; Large) tax payers under proposed new GST Return System, all invoices raised on BHEL may be uploaded immediately in GST portal on despatch of material /rendering of services. The supplier shall ensure availability of Invoice in GST portal before submission of invoice to BHEL. Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GST ANX-2).</li> <li>In case of discrepancy in the data uploaded by the supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims, within the calendar month informed by BHEL.</li> <li>In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest (currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor</li> <li>In case GST credit is denied to BHEL due to non-receipt or delayed receipt of goods and/ or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount claimed in the invoice shall be disallowed to the vendor.</li> <li>Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor.</li> <li>Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contracts. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Tax Invoice will be issued by BHEL indicating the respective supply invoice number.</li> <li>GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 - Central Tax dated 13.09.2018. GST TDS certificate which will be generated in GST portal subsequent to vendor accepting the TDS deduction in the GST portal, will be issued to the vendor.</li> </ol>	<p>Noted</p>
<p>19</p>	<p><b>Unregistered BHEL (Non-PMD) vendors</b> for this item to submit the filled in supplier registration forms (SRF) available in the BHEL website <a href="https://supplier.bhel.in">https://supplier.bhel.in</a> and the other required documents called for in the SRF, as a parallel activity. The hard copy of the submitted SRF shall be submitted to SDC Dept without fail. The same shall be scrutinized as per BHEL evaluation procedures The contact details of SDC are as below: Officer I/C, SDC / MM, 4th Floor, Building 24, BHEL, Trichy - 620014 Ph. No.: 0431-2577992 sathishchandra@bhel.in Registered BHEL PMD vendors (for this item / Matl Gp) need not submit the SRF and this point is not applicable.</p>	<p>Noted</p>
<p>20</p>	<p>Subsequent to tender opening, the Part-2 bids (Price bid) of the Supplier will be opened subject to Customer acceptance and techno-commercial (Part-1 bid) qualification. Acceptance required for the same</p>	<p>Noted</p>
<p>21</p>	<p><b>Document Submission: Along with the offer:</b></p> <ol style="list-style-type: none"> <li>All the technical documents which have been attached along with our enquiry i.e Specification, Drgs, QP, Packing Procedure, Data Sheet etc, signature to be endorsed on all pages with company seal Technical documents &amp; Sub-delivery enquiry deviation format.</li> <li>Filled-in/signed Annexure-A, Commercial terms and conditions. (Mandatory for Commercial evaluation)</li> <li>If MSE vendor, please attach UAM No. along with CA Certificate or Udyam Regn No.</li> </ol>	<p>Submitted/ Not Submitted</p>
<p>22</p>	<p>Any deviation on technical/QP/packing requirements shall specifically be indicated in the "sub-delivery enquiry deviation format" attached along with the enquiry. Deviations / clarifications declared elsewhere will not be evaluated. <b>Also, any deviations from the commercial terms and conditions shall be clearly spelt out in this format itself.</b> Deviations / clarifications declared elsewhere will not be evaluated. Deviations taken, if any, by vendor as per our requirement above shall be clearly got accepted by BHEL in writing during enquiry stage itself. In the event of an order no deviations, unless accepted clearly by BHEL in writing during enquiry stage will be entertained and all other techno-commercial requirements will be binding on successful bidder and failure to execute the terms will lead to disciplinary action by BHEL against the said bidder.</p>	<p>Accepted</p>

23	<p><b>BENEFITS TO MSE VENDOR:</b> MSE suppliers can avail the intended benefits only if they submit along with the offer, attested/notarized copies of either</p> <ol style="list-style-type: none"> <li>Valid NSIC certificate or EM II certificate along with CA certificate applicable for the year, certifying quantum of investment in plant and machinery within the permissible limits as per the act for relevant status (MICRO or SMALL) where the deemed validity of EM II is over. <b>OR</b></li> <li><b>Udyog Aadhaar Memorandum No. &amp; CA Certificate</b> applicable for the year, certifying quantum of investment in plant and machinery within the permissible limits as per the act for relevant status.</li> </ol> <p>Date to be reckoned for determining the deemed validity will be the last date of technical bid submission (Part 1 in case of two part bid). <b>Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry, in case of any deficiency in the above required documents or in case the documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal even if submitted earlier.</b> Documents should be notarized or attested by a Gazetted officer. <b>For Package basis (Non-Splittable):</b> i. If L1 vendor is an MSE vendor entire project package will be ordered on L1 vendor. ii. If a Non MSE vendor is coming as L1, then L1 prices will be counteroffered on MSE vendor who is quoting price within the price band L1+15% and if they are agreeing, purchase order will be awarded for full/complete supply of total tendered value to MSE. iii. If more than one MSE vendors are available in the L1+15% price band then lowest of the MSE vendor will be selected for counteroffering. If lowest MSE vendor is not accepting it will be counteroffered to the next MSE vendor in the price band and so on. iv. Finally if none of the MSE vendor in the price band is not accepting, it will be ordered on L1 non MSE vendor. <b>For Item wise evaluation (Splittable):</b> If a Non MSE vendor is coming as L1, then L1 prices will be counteroffered on MSE vendor who is quoting price within the price band L1+15% and if they are agreeing, purchase order will be awarded for 25% of the tendered quantity. ➤ 3% reservation for women owned MSEs, within the above mentioned 25% reservation. ➤ 6.25% reservation from MSE owned by SC / ST entrepreneurs, within the above mentioned 25% reservation. <b>In case of more than one such MSE, the supply shall be shared proportionately.</b> Payment for MSE indigenous vendors will be as per MSME Act, 2006.</p>	Noted
24	<p><b>Definitions of MSEs owned by SC/ST is under:</b></p> <ul style="list-style-type: none"> <li>In case of proprietorship firm, proprietor must be SC/ST.</li> <li>In case of partnership firm, the SC/ST partners must be holding at least 51% shares in unit.</li> </ul> <p><b>In case of private limited companies, at least 51% share must be held by SC/ST promoters.</b> Authorised Offices to Issue SC/ST certificate. The caste/Tribe/Community certificate issued by the following authorities in the prescribed form for SCs/STs can be considered.</p> <ul style="list-style-type: none"> <li>District Magistrate / Additional District Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner / Deputy Collector / 1<sup>st</sup> class stipendiary magistrate / Sub divisional Magistrate / Taluka Magistrate / Executive magistrate</li> <li>Chief Presidency magistrate / Additional chief presidency magistrate/Presidency magistrate.</li> <li>Revenue Officer not below the rank of Tehsildar.</li> <li>Sub-Divisional officer of the area where the individual and / or his family normally resides.</li> </ul> <p><b>To avail the benefits of MSE under SC/ST category, the related documents as stated above should be submitted along with tender documents.</b></p>	Noted
25	<p>Vendors who have registered themselves as MSE, cannot claim the benefits unless they submit the CA Certificate &amp; UAM Registration copy or Udyam Registration certificate along-with the offer for each tender; failing which vendor shall not claim MSE benefits. As per Gazette Notification no. S.O. 2119(E) dated 26.06.2020 issued by Ministry of MSME regarding change in definition of Micro, Small &amp; Medium Enterprises (MSMEs) applicable w.e.f. 01.07.2020 as follows: Udyam Registration is a new process of MSME Registration launched by the Ministry of Micro, Small and Medium Enterprises on July 1, 2020. All existing enterprises registered under EM-Part-II or UAM or any other registration issued by any authority under the Ministry of MSME are required to register again on the Udyam Registration portal (<a href="https://udyamregistration.gov.in">https://udyamregistration.gov.in</a>). Such enterprises are required to apply and obtain Udyam Registration on or after 1st July 2020. On registration, an enterprise is assigned with a permanent identity number, known as <b>“Udyam Registration Number”</b>. An e-certificate, namely, <b>“Udyam Registration Certificate”</b> will be issued on completion of the registration process. The MSE status of existing enterprises registered prior to 30th June 2020 shall be valid only till 31st March 2021. (i.e.) <b>Udyam Registration Certificate</b> is mandatory for all MSME enterprises from 1st April 2021.</p>	Noted
26	<p>Any pre-bid queries / clarification / document requirement etc. shall be asked within 3-4 days of floating tender in EPS. Tender due date extension will not be given without valid reason. Tender due date extension request has to be given before due date / time along-with a valid reason.</p>	Noted
28	<p><b>PRICE IMPACT:</b> All the technical / commercial details given in the enquiry shall be taken care and offer shall be quoted accordingly. No price impact / implication will be accepted within the validity period.</p>	Noted
29	<p>All the technical documents, if attached by BHEL along with the enquiry/ RFQ (Specification / Drawing / QP / Datasheet / Packing Procedure etc.) which are part of this e-tender, should bear your conformation / confirmation and sign with seal on each page. The same shall be scanned &amp; attached as PDF files along with the offer for technical evaluation. (In case of Spares, reference PO is mentioned in the tender general notes, then technical documents need not be submitted, however, Deviation format mentioning the reference PO needs to be submitted)</p>	Technical Docs Submitted / Not Submitted

30	Technical / commercial clarification, if any, will be initiated through EPS / email. Vendor to respond to the clarifications within 3 working days. If the vendor fails to respond, even after three reminders, then the vendor will be considered as non-responsive and is liable to be rejected. Please note that EPS generates auto email whenever clarification / tender event is scheduled. Vendor to keep track and respond immediately.	Noted
31	<b>PO Acknowledgement:</b> Within 7 days from the date of receipt of scanned PO copy through email.	Accepted
32	Document Submission after PO: Complete set of valid Documents as per BHEL format viz., Datasheet, GA drawing and QAP / RQP / VQP are to be submitted within 14 days from the date of receipt of PO (e-mail copy). If there is a delay in submission of valid documents within 14 days, the delay will be accounted for the calculation of LD.	Accepted
33	Inspection notice period: Vendor shall raise inspection call to Third Party Inspection Agency / BHEL at least three working days, prior to the proposed date of inspection. Place shall be vendor Works.	Accepted
34	Vendor shall dispatch the consignment immediately after getting dispatch clearance from BHEL, subsequent delay will be accounted for calculation of LD.	Accepted
35	<b>FORCE MAJEURE CLAUSE:</b> If, at any time during the continuance of Contract the performance in whole or in part by either party of any obligations under the Contract shall be prevented or delayed by reason of any War, Hostile acts of the public enemy Civil Commotion, Epidemics, or Acts of God (Floods, Storm/Cyclone, Hurricane, Earth Quake etc.) then provided notice of happening of any such event is given by either party to other within 7 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 and delay in performance under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist. If the performance in whole or part of any obligation under the Contract is prevented or delayed by reason of any such event, claims for extension of time shall be granted for periods considered reasonable by BHEL, subject to prompt notification by the contractor.	Accepted
36	In the event of PO, the reference date for LD calculation will be date of final inspection Agency's signed Inspection report / Test certificates for Ex-Works & FOB contracts. The reference date for F.O.R contracts will be Invoice date / Lorry way bill date LR date/ Railway Receipt date, whichever is later. In case E&C support, LD for delays attributable to vendor will be reckoned after two weeks from the date of readiness at Site & prior notice by BHEL.	Accepted
37	<p><b>Fraud Prevention Policy</b> Suppliers involving in fraudulent practices or delayed supply (or) non-Supply will be dealt with provision as indicated in "Guidelines for Suspension of Business Dealings with Suppliers / Contractors" which is hosted in website <a href="http://www.bhel.com">www.bhel.com</a>. The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site <a href="http://www.bhel.com">www.bhel.com</a>.</p> <p>1.0 Integrity commitment, performance of the contract and punitive action thereof: 1.1 Commitment by BHEL: BHEL commits to take all measures necessary to prevent corruption in connection with the tender process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in transparent and fair manner, and with equity. 1.2 Commitment by Bidder / Supplier / Contractor: 1.2.1. The bidder / supplier / contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India. 1.2.2. The bidder / supplier / contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issues from time to time by Govt. of India / BHEL. 1.2.3. The bidder / supplier / contractor will perform / execute the contract as per the contract terms &amp; Conditions and will not default without any reasonable cause, which causes loss of business / money / reputation, to BHEL. If any bidder / supplier / contractor during pre-tendering / tendering / post tendering / award / execution / post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then action may be taken against such bidder / supplier / contractor as per extant guidelines of the company available on <a href="http://www.bhel.com">www.bhel.com</a> and / or under applicable legal provisions.</p>	Noted
38	<b>Inspection &amp; testing requirements:</b> Inspection and testing requirements are to be carried out as per the specification and BHEL/customer approved QAP and all test certificates are to be submitted in complete set as indicated in our specification /QAP. In case of Vendor QP the same shall be submitted for approval along with the offer.	Noted
39	<b>Repair &amp; replacements:</b> Within the guarantee period vendor has to replace / rectify the defective/ damaged items on free of cost within a reasonable time of reporting from our end. All incidental charges like freight, insurance and customs duty / GST are to vendor account only. The defective parts and components shall be collected by your Indian agent or / authorized person, only after completing the replacement / repairs. The defective parts / components will not be returned back to vendor works by us due to procedural problems.	Accepted
40	<b>BHEL reserves the right to cancel / modify the tender, if the need so arises, without assigning any further notice or reason therefore.</b>	Accepted

41	<p><b>ARBITRATION &amp; CONCILIATION:</b> Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the Parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration of an arbitrator appointed by Head of the BHEL Unit/Region/Division issuing the Contract. The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the Parties. Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be (the place from which the contract is issued). The cost of arbitration shall be borne as per the award of the Arbitrator. Subject to the arbitration in terms of Clause above, the Courts at TRICHY shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract. Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the contractor shall proceed with and continue without hindrance the performance of its obligations under this contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract. In case of contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable: In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred by either Party for arbitration to the sole arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the arbitrator shall be binding upon the Parties to the dispute, provided, however, any Party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the Parties hereto finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.</p>	Noted
42	<p><b>JURISDICTION:</b> In case of any suit or other legal proceedings arising under or relating to this Contract, the courts at Trichy, Tamil Nadu only shall have the Jurisdiction and is only after exhausting the aforesaid arbitration clause.</p>	Noted
43	<p><b>SUSPENSION OF BUSINESS DEALINGS WITH SUPPLIERS / CONTRACTORS:</b> Penal action can be initiated on the suppliers / Contractors in line with extant ‘Guidelines for Suspension of Business Dealings with Suppliers/ Contractors’. The abridged version of extant ‘Guidelines for suspension of business dealings with suppliers/ contractors’ has been uploaded on <a href="http://www.bhel.com">http://www.bhel.com</a> on “supplier registration page”. The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site <a href="http://www.bhel.com">www.bhel.com</a>. 1.0 Integrity commitment, performance of the contract and punitive action thereof: 1.1. Commitment by BHEL: BHEL commits to take all measures necessary to prevent corruption in connection with the tender process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity. 1.2. Commitment by Bidder/ Supplier/ Contractor: 1.2.1. The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India. 1.2.2. The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL. 1.2.3. The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms &amp; conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL. If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extant guidelines of the company available on <a href="http://www.bhel.com">www.bhel.com</a> and/or under applicable legal provisions.</p>	Noted
44	<p><b>SECRECY OF CONFIDENTIAL INFORMATION:</b> The Contractor undertakes and agrees that he/it will not disclose or reveal in part or full the proprietary/confidential information, which terms shall mean and include patents, trademarks, service marks, registered designs, copyright, design rights, know-how, confidential information, trade and business names and any other similar protected information of BHEL received during negotiation or currency of the contract to any third party or governmental authorities without written permission from BHEL. In the event of termination or expiry of the contract, the contractor shall return all proprietary/confidential information to BHEL. This clause shall survive termination or expiry of the contract. All the input details: transmittals and sample drawings supplied for preparation of drawings are confidential information of BHEL for specific purpose only. The contractor shall never pass on / part with the information to anybody and shall maintain the secrecy of the information. As soon as the bills are certified by BHEL, all the relevant drawing files shall be erased from PCs and shall not be made use under any circumstances. BHEL reserves the right to initiate appropriate action including legal proceeds / termination of contract, recovery of damages, penalties etc., if the contractor is found guilty / wrong usage of the documents given by BHEL for any unauthorised activity</p>	Noted

By signing this Annexure, the vendor consents that the terms & conditions accepted, in this Annexure-A alone, shall be binding between BHEL and the Vendor; and no other terms quoted / mentioned, elsewhere in the Offer / Quotation will be considered / accepted by BHEL.

	<b>CONTROLS &amp; INSTRUMENTATION (FB)</b> <b>PRE-QUALIFICATION REQUIREMENT (PQR)</b>	<b>CI:PE: PQR:</b> <b>CTRL BOXES</b> Rev. No: 00 Dt. : 28-09-21
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**ELECTRICAL STARTER & CONTROL BOXES (96-193, 96-188, 97-577)**

(Application: ERV Controller, FTP Starter, DC Motor Starter)

Sl. No.	Description	Bid Requirements	Vendor Compliance
1.	Vendor Capability	Vendor should have the capability for manufacturing, supply & testing of Miniature Electrical Control Boxes, Starter boxes, wired junction boxes made of Sheet Steel materials, similar to the requirement as per BHEL's enquiry (Specification, Drawings and Quality plan) for power plant/industrial applications.	
2.	Proven Track record	Vendor should have executed orders and supplied items as indicated in point a within last 5 years from the date of this enquiry. (Experience from BHEL to be supported by executed PO copies; Experience other than BHEL to be supported by executed PO copies and completion certificate issued by the organization).	
3.	Manufacturing & Testing Facilities	Vendor to furnish the details of manufacturing & testing facilities, machineries available with them for reference.	





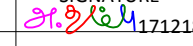
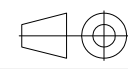
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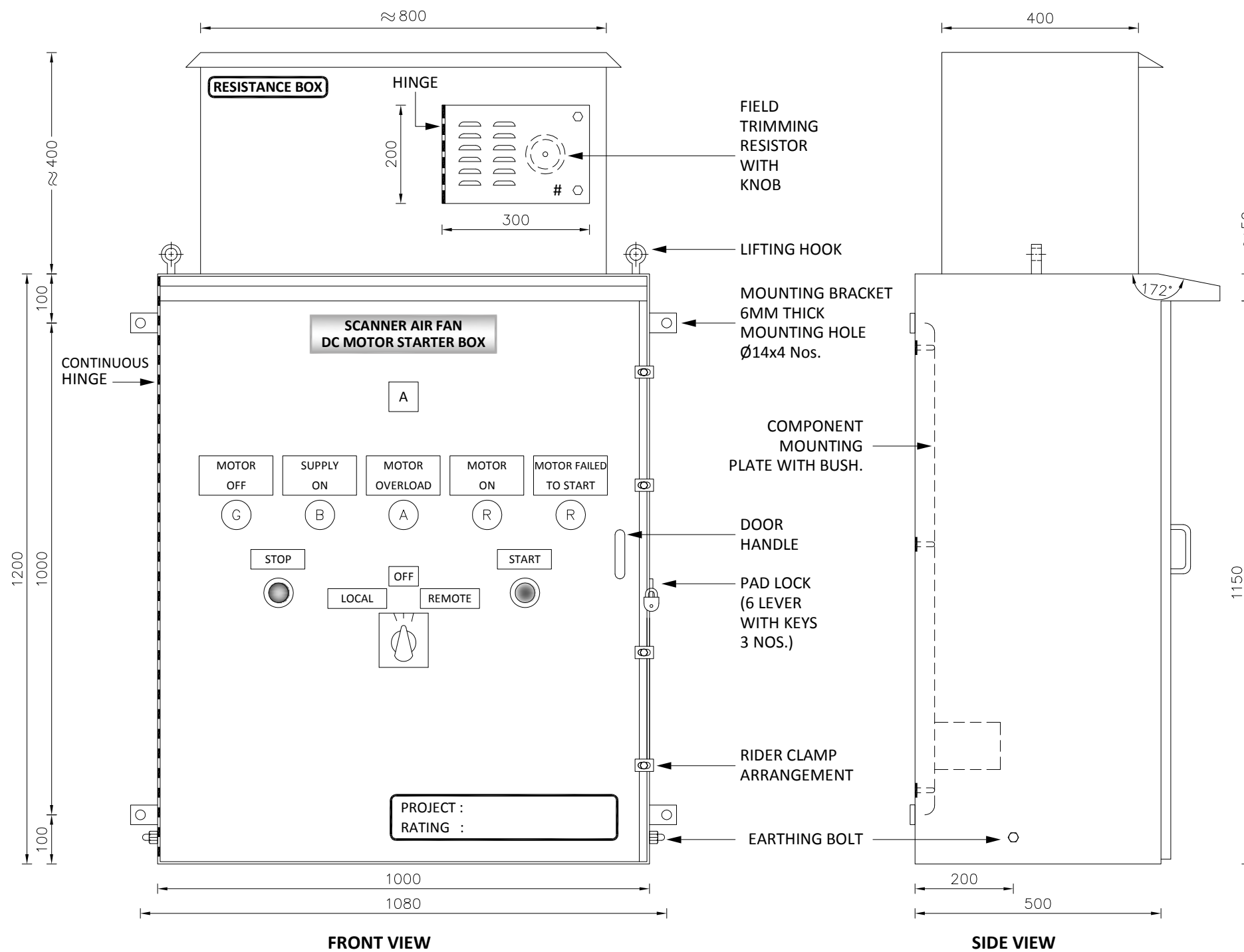
Vendor to clearly refer the Bid requirements and shall submit their compliance in the last column along with necessary supporting documents

SHEET No.	DRAWING No.	Rev.	DESCRIPTION
SHEET-01	3-96-193-15949	00	LIST OF DRAWINGS DC SCANNER AIR FAN MOTOR STARTER BOX
SHEET-02	3-96-193-15950	00	GENERAL ARRANGEMENT FOR DC SCANNER AIR FAN MOTOR STARTER BOX
SHEET-03	3-96-193-15951	00	DC SCANNER AIR FAN MOTOR STARTER SCHEME
SHEET-04	3-96-193-15952	00	TERMINAL CONNECTION DIAGRAM FOR DC SCANNER AIR FAN MOTOR STARTER BOX

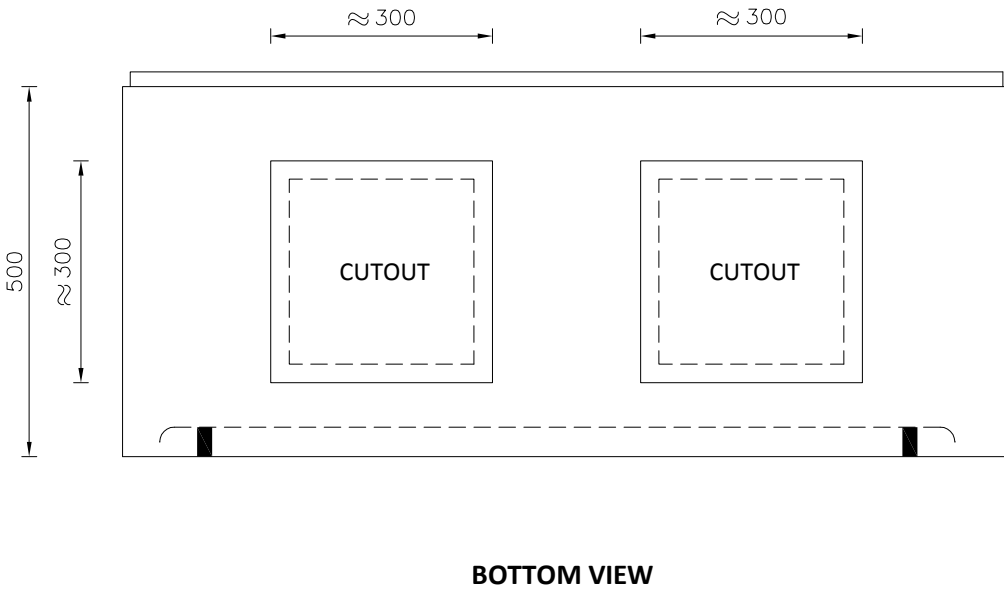
REV	DATE	ALTERED :
		CHD. / APPD. :
ZONE		

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

OWNER :		 <b>UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM LIMITED</b>					
PROJECT :		<b>PANKI THERMAL POWER EXTENSION PROJECT</b> 1 x 660MW, Customer No. 1728					
REVIEW CONSULTANT:		 <b>NTPC LIMITED</b> ( A GOVERNMENT OF INDIA ENTERPRISE )					
CONSULTANT :		 <b>DEVELOPMENT CONSULTANTS PRIVATE LIMITED, KOLKATA</b>					
	<b>Bharat Heavy Electricals Ltd</b>		DRN	NAME	SIGNATURE	DATE	NO. OF
	UNIT: HIGH PRESSURE BOILER PLANT		CHD	A. Thamburaj		17-12-18	VAR
	TIRUCHIRAPALLI - 620014		APPD	M.Muruga Prabu		18-12-18	—
DEPT. - C&I		SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG		ITEM NO	No OF
CODE - 392		NTS	—	—		—	ITEMS
TITLE			CARD	NTPC DRG. No. : <b>Customer Drg No</b>			
LIST OF DRAWINGS			CODE	BHEL DRG. No. : <b>3-96-193-15949</b>			
DC SCANNER AIR FAN MOTOR STARTER BOX			U 01	REV <b>00</b>			



- NOTE**
1. ENCLOSURE PROTECTION :  
a. STARTER BOX IP 55, b. RESISTANCE BOX IP 32
  2. P A I N T : EXTERIOR : RAL 7032 / 7035  
INTERIOR : BRILLIANT WHITE WITH GLOSSY FINISH.
  3. DC SCANNER STARTER BOX SHALL BE LOCATED NEAR THE DC SCANNER FAN.
  4. RESISTANCE BOX SHALL BE MOUNTED USING BOLTING ARRANGEMENT.
  5. # FIELD TRIMMING RESISTOR (R4) IS PLACED INSIDE RESISTANCE BOX. THE DOOR IN THE RESISTANCE BOX FOR ADJUSTMENT OF FTR HAS TO BE PROVIDED WITH BOLT FOR LOCKING.
  6. (R) - CLUSTERED LED LAMP (G-GREEN, B-BLUE, A-AMBER, R-RED)
  7. (●) - PUSHBUTTONS
  8. (A) - AMMETER
  9. (xxx) - NAME PLATE

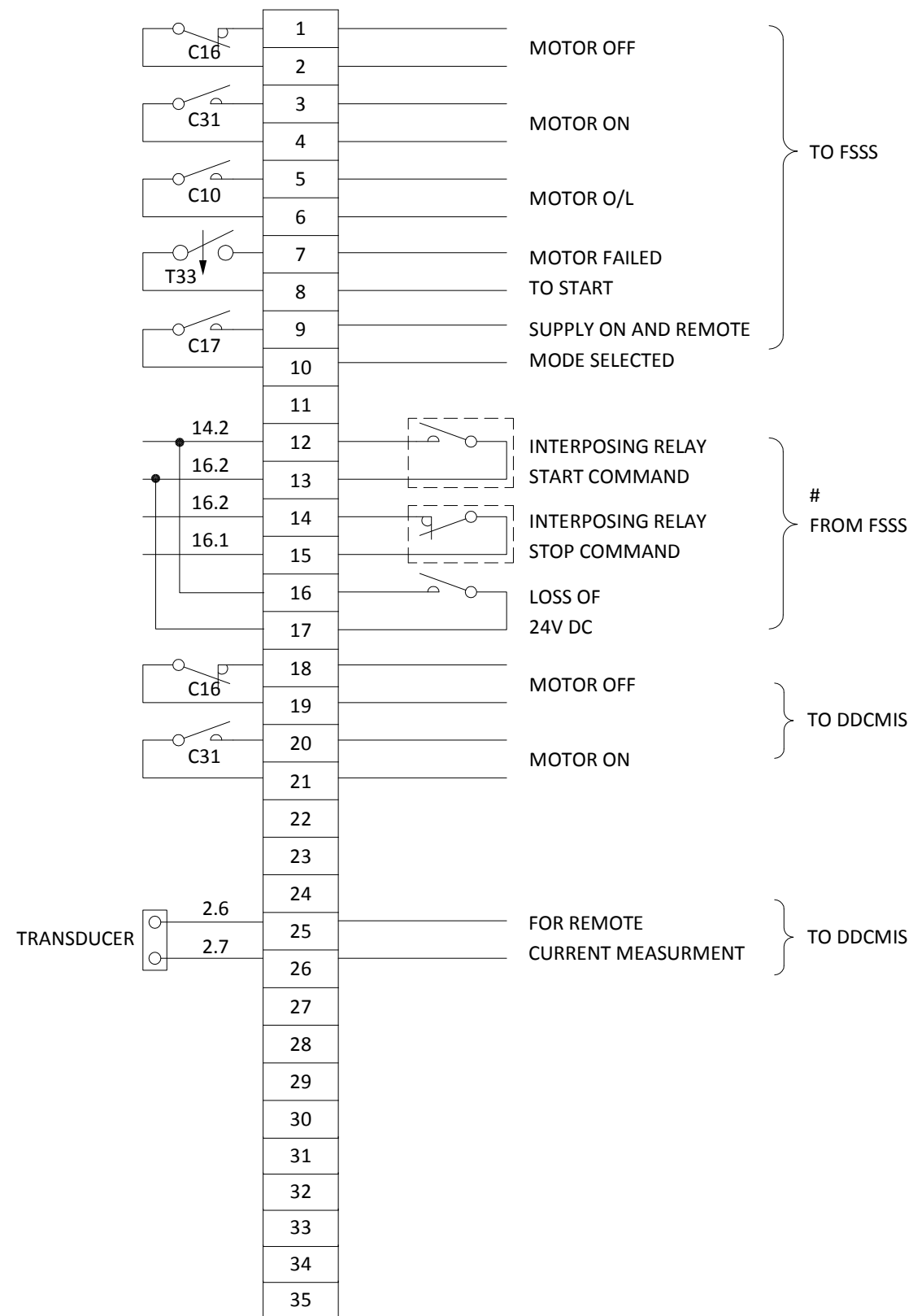


	<b>UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM LTD.</b>		DRN.	NAME A. Thamburaj	SIGNATURE 	DATE 17-12-18	SCALE	
	PANKI SUPER THERMAL POWER PROJECT 1 X 660 MW, Cust. No. 1728		CHD.	M. Muruga Prabu		18-12-18	NTS	
			APPD.	V.M. Selvaraj		18-12-18		
TIRUCHIRAPPALLI	DEPT. : C & I	CODE : 392	TITLE GENERAL ARRANGEMENT FOR DC SCANNER AIR FAN MOTOR STARTER BOX		SHEET NO. 02/04	DRAWING NO: <b>3-96-193-15950</b>		REV <b>00</b>



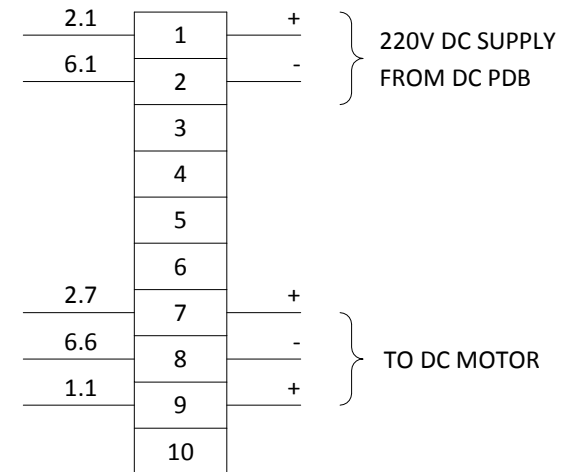
**CONTROL TERMINALS**

**TBC**



**POWER TERMINALS**

**TBP**



# - IPR RESIDES IN STARTER BOX

REV	DATE	ALTERED :		<b>UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM LTD.</b> PANKI SUPER THERMAL POWER PROJECT 1 X 660 MW, Cust. No. 1728	DRN.	NAME	SIGNATURE	DATE	SCALE
		CHD./APPD. :			CHD.	A. Thamburaj		17-12-18	NTS
						APPD.	V.M.Selvaraj		18-12-18
				DEPT. : C & I	TITLE	SHEET NO.	DRAWING NO:		REV
				CODE : 392	TERMINAL CONNECTION DIAGRAM FOR DC SCANNER AIR FAN MOTOR STARTER BOX	04/04		<b>3-96-193-15952</b>	<b>00</b>



# BHARAT HEAVY ELECTRICALS LIMITED

HIGH PRESSURE BOILER PLANT, TIRUCHIRAPALLI-620 014

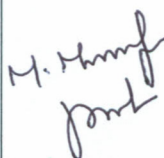



## CONTROLS & INSTRUMENTATION/FB

Page 1 of 10

### TECHNICAL SPECIFICATION FOR DC MOTOR STARTER BOX

SPECIFICATION NUMBER - TCI:248/07

#### Revision History

Rev. No.	Date	Description	Prepared	Reviewed		Approved
			M. Muruga Prabu	V.M. Selvaraj	R.M. Vairavan	D. Mahendrababu
01 to 06	----	Earlier Revisions	-Sd-	-Sd-	-Sd-	-Sd-
07	14/11/14	Specification revisited & revised to include the motor rating of 11 KW and 15KW.				



Sl. No.	Characteristics	Requirement	Vendor's Compliance								
	Altitude above MSL	550metre									
	Ambient temperature	50°C									
	Relative Humidity	100 %									
	Atmosphere	Tropical, dusty, salty, corrosive and highly polluted									
1	Reference Drawings/ Documents	<table border="1"><tr><td>a.</td><td>Project specific BHEL Drawings Comprising of General arrangement, Control Scheme, terminal block connection drawing.</td></tr><tr><td>b.</td><td>Project specific requirements</td></tr><tr><td>c.</td><td>List of Panel accessories Quality Plan :- QA:CI:STD:QP:34 (Latest Revision)</td></tr><tr><td>d.</td><td>Packing procedure :- QA:CI:STD:PR:02 (Latest Revision)</td></tr></table>	a.	Project specific BHEL Drawings Comprising of General arrangement, Control Scheme, terminal block connection drawing.	b.	Project specific requirements	c.	List of Panel accessories Quality Plan :- QA:CI:STD:QP:34 (Latest Revision)	d.	Packing procedure :- QA:CI:STD:PR:02 (Latest Revision)	
a.	Project specific BHEL Drawings Comprising of General arrangement, Control Scheme, terminal block connection drawing.										
b.	Project specific requirements										
c.	List of Panel accessories Quality Plan :- QA:CI:STD:QP:34 (Latest Revision)										
d.	Packing procedure :- QA:CI:STD:PR:02 (Latest Revision)										
2	Applicable Standards	IS-513, IS-60947 (All standards shall be as per latest versions)									
3	Over all dimensions of Starter Box	The over all dimensions shall not be less than the dimensions indicated in the Enquiry drawing.									
4	Material of Construction	<p>Starter Box, Resistance Box, Canopy, Cable Gland plate - CRCA Sheet Steel of Grade D (As per IS 513). Sheet Thickness shall be 3 mm.</p> <p>Rider Clamp with Spring, Bolt, Door hinge pin – SS316</p> <p>Mounting accessories (Bolts/ Nuts &amp; Spring Washers) &amp; Door handle – SS304</p> <p>Other Fasteners – MSwith electro-galvanised (Galvanization thickness – 10 to 15 microns)</p> <p>Earthing Bolts – MSwith Chromium plated (Plating thickness – 10 to 15 microns)</p>									



Sl. No.	Characteristics	Requirement	Vendor's Compliance
5	Door	Continuous Hinged Door with Neoprene rubber gasket of 6 mm thick. Door hinge shall be on left side of the starter box & the door shall be suitable for 180° opening.  Door shall also be earthed by using flexible Copper Braid	
6	Rider Clamp arrangement	4 nos. of rider clamp arrangement shall be provided.	
7	Door Lock	Pad lock with six-lever Godrej lock or equivalent and 3 keys shall be supplied for door locking.	
8	Drip Shield	Canopy shall be provided for both resistance & starter box with minimum 100 mm projection from the front side for the entire width of the box	
9	Protection class for Starter box	IP-55	
10	Protection class for Resistance box	IP-32	
11	Painting (for both Starter box and Resistor box)	Powder coating shall be done for both exterior and interior surface of the starter box & resistance box. For exterior surface, painting shall be done with semi-glossy finish for a minimum thickness of 60-70 microns. For interior surface and component mounting plate, painting shall be done with glossy finish for a minimum thickness of 50 - 60 microns.	
12	Make of Components	As per Quality plan QA:CI:STD:QP:34 (latest revision).	
13	General requirements for components	All Components shall be selected such that they shall have adequate range and suitable for the specified DC Load/ DC Motor  The power contactor, power switch, fuse, overload relay shall be selected as indicated in the following Tables	



Sl. No.	Characteristics	Requirement					Vendor's Compliance
14	DC Power Contactor	Mill duty/ Bar type, suitable for DC3 application. DC Power contactors for C14 shall be 220 V DC coil, 2 Pole type, rated for 160% of full load current. DC Power contactors for C21, C25 & C29 shall be 220 V DC coil, 1 pole, rated for 160% of full load current.  DC coils shall be provided with free-wheeling diodes of suitable rating					
15	Minimum current rating to be followed for Power Switch, Power Fuse, Power Contactor	<b>Motor Rating</b> 5.5 kw 7.5 kw 9.3 kw 11 kw 15 kw	<b>Full load current</b> 32 A 43 A 53 A 63 A 85A	<b>Power Fuse rating</b> 63 A 100 A 125 A 150 A 200 A	<b>Power Switch rating</b> 100 A 125 A 160 A 185 A 250 A	<b>Power Contactor rating</b> 50 A 70 A 85 A 100 A 135 A	
16	Over load relay	Range shall be -25 % to +25% of Full Load Current					
17	Selector Switch	"Local", "Off" & "Remote" – 3 Position, Lockable & key removable type in remote position.					
18	Current Transducer	Current Transducer with suitable shunt giving 2 Nos. of 4–20 mA output. The full load current shall fall in the 75% of 4-20 mA range.					
19	Ammeter	A Digital Ammeter Display range : 3 ½ digits shall be provided.					
20	Interposing relays	2 nos. of interposing relays have to be provided for accepting Remote Start/ Stop Command signals.					



Sl. No.	Characteristics	Requirement	Vendor's Compliance
21	Starting Resistance (R1, R2, R3)	<p>Make of the starting resistors shall be Essen/ Sterling/ Quality</p> <p>Shall withstand the starting current up to 30 seconds</p> <p>Shall be made from corrosion resistant stainless steel. In each section of the resistance, value in ohms shall be marked.</p>	
22	Field Trimmer Resistor (R4)	<p>Shall be Rheostat type as per arrangement drawing attached with this specification. The starting resistance and the Field trimmer resistor shall be placed in the resistor box. A door with lockable arrangement shall be provided in the resistance box for adjustment of FTR.</p> <p>Resistance → 100 Ω, with 3 A current rating</p> <p>Resistor material shall be Copper-Manganese or Copper-Nickel alloy</p> <p>Material Certificate shall be submitted.</p>	
23	Push buttons and Indicating Lamps	<p>Push button → Green colour, Flush type</p> <p>Push button → Red colour, Mushroom type</p> <p>Cluster LED, Red Colour</p> <p>Cluster LED, Green Colour</p> <p>Cluster LED, Amber Colour</p> <p>Cluster LED, Blue Colour</p>	
24	Component Layout/ Mounting/ Identification	<p>A typical "Component placement drawing" is attached with this specification. Vendor to suitably place the components to enable easy maintenance and aesthetics. All components shall be fixed from the front of the component mounting plate. All the internal/ door mounted components shall be identified by suitable (Anodized Aluminium) Name Plates located near the respective components</p>	



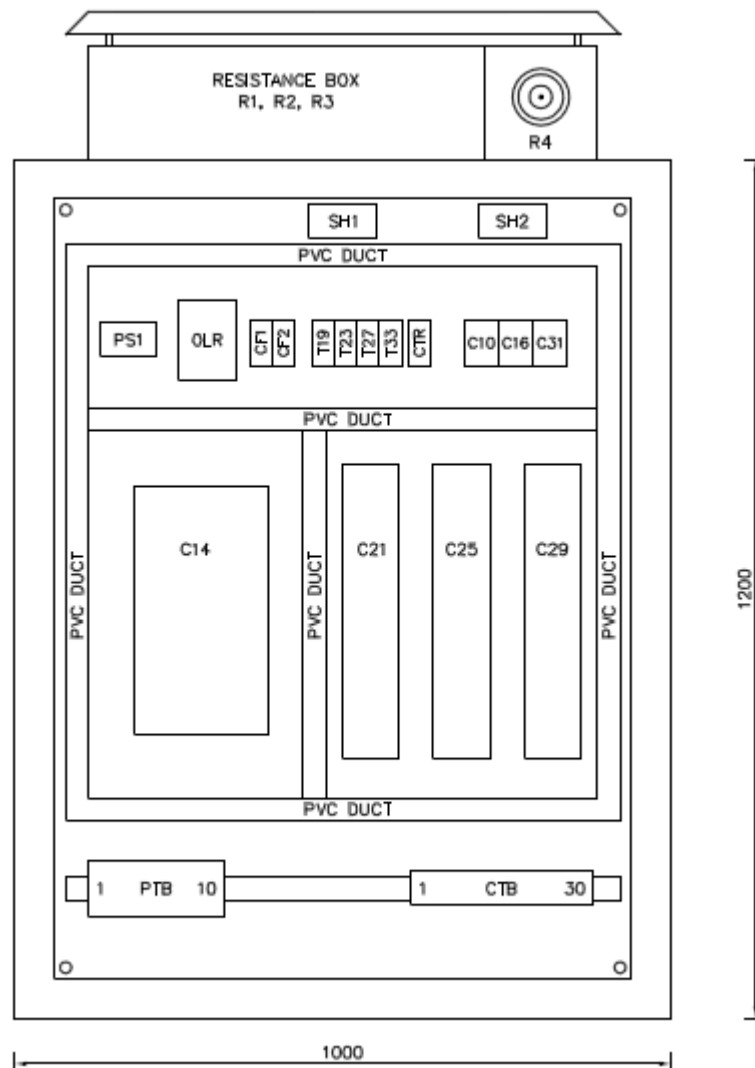
Sl. No.	Characteristics	Requirement					Vendor's Compliance
25	Control Circuit wiring	Shall be done with 1100V grade PVC insulated single core 2.5 sq.mm cable, multi strand tinned copper conductor cable with suitable crimping lugs					
26	Power Circuit wiring	Wiring for power circuits shall be carried out with 1100V grade PVC insulated single core 16 sq.mm multi strand copper conductor cable with suitable crimping lugs					
27	Wiring	All the wiring inside the box shall be formed/dressed neatly, using non-metallic wire dressing materials. Wiring in the starter box between the terminal blocks and the various components shall be enclosed in wire ducts with removable cover.					
28	Ferruling	Proper ferruling method shall be adopted for all types of wiring					
29	Power Terminal blocks	Shall be Bus bar type mounted suitably in DIN rails. The terminal blocks shall be mounted at a minimum of 100mm distance from the base for easy accessibility of termination of external cables. Quantity → 10 Nos. (total)					
		5.5 KW	7.5 KW	9.3 KW	11 KW	15 KW	
		Suitable for 70 sq.mm. Aluminium conductor	Suitable for 95 sq.mm. Aluminium conductor	Suitable for 120 sq.mm. Aluminium conductor Suitable for 120 sq.mm. Aluminium conductor		Suitable for 150 sq.mm. Aluminium conductor	
30	Control terminal blocks	Cage clamp type, suitable for 2.5 sq.mm. cable. The terminal blocks shall be mounted at a minimum of 100mm distance from the base for easy accessibility of termination of external cables. Quantity – as per requirement + 20 % of actual terminals used as spare					
31	Number Strips	The numbering strips shall be of PVC white back-ground with black letters					



Sl. No.	Characteristics	Requirement	Vendor's Compliance
32	<b>Description</b>	<b>5.5 kw, 7.5 kw, 9.3 kw, 11 kw, 15 kw</b>	
	Incoming DC Supply From Feeder	Cable Glands → All Cable Glands shall be Weather proof, Double compression, Brass with Nickel Plated type.  Size of the cable & Quantity has to be referred in Project specific requirements furnished along with the purchase enquiry	
	Outgoing DC Supply to Motor		
	To DCS (Feedback)		
	From FSSS (Control)		
To FSSS (Feedback)			
33	Removable Gland Plate	Removable Gland Plate, 3mm thick shall be provided at the bottom of the box with a neoprene gasket of 3 mm thick.	
34	Transparent Cover	Transparent acrylic cover shall be provided for all the panel mounted components. Transparent Acrylic cover with Caution sticker made of anodized aluminium shall be provided at the front side of all Power terminals.	
35	Earth Bolts	Exterior → 2 Nos., M8 x 20 mm  Interior → 1 No., M8 x 20 mm	
36	Earth Symbols	Circular Sticker with Black lines on Yellow back ground of diameter 20 mm shall be provided near each earth terminal	
37	Lifting Hook	2 Nos. at appropriate location at the top, made out of 10 mm diameter rod	
38	Starter box mounting Bracket and accessories	The box shall be provided with 4 Nos. of Mounting brackets with 50 mm wide, 6 mm thick plates  M10 x 35 mm, Mounting bolts, Spring washers and Nuts shall be supplied.	
39	Quality Plan	QA:CI:STD:QP:15 (Latest Revision)	
40	Inspection	As per BHEL Quality Plan and BHEL Approved vendor Drawings/ Documents	



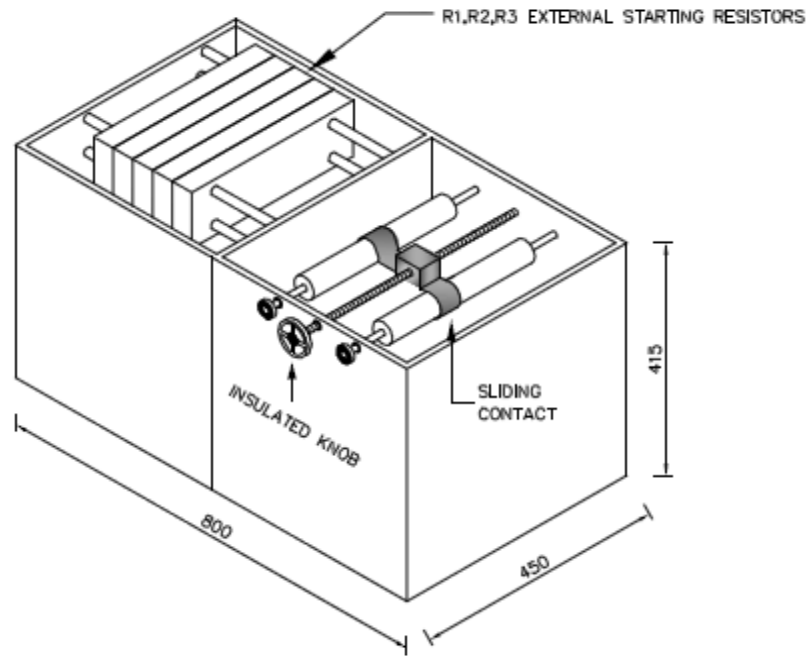
Sl. No.	Characteristics	Requirement	Vendor's Compliance
41	Packing	QA:CI:STD:PR:02 (Latest Revision) The packing shall meet the Transport, environment and Storage hazards	
42	Documents (Vendor to submit along with the offer)	a. Taking care of all the requirements indicated in the documents referred in Clause 1, Vendor has to submit Sub delivery enquiry deviation format. In that document, Vendor to specify the reference details of the documents referred in Clause 1 and should indicate "No – Deviation".  b. Vendor to submit compliance to quality plan & packing procedure	
43	Documents for approval by BHEL/ Customer (after placement of purchase order)	Soft Copies of the following :-  a. General arrangement drawing, Component layout, terminal block drawing and Control Scheme  b. Bill of material with make, model no., rating and quantity of components.  c. Operation & Maintenance manuals containing the catalogues of various accessories used in the DC Starter box.	



**COMPONENT PLACEMENT DRAWING**

**Legend to the Component Placement drawing :-**

- PS1 – Power Switch & Power Fuse
- OLR– Overload Relay
- CF1, CF2 – Control Fuse
- T19, T23, T27, T33 – Timers
- CTR– Current Transducer
- C10, C16, C31 - Auxiliary Contactors
- C14, C21, C25, C29 – Power Contactors
- PTB, CTB – Power/ Control Terminal Blocks
- SH1, SH2 - Shunt



ARRANGEMENT OF FIELD TRIMMER RESISTOR (FTR)  
IN RESISTOR BOX

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**Controls & Instrumentation/Fossil Boilers**  
 Project Specific requirements for DC Starter Box  
 (Annexure to Technical Specification TCI:248, Rev.07)

**Ref. : CI: DCSB: PANKI**  
**Dt. 04-02-2022**

Project : PANKI  
 Customer No. : 1728

1) Size & Quantity of the Cable glands (Specification Clause No. : 32) :-

Sl. No.	Application	Cable Size	Quantity in Nos.
1	For incoming cable from DCDB and DC starter and outgoing cable from DC starter to Motor	2 Core x 95 sq.mm. (Approx. OD 32mm )	2
2	Cable from DC Starter to Motor & interface to FSSS	2 Core x 2.5 sq.mm. (Approx. OD 15 mm)	2
3	Interface cable with FSSS	8 Pair x 0.5 sq.mm., Overall shielded cable (Approx. OD 20 mm)	1
4	Interface cable with DCS	4 Pair x 0.5 sq.mm., Overall shielded cable (Approx. OD 16 mm)	1

2) Paint Shade: -

Sl. No.	Description	Paint Shade
1	Exterior & Interior	RAL 7032


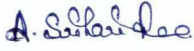


3) Typical Starting Resistance value in ohms are indicated below for different ratings of the Motor. Exact resistance values will be communicated after finalization of the rating of the Motor (before placement of purchase order).

Sl. No.	Motor Rating in KW	Starting resistance Value in ohms			Thermal rating of the starting resistors
		R1	R2	R3	
3	11	0.91	0.36	0.14	180 Amps for 30 seconds

	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> <b>TIRUCHIRAPPALLI-620014</b>	<b>STANDARD QUALITY PLAN FOR</b> <b>AC/DC STARTER BOX, TEMPERATURE PROBE STARTER BOX</b> <b>&amp; CONTROL BOX</b>	<b>QA:CI:STD:QP:15</b>  <b>Rev: 05</b> <b>Page: 1 of 3</b>
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**CONTROLS & INSTRUMENTATION/QA/FB**

**STANDARD QUALITY PLAN FOR**  
**AC/DC STARTER BOX, TEMPERATURE PROBE STARTER BOX & CONTROL BOX**

REV	DATE	PREPARED	REVIEWED		APPROVED	REVISION HISTORY
00	06.08.1990	Sd/-	Sd/-	Sd/-	Sd/-	Initial release
01	16.06.1997	Sd/-	Sd/-	Sd/-	Sd/-	Format revised
02	21.03.2002	Sd/-	Sd/-	Sd/-	Sd/-	Department name changed, CTQ requirement added & general revision
03	08.01.2004	Sd/-	Sd/-	Sd/-	Sd/-	Revision to include the comments/ feedback on internal discussion.
04	01.12.2010	Sd/-	Sd/-	Sd/-	Sd/-	Format Changed and revised based on discussion with QC.
05	03.02.2018	V AVINASH 	A SRIHARI RAO 	V M SELVARAJ 	R M VAIRAVAN 	Revised to incorporate international standard and other general points.



**BHARAT HEAVY ELECTRICALS LIMITED**  
TIRUCHIRAPPALLI-620014

**STANDARD QUALITY PLAN FOR**  
**AC/DC STARTER BOX, TEMPERATURE PROBE STARTER BOX**  
**& CONTROL BOX**

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S.No	Component & Operation	Characteristics	Class	Type of Check	Quantum of check		Ref Doc. & Acceptance STD	Format of Record	Agency			Remarks
					M	B/C			M	B	C	
<b>A</b>	<b>Finished product inspection</b>											
1	<b>Routine Tests</b>	a) Material composition	Major	CHEM	-	-	BHEL approved Vendor Drawings	TC	V	V	-	
		b) Dimensions verification	Major	MEAS	100%	20%	BHEL approved Vendor Drawings	IR	P	W	-	
		c) BOM & Components lay out verification	Major	VISU	100%	20%	BHEL approved Vendor Drawings	IR	P	W	-	
		d) Provision of Name Plates / labels	Major	VISU	100%	20%	BHEL approved Vendor Drawings	IR	P	W	-	
		e) Paint shade & Thickness verification	Major	VISU MEAS	100%	20%	BHEL approved Vendor Drawings	IR	P	W	-	
		f) Paint scratch test	Major	PHYS	1 per project		Manufacturer standard	IR	P	W	-	Not applicable for powder coating.
		g) Provision of earth bus bar / bolts and symbols	Major	VISU	100%	20%	BHEL approved Vendor Drawings	IR	P	W	-	
		h) Functional Test	Major	ELEC	100%	100%	BHEL approved Vendor Drawings	IR	P	W	-	
		i) IR Test with Meggar (500V DC) before & after HV Test	Major	ELEC	100%	100%	> 1 MΩ as per IEC 60204-1	IR	P	W	-	
		j) HV Test	Major	ELEC	100%	100%	1KV for 30 sec as per IEC 60204-1	IR	P	W	-	There should not be any disruptive discharge.
2	<b>Type Tests</b>	<b>Enclosure protection Test for</b> a) Starter/ Control Box b) Resistance Box ( Wherever applicable)	Critical	ENVI	One of design		BHEL approved Vendor Drawings & IEC 60529	TC	V	V	-	

M- MANUFACTURER/ SUB-VENDOR; B - BHEL / TPI ; C - CUSTOMER / TPI  
P - PERFORM ; W - WITNESS V - VERIFICATION OF DOCUMENTS ;



**BHARAT HEAVY ELECTRICALS LIMITED**  
**TIRUCHIRAPPALLI-620014**

**STANDARD QUALITY PLAN FOR**  
**AC/DC STARTER BOX, TEMPERATURE PROBE STARTER BOX**  
**& CONTROL BOX**

**QA:CI:STD:QP:15**

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**B.NOTES:**

**1.LEGENDS:**

**VISU : Visual**                      **IR : Inspection Report**  
**CHEM : Chemical**                **TC : Test certificate**  
**ELEC : Electrical**  
**MEAS : Measurement**  
**PHYS : Physical**  
**ENVI : Environmental**

2) Vendor shall arrange all the required facilities for routine tests at their works . Type tests for which facilities are not available are to be carried out at recognized National Test Houses like ETDC/CIL/NPL/ERTL etc., at vendor cost.

3) Through Log Book / any other documents available at the vendor's works, it shall be possible to correlate the finished product with inspection carried out.

4) All Measuring and Testing Instruments shall be periodically calibrated from recognized test houses & certificates made available during inspection for verification.

5) Type test certificate shall not be earlier than 5 years from the date of Purchase enquiry.

6) Vendor to give tentative inspection program in advance and confirm exact date two weeks in advance for arranging BHEL's inspection.

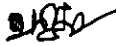



7) Packing shall be as per "PACKING PROCEDURE "indicated in the specification.

QA:CI:STD:QP:15/ Rev.05

M- MANUFACTURER/ SUB-VENDOR; B - BHEL / TPI ; C - CUSTOMER / TPI  
P - PERFORM ; W - WITNESS V - VERIFICATION OF DOCUMENTS ;

**BHARAT HEAVY ELECTRICALS LIMITED / TIRUCHIRAPPALLI  
CONTROLS AND INSTRUMENTATION/QA/FB**

**STANDARD QUALITY PLAN  
FOR  
ELECTRICAL PANEL ACCESSORIES**

REV	DATE	PREPARED	REVIEWED	APPROVED		REVISION HISTORY
				ENGG.	QUALITY	
00	16.06.97	-Sd-	-Sd-	-Sd-	-Sd-	Initial release
01	22.02.99	-Sd-	-Sd-	-Sd-	-Sd-	New Vendors Added
02	21.03.02	-Sd-	-Sd-	-Sd-	-Sd-	Dept. name changed & General revision-Based on Engg. discussion.
03	08.01.04	-Sd-	-Sd-	-Sd-	-Sd-	Revised to include the comments /Feedback of internal discussion
04	07.12.07	RM.VAIRAVAN 	N.SRIDHAR 	L.A.E.Fernandez 	S.SOMASUNDARAM 	Vendor list updated. Inputs considered are: <ul style="list-style-type: none"> <li>• TCE approved List for Jojobera</li> <li>• NTPC approved list for BAP( Sipat).</li> <li>• NTPC approved list for Korba-III.</li> <li>• NTPC approved list for Barh STPP.</li> <li>• Feedbacks obtained during discussion</li> </ul>

SL.NO	PRODUCT	APPROVED VENDORS
01	Air Circuit Breaker.	L&T / GEPC / SIEMENS / CONTROLS & SWITCHGEAR Co.LTD / SCHNEIDER-MERLIN GERIN ENERPACT
02	Miniature circuit breaker (MCB).	MDS / CROMPTON GREAVES / INDO - ASIAN / IM / LUPUS / SCHNEIDER ELECTRIC / SIEMENS / L&T – HAGER /INDOKOPP/COOPER BUSMANN /STANDARD
03	Moulded case circuit breaker (MCCB).	L&T / GEPC./ CROMPTON GREAVES / BCH / ABB / SIEMENS / CONTROLS & SWITCHGEAR Co.LTD/ SCHNEIDER ELECTRIC / ANDREW YULE /AREVA
04	Power contactors – AC.	L&T / SIEMENS / CONTROLS & SWITCHGEAR CONTACTORS LTD (TC) / SPRECHER & SCHUH / ANDREW YULE / BCH / GEPC / CROMPTON GREAVES / SCHNEIDER ELECTRIC
05	Power & Auxiliary Contactors – DC.	GEPC / BCH / CONTROLS & SWITCHGEAR CONTACTORS LTD(TC) / SIEMENS / SPRECHER & SCHUH / L&T / SCHNEIDER ELECTRIC/ANDREW YULE.
06	Auxiliary Contactors – AC.	L&T / SIEMENS / ABB / BCH / CONTROLS & SWITCHGEAR CONTACTORS LTD(TC) / CROMPTON GREAVES / GEPC/ SPRECHUR & SCHUH / SCHNEIDER ELECTRIC / ANDREW YULE.
07	Indicating lamp.	SIEMENS / VAISHNAO / GEPC / BCH / L&T - ESBEE / CANDS / TEKNIC / CONCORD / ESSEN / CONTROLS & SWITCHGEAR CONTACTORS LTD(TC)-RASS Series
08	Push Button.	SIEMENS / BCH / TEKNIC / CANDS / L&T - ESBEE / VAISHNAO / GEPC / CONTROLS & SWITCHGEAR CONTACTORS LTD(TC)-RASS Series / SCHNEIDER ELECTRIC/CONCORD.
09	Illuminated Push button	PARAMOUNT / BCH
10	Indicating Instruments.	AE / IMP / MECO / L&T-RISHAB / SIETEX / MASSIBUS/ALSTOM.
11	Switches ( Power / Control ).	KAYCEE / SIEMENS / L&T / SALZAR/ GEPC / CONTROLS & SWITCHGEAR Co. LTD / SCHNEIDER ELECTRIC / SWITRON (For Control switch only)

SL.NO	PRODUCT	APPROVED VENDORS
12	Thermal Overload Relays.	L&T / SIEMENS / CONTROLS & SWITCHGEAR CONTACTORS LTD (TC) / BCH / GEPC / SPRECHER & SCHUH / CROMPTON GREAVES / SCHNEIDER ELECTRIC/ ANDREW YULE.
13	Protective Relays(Electromechanical).	AREVA / EASUN REYROLLE / ABB / SEG & CONTROLS / SIEMENS.
14	Protective Relays(Microprocessor).	AREVA / ABB / L&T
14	Timers - Electronic.	SIEMENS / ABB / CONTROLS & SWITCHGEAR CONTACTORS LTD((TC) / GEPC / OMRON / SPRECHER & SCHUH / SELECTRON. / BCH
15	Timers - Electro – Pneumatic.	BCH / CONTROLS & SWITCHGEAR CONTACTORS LTD(TC)/ SPRECHER & SCHUH
16	Timers - Synchronous.	L&T - G I C.
17	Annunciators.	IIC / L&T / PROCON / ADVANI OERLIKON / OMRON / PIRI / PECON / SIEMENS/MINILEC
18	Current & Potential transformers.	AE / KAPPA / INDCOIL / PRAYOG / CONTROLS & SWITCHGEAR CONTACTORS LTD(TC) / SIEMENS / APPOLO / PRAGATI / PRECISE / JYOTI / SILKAANS/G&M(For PT only) .
19	Control supply transformers.	AE / KAPPA / INDCOIL / SOUTHERN ELECTRIC / SIEMENS / APPOLO / CONTROLS & SWITCHGEAR / PRECISE / LOGICSTAT/PRAGATI/PRAYOG
20	Terminal block - screw type ( terminals & fasteners shall be brass with nickel cadmium plated ).	ESSEN / ELMEX (THERMO –PLASTIC TYPE) / TOSHA / ASIA ELECTRIC ( IEC MAKE ) / CONNECT WELL / TECHNOPLAST / VEECON / PHOENIX/WAGO
21	Terminal Block – Cage Clamp type.	WAGO / PHOENIX / ELMEX
22	Fuse Carriers.	SIEMENS / L&T / S&S / CROMPTON GREAVES / CONTROLS & SWITCHGEAR Co. LTD / GEPC / COOPER BUSSMAN.
23	Fuse Links/Neutral Links.	SIEMENS / L&T / CROMPTON GREAVES / CONTROLS & SWITCHGEAR Co.LTD/ GEPC / CANDS / COOPER BUSSMAN.



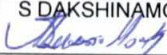
SL.NO	PRODUCT	APPROVED VENDORS
24	Panel Wires	BIS APPROVED
25	Cable Glands – (weather proof).	COMET / POWER ENGG / SUNIL & CO / SMI / BRACCO / ARUP ENGG. WORKS / QPIE / GLANDMECH / CONTROLS & SWITCHGEAR Co. LTD / QUALITY PRECISION
26	Ferrules	MICROSIGN/MAY FAIR/OESER
27	Lugs.	DOWELL / 3D / DIVYA JYOTHI / CHETNA / JAINSONS
28	Space Heater.	SOPHIA / CANDS / CROMPTON GREAVES / PYRO SYSTEM / VELCO / CONTROLS & SWITCHGEAR Co.LTD.
29	15/5 A Power Supply Switch With Plug & Socket ( Metal Clad Type With Spring Loaded Cap ).	CROMPTON GREAVES/ AJMERA / BCH / BEST & CROMPTON./GEWIS INDIA
30	Cubicle Illumination Lamp.	PHILIPS / BAJAJ / CROMPTON GREAVES / <b>MYSORE LAMPS</b> / <b>HMT.</b>
31	Door Switch.	ESSEN / IEC.
32	Cooling Fan.	RALLI-WOLF / KHAITAN / USHA.
33	Interposing Relay (Low Burden).	JYOTHI / OMRON / ABIL / ABB / SIEMENS / GEPC / OEN / L&T/OWN MAKES OF APPROVED PLC VENDORS.
34	Cable Glands - Flame Proof.	BALIGA / SUDHIR / CEAG / PROMPT / COMET
35	Indicating Lamp – LED.	SRISHYLA / TEKNIC / PARAMOUNT / BINAY / KWALITY / HEWLETT PACKARD
36	Motor Protection Circuit Breaker	L&T / GEPC / SIEMENS / SCHNEIDER ELELCTRIC / SPRECHER & SCHUH .
37	Cable Dressing Material.	MICROSIGN.
38	Wire Duct.	SALZAR.

SL.NO	PRODUCT	APPROVED VENDORS
39	Electrical Transducer	ABB / AE / SOUTHERN TRANSDUCER/ELSTER/RISHAB.
40	Thermostat	APT / TEMPTROL / VIKAS ELECTRIC / AI / RENUTROL / ANCO
41`	Trivector Meter	ALSTOM / BHEL/AREVA/IMP

**BHARAT HEAVY ELECTRICALS LIMITED  
TIRUCHIRAPPALLI**

**CONTROLS AND INSTRUMENTATION / FB  
QUALITY ASSURANCE**

**STANDARD PACKING PROCEDURE  
FOR  
ELECTRICAL AND ELECTRONIC PANELS  
(INCLUDING BOXES, CABINETS, CUBICLES, SYSTEMS AND CHASSIS)**

Rev	Date	Prepared	Checked	Approved	Revision History
00	01.01.96	Sd/-	Sd/-	Sd/-	Initial History
01	28.03.02	A.J.OMPRAKASH Sd/-	R.VARADARAJAN Sd/-	G.MATHIYALAGAN Sd/-	Department name changed
02	26.02.07	RM.VAIRAVAN	N.SRIDHAR	S.SOMASUNDARAM	Revised after discussion with Shipping Dept.
03	07.02.2017	AVINASH V 	RM VAIRAVAN 	S DAKSHINAMOORTHY 	Type of wood for packing changed

**1.0 SCOPE**

- 1.1 This procedure gives minimum guidelines to be complied with for packing of Electrical, Electronics and Instrumentation panels. This packing shall be suitable for different handling operations and for the adverse conditions during transportation and during indoor / outdoor storage for periods more than one year.

**2.0 WOOD SPECIFICATION FOR PACKING**

- 2.1 Any seasoned wood or plywood as per relevant international standard  
2.2 Sea worthy packing is envisaged for international shipments.

**3.0 PACKING**

- 3.1 Any seasoned wood or plywood shall be used .It shall be free from knots, etc. and any kind of decay caused by insects and fungus.
- 3.2 The required wood case for the equipment to be packed shall be made out of individual planks of single length and no joint is permissible. Using such planks, the required wood case for the panel shall be made,
- 3.3 Sufficient number horizontal, vertical and diagonal planks (dimension depending upon case size) shall be used for binding and strengthening. Runners have to be provided with metallic sling plates for handling.
- 3.4 Support planks are to be provided such that, no force is acting on the parts of equipment or its parts.
- 3.5 Panels above 1.5 metre shall be bolted at the bottom.
- 3.6 The equipments covered with a polythene sheet shall be kept inside the box, followed by coir, wooden bottoms, thermo coal, etc to prevent vibration effect during loading, transportation, etc.
- 3.7 On all sides of the inner case, black polythene sheet shall be nailed.
- 3.8 Loose items of the equipment, if any, shall be packed separately.
- 3.9 Delicate components likely to be damaged, example PCB – Electronic modules, instrument, etc are to be covered individually in anti-static bags and packed in cartons and filled with fillers like thermo coal, paper cuttings, etc.
- 3.10 Such cartons shall be packed with overall polythene rapping and packed in wooden cases. Mark prominently as "ELECTRONIC COMPONENTS".

**4.0 MARKING**

- 4.1 After completing the packing, Stencil marking, as per dispatch instructions and symbol marking as per Annexure – I shall be made. Please ensure the box is stenciled with "FRAGILE ITEM", "HANDLE WITH CARE"

**5.0 PACKING SLIP**

- 5.1 A copy of the packing slip, kept in a polythene cover shall be kept inside the box. Another copy of the packing slip, kept in a polythene cover shall be kept out side the box and covered with a metallic plate to the case.

**6.0 CAUTION**

Do not pack any other Mechanical items with this case.

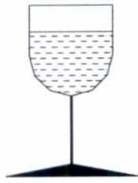
**7.0 GENERAL**

- 7.1 These packing procedures are the minimum requirements in addition to the standard instructions mentioned in the Purchase Order and Specification.

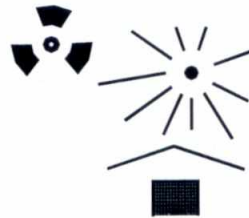
ANNEXURE - 1

TO

PROCEDURE NO:CI:QAC:PR:02/00 ; PR:03/00 ; PR:04/00



FRAGILE, HANDLE WITH CARE



PROTECT FROM HEAT AND RADIOACTIVE SOURCES



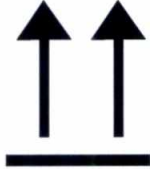
USE NO HOOKS

NOTE: The design of heavy goods packages cannot always resist top lifting by grabhooks.



KEEP DRY

NOTE: Not all cases have waterproof internal liners: plywood used in the construction may not have a waterproof glueline.



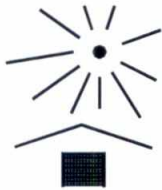
THIS WAY UP

NOTE: Certain designs of small cases make it difficult to distinguish top from bottom.



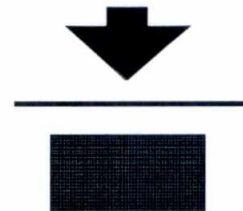
CENTRE OF GRAVITY

NOTE: This should be stencilled as a minimum on the two longest case sides (this information will normally be supplied by the manufacturer of the item(s) packed).



KEEP AWAY FROM HEAT

... kg max



STACKING LIMITATION

NOTE: The maximum load in kilograms should be marked above the arrow.



INTERNATIONAL "SLING HERE" SYMBOL