

BUYERS SPECIFIC ADDITIONAL TERMS & CONDITIONS
ITEM NAME: SPARES FOR OIL PURIFICATION UNIT

PROJECTS- BARH STPP,ST-II,U-1

1. SCOPE OF ENQUIRY:

Sl. No.	Material Code & Item Description	Total Qty.	LOT Quantity & Delivery schedule
1.	W90318103176 PRESSURE INDICATORS FOR OIL PURIFICATION UNIT:1 NO. EACH TYPE AND RANGE SPEC: ST39013 REV: 08	1 No.	BARH STPP, ST-II, U-1: 1 No. -30/11/2025
2.	W90318103206 FLOW METER/INDICATOR FOR OPU SPEC: ST39013 REV: 08	1 No.	BARH STPP, ST-II, U-1: 1 No. -30/11/2025
3.	W90318103354 VACUUM GAUGE FOR LUBE OIL PURIFIER SPEC: ST39013 REV: 08	1 No.	BARH STPP, ST-II, U-1: 1 No. -30/11/2025
4.	W90318103184 TEMP INDICATOR FOR OIL PURIFICATION UNIT: 1 NO OF EACH TYPE AND RANGE SPEC: ST39013 REV: 08	1 No.	BARH STPP, ST-II, U-1: 1 No. -30/11/2025
5.	W90318103150 PRESSURE SWITCH FOR OIL PURIFICATION UNIT:1 NO. EACH TYPE AND RANGE SPEC: ST39013 REV: 08	1 No.	BARH STPP, ST-II, U-1: 1 No. -30/11/2025
6.	W90318103192 LEVEL SWITCH FOR OIL PURIFICATION UNIT: 1 NO. OF EACH TYPE AND RANGE SPEC: ST39013 REV: 08	1 No.	BARH STPP, ST-II, U-1: 1 No. -30/11/2025
7.	W90318103290 MANDATORY SPARES FOR FLOW SWITCH OF OIL PURIFIER UNIT, ST-39013 SPEC: ST39013 REV: 08	1 No.	BARH STPP, ST-II, U-1: 1 No. -30/11/2025
8.	W90318103400 LIMIT SWITCH FOR OPU SPEC: ST39013 REV: 08	1 No.	BARH STPP, ST-II, U-1: 1 No. -30/11/2025
9.	W90318103168 RTDS FOR OIL PURIFICATION UNIT:1 NO. EACH TYPE AND RANGE SPEC: ST39013 REV: 08	2 No.	BARH STPP, ST-II, U-2: 2 No. -30/11/2025

2. Project Details with consignee address:

Project Name	BARH STPP, ST-II, U-1:
Consignee Address	MANAGER STORE (BARH STPP) BARH SUPER THERMAL POWER PROJECT, PO. BARH, DISTT-PATNA, PIN 803213

3.BUYERS SPECIFIC ADDITIONAL TERMS & CONDITIONS IN ADDITION TO GTC

Sl. No.	Terms	Description	Supplier confirmation
1.	Documents Checklist:	<p>Please submit signed and stamped copy of your offer on each page along with following documents;</p> <ul style="list-style-type: none"> • Buyer Specific T&C. • Technical PQR & its supportive document. • Technical drawing & purchase specification. • Certificate/self-certification for minimum local content as per PPP-MII order. • Replica of price bid schedule without prices with part-I offer. 	
2.	Special Instruction of Technical requirement	a) Technical Details, Make and model nos. are mentioned at Doc. no. 41810370003.	
		b) SHIPPING BOX SHOULD BE OF GREEN COLOR WITH CLEARLY WRITTEN MANDATORY SPARE	
		a) ON ATLEAST 4 SIDES OF BOX.	
		b) WARRANTY REQUIRED FOR 18 MONTHS FROM DATE OF DISPATCH.	
		c) Vendor to offer same make and model as mentioned in Doc. no. 41810370003.	
3.	Compliance of GTC on GeM	General Terms and Conditions on GeM 4.0 (Version 1.25) Dtd -14/07/2025 or it's latest revision of GeM portal shall be applicable against this enquiry. Kindly confirm to compliance the same for this tender.	
4.	Pre-Qualification Requirements	The Pre-Qualification Requirements have been compiled. All the bidders should ensure submission of complete details and documents as called for in these requirements. The Offers submitted by the bidders would be scrutinized with respect to Pre-Qualification Requirements first. Techno-Commercial offer of only those bidders shall be evaluated who meet the Pre-Qualification Requirements.	
5.	Make in India Clause	<p>"For this procurement, the local content to categorize a supplier as a Class I local supplier/ Class II local Supplier/ Non-local supplier and purchase preference to Class I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 19.07.2024 issued by DPIIT.</p> <p>In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT".</p> <p>As per Make in India Order, only Class-1 and Class-2 local supplies are eligible to bid in this tender enquiry.</p> <p>For this eligibility criteria, bidders are required to submit certificate of Minimum local content as specified in attached Make In India Declaration format.</p>	
6.	Compliance of Rule 144 (xi) of GFR 2017	Compliance of Restrictions under Rule 144 (xi) of GFR 2017 shall be as per GeM.	
7.	Bid validity/ Validity of offer	<p>Please note that validity of the offer shall be 180 days from the date opening of Techno-Commercial bid (Part-I bid) on GeM portal.</p> <p>Offer of bidder's having validity less than 180 days shall liable to reject. Please confirm.</p>	
		<p>The required validity is considering that offer is complete & clear w.r.t. PQR and all techno-commercial conditions. Vendors need to extend their offer validity for the time taken by them in responding BHEL's comments/clarification sought during techno-commercial scrutiny of the offer. In case regret by any bidder for such validity extension, their offer shall liable to be reject. Please confirm.</p>	
8.	Loading and unloading	<p>Vendor's scope will not cover Loading & Unloading at Final destination of delivery. Unloading at final destination (i.e. BHEL site) is in BHEL 'scope.</p> <p>Loading and unloading at other intermediate places due to any permitted transhipment will be the responsibility of the vendor. Kindly note</p>	
9.	Prices/Basis of Quotation	<p>The offered prices of the items shall remain firm and fixed till the execution of the contract, kindly confirm.</p>	
		<p>Kindly confirm that your quote prices are inclusive of P&F, Freight & GST for Total quantity on GeM portal.</p>	
		<p>Transit Insurance would be arranged by BHEL. Please quote your prices accordingly.</p>	
		<p>The prices are to be quoted on Ex-Works with freight Pre-paid up to project destination basis & inclusive of all taxes & duties, GST (i.e. Inclusive all).</p>	
		<p>Bidders can dispatch goods through any Indian Bank Association approved transporters having their branch at HARIDWAR / destination.</p>	

		<p>bidder's account.</p> <p>Any demurrage / godown rent payable to the transporter /or to godown's owner due to any delay attributed by the supplier shall be recovered from supplier's account.</p>									
10.	Special Instructions:	<ul style="list-style-type: none"> ORIGINAL (GR/LR , MDCC, PKG LIST) ARE REQUIRED FOR BILLING. MATERIAL IS TO BE DESPATCHED ON DOOR DELIVERY BASIS TO SITE. BHEL BBU NOS. TO BE MENTIONED IN PACKING LIST BY VENDOR. Please inform 8 Digit HSN code for Oil Purification along with spares. 08 DIGIT GST HSN CODE to be provided & mentioned in your invoice & packing list. Vendor to ensure submission billing documents in the same month of material despatch. If vendor fail to provide the despatch documents in the same month GST Penalty shall be applicable and bear by vendor as per GST rule. 									
11.	Evaluation criteria	Evaluation would be done on the basis of total landed cost for the complete requirement covered in the enquiry Considering total material value, packing charges, Forwarding Charges, taxes & duties, Freight, taxes & duties). This fact would be specifically mentioned in the enquiry									
12.	Evaluation Currency	The evaluation currency for this tender shall be INR.									
13.	Payment terms:	<p>For Material portion:</p> <p>The payment shall be done after receipt of Material at BHEL respective project site, within no. of days as defined in the below table from the date of receipt of Material at site i.e. MRC date).</p> <table border="1"> <thead> <tr> <th>Type of Bidder</th><th>Payment Terms (Number of Days)</th></tr> </thead> <tbody> <tr> <td>Micro & Small Enterprises (MSEs)</td><td>45 days</td></tr> <tr> <td>Medium Enterprises</td><td>60 days</td></tr> <tr> <td>Non MSME</td><td>90 days</td></tr> </tbody> </table> <p>The Payment terms are subject to receipt of non-discrepant document from supplier.</p>	Type of Bidder	Payment Terms (Number of Days)	Micro & Small Enterprises (MSEs)	45 days	Medium Enterprises	60 days	Non MSME	90 days	
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Micro & Small Enterprises (MSEs)	45 days										
Medium Enterprises	60 days										
Non MSME	90 days										
14.	GeM charges	GeM charges if any shall be either side only i.e. buyer's GeM charges shall be in buyer's account and seller's GeM charges shall be on seller's account. Please confirm.									
15.	Contract execution	Bidder's are advised to read GeM related query & clarification carefully on GeM portal. Order shall be executed through GeM.									
16.	Reverse Auction (E-bidding)	BHEL shall be resorting to Reverse Auction (RA) on GEM portal as per GEM functionalities for this tender. RA shall be conducted among the techno-commercially qualified bidders.									
17.	Quantity Variation	<p>BHEL reserves the right to cancel tender or reject any or all the quotations without assigning any reasons thereof.</p> <p>BHEL also reserves the right to Increase or decrease the tendered quantities or quantity of individual material code may be dropped as a whole also.</p> <p>Vendors should be prepared to accept order for reduced Quantity without any extra charges. Vendor should also be prepared for giving discount in case of Increase in Quantity.</p> <p>Vendor has to take manufacturing clearance from BHEL before starting manufacturing of material. In case ordered quantity is reduced at the time of manufacturing clearance, then payment shall be made accordingly as per decreased quantity. Kindly confirm.</p>									
18.	Delivery Period	<p>Please note that BHEL's Delivery requirements are mentioned in point no 1 of above.</p> <p>Early delivery w.r.t. above lot delivery will be accepted only after written confirmation from BHEL.</p> <p>BHEL reserve right to reject early delivery request of bidders / suppliers.</p> <p>Delivery period indicated in GeM bid is only indicative and final delivery of tender shall be taken as mentioned above.</p> <p>Accordingly bidders to confirm the above deliveries or quote their best possible delivery in no of months / weeks from the date of placement of Purchase order, including all activities like document approval, inspection by TPI time etc.</p>									
19.	Technical Document/ Drawing approval conditions	<p>Drawings/Data sheets/documents/QAP etc. as called for in the specifications shall be submitted by Vendor for BHEL/ Customer approval within 30 days of purchase order. BHEL shall approve these drawings/data sheets/ documents / QAP etc. within 30 days of receipt.</p> <p>Any comments on the documents shall be given by BHEL within 7 days of submission and vendor shall submit revised document / reply to comments, within 7 days of BHEL comments. However, total time for Document submission and approval shall not exceed 30 days for respective party.</p> <p>Delivery is from the date of PO, accordingly, delay in submission / revision of the documents by the vendor will automatically account for to vendor. In case of delay on account of BHEL in comments / approval of the documents, the delivery shall be re-scheduled by the no of days taken by BHEL in</p>									

		excess to 30 days. For delay analysis cumulative no of days (including time taken in comments), shall be considered for delivery extension.	
20.	Liquidated Damages (LD) for late delivery	<p>Liquidated Damages shall be lot wise as per clause no. 15 (iii) of General terms and conditions on GeM 4.0 (Version 1.22) as under: kindly confirm.</p> <p>"If the Seller/Service Provider fails to deliver any or all of the Goods/Services within the original/re-fixed delivery period(s) specified in the contract, the Buyer will be entitled to deduct/recover the Liquidated Damages for the delay, unless covered under Force Majeure conditions aforesaid, @ 0.5% of the contract value of delayed quantity per week or part of the week of delayed period as pre-estimated damages not exceeding 10% of the contract value of delayed quantity without any controversy/dispute of any sort whatsoever".</p> <p>The date of LR would be treated as the date of delivery for penalty purposes.</p>	
21.	MDCC clause	<p>Please note that, material shall be dispatched only after issue of Material dispatch clearance certificate (MDCC) from end customer. For issue of MDCC, vendors are required to submit all test certificates (TC) and inspection report of third party (IR) to BHEL. After review & acceptance of the quality document, BHEL will forward the same to end customer for issuance of MDCC.</p> <p>MDCC shall be issued within 7 days of receipt of complete quality documents / TCs,. In case of delay in issuance of MDCC, only delivery shall be extended by no of days taken by BHEL in excess to 7 days and all other terms and conditions of PO shall remains same & binding.</p> <p>In case any material is dispatched without MDCC and any loss is incurred by Supplier/Vendor for any reason whatsoever, BHEL shall not be responsible in any manner to compensate the supplier in this regard.</p> <p>Kindly confirm.</p>	
22.	BREACH OF CONTRACT, REMEDIES AND TERMINATION:	<p>The following shall amount to breach of contract:</p> <p>I. Non-supply of material/ non-completion of work by the Supplier/Vendor within scheduled delivery/ completion period as per contract or as extended from time to time.</p> <p>II. The Supplier/Vendor fails to perform as per the activity schedule and there are sufficient reasons even before expiry of the delivery/ completion period to justify that supplies shall be inordinately delayed beyond contractual delivery/ completion period.</p> <p>III. The Supplier/Vendor delivers equipment/ material not of the contracted quality.</p> <p>IV. The Supplier/Vendor fails to replace the defective equipment/ material/ component as per guarantee clause.</p> <p>V. Withdrawal from or abandonment of the work by the Supplier/Vendor before completion as per contract.</p> <p>VI. Assignment, transfer, subletting of Contract by the Supplier/Vendor without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.</p> <p>VII. Non-compliance to any contractual condition or any other default attributable to Supplier/Vendor.</p> <p>VIII. Any other reason(s) attributable to Vendor towards failure of performance of contract. In case of breach of contract, BHEL shall have the right to terminate the Purchase Order/ Contract either in whole or in part thereof without any compensation to the Supplier/Vendor.</p> <p>IX. Any of the declarations furnished by the contractor at the time of bidding and/ or entering into the contract for supply are found untruthful and such declarations were of a nature that could have resulted in non-award of contract to the contractor or could expose BHEL and/ or Owner to adverse consequences, financial or otherwise.</p> <p>X. Supplier/Vendor is convicted of any offence involving corrupt business practices, antinational activities or any such offence that compromises the business ethics of BHEL, in violation of the Integrity Pact entered into with BHEL has the potential to harm the overall business of BHEL/ Owner.</p> <p>Note-Once BHEL considers that a breach of contract has occurred on the part of Supplier/Vendor, BHEL shall notify the Supplier/Vendor by way of notice in this regard. Contractor shall be given an opportunity to rectify the reasons causing the breach of contract within a period of 14 days.</p> <p>In case the contractor fails to remedy the breach, as mentioned in the notice, to the satisfaction of BHEL, BHEL shall have the right to take recourse to any of the remedial actions available to it under the relevant provisions of contract.</p> <p>Remedies in case of Breach of Contract.</p> <p>i) Wherein the period as stipulated in the notice issued under above clause has expired and Supplier/Vendor has failed to remedy the breach, BHEL will have the right to terminate the contract on the ground of "Breach of Contract" without any further notice to contractor.</p> <p>ii) Upon termination of contract, BHEL shall be entitled to recover an amount equivalent to 10% of the Contract Value for the damages on account of breach of contract committed by the Supplier/Vendor. on the ground of "Breach of Contract" without any further notice to contractor.</p> <p>ii) Upon termination of contract, BHEL shall be entitled to recover an amount equivalent to 10% of the</p>	

	<p>Contract Value for the damages on account of breach of contract committed by the Supplier/Vendor. This amount shall be recovered by way of encashing the security instruments like performance bank guarantee etc available with BHEL against the said contract. In case the value of the security instruments available is less than 10% of the contract value, the balance amount shall be recovered from other financial remedies (i.e. available bills of the Supplier/Vendor, retention amount, from the money due to the Supplier/Vendor etc. with BHEL) or the other legal remedies shall be pursued.</p> <p>iii) wherever the value of security instruments like performance bank guarantee available with BHEL against the said contract is 10% of the contract value or more, such security instruments to the extent of 10% contract value will be encashed. In case no security instruments are available or the value of the security instruments available is less than 10% of the contract value, the 10% of the contract value or the balance amount, as the case may be, will be recovered in all or any of the following manners:</p> <p>iv) In case the amount recovered under sub clause (a) above is not sufficient to fulfil the amount recoverable then; a demand notice to deposit the balance amount within 30 days shall be issued to Supplier/Vendor.</p> <p>v) If Supplier/Vendor fails to deposit the balance amount within the period as prescribed in demand notice, following action shall be taken for recovery of the balance amount:</p> <p>a) from dues available in the form of Bills payable to defaulted Supplier/Vendor against the same contract.</p> <p>b) If it is not possible to recover the dues available from the same contract or dues are insufficient to meet the recoverable amount, balance amount shall be recovered from any money(s) payable to Supplier/Vendor under any contract with other Units of BHEL including recovery from security deposits or any other deposit available in the form of security instruments of any kind against Security deposit or EMD.</p> <p>vi) In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against defaulted supplier/Vendor.</p> <p>vii) It is an agreed term of contract that this amount shall be a genuine pre-estimate of damages that BHEL would incur in completion of balance contractual obligation of the contract through any other agency and BHEL will not be required to furnish any other evidence to the Supplier/Vendor for the purpose of estimation of damages.</p> <p>viii) In addition to the above, imposition of liquidated damages, debarment, termination, de-scoping, short-closure, etc., shall be applied as per provisions of the contract.</p> <p>Note:</p> <p>1) The defaulting Supplier/Vendor shall not be eligible for participation in any of the future enquiries floated by BHEL to complete the balance work. The defaulting contractor shall mean and include:</p> <p>(a) In case defaulted Supplier/Vendor is the Sole Proprietorship Firm, any Sole Proprietorship Firm owned by same Sole Proprietor.</p> <p>(b) In case defaulted Supplier/Vendor is The Partnership Firm, any firm comprising of same partners/ some of the same partners ; or sole proprietorship firm owned by any partner(s) as a sole proprietor.</p>	
23.	<p>Suspension of Business Dealings with Suppliers / Contractors:</p> <p>The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms / principal / agents, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.</p> <p>If any bidder / supplier / contractor during pre-tendering / tendering / post tendering / award / execution / post-execution stage indulges in any act, including but not limited to, 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 tampers the tendering process or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860(Bhartiya Nyaya Samhita 2023) or any other law in force in India, or does anything which is actionable under the Guidelines for Suspension of Business dealings, action may be taken against such bidder / supplier / contractor as per extant guidelines of the company available on www.bhel.com and / or under applicable legal provisions. Guidelines for suspension of business dealings is available in the webpage:</p> <p>http://www.bhel.com/vender_registration/vender.php.</p>	
24.	<p>Settlement of Dispute, CONCILIATION & ARBITRATION:</p> <p>Settlement of Dispute</p> <p>If any dispute or difference of any kind whatsoever shall arise between BHEL and the Supplier/Vendor, arising out of the contract for the performance of the work whether during the progress of contract termination, abandonment or breach of the contract, it shall in the first place referred to Designated Officer / IEM for amicable resolution by the parties. Designated Officer / IEM who within 60 days after being requested shall give written notice of his decision to the contractor. Save as hereinafter provided, such decision in respect of every matter so referred shall forthwith be given effect to by the Supplier/Vendor who shall proceed with the work with all due diligence, whether he or BHEL desires to resolve the dispute as hereinafter provided or not. If after the Designated Engineer has given written notice of this decision to the party and no intention to pursue the dispute has been communicated to him by the affected party within 30 days from the receipt of such notice, the said decision shall become final and binding on the parties. In the event the Supplier/Vendor being dissatisfied with any such decision or if amicable settlement cannot be</p>	

reached then all such disputed issues shall be resolved through conciliation in terms of the BHEL Conciliation Scheme 2018 as per 'CONCILIATION' Clause.

CONCILIATION:

Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure as per BHEL Conciliation Scheme 2018. The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in - "Procedure for conduct of conciliation proceedings" (as available in www.bhel.com).

ARBITRATION:

Except as provided elsewhere in this Contract, in case Parties are unable to reach amicable settlement (whether by Conciliation to be conducted as provided herein above or otherwise) 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 (hereinafter referred to as the 'Dispute'), then, either Party may, refer the disputes to Arbitral Institution and such dispute to be adjudicated by Sole Arbitrator appointed in accordance with the Rules of said Arbitral Institution.

A party willing to commence arbitration proceeding shall invoke Arbitration Clause by giving notice to the other party in terms of section 21 of the Arbitration & Conciliation Act, 1996 (hereinafter referred to as the 'Notice') before referring the matter to arbitral institution. The Notice shall be addressed to the Head of the Region, Power Sector/ Unit, BHEL, executing the Contract and shall contain the particulars of all claims to be referred to arbitration with sufficient detail and shall also indicate the monetary amount of such claim including interest, if any.

After expiry of 30 days from the date of receipt of aforesaid notice, the party invoking the Arbitration shall submit that dispute to the Arbitral Institutions (shall be identified by the contract issuing agency) and that dispute shall be adjudicated in accordance with their respective Arbitration Rules. The matter shall be adjudicated by a Sole Arbitrator who shall necessarily be a Retd Judge having considerable experience in commercial matters to be appointed/nominated by the respective institution. The cost/expenses pertaining to the said Arbitration shall also be governed in accordance with the Rules of the respective Arbitral Institution. The decision of the party invoking the Arbitration for reference of dispute to a specific Arbitral institution for adjudication of that dispute shall be final and binding on both the parties and shall not be subject to any change thereafter. The institution once selected at the time of invocation of dispute shall remain unchanged.

The fee and expenses shall be borne by the parties as per the Arbitral Institutional rules.

The Arbitration proceedings shall be in English language and the seat and venue of Arbitration shall be at the court(s) of Haridwar.

Subject to the above, the provisions of Arbitration & Conciliation Act 1996 and any amendment thereof shall be applicable. All matters relating to this Contract and arising out of invocation of Arbitration clause are subject to the exclusive jurisdiction of the Court(s) situated at Haridwar , shall have exclusive jurisdiction.

Notwithstanding any reference to the Designated Engineer or Conciliation or Arbitration herein, a. the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree. Settlement of Dispute clause cannot be invoked by the Contractor, if the Contract has been mutually closed or 'No Demand Certificate' has been furnished by the Contractor or any Settlement Agreement has been signed between the Employer and the Contractor.

It is agreed that Mechanism of resolution of disputes through arbitration shall be available only in the cases where the value of the dispute is less than Rs. 10 Crores.

In case the disputed amount Claim, Counter claim including interest is Rs. 10 crores and above, the parties shall be within their rights to take recourse to remedies other than Arbitration, as may be available to them under the applicable laws after prior intimation to the other party. Subject to the aforesaid conditions, provisions of the Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment thereof as amended from time to time, shall apply to the arbitration proceedings under this clause.

In case, multiple arbitrations are invoked (whether sub-judice or arbitral award passed) by any party to under this contract, then the cumulative value of claims (including interest claimed or awarded) in all such arbitrations shall be taken in account while arriving at the total claim in dispute for the subject contract for the purpose of clause mentioned above. Disputes having cumulative value of less than 10 crores shall be resolved through arbitration and any additional dispute shall be adjudicated

		by the court of competent jurisdiction.													
25.	Action against Bidders / vendor / supplier / contractor in case of default:	<p>In order to protect the commercial interests of BHEL, BHEL shall take action against supplies / contractors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, cause loss of business/ money/ reputation, indulge in malpractices, cheating, bribery, fraud or any other misconduct or formation of cartels so as to influence the bidding process or influence the price etc.</p> <p>Suspension of Business Dealings could be in the form of "Hold" or "Banning" a supplier/ contractor or a bidder and shall be as per "Guidelines for Suspension of Business Dealings with Suppliers/ Contractors" available at BHEL's website "https://www.bhel.com/guidelines-suspension-business-dealings-supplierscontractors"</p>													
26.	MICRO AND SMALL ENTERPRISES (MSE):	<p>Any Bidder falling under MSE category shall furnish the following details & submit documentary evidence/ Govt. Certificate etc. in support of the same along with their techno-commercial offer.</p> <table border="1"> <tr> <td>Type under MSE</td> <td>SC/ST owned</td> <td>Women owned</td> <td>Others (excluding SC/ ST & Women Owned)</td> </tr> <tr> <td>Micro</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Small</td> <td></td> <td></td> <td></td> </tr> </table> <p>Note: If the bidder does not furnish the above, offer shall be processed construing that the bidder is not falling under MSE category.</p> <p>a) MSE suppliers can avail the intended benefits in respect of the procurements related to the Goods and Services only (Definition of Goods and Services as enumerated by Govt. of India vide Office Memorandum F. No. 21(8)/2011-MA dtd. 09/11/2016 office of AS & DC, MSME) only if they submit along with the offer, attested copies of either Udyam Registration. Date to be reckoned for determining the deemed validity will be the last date of Technical Bid submission. Non-submission of supporting document in GeM portal will lead to consideration of their bids at par with other bidders. No benefits shall be applicable for this enquiry if the above required documents are not uploaded at the time of bid submission. Documents submitted by the bidder shall be verified by BHEL for rendering the applicable benefits.</p>	Type under MSE	SC/ST owned	Women owned	Others (excluding SC/ ST & Women Owned)	Micro				Small				
Type under MSE	SC/ST owned	Women owned	Others (excluding SC/ ST & Women Owned)												
Micro															
Small															
27.	JURISDICTION:	This contract shall be governed by the Law for the time being in force in the Republic of India. Subject to clause(s) mentioned above of this contract, the Civil Court having original Civil Jurisdiction at Haridwar shall alone have exclusive jurisdiction in regard to all matters in respect of the Contract.													
28.	Force Majeure	<p>"Force Majeure" shall mean circumstance which is: a) beyond control of either of the parties to contract, b) either of the parties could not reasonably have provided against the event before entering into the contract, c) having arisen, either of the parties could not reasonably have avoided or overcome, and d) is not substantially attributable to either of the parties And Prevents the performance of the contract, Such circumstances include but shall not be limited to: i) War, hostilities , invasion, act of foreign enemies. ii) Rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war. iii) Riot, commotion or disorder by persons other than the contractor's personnel and other employees of the contractor and sub-contractors. iv) Strike or lockout not solely involving the contractor's personnel and other employees of the contractor and sub-contractors. v) Encountering munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the contractor's use of such munitions, explosives, radiation or radio- activity. vi) Natural catastrophes such as earthquake, tsunami, volcanic activity, hurricane or typhoon, flood, fire, cyclones etc. vii) Epidemic, pandemic etc.</p> <p>The following events are explicitly excluded from Force Majeure and are solely the responsibilities of the non-performing party: a) any strike, work-to-rule action, goslow or similar labour difficulty (b) late delivery of equipment or material (unless caused by Force Majeure event) and (c) economic hardship.</p> <p>If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within 15 (fifteen) days after the occurrence of such event.</p> <p>The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended by a period of time equal to period of delay caused due to such Force Majeure event.</p> <p>Delay or non-performance by either party hereto caused by the occurrence of any event of Force Majeure shall not</p> <p>i) Constitute a default or breach of the Contract. ii) Give rise to any claim for damages or additional</p>													

		<p>cost expense occasioned thereby, if and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.</p> <p>BHEL at its discretion may consider short closure of contract after 1 year of imposition of Force Majeure in line with extant guidelines. In any case, Supplier/Vendor cannot consider deemed short-closure after 1 year of imposition of Force Majeure</p>	
29.	Cartel Formation	<p>The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.</p>	
30.	Order of Precedence:	<p>In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:</p> <ol style="list-style-type: none"> Amendments/Clarifications/Corrigenda/Errata etc. issued in respect of the tender documents by BHEL. Buyer Added Bid Specific ATC GeM Bid Technical Conditions of Contract (TCC) GeM GTC 	
31.	Conflict of interest:	<p>The bidder notes that a conflict of interest would said to have occurred in the tender process and execution of the resultant contract, in case of any of the following situations:</p> <p>a) If its personnel have a close personal, financial, or business relationship with any personnel of BHEL who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of BHEL directly or indirectly;</p> <p>b) The bidder (or his allied firm) provided services for the need assessment/ procurement planning of the Tender process in which it is participating;</p> <p>c) Procurement of goods directly from the manufacturers/suppliers shall be preferred. However, if the OEM/Principal insists on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer/ supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer/ supplier could bid directly but not both. In case bids are received from both the manufacturer/ supplier and the agent, bid received from the agent shall be ignored. However, this shall not debar more than one Authorized distributor (with/ or without the OEM) from quoting equipment manufactured by an Original Equipment Manufacturer (OEM) in procurements under a Proprietary Article Certificate.</p> <p>d) A bidder participates in more than one bid in this tender process. Participation in any capacity by a Bidder (including the participation of a Bidder as a partner/ JV member or sub-contractor in another bid or vice-versa) in more than one bid shall result in the disqualification of all bids in which he is a party. However, this does not limit the participation of an entity as a sub-contractor in more than one bid if he is not bidding independently in his own name or as a member of a JV.</p> <p>The Bidder declares that they have read and understood the above aspects, and the bidder confirms that such conflict of interest does not exist and undertakes that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s), in this regard. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or nonsubmission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.</p> <p>In case, the Bidder is found having indulged in above activities, the same will be considered as a violation of the tender conditions, and suitable action shall be taken by BHEL as per extant policies/ guidelines.</p>	
32.	Warrantees	<p>Kindly confirm that Guarantee shall be provided for a period of “18 months from the date of dispatch.”</p> <p>Supplier shall be responsible for free replacement of defective equipment / material at our site</p> <p>Please note that offers with guarantee period lesser than above mentioned guarantee period may result in rejection of the offer.</p>	
33.	Order Acceptance:	Ink signed order acceptance shall be furnished within 15 days of order placement. In case, order acceptance do not received within 15 days of order placement, PO deemed to be accepted by you.	
34.	Beneficiary of PO	Kindly confirm on whom the PO will be placed in the event of ordering.	
35.	Dispatch documents	<p>Following dispatch documents to be provided immediately after directly dispatch to BHEL Project site for billing purpose:</p> <ul style="list-style-type: none"> • Guarantee/Warrantees Certificates • E- Invoice and commercial invoice • GeM invoice • Original consignee copies of GR/LR/RR (Material shall be dispatched on door delivery basis without consignee copy) 	

		<ul style="list-style-type: none"> • Packing list • Original GST compliance certificate • E-way bill • MRC/POD/Received LR/RR/GR copy (as per proof of delivery of material at BHEL Project site) 					
36.	IP Address	The bids received from same IP address shall be outrightly rejected and shall not be considered for further evaluation.					
37.	Submission of E-Invoice	<p><i>"For goods / works / services on Indian Suppliers / Contractors:</i> Irrespective of the value of the invoice amount, the supplier/ contractor should necessarily upload the invoice details on BHEL SUVIDHA portal at https://suvidha.bhel.in/suvidha/, prior to despatch/raising invoice. All documents as per contract checklist, along with additional documents (if any), must be uploaded on the portal. It is mandatory that tax invoices with a net amount (including taxes) exceeding Rs five lakhs uploaded on the portal are digitally signed using a Class 3 Digital Signature Certificate (DSC) issued by a licensed Certifying Authority. Submission of invoice document in hard copy is allowed for invoices with a net amount (including taxes) equal to and upto Rs five lakhs in case the requirement for digitally signed invoice is not explicitly mentioned in the contract checklist.</p> <p><i>The Invoice will not be accepted in absence of the above. "</i></p>					
38.	Additional Conditions for Assessment	BHEL also reserves the right to have on-site assessment of the facilities at supplier's works during the bid evaluation.					
39.	Quality Requirement	<table border="1"> <tr> <td>a)</td> <td>AS PER SPECIAL INSTRUCTION OF INDENT, VENDOR TO OFFER SAME MAKE AND MODEL AS MENTIONED IN DOC. NO. 41810370003.</td> </tr> <tr> <td>b)</td> <td>TC/COC TO BE SUBMITTED AS PER ORDERING SPECIFICATION.</td> </tr> </table>	a)	AS PER SPECIAL INSTRUCTION OF INDENT, VENDOR TO OFFER SAME MAKE AND MODEL AS MENTIONED IN DOC. NO. 41810370003.	b)	TC/COC TO BE SUBMITTED AS PER ORDERING SPECIFICATION.	
a)	AS PER SPECIAL INSTRUCTION OF INDENT, VENDOR TO OFFER SAME MAKE AND MODEL AS MENTIONED IN DOC. NO. 41810370003.						
b)	TC/COC TO BE SUBMITTED AS PER ORDERING SPECIFICATION.						
	Bidder Contact details	Please provide Contact details of your representative for techno-commercial clarifications: Mobile no. & Email id (minimum 2 person)					

SPECIAL NOTE FOR BIDDERS:

- In the event of our customer order covering this tender being cancelled /placed on hold /otherwise modified, BHEL would be constrained to accordingly cancel / hold / modify the tender at any stage of execution.
- BHEL may negotiate the L1 rate, if not meeting our budget / estimated cost. BHEL may re-float the tender opened, if L1 price is not acceptable to BHEL even after negotiation.
- Any change in applicable rates of Tax or any other statutory levies (Direct / Indirect) or any new introduction of any levy by means of statute and its corresponding liability for the deliveries beyond the agreed delivery date for reasons not attributable to BHEL will be to vendors account. BHEL will not reimburse the same and any subsequent claim in this respect will be summarily rejected.
- BHEL reserves its right to reject an offer due to unsatisfactory past performance by the respective Vendor in the execution of any contract to any BHEL project / Unit.
- The offers of the bidders who are under suspension and also the offers of the bidders, who engage the services of the banned firms /principal/agents, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.
- Recovery / deduction as applicable as per Direct and Indirect taxes as notified by Govt. Of India from time to time will be made and information/certificate for such deduction/recoveries shall be provided by BHEL to the vendor.
- If the delivery of supply as detailed above gets delayed beyond the delivery period, the Supplier/Vendor shall request for a delivery extension and BHEL at its discretion may extend the Contract. However, if any 'Delivery extension' is granted to the Supplier/Vendor for completion of supply, due to backlog attributable to the Supplier/Vendor, then it shall be without prejudice to the rights of BHEL to impose LD for the delays attributable to the Supplier/Vendor.
- In case BHEL increase the quantity during currency of the contract in line with quantity variation clause of GeM bid, delivery extension on pro-rata basis shall be given for supply of these additional quantity.

Following documents are an integral part of this Tender Enquiry and endorsed copies of these documents (duly signed and stamped on each page, as a token of acceptance) are to be submitted/uploaded along with offer on GeM portal against this bid.

1. Please submit replica of Price schedule (without prices) showing "quoted" in place of price along with techno-commercial bid (Part-I).
2. Please submit signed & Stamped copy (each page) of duly filled of confirmation column of "Buyers Specific Additional Terms & Conditions (ATC)" and its clause wise supporting documents where required.
3. Please submit signed & stamped copy (each page) for qualifying PQR with proper filled information and related supporting documents as mentioned in PQR.
4. Please submit certificate of Minimum local content as specified in the Make In India Certificate of the tender

PRE-QUALIFICATION REQUIREMENTS FOR CI SPARES ITEMS FOR OPU

1. Vendor to submit experience-list⁵ (manufacturing/supplying/ testing/ support after sales) for supply of any one Instruments of the enquiry for continuous operation as per details outlined below:-

§ where experience list means fulfillment of below parameters:-

- a) Supply of at least 1 no. of any one instrument of the enquiry in last 5 (Five) years from the date of Enquiry.
- b) Further details of experience-list to be furnished in the following tabular format: -

2. Vendor to submit unpriced copy of Purchase Orders in support of clause 1 (a) above.
3. BHEL reserve the right to verify the information submitted by bidder. In case the information found to be false /incorrect, the offer shall be rejected. Bidder to confirm.


Sunil Kumar Gautam

Deekshakayal
08/07/25

Sh. Deepak Goyal
Sr. Manager/CIE

~~6/2025~~ 08/07/25
Sh. Suresh Chandra
SDGM/CIE

APPLICABLE MANDATORY SPARE LIST AND ADDITIONAL DETAILS FOR LUB OIL
PURIFICATION UNIT

DRAWING NO-41810370003 REV 00

PROJECT- BARH STPP,ST-II,U-1:660MW

WO: 10801W55404, 10801W55405

SNO	ITEM DESC	MATERIAL CODE	QTY	UOM	Make	Model	Remarks
1	PRESSURE INDICATOR (RANGE-0-6 BAR)	W90318103176	1	NO	GIC	BSPG-V-15-S4-S-4-15NTM-(0 to 6)-A-G	
2	FLOW INDICATOR (RANGE-1000-10000 LPH)	W90318103206	1	NO	Eureka Instruments	SVF-MTS-12	
3	VACUUM INDICATOR (RANGE-(-1)-5 BAR)	W90318103354	1	NO	GIC	BSPG-V-15-S4-S-4-15NTM-(-1 to 5)-A-G	
4	TEMERATURE INDICATOR (0-120 C)	W90318103184	1	NO	GIC	MIS-R-V-15	
5	PRESSURE SWITCH (RANGE-0.4-4 BAR)	W90318103150	1	NO	SWITZER	GM203-02-A6K-WW-3	
6	LEVEL SWITCH (2 SPDT MICRO SWITCH)	W90318103192	1	NO	Pune Techtrol Pvt. Ltd.	FPS-OSO2RW	
7	FLOW SWITCH	W90318103290	1	NO	SWITZER	HR-40-M-I-2, 50-150 LPM, 1.1/2" BSPF	
8	SEPARATOR COVER POSITION (LIMIT SWITCH)- FOR OPU	W90318103400	1	NO	BCH Electric Limited	DSLMPP/LPGS	
9	RTD FOR OPU	W90318103168	2	NO	GIC	RTD-HEAD-ACF-2pt100 - 6mm	

NOTE-1: THIS DOCUMENT SHOULD BE READ ALONGIWTH SPECIFCATIONS AND SPECIAL INSTRUCTIONS
 MENTIONED IN THE INDENT.

APPLICABLE MANDATORY SPARE LIST AND ADDITIONAL DETAILS FOR LUB OIL
PURIFICATION UNIT

ADDITIONAL TECHINCAL DETAILS (Minimum):

1. PRESSURE INDICATOR (RANGE-0-6 BAR)- Material code: W90318103176

- i) Type : Bourdon Tube
- ii) Dial Size : 150mm
- iii) Over range : 130%
- iv) Protection : IP67
- v) Process Connection: $\frac{1}{2}$ " NPT(M)
- vi) Range : 0-6 Kg/cm²
- vii) Accuracy : $\pm 1\%$

2. FLOW INDICATOR (RANGE-1000-10000 LPH) - Material code: W90318103206

- i) Type: Variable area Metal tube Rotameter
- ii) Accuracy : $\pm 2\%$ of full Scale
- iii) Connection, Type, Size: 40 NB Flanged
- iv) Range: upto 10000 LPH for Turbine oil (operating 7500 LPH)

3. VACUUM INDICATOR (RANGE-(-1)-5 BAR) – Material code: W90318103354

- i) Type : Bourdon Tube
- ii) Dial Size : 150mm
- iii) Over range : 130%
- iv) Protection : IP67
- v) Process Connection: $\frac{1}{2}$ " NPT(M)
- vi) Range : (-1)-5 Kg/cm²
- vii) Accuracy : $\pm 1\%$

4. TEMERATURE INDICATOR (0-120 C) – Material code: W90318103184

- i) Type: Mercury in steel dial thermometer Rigid stem with SS Thermowell
- ii) Dial Size : 150mm
- iii) Over range : 130%
- iv) Protection : IP67
- v) Process Connection: $\frac{1}{2}$ " NPT(M)
- vi) Range : 0-120°C
- vii) Accuracy : $\pm 1\%$

5. PRESSURE SWITCH (RANGE-0.4-4 BAR) – Material code: W90318103150

- i) Sensing Element: Bellow
- ii) Material of sensing Movement: SS316L
- iii) End Connection: $\frac{1}{4}$ " NPT(F)

APPLICABLE MANDATORY SPARE LIST AND ADDITIONAL DETAILS FOR LUB OIL

PURIFICATION UNIT

- iv) Over Range Test : 150% of Max Design Pressure
- v) Repeatability : $\pm 0.5\%$ of FSR
- vi) No. of contacts : 2SPCO (2SPDT), Snap action Dry Contacts
- vii) Rating of contacts : 15A at 250V AC, 6A at 24V DC
- viii) Electrical connection : Plug in socket
- ix) Set point / Dead Band Adjustment : Provided Over Full Range
- x) Housing : Weather and Dust proof, IP66
- xi) Identification : Name plate
- xii) Mounting : Suitable for rack mounting / direct mounting

6. LEVEL SWITCH (2 SPDT MICRO SWITCH) – Material Code: W90318103192

- i) Type: Magnetic Float Operated Pivoted
- ii) Process Connection: 92mm X 92PCD
- iii) Pressure Rating : 10 kg/cm²
- iv) MOC: SS316
- v) Differential : 15 ± 5 mm
- vi) No. of Contacts & Contact rating: 2 Nos. SPDT contacts; 5A at 250V AC, 0.2A at 24V DC
- vii) Electrical Connections: Plug in Socket
- viii) Degree of protection: IP66
- ix) Accuracy: ± 2 mm
- x) Repeatability : ± 1 mm

7. FLOW SWITCH – Material code: W90318103290

- i) Model no. : HR-40-M-I-2
- ii) Make : Switzer
- iii) Range: 50-150 LPM
- iv) Process connection: 1.1/2" BSPF

8. SEPARATOR COVER POSITION (LIMIT SWITCH)- FOR OPU - Material code: W90318103400

- i) Model no. : DSLMPP/LPGS
- ii) Make: BCH Electric Limited

9. RTD FOR OPU – Material code: W90318103168

- i) Type of RTD : RTD 100 OHM (as per DIN-43760/IEC-751) , 4 wire
- ii) No. of Elements : Duplex
- iii) Connection: $\frac{1}{2}$ " NPT(M)
- iv) Housing Head : IP-55 / Die cast Aluminum with Hinged Cover
- v) Sheathing of RTD : Metal Sheathed, Magnesium Oxide Packed
- vi) Type of Measuring Insert : spring Loaded for Positive contact with well

APPLICABLE MANDATORY SPARE LIST AND ADDITIONAL DETAILS FOR LUB OIL

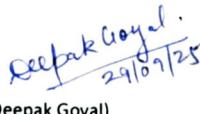
PURIFICATION UNIT

- vii) Calibration and Accuracy : As per IEC751 – Class A
- viii) External Dia of sheath : 6mm OD
- ix) Insulation Resistance : Greater than 10 Mega ohm at Room Temp with 500 V DC Megger
- x) Electrical connections : Plug in socket



(Sunil Kumar Gautam)

Dy. Manager



(Deepak Goyal)
29/09/25

Sr. Manager



(Suresh Chandra)
29/09/25

Sr. DGM

प्रिवेट एवं व्यापार SIGN & DATE	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013
		पृष्ठ 40 का 1 Page 1 of 40

प्राप्ती पुस्तक को प्रतिक्रिया करता है	SUPERSEDES INVENTORY NO.
BASED ON ST 22002	

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indirectly in any way detrimental to the interest of the company

संस्थापिकार एवं गोपनीय
इस दस्तावेज़ एवं इस पुस्तक को विभिन्न विवरणों की प्राप्ति है इसके प्रयोग
एवं अन्वेषण करने वाले विभिन्न विवरणों के लिए इस दस्तावेज़ का उपयोग करना निषिद्ध है।



Bid Specification For Turbine Oil Purification System

(Centrifuge type)

प्राप्ती पुस्तक संख्या INVENTORY NO.	प्रिवेट एवं व्यापार SIGN & DATE	21/03/16	टिकाक एवं दस्तावेज़ DATE & SIGNATURE	नाम NAME	टिकाक एवं दस्तावेज़ SIGNATURE & DATE
CIE	B. S. Rana	<i>28/03/16</i>	प्राप्तीकरण TRANSLATED BY	—	—
QAX	S. K. Chauhan	<i>21/03/16</i>	प्राप्तीकरण WORKED BY	Anil Kumar	Anil Kumar 18.03.16
TSX	DEEPAK	<i>Deepak 21/03/16</i>	क्रमावाली CHECKED BY	A. S. Rajput	<i>Anil Kumar 18.03.16</i>
गहरान विभाग AGREED DEPTT.	नाम NAME	टिकाक एवं दस्तावेज़ DATE & SIGNATURE	पर्यवेक्षणकर्ता SUPERVISED BY	R. Panja	<i>R. Panja 18.03.16</i>
Worked BY	Anil Kumar	<i>Anil Kumar 18.03.2022</i>	निरीक्षण APPROVED :	S. K. Baveja	<i>S. Baveja 18.03.16</i>
checked BY	S.K.Sonkar	<i>S. K. Sonkar 17/03/16</i>			Gr. NO. 8.20
REV. NO.	08		निर्माण PREPARED : PED	तारी ISSUED : TSX	टिकाक DATE :
Dt.	29.03.16				
CHANGE ADVICE NO.	STE-22-18	Reaffirmed Year 2022			



उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)
PRODUCT PURCHASE SPECIFICATION
(HEEP: HARIDWAR)

ST39013

पृष्ठ 40 का 2

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SIGN & DATE

सामग्री याची संख्या
INVENTORY
NO. १०८५

Rev. no.
08

निर्माणकर्ता
WORKED BY

Anil / Kavita

Amrit Kumar
Kaur

18.03.16

जाँचकर्ता
CHECKED BY

A. S. Rajput
Devesh

Rajeshwari
DNT

18.03.16



उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)

**PRODUCT PURCHASE SPECIFICATION
(HEEP: HARIDWAR)**

ST39013

पृष्ठ 40 का 3

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संग्रहीत संख्या
SIGN & DATE

संग्रहीत संख्या
SIGN & DATE

संग्रहीत संख्या
SIGN & DATE

स्वतंत्रताकार एवं गोपनीय
प्रकाश एवं अन्य व्यवस्थाएँ निर्दिष्ट की गयी हैं। इसका
प्रयोग अपने कार्य के लिए एवं इसका लिए निर्दिष्ट करना गोपनीय है।

संग्रहीत संख्या
SIGN & DATE

संग्रहीत संख्या
SIGN & DATE

1 INTENT OF SPECIFICATION

This specification is intended to cover design, manufacturing, testing, delivery supervision of system & commissioning of turbine oil purification system and putting the system into satisfactory operation.

RESPONSIBILITY OF BIDDER: The bidder shall be responsible for providing all material, equipment and services, specified or otherwise which are required to complete the project and fulfill the intent of ensuring operability, maintainability and the reliability of the complete work covered under this specification. It is not the intent to specify completely here in, all aspects of design and construction of equipment. Nevertheless, the equipment shall conform in all respects to high standards of engineering, design & workmanship & shall be capable of performing in continuous commercial operation, in a manner acceptable to Purchaser/Owner. Bidder is requested to carefully examine and understand the specification & seek clarification, if required, to ensure that they have understood the specifications prior to submit the bid.

2 SCOPE OF SUPPLY

2.1 One oil purification system (OPS) shall comprise of:

- a. One centrifuge along with its drive & accessories.
- b. Indirect type oil heater and accessories
- c. One dirty oil feed pump complete with its drive & accessories.
- d. One clean oil discharge pump complete with its drive & accessories (if applicable).
- e. Polishing filter with suitable bypass arrangement.
- f. Adequately sized booster pump (if required).
- g. One overflow sight fitting (loose supply).
- h. The OPS shall be such that it can be used both as purifier as well as clarifier.
- i. An arrangement to detect and raise alarm in case of liquid seal breakage.
- j. All relevant valves, Y-type strainer, fittings and inter-connecting piping.
- k. All flanged end valves and flanged terminal points of piping along with counter flanges, nuts, bolts and gaskets.

संग्रहीत संख्या
SIGN & DATE

संग्रहीत संख्या
SIGN & DATE

संग्रहीत संख्या
SIGN & DATE

Rev. no.
08

निर्माणकर्ता
WORKED BY:

Anil / Kavita

Anil Kumar
Kavita

18.03.16

जाँचकर्ता
CHECKED BY:

A. S. Rajput /
Devesh

Devesh
A. S. Rajput

18.03.16

संग्रहीत संख्या
SIGN & DATE

संग्रहीत संख्या
SIGN & DATE

संग्रहीत संख्या
SIGN & DATE

[Signature]

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 उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 5 Page 5 of 40
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COPYRIGHT AND CONFIDENTIAL <small>The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.</small>	SUPERSEDES INVENTORY NO <small>प्राप्ति यो ताला वा कठिनाकार करा के</small>	<p>3.9 The OPS shall be equipped with sight glasses both for the purified oil and the separated water from the collecting pan.</p> <p>3.10 Each purifier system shall be furnished with a positive displacement feed pump & a similar type discharge pump, if needed. Each pump shall be of the helical, herringbone, Spur gear or screw type with a normal capacity of at least 10% greater than that of the purifier system when operating under the maximum suction lift against the pressure required to feed the centrifuge. Each pump shall be fitted with adequate relief bypass valve to prevent damage from excess pressure.</p> <p>3.11 Although oil temperature at the inlet to heater during normal operation of Turbine Generator set shall be 65°C but system should be designed to operate with oil at 20°C during cold starting of TG-set. During such operation, even if guaranteed purification cannot be achieved, the system shall be accepted.</p> <p>3.12 Arrangement of oil recirculation piping/piping connection should be provided with recirculation line connecting to clean oil line at oil purifier outlet (with applicable NRVs) such that there are only two interfaces of oil inlet & outlet connection to oil purifier.</p> <p>3.13 For two or more centrifuges running in parallel, a common skid housing for both or multiple centrifuges shall be supplied with inlet & outlet manifold. Connection interface with BHEL shall be inlet & outlet only, not multiple connections.</p> <p>3.14 Pressure at the outlet of oil purification system shall be 1.5 to 2.0 bar (gauge).</p> <p>3.15 The inlet, outlet & overflow connections to overflow sight fitting shall be NB80 (Ø88.9X3.96)/NB40 (Ø48.3X3.96)/NB15 (Ø21.3X2.6) respectively. Also, it is to be noted that overflow sight fitting is to be supplied loose and the same shall be fitted in BHEL's Main Oil Tank at site.</p> <p>3.16 A common drive system for separator, dirty oil feed pump and clean oil discharge pump (if required) shall also be considered. Details of such drive should be clearly submitted by the vendor in his offer.</p> <p>3.17 Different variants for combination of Flow capacity of Oil Purification System, Control Panel Type and Heater Rating are given below in <u>Table- A</u>.</p>
<small>स्वतंत्रताकार एवं गोपनीय</small> <small>यह वार्ता ने दी गयी वार्ता ने वार्ताकार विवरण की मापदण्ड है। इसका</small> <small>प्राप्ति यो ताला वा कठिनाकार करा के विवरण हो वा विवरण हो।</small>	SIGN & DATE 	

INVENTORY NO प्राप्ति यो ताला 25538	Rev. no. 08	निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kavita 18.03.16
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विवरण दर्शावा SIGN & DATE 	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 6 Page 6 of 40
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Var. No.	Flow capacity of purification system (Litre Per Hour)	Control Panel Type	TABLE- A	
			Supersedes Inventory No.	Heater Rating (kW)
1.	7500	DCS		90 kW
2.	6000	DCS		72 kW
3.	2 x 4500	DCS		120 kW
4.	7500	Relay		90 kW
5.	6000	Relay		72 kW
6.	2 x 4500	Relay		120 kW
7.	7500	DCS		55 kW
8.	6000	DCS		45 kW
9.	2 x 4500	DCS		80 kW
10.	7500	Relay		55 kW
11.	6000	Relay		45 kW
12.	2 x 4500	Relay		80 kW

4 CONTROL AND INSTRUMENTATION

4.1 Offer should include all necessary interlocks & instruments along with remote indication facility in the control panel (protection type). Purchaser will review same & necessary addition / subtraction in interlocks & instruments, considered essential for smooth operation of the unit, will be asked to include. Some of the important interlocks/controls, required, are given below.

- (a) Separator shall be provided with interlocks to prevent the operation of the unit unless the feed pump & the discharge pump are operating.
- (b) A system of annunciating the flooding of the separator due to loss of water seal shall be provided.
- (c) All instruments i.e. pressure gauges, RTDs etc. should be reliable & of proven design. Purchaser has full right to ask them changed from one supply source to another according to operational experience. All instruments should be calibrated at minimum 5 points throughout the range and accuracy, hysteresis, repeatability etc. shall be within the specified limits i.e. $\pm 1\%$.
- (d) Auxiliary electric supply available at site comprises of 415V, 3 ϕ , 3 wires, 50 Hz ($\pm 10\% V, \pm 5\% \text{ frequency}, \pm 10\% \text{ combined}$). If supplier requires any other supply for his devices, instruments and drives etc. he shall arrange \ to convert 415V, 3 ϕ supply to the required value for further distribution. Isolating switches, over current protection, fuses, junction boxes with terminal strips etc. as required for sub-distribution shall be deemed to be in bidder's scope.

विवरण दर्शावा SIGN & DATE 	विवरण दर्शावा SIGN & DATE Rev. no. 08	निर्माणकर्ता WORKED BY: जाँचकर्ता CHECKED BY:	Anil / Kavita A. S. Rajput / Devesh	Anil Kumar Kavita A. S. Rajput Devesh	18.03.16 18.03.16
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निर्माण यांत्रिक SIGN & DATE		<p>उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)</p> <p>PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)</p>	ST39013
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COPYRIGHT AND CONFIDENTIAL यह दस्तावेज़ कानूनी रूप से विद्युत विभाग की संरक्षित है। इसका प्रयोग यह केवल विद्युत विभाग के लिए ही नहीं बल्कि विद्युत विभाग के लिए ही नहीं हो सकता। इसका उपयोग केवल विद्युत विभाग के लिए ही नहीं हो सकता।	निर्माण यांत्रिक SIGN & DATE 	<p>(e) Motor shall be flame proof as per IS: 2148 and make shall be of BHEL approved vendor make. Motor shall be preferably of class 2 or better in efficiency rating. If motor of any other efficiency is required, the same will be intimated to vendor during enquiry. Technical requirement for motor is given in Annexure-III.</p> <p>(f) The temperature of the oil leaving the heater shall be automatically controlled by RTD in not less than 3 steps. RTD shall function to open the heater circuits when the desired temperature is exceeded & to close the heater circuits before the temperature drops below that necessary for proper purification of the oil. The heater circuits shall be interlocked with the pump motor circuits to shut off the heaters when the pumps are not being operated. Heater rating should be as given in Table-A. Heaters shall be designed to operate in minimum of three steps & shall be of indirect type.</p> <p>(g) In case of polishing filter, it shall be equipped with a differential pressure switch with adjustable contracts to indicate high pressure drop across the filter along with alarm & annunciation system.</p> <p>(h) Local instruments for pressure temp. & flow indication shall be provided in accordance with clause 8.0 of Annexure-I.</p> <p>(i) The unit should be provided with suitable alarm & annunciation system for easy operation & identification of fault conditions. It should have spare outputs in the form of potential free contact to be hooked-up with central annunciation system in the room.</p> <p>(j) All control switches, indicating lamps & sound alarm devices shall be mounted on the front face plate of a cubicle (panel) to be supplied with purification unit.</p> <p>(k) Remote operating facility for all electrically operated components should be provided on control panel.</p> <p>(l) All motors, heaters included in the offer, should be supplied along with its starter which will be mounted in the same panel.</p> <p>(m) An arrangement to detect and raise alarm in case of liquid seal breakage shall be provided. It may be adequately sized anti-flood tank with necessary drain valves along with level gauge or any other equivalent arrangement as per standard practice of the vendor. Drain and vent connections for level switch specified in Annexure-III to ST39013 shall be NB15 (ø21.3X2.6).</p> <p>(n) Control switches & Indicating lamps shall be as per vendor's standard practice or owner approved vendor/ make (project dependent).</p>
निर्माण यांत्रिक SIGN & DATE 	निर्माण यांत्रिक SIGN & DATE 	

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	08		जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	 A. S. Rajput / Devesh	18.03.16

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उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)
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- (bb) The local control panel shall have main switch fuse unit, power contactors, control transformer, space heater, alarm lamps, terminals, switchgear, OLR for separator motors and heaters and other contactors.
- (cc) Interconnection diagram shall be provided along with offer.
- (dd) Anti vibration pads shall be provided. Control panel should also be designed in such a way that it is able to withstand the site vibrations.
- (ee) Instruments/ equipments used in parallel system of 2x4500LPH system shall be of same make & type for both the purifiers in a single project.

4.2 For DCS control panel, additional requirements

The purification system shall be operated from control room as well as local panel having the logic built in BHEL control system instead of relay based control system.

It shall also have Local/remote switch, separator start/stop selector Switch, heater on/off sel. Switch Test/Accept/Reset push buttons and 24 V DC interfacing relays with DCS.

Control Philosophy

- (a) The purification system shall be operated from control room, as well as local control panel "DCS/Local" selector switch shall be provided on the LCP.
- (b) All field instruments shall be wired to a JB, which shall be in vendor scope. From JB these shall be wired to DCS by BHEL.
- (c) Operating sequence and interlocks for various drives shall be programmed in BHEL's DCS. Vendor shall furnish Logic diagram and write-up for operation of the system. All interlocks shall be clearly brought out in the logic diagram and write-up.
- (d) 24V Interfacing relay are to be supplied by vendor mounted in the LCP for operation of drives. 24V commands shall be given from DCS to these relays for operation of various drives.
- (e) Alarms shall be generated in DCS and output shall be given for driving the alarm windows in LCP.
- (f) Control of individual heaters stages shall be from DCS for maintaining required oil temp using 2 nos. duplex RTDs.

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		जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	A. S. Rajput Devesh	18.03.16

विवरण ग्रन्ति करने की तिथि SIGN & DATE	 उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 10 Page 10 of 40
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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	(g) Limit switch or any other alternate arrangement with BHEL approval shall be provided for separator cover for remote monitoring when operating in DCS. (h) Flow switch shall be provided at centrifuge inlet. (i) List of drives to be operated from DCS, list of instruments and list of alarms shall be furnished along with the offer. (j) Air requirement for 3-way valve shall be furnished with the offer. (k) Functional testing of system shall be done with local control panel and by simulating DCS outputs.			
	5 PERFORMANCE REQUIREMENTS <ol style="list-style-type: none"> The quality of purified oil at outlet of OPS at 65°C shall be as follows. <ol style="list-style-type: none"> Particle size of impurities at the outlet of OPS shall be equal to or better than class 15/12 as per ISO 4406 from class 21/18 at the inlet of the oil purification system in single pass without removing any additives/ inhibitors present in the oil and maintaining the lubricating value of the oil. Moisture contents at the outlet of OPS shall be maximum 300 to 500 ppm from inlet of maximum 15000 ppm. Polishing filter shall be capable of handling the quantity of clean oil, coming out of the centrifuge & filtering it down to $\beta_3=1000$ or better including colloidal carbon but shall not remove any rust inhibitor or oxidation inhibitor. Noise level shall not exceed 85 decibel measured at a distance of 1 meter from the equipment and at height of 1.5 meter from the ground level. Facility of indirect heater for heating oil from 50°C to the temperature which is required to make separation of water and oil most effective shall be provided. But to take care of situation while temperature is much below than 50°C, an arrangement of utilizing the heater to elevate the temperature of oil in the main oil tank to 50°C shall be provided. Heater shall be provided with suitable bypass arrangement. 			
विवरण ग्रन्ति करने की तिथि SIGN & DATE व्यापक रूप से यह व्यापक व्यापक विनिर्देश को व्यापक ही रूप से उपलब्ध रखना चाहिए कि यह व्यापक व्यापक व्यापक विनिर्देश ही न हो सकता।	6 GUARANTEES <ol style="list-style-type: none"> The unit should be guaranteed for trouble free operation for a minimum period of 18 months after commissioning or 36 months after dispatch whichever is earlier. 	विवरण ग्रन्ति करने की तिथि SIGN & DATE व्यापक रूप से यह व्यापक व्यापक विनिर्देश को व्यापक ही रूप से उपलब्ध रखना चाहिए कि यह व्यापक व्यापक व्यापक विनिर्देश ही न हो सकता।		
वार्ता संख्या INVENTORY NO. P.5038	Rev. no. 08	निर्माणकर्ता WORKED BY: Anil / Kavita जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	वार्ता संख्या INVENTORY NO. P.5038	वार्ता संख्या INVENTORY NO. P.5038

 उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 11 Page 11 of 40
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INVENTORY NO. <small>स्टॉकप्रिलियर एवं गोपनीय संस्करण नहीं उपलब्ध है। इसका उपयोग विवरण की समर्पित है। इसके अन्तर्गत विवरण की समर्पित है। इसका अन्तर्गत विवरण की समर्पित है।</small>	<p>7 QUALITY ASSURANCE, INSPECTION AND TESTING</p> <p>7.1 The manufacture shall conduct all tests required to ensure all the component parts of the oil purification unit offered conform to the requirements of the specification & in compliance with requirements of applicable codes & standards.</p> <p>7.2 The bidder shall submit along with his offer quality plan in the prescribed BHEL's format as per Annexure-VI.</p> <p>7.3 The particulars of the proposed shop tests & procedures for the tests shall be submitted to the BHEL / owner for approval along with quality plan.</p> <p>7.4 The equipments shall be dispatched only after inspection & clearance of material by BHEL/ Owner & approval of tests certificates by BHEL /Owner.</p> <p>7.5 The minimum tests / checks to be carried out on the unit as envisaged by purchaser are given below. This is however , not intended to form a comprehensive testing programme as it is supplier's responsibility to prepare the detailed quality plan, which should also include tests checks carried out by supplier as a part of their normal practice. This quality plan is subjected to the approval of BHEL & owner. BHEL/ Owner reserves the right to ask any more checks at the time of quality plan finalization.</p> <p>(1) TESTING OF MATERIALS: The material of each component that is bowl, bowl cover, disc, heater tubes, pump casing Shafts, gear/screw, valve body etc. shall be tested as per relevant specification for its composition & mechanical properties, viz. YS, UTS, impact strength, % elongation, % RA etc. suitable NDT on the above components to ensure freedom from surface & subsurface defects shall be carried out.</p> <p>(2) Following tests shall be carried out during various stages of manufacture at manufacturer's works.</p>	
SIGN & DATE <small>संस्करण नहीं उपलब्ध है। इसका उपयोग विवरण की समर्पित है। इसके अन्तर्गत विवरण की समर्पित है। इसके अन्तर्गत विवरण की समर्पित है।</small>	<p>Rev. no. 08</p>	

INVENTORY NO. <small>स्टॉकप्रिलियर एवं गोपनीय संस्करण नहीं उपलब्ध है। इसका उपयोग विवरण की समर्पित है। इसके अन्तर्गत विवरण की समर्पित है। इसके अन्तर्गत विवरण की समर्पित है।</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> निर्माणकर्ता WORKED BY: Anil / Kavita </td><td style="width: 50%; padding: 5px;"> जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh </td></tr> <tr> <td style="width: 50%; padding: 5px;"> Anil Kumar Kavita </td><td style="width: 50%; padding: 5px;"> A. S. Rajput Devesh </td></tr> <tr> <td style="width: 50%; padding: 5px; text-align: right;"> 18.03.16 </td><td style="width: 50%; padding: 5px; text-align: right;"> 18.03.16 </td></tr> </table>	निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kavita	A. S. Rajput Devesh	18.03.16	18.03.16	
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18.03.16	18.03.16							

 उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 12 Page 12 of 40
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SUPERSEDES INVENTORY NO लागू होने वाली विनिर्देश क्रमांक	<p>(a) Check for dimensions of all the component parts including surface finish, radial run out of shaft</p> <p>(b) <u>NDT</u>:- Bowls shall be subjected to DP after final machining to ensure freedom from surface defects. Shaft shall be subjected to UT & DP to ensure freedom from internal & surface defects. All butt welds on oil piping shall be subjected to 10% RT & fillet welds to 100% MP/DP. Norms for acceptance to be informed in the offer for BHEL approval.</p> <p>(c) Static & dynamic balancing test on all rotating elements of the centrifuge. Acceptance Norms for vibration is 5.6 mm/s.</p> <p>(d) Hydraulic testing of all pressure parts including polishing filter if offered and vessel body etc. for 1.5 times of working pressure for 30 minutes & seat leakage test of valves at 1.0 times of working pressure for 30 minutes. No leakage to be ensured.</p> <p>(e) Performance test on feed & discharge oil pump, purifier motor, heaters, control system & other accessories. Reference & Acceptance norms for vibration to be informed in the offer for BHEL approval.</p> <p>(f) Type-test reports detailing the results for motors of similar ratings shall be furnished as called annexure III.</p> <p>(g) Routine test reports of motors to be furnished as per annexure III.</p> <p>(h) Control panel RTD, level switch & solenoid valve shall be subjected to the following final testing as applicable as routine test (unless otherwise stated) in addition to the stage inspection carried out by the vendor.</p> <p>(i) Dimensional checks as per approved drawing including proper cut outs, mounting of all instruments/ accessories etc. as per approved general arrangement drawing.</p> <p>(j) Functional/ operational checks of all wiring schematics, operational/ sequential interlocks etc. are applicable as per approved drawing. i) Degree of protection test as per IS: 2147 (Type test) at 2.0 KV.</p> <p>(k) High voltage test & IR measurement not less than 30 mega ohm ($M\Omega$) before and after test. ii) Pick up and drop down test & performance with $\pm 10\%$ voltage variation.</p> <p>(l) Capacity test of complete oil purification system. During capacity test, the complete purifier shall be tested at manufacturer's works for mechanical running, vibration & noise level, sequential operation & interlocks, test for vapour tightness (if applicable), maximum particle size & moisture</p>						
SIGN & DATE  27/03/16	Rev. no. 08						
INVENTORY NO 2-5538	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: center; vertical-align: top;"> निर्माणकर्ता WORKED BY: Anil / Kavita </td><td style="width: 30%; text-align: center; vertical-align: top;"> जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh </td><td style="width: 30%; text-align: center; vertical-align: top;"> Anil Kumar Kavita Anil Kumar Devesh </td></tr> <tr> <td style="text-align: center; vertical-align: top;"> 18.03.16 </td><td style="text-align: center; vertical-align: top;"> 18.03.16 </td><td style="text-align: center; vertical-align: top;"> 18.03.16 </td></tr> </table>	निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kavita Anil Kumar Devesh	18.03.16	18.03.16	18.03.16
निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kavita Anil Kumar Devesh					
18.03.16	18.03.16	18.03.16					

प्रतिक्रिया क्रमांक SIGN & DATE	 उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 13 Page 13 of 40
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प्रतिक्रिया क्रमांक SIGN & DATE	<p>content at the outlet of oil purification system. Acceptance norms for vibration to be informed in the offer for BHEL approval</p> <p>(m) Verification/ BHEL approved type-test report for max. particle size & moisture content.</p> <p>7.6 Party to furnish certificate of compliance for the instruments which are being installed in the system after P.O. placement.</p> <p>7.7 STORAGE:- Bidder shall inform to purchaser along with the offer regarding storage facility which they require at the site for their equipment if the unit is to be stored at site for their equipment. If the unit is to be stored at site for next 12 to 18 months after dispatch from manufacturer's works.</p>	
COPYRIGHT AND CONFIDENTIAL <small>इस दस्तावेज़ का पूरा उपयोग विद्युत उत्पादन कंपनी की सम्पत्ति है। इसका अन्यथा वितरण, प्रयोग या वितरण के लिए कोई अन्य कानूनी अधिकार नहीं है। इसका कोई अन्य उपयोग निषिद्ध है।</small>	<p>8 DOCUMENTS, DATA AND DRAWINGS TO BE FURNISHED BY SUPPLIER</p> <p>8.1 DRAWINGS/ DOCUMENTS REQUIRED WITH THE OFFER</p> <ol style="list-style-type: none"> GA drawing of the equipment offered, arrangement and layout drawing showing various equipments with all fittings, accessories and connection as well as clearance necessary for other equipment or structural members for operation and maintenance, loading data and foundation details of oil purification system. Data sheets of all instruments including RTDs, motor, solenoid valves, instruments and 3-way pneumatic/solenoid valve for oil purification system shall be furnished as per Annexure-II of this specification for BHEL's review. P&ID including bill of material indicating piping, valves, all instruments and devices of the system as per BHEL format annexure-VII. Drawings / Documents of all equipments such as heater, y-strainer, dirty & clean oil pump etc. shall also be included in the offer. Detailed technical literature on various equipments/ instruments and GA drawing of control panel. Characteristic curves of all pumps. Manufacturer's descriptive and illustrative literature showing details of equipments and method of operation of the complete system. Electrical single line diagram, control wiring diagram, interlocks schematic, protection scheme, details of motor and starter etc. 	

प्रतिक्रिया क्रमांक SIGN & DATE	<p>Rev. no. 08</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">निर्माणकर्ता WORKED BY:</td><td style="width: 50%;">Anil / Kavita</td></tr> <tr> <td>जाँचकर्ता CHECKED BY:</td><td>A. S. Rajput / Devesh</td></tr> </table>	निर्माणकर्ता WORKED BY:	Anil / Kavita	जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh
निर्माणकर्ता WORKED BY:	Anil / Kavita					
जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh					

8.2 DRAWINGS / DOCUMENTS REQUIRED WITHIN 30 DAYS AFTER PLACEMENT OF ORDER

- a. Five sets (paper based) of each of GA drawing, P&ID, filled in data sheet, control panel schematic & write-up etc. shall be furnished for review/ approval by BHEL/CUSTOMER after placement of order.
- b. Motor datasheet, curves/ graphs, type- test reports, efficiency rating etc. for review/ approval by BHEL/CUSTOMER after placement of order.
- c. O & M manual (soft/ paper based) shall be furnished for BHEL review/ approval.

8.3 DRAWINGS/ DOCUMENTS REQUIRED ALONGWITH SUPPLY

- a. All relevant test certificates & full details of the tests carried out as per the requirement of this specification before dispatch.
- b. Twenty sets (paper based) and 2 set (in CDROM) of O&M manual shall be furnished containing all drawings and datasheets, catalogues of all instruments and instructions for storage, erection &

SUPERSEDES
INVENTORY NO.

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NAME & DATE



उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)

PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)

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commissioning, operation and maintenance after approval. Vendor shall keep 2 copies of O&M manual in the dispatch box & shall also mention the same in its shipping list.

- c. Before bidder finalises these manuals, the same will be reviewed by purchaser. After getting approval of purchaser, final manual in required quality shall be dispatched. Manual shall clearly indicate all inspections & tests to be carried out at site and if any check list/ log sheets etc. are required to carry-out specified inspection & test that shall be made part of manual.
- d. Data sheets of all instruments, thermostats and motor .The same shall be included in O&M manual of oil purification system along with the catalogues of all instruments.

9 MATERIALS OF CONSTRUCTION

- 9.1 The material of all rotating parts / components i.e. "bowl, bowl cover, disc, Shaft/spindle, gear/screw shall be of high grade stainless steel (e.g. austenitic) considering the purpose and the extent of contact with oil. Other parts coming in direct contact with water shall be of stainless steel or other corrosion resistant material conforming to applicable standard (IS / BS) or equivalent standard. All those parts that are coming in contact with oil & are not of Stainless steel / other corrosion resistant shall be mentioned in their offer. This should be submitted as a separate document indicating material/ make of all parts.
- 9.2 All piping, fittings & valves should be suitably selected as per applicable IS, BS or equivalent standard.
- 9.3 Strainers, wherever provided, should be designed to enable them to be cleaned during operation.
- 9.4 All other parts/ components shall be of compatible material to suit the applications.

10 CODES AND STANDARDS

In addition to the codes and standards specifically mentioned in the relevant technical specification for the equipment/ plant/ system, all equipment parts, systems and works covered under this specification shall comply with all currently applicable statutory regulations and safety codes (National/International).

11 CLEANING, PROTECTION AND PAINTING

Painting scheme shall be according to BHEL approved/ previously approved scheme. Painting scheme for oil purification system shall be as below.

Paint (Coat)	Paint Type	No. of coat	DFT*
Primer Paint:	Epoxy base Zinc rich primer paint	2	70
Intermediate Paint:	Epoxy TiO ₂ Pigmented Polyamide Cured Paint	1	70
Finish (Final) Paint:	Aliphatic Acrylic 2 Pack Polyurethane Finish paint	2	60

LIVELIHOODS

Rev. no. 08

निर्माणकर्ता
WORKED BY

जाँचकर्ता
CHECKED BY:

Anil / Kavita

Anjali Kumar
Kamitz

18.03.16

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18.03.16

विवरण वर्तमान SIGN & DATE	 उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 16 Page 16 of 40
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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	Total Minimum DFT= 180 *DFT– Dry Film Thickness (Final) in micron.
	Paint Shade shall be as below:- <ul style="list-style-type: none"> • For Oil purifier- Light Blue (RAL 5012) • For Control Panel generally it is - External-Light Grey (shade 631 of IS-5), Internal- Brilliant White or paint shade will be informed during later stage of engineering.

11.1 All surfaces shall be thoroughly cleaned of all mill scales, oxides and other coating and prepared in the shops. The protective coating should be such as to prevent the deterioration of coating itself by him for internal and external surface protection which shall be checked and approved by BHEL / Owner. All surfaces which will not be easily accessible after the shop assembly, shall before hand be treated and protected for life of the equipment.

11.2 The pre-treatment/ painting of the control panel shall be done by 7 tank process/ shot blasting/ sand blasting, by 2 coats of primer and 2 coats of paint of shade no. 692 as per IS: 6005. The total thickness of paint shall be a minimum of 180 micron and maximum of 250 micron.

11.3 After testing of unit, its internals shall be thoroughly cleaned, dried and conserved before packing. Conservation shall be suitable for storing in saline atmosphere & for a period of 2 years before use. Unit shall be suitably packed for transportation. Supplier shall be responsible for all loss or damage during transportation, handling and storage due to improper packing.

11.4 Painting treatment for LCP shall be as per IS: 6005. Two coats of lead oxide primer followed by powder painting. External shade for front and Rear shall be RAL9002 and for panel sides shall be RAL5012. Internal color shall be same as external color indicated above.

12 DESIGN CO-ORDINATION MEETING

Supplier shall attend the meeting on his own cost, whenever felt necessary, called by purchaser / owner to clarify the subject matter to them during engineering, erection, commissioning, and any stage prior to handing over.

13 LIST OF CROSS-REFERRED STANDARDS

13.1 IS: 10816-2
 13.2 IS: 325,
 13.3 IS: 4029,
 13.4 IS: 2147,
 13.5 IS: 2148,
 13.6 IS: 6005,

विवरण वर्तमान SIGN & DATE 	Rev. no. 08	निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kavita 18.03.16
विवरण वर्तमान SIGN & DATE 2.55.30				18.03.16

 सी एग ई एप्पा	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 17 Page 17 of 40
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संस्थापिकार द्वारा गोपनीय यह विवर यहां से द्वारा देव विद्युत उत्पादन कंपनी के संस्थापक है। यहां यहां द्वारा देव विद्युत उत्पादन कंपनी के संस्थापक है। यहां देव विद्युत उत्पादन कंपनी के संस्थापक है।	COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	SUPERSEDES INVENTORY NO. 13.7 IS: 5, 13.8 IS: 4722, 13.9 IS: 2253, 13.10 IS: 2254, 13.11 IS: 3202, 13.12 IS: 4722-1992, 13.13 ISO: 4406, 13.14 IS: 12075, 13.15 IS: 12615:2011, 13.16 IS: 10816-2.						
Signature & Date SIGN & DATE  31/03/16								
आमदी दस्ती संख्या INVENTORY NO. 10.55.58	Rev. no. 08	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px;"> निर्माणकर्ता WORKED BY: Anil / Kavita </td><td style="width: 33%; padding: 5px;"> जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh </td><td style="width: 33%; padding: 5px;"> Anil Kumar Kavita 18.03.16 </td></tr> <tr> <td style="width: 33%; padding: 5px;"> निर्माणकर्ता WORKED BY: Anil / Kavita </td><td style="width: 33%; padding: 5px;"> जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh </td><td style="width: 33%; padding: 5px;"> Anil Kumar Kavita 18.03.16 </td></tr> </table>	निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kavita 18.03.16	निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kavita 18.03.16
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विनियोग संकाय SIGN & DATE	 उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 18 Page 18 of 40
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14 ANNEXURE-I (PROPERTIES OF TURBINE OIL)			
S. No.	Properties	Value	Test Method
1. a.	Kinematic viscosity at 37.8°C	47.5 c.s. to 49.5 c.s.	IS : 1448-P25
b.	Kinematic viscosity at 50.0°C	28 c.s.	IS : 1448-P25
2.	Viscosity index	Min 97	IS : 1448-P56
3. a.	Inorganic acidity	Nil	IS : 1448-P2
b.	Organic acidity	Max. 0.14 mg of KOH	IS : 1448-P2
c.	Neutralisation No.	Max. 0.2 mg of KOH per gm of oil	IS : 1012
4.	Colour	Max. 2	IS : 1448-P12
5.	Specific gravity at 50 °C	0.852	IS : 1448-P32
6.	Flash point Cleveland Open cup	Min. 200°C	
7.	Copper strip corrosion test At 100°C for 3 hours	Not worse than No.1	IS : 1448-P15
8.	Pour point	-6 °C max.	IS : 1448-P10
9.	Rust preventing characteristics	negative test passed	ASTM : D665
10.	Emulsion characteristics	40-40-0(20 minutes)	ASTMD : 1401-67
11.	Total acidity after 1000 hrs. oxidation	Max. 2.0 mg of KOH per gm of the oil.	ASTMD : 943-54/ IP 157/64
12.	Foaming characteristics Max.		
	(a) At 24°C	Nil	Volume in ml of foam after 10 minutes.
	(b) At 93.5°C	Nil	

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					Abhishek Devesh	10.03.16

S. No.	Properties	Value	Test Method
	(c) At 24°C after testing at 93.5°C	Nil	
13.	De-aeration capacity at 50°C	6 Minute Max.	DIN 51381
14.	Ash (by weight)	Max. 0.01	IS : 1448- P4
15.	Water content by weight	% gm below the limit of quantitative detectability.	DIN 51592
16.	Mechanical solid impurities.	Below the limit of quantitative detectability.	DIN 51592
17.	Water separation capacity After steam treatment.	Max. 300 seconds	DIN 51589

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स्वत्वाधिकार एवं गोपनीय
वाचना वाचन एवं गोपनीयताम विभिन्न
प्रकार में विभिन्न की राह पर्याप्त तो कि
प्राप्तिकार हो न दिला जाए।

हिन्दू एवं ब्रह्मानन्द
SIGN & DATE

सामग्री संकेत
INVENTORY
N.O.

Rev. no.

08

निर्माणकर्ता
WORKED BY

Anil / Kavita

Anil Kumar
Kumar

18.03.16

WORKED BY
जाँचकर्ता
CHECKED BY

A. S. Rajput /
Devesh

Blaylock.

18:03:16

 भारत विद्युत उत्पादन नियन्त्रक एवं विनिर्देश बोर्ड	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 20 Page 20 of 40
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COPYRIGHT AND CONFIDENTIAL <small>The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.</small>	15 ANNEXURE-II (DATA SHEET OF TURBINE OIL PURIFICATION SYSTEM)																																																																												
SUPERSIDES INVENTORY NO <small>प्राप्ति द्वारा ताला का अधिकारी का नाम है</small>	1.0 NUMBER OF UNITS OFFERED:																																																																												
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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">2.1</td> <td>Centrifuge</td> <td style="width: 10%;">Yes/No</td> </tr> <tr> <td>2.2</td> <td>Centrifuge feed pump</td> <td>Yes/No</td> </tr> <tr> <td>2.3</td> <td>Centrifuge discharge pump</td> <td>Yes/No</td> </tr> <tr> <td>2.4</td> <td>Speed indicator</td> <td>Yes/No</td> </tr> <tr> <td>2.5</td> <td>Thermostatically controlled electric heater with control and trip thermostat (indirect)</td> <td>Yes/No</td> </tr> <tr> <td>2.6</td> <td>Flow meter</td> <td>Yes/No</td> </tr> <tr> <td>2.7</td> <td>Pressure gauges</td> <td>Yes/No</td> </tr> <tr> <td>2.8</td> <td>Temp. indicators</td> <td>Yes/No</td> </tr> <tr> <td>2.9</td> <td>Anti-flood device</td> <td>Yes/No</td> </tr> <tr> <td>2.10</td> <td>Y-Strainer at suction of feed pump</td> <td>Yes/No</td> </tr> <tr> <td>2.11</td> <td>Electric control panel</td> <td>Yes/No</td> </tr> <tr> <td>2.12</td> <td>Common base plate for complete equipment</td> <td>Yes/No</td> </tr> <tr> <td>2.13</td> <td>Necessary spares for three (3) years of normal operation & maintenance.</td> <td>Yes/No</td> </tr> <tr> <td>2.14</td> <td>Special tools</td> <td>Yes/No</td> </tr> <tr> <td>2.15</td> <td><u>Heater (With Valves) connections</u></td> <td></td> </tr> <tr> <td>2.15.1</td> <td>Oil inlet</td> <td>Yes/No</td> </tr> <tr> <td>2.15.2</td> <td>Oil outlet</td> <td>Yes/No</td> </tr> <tr> <td>2.15.3</td> <td>Oil drain</td> <td>Yes/No</td> </tr> <tr> <td>2.15.4</td> <td>Water drain</td> <td>Yes/No</td> </tr> <tr> <td>2.15.5</td> <td>Make-up water</td> <td>Yes/No</td> </tr> <tr> <td>2.15.6</td> <td>Open vent connection from drum</td> <td>Yes/No</td> </tr> <tr> <td>2.15.7</td> <td>Globe valve by pass connection to heater (Oil side)</td> <td>Yes/No</td> </tr> <tr> <td>2.16</td> <td>Centrifuge feed pump relief valve</td> <td>Yes/No</td> </tr> <tr> <td>2.17</td> <td>Centrifuge discharge pump relief valve</td> <td>Yes/No</td> </tr> <tr> <td>2.18</td> <td>Isolating & bypass valves for flow meter.</td> <td>Yes/No</td> </tr> </table>	2.1	Centrifuge	Yes/No	2.2	Centrifuge feed pump	Yes/No	2.3	Centrifuge discharge pump	Yes/No	2.4	Speed indicator	Yes/No	2.5	Thermostatically controlled electric heater with control and trip thermostat (indirect)	Yes/No	2.6	Flow meter	Yes/No	2.7	Pressure gauges	Yes/No	2.8	Temp. indicators	Yes/No	2.9	Anti-flood device	Yes/No	2.10	Y-Strainer at suction of feed pump	Yes/No	2.11	Electric control panel	Yes/No	2.12	Common base plate for complete equipment	Yes/No	2.13	Necessary spares for three (3) years of normal operation & maintenance.	Yes/No	2.14	Special tools	Yes/No	2.15	<u>Heater (With Valves) connections</u>		2.15.1	Oil inlet	Yes/No	2.15.2	Oil outlet	Yes/No	2.15.3	Oil drain	Yes/No	2.15.4	Water drain	Yes/No	2.15.5	Make-up water	Yes/No	2.15.6	Open vent connection from drum	Yes/No	2.15.7	Globe valve by pass connection to heater (Oil side)	Yes/No	2.16	Centrifuge feed pump relief valve	Yes/No	2.17	Centrifuge discharge pump relief valve	Yes/No	2.18	Isolating & bypass valves for flow meter.	Yes/No	
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2.13	Necessary spares for three (3) years of normal operation & maintenance.	Yes/No																																																																											
2.14	Special tools	Yes/No																																																																											
2.15	<u>Heater (With Valves) connections</u>																																																																												
2.15.1	Oil inlet	Yes/No																																																																											
2.15.2	Oil outlet	Yes/No																																																																											
2.15.3	Oil drain	Yes/No																																																																											
2.15.4	Water drain	Yes/No																																																																											
2.15.5	Make-up water	Yes/No																																																																											
2.15.6	Open vent connection from drum	Yes/No																																																																											
2.15.7	Globe valve by pass connection to heater (Oil side)	Yes/No																																																																											
2.16	Centrifuge feed pump relief valve	Yes/No																																																																											
2.17	Centrifuge discharge pump relief valve	Yes/No																																																																											
2.18	Isolating & bypass valves for flow meter.	Yes/No																																																																											
SIGN & DATE <small>प्राप्ति द्वारा ताला का अधिकारी का नाम है</small>	3.0 DESIGN FEATURES OF CENTRIFUGE																																																																												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">3.1</td> <td>Location</td> <td style="width: 10%;">Indoor</td> </tr> <tr> <td>3.2</td> <td>Type of operation</td> <td></td> </tr> <tr> <td>3.3</td> <td>Max. hydraulic capacity with turbine oil (110% of design capacity)</td> <td>Lit/Hr.</td> </tr> <tr> <td>3.4</td> <td>Recommended through put for best performance (for turbine oil)</td> <td>Lit/Hr.</td> </tr> </table>	3.1	Location	Indoor	3.2	Type of operation		3.3	Max. hydraulic capacity with turbine oil (110% of design capacity)	Lit/Hr.	3.4	Recommended through put for best performance (for turbine oil)	Lit/Hr.																																																																
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Rev. no.	08	निर्माणकर्ता WORKED BY:	Anil / Kavita	Anil Kumar Kavita	18.03.16									
		जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	A. S. Rajput / Devesh	18.03.16									

 भार्ती हेवी इलेक्ट्रिक्स BHE	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 21 Page 21 of 40
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COPYRIGHT AND CONFIDENTIAL <small>The information on this document is the property of Bharti Heavy Electrical Limited it must not be used directly or indirectly in any way detrimental to the interest of the company</small>	SUPERSEDES INVENTORY NO.	RPM
	3.5 Speed	RPM
	3.6 Particle size distribution of impurities in purified oil at outlet of centrifuge in single pass as per ISO 4406	
	3.7 Particle size distribution of impurities in purified oil at outlet of oil purification system (i.e. polishing filter) in single pass as per ISO 4406	
	3.8 Moisture/Water content in purified oil at outlet of oil purification system / polishing filter	ppm
	3.9 <u>OIL TEMPERATURES</u>	
	3.9.1 Inlet to electric heater	°C (Max), °C (Min)
	3.9.2 Outlet from electric heater	°C (Not to exceed 90°C)
	3.10 Water temperature in the heater tank	
	3.11 Bearings :	
3.11.1 Nos.		
3.11.2 Type		
3.11.3 Manufacturer		
3.12 Dirt holding capacity of the bowl		

4.0 CONSTRUCTION FEATURES OF CENTRIFUGE

4.1	Automatic tripping of all electric motors on actuation of anti-flood device	Not provided /provided
4.2	Cleaning of centrifuge bowl	Self-cleaning/manual
4.3	Type of centrifuge drive	Worm & Gear /Belt
4.4	If centrifuge is belt driven automatic tripping of all electric motors on belt failure.	Not Provided/Provided
4.5	Hand brake	Not Provided/Provided

5.0 MATERIALS OF CONSTRUCTION OF CENTRIFUGE (INDICATE STANDARDS)

5.1	Bowl body	
5.2	bowl cover	
5.3	Separating discs	
5.4	Drive shaft	
5.5	Bowl nut	
5.6	Worm & Gear /Belt	

<small>भार्ती हेवी इलेक्ट्रिक्स एवं गोपनीय संस्करण का यह उत्पादन विनिर्देश भी अपनी ही वाली है। यहां पर्याप्त जानकारी यहां दी गयी है ताकि यह कंपनी के लिए यह उत्पादन का उत्पादन करने वाले विद्युत विभाग के लिए उपयोग कर सकें।</small>	<small>भार्ती हेवी इलेक्ट्रिक्स एवं गोपनीय संस्करण का यह उत्पादन विनिर्देश भी अपनी ही वाली है। यहां पर्याप्त जानकारी यहां दी गयी है ताकि यह कंपनी के लिए यह उत्पादन का उत्पादन करने वाले विद्युत विभाग के लिए उपयोग कर सकें।</small>	<small>भार्ती हेवी इलेक्ट्रिक्स SIGN & DATE</small>	<small>Rev. no.</small>	<small>5.1 Bowl body</small>	<small>5.2 bowl cover</small>	<small>5.3 Separating discs</small>	<small>5.4 Drive shaft</small>	<small>5.5 Bowl nut</small>	<small>5.6 Worm & Gear /Belt</small>
<small>भार्ती हेवी इलेक्ट्रिक्स INVENTORY NO.</small>	<small>Rev. no.</small>	<small>5.1 Bowl body</small>	<small>5.2 bowl cover</small>	<small>5.3 Separating discs</small>	<small>5.4 Drive shaft</small>	<small>5.5 Bowl nut</small>	<small>5.6 Worm & Gear /Belt</small>	<small>निर्माणकर्ता WORKED BY:</small>	<small>Anil / Kavita</small>

SUPPLIES INVENTORY NO प्राप्ति नं. वारा प्राप्ति वारा का प्राप्ति वारा का	5.7	Oil injection nozzle																																																																																																													
	5.8	Other inlet and outlet parts																																																																																																													
	5.9	Other wetted bowl parts																																																																																																													
	5.10	Valve Body																																																																																																													
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संग्रहीत वस्तु का संक्षेप INVENTORY NO.	Rev. no.	निर्माणकर्ता WORKED BY:	Anil / Kavita	Anil Kumar Kavita	18.03.16
25538	08	जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	Rajput Devesh	18.03.16



उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)
PRODUCT PURCHASE SPECIFICATION
(HEEP: HARIDWAR)

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INVENTORY NO.

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2

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8.0 Y-STRAINER

7.1	Quantity	Nos.		
7.2	Type	Positive displacement (Rotary i.e. Helical, Herring bone , spur gear or screw type)		
7.3	Capacity	Lit/hr.		
7.4	Speed	RPM		
7.5	Discharge pressure	Kg/cm ² (g)		
7.6	Relief valve setting	Kg/cm ² (g)		
7.7	Max. allowable pump working pressure	Kg/cm ² (g)		
7.8	Connections			
7.8.1	Inlet	mm		
7.8.2	outlet	mm		
7.9	Material			
7.9.1	Casing			
7.9.2	Shaft			
7.9.3	Shaft sleeves			
7.9.4	Gear/screw			
7.10	Drive (AC Motor)	As per enclosed annexure-3.		
7.11	Motor rating	KW		
7.12	Bearings :			
7.12.1	Nos.			
7.12.2	Type			
7.12.3	Manufacturer			
7.13	BHP at rated capacity			

8.0 Y-STRAINER

8.1	Make & Model	
8.2	Number	
8.3	Location	
8.4	Connection sizes	
8.5	Mesh size	
8.6	Material of element	

9.0 POLISHING FILTER

प्राप्ति क्रमी संख्या INVENTORY NO.	Rev. no. 08		निर्माणकर्ता WORKED BY:	Anil / Kavita	Anil Kumar Kavita	18.03.16
			जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	Rajput Devesh	18.03.16



उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)

**PRODUCT PURCHASE SPECIFICATION
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अधिकमिळ करता है

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NATIONAL INSTITUTE OF

9.1	Capacity	
9.2	Make & Model	
9.3	Type	
9.4	Number	
9.5	Location	
9.6	Material of filter element	
9.7	Connection sizes	
9.8	Design Pressure (body)	Kg/cm ²
9.9	Pressure differential at choking	Kg/cm ²

10.0 INTERCONNECTING PIPINGS OF THE SYSTEM

10.1	Sizes of pipes	
10.2	Material of piping	

11.0 ANTI-FLOOD TANK

11.1	Capacity	
11.2	Number	
11.3	Location	
11.4	Connection sizes	

12.0 PNEUMATIC/SOLENOID OPERATED THREE-WAY VALVE

12.1	Make & Model	
12.2	Type	
12.3	Number	
12.4	Location	
12.5	Connection sizes	

13.0 INSTRUMENTS

13.1	PRESSURE GAUGES: (For detailed specification refer Annexure-IV)	
13.1.1	Type	
13.1.2	Number	
13.1.3	Location	<ol style="list-style-type: none"> 1) Inlet to pump (Compound gauge) 2) Outlet from feed pump 3) Water temperature of indirect heater <p>Outlet from discharge Pump.(In case</p>

ग्रन्थालय संग्रह INVENTORY NO.	7-5589	Rev. no. 08	निर्माणकर्ता WORKED BY:	Anil / Kavita	Anil Kumar Kavita	18.03.16
			जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	A. S. Rajput / Devesh	18.03.16

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	13.1.4 Range Kg/cm² 13.1.5 Accuracy ± 1% or better 13.1.6 Manufacturer 13.2 TEMPERATURE INDICATORS: (For detailed specification refer Annexure-IV) 13.2.1 Type 13.2.2 Number 13.2.3 Location 1) Inlet to electric heater 2) Outlet from electric heater 3) Inlet to centrifuge 4) Oil temperature at outlet of purifier 13.2.4 Range °C 13.2.5 Accuracy ± 1% of span 13.2.6 Manufacturer 13.3 FLOW METER 13.3.1 Type 13.3.2 Number 13.3.3 Location Downstream of centrifuge feed pump. 13.3.4 Range 13.3.5 Accuracy 13.3.6 Connections, type & size. 13.3.7 Model No. 13.3.8 Manufacturer 13.4 PRESSURE SWITCH 13.4.1 Type 13.4.2 Number 13.4.3 location Outlet of centrifuge 13.4.4 Range 13.4.5 Accuracy 13.4.6 Model No. 13.4.7 No. of contacts & contact rating 13.4.8 Manufacturer 13.4.9 End connection ½" NPT(F) 13.4.10 Electrical connection Plug in socket 13.4.11 Repeatability 13.5 RESISTANT TEMPERATURE DETECTOR (RTD) 13.5.1 Type of RTD 13.5.2 No. of element Duplex 13.5.3 Housing/ Head IP-55/Die cast Al. plug-in connectors are	
SIGN & DATE  Anil Kumar 20/03/2016	Rev. no. 08 WORKED BY: Anil / Kavita Anil Kumar Kavita CHECKED BY: A. S. Rajput / Devesh A. S. Rajput Devesh 18.03.16 18.03.16	

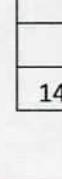
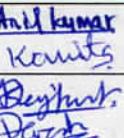
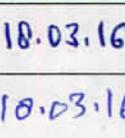
INVENTORY NO 05530					

संस्कारण तिथि SIGN & DATE	 उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013
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14.0 LT MOTORS (for details refer Annex III)					
14.1 GENERAL 14.1.1. Manufacturer & Country of origin. 14.1.2. Equipment driven by motor 14.1.3. Motor type					
Rev. no. 08 INVENTORY NO. 25538					
		निर्माणकर्ता WORKED BY: A. S. Rajput / Devesh	Anil / Kavita Devesh	Anil Kumar Kavita Devesh	18.03.16 18.03.16

निराकार अंक संकारण SIGN & DATE	महाराष्ट्र राज्य विद्युत विभाग BHEL	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 27 Page 27 of 40
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	14.2 DESIGN AND PERFORMANCE DATA		
	14.2.1. Frame size		
	14.2.2. Type of duty		
	14.2.3. Type of enclosure /Method of cooling/ Degree of protection		
	14.2.4. Applicable standard to which motor generally conforms		
	14.2.5. Efficiency class as per IS 12615		
	14.2.6. (a) Whether motor is flame proof (b) If yes, the gas group to which it conforms as per IS:2148	Yes/No	
	14.2.7. Type of mounting		
	14.2.8. Direction of rotation as viewed from DE END		
	14.2.9. Standard continuous rating at 40 deg C. ambient temp. as per Indian Standard (KW)		
	14.2.10. Derated rating for specified normal condition i.e. 50 deg. C ambient temperature (KW)		
	14.2.11. Maximum continuous load demand of driven equipment in KW		
	14.2.12. Rated Voltage (volts)		
	14.2.13. Permissible variation of : a. Voltage (Volts) b. Frequency (Hz) c. Combined voltage and frequency		
	14.2.14. Rated speed at rated voltage and frequency(RPM)		
	14.2.15. At Voltage and frequency: a. Full load current b. No load current		
	14.2.16. Power Factor at a. 100% load b. NO load c. Starting.		
	14.2.17. Efficiency at rated voltage and frequency, a. 100% load b. 75% load c. 50% load		
	14.2.18. Starting current (amps) at a. 100 % voltage b. 85% voltage c. 80% voltage		
	14.2.19. Minimum permissible starting Voltage (Volts)		

निराकार अंक संकारण SIGN & DATE 	Rev. no. 08 	निर्माणकर्ता WORKED BY: जाँचकर्ता CHECKED BY:	Anil / Kavita A. S. Rajput / Devesh	Anil Kumar Kavita 	18.03.16 
नामी संखी संकारण INVENTORY NO. 0.55388					

 भारती विद्युत उत्पादन लिमिटेड भारती विद्युत उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)	PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 28 Page 28 of 40
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SUPERSEDES INVENTORY NO अपर्याप्त यात्रा के प्राप्तिकरण करना है	COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharti Heavy Electrical Limited It must not be used directly or indirectly in any way detrimental to the interest of the company	14.2.20. Starting time with minimum permissible voltage a. Without driven equipment coupled b. With driven equipment coupled 14.2.21. Safe stall time with 100% and 110% of rated voltage a. From hot condition b. From cold condition 14.2.22. Torques : a. Starting torque at min. permissible voltage(kg-m) b. Pull up torque at rated voltage. c. Pull out torque d. Min. accelerating torque (kg.m) available at lowest permissible e. Rated torque (kg.m) 14.2.23. Stator winding resistance per phase (ohms at 20 DegC.) 14.2.24. GD2 value of motors 14.2.25. No of permissible successive starts when motor is in hot 14.2.26. Locked Rotor KVA Input 14.2.27. Locked Rotor KVA/KW 14.2.28. Vibration limit :Velocity (mm/s) 14.2.29. Noise level limit (dBA) 14.3 CONSTRUCTIONAL FEATURES 14.3.1. Stator winding insulation a. Class & Type b. Winding Insulation Process c. Tropicalized (Yes/No) d. Temperature rise over specified maximum ambient temperature of 50 deg C e. Method of temperature measurement f. Stator winding connection 14.3.2. Main Terminal Box a. Type b. Location(viewed from NDE side) c. Entry of cables(bottom/side) d. Recommended cable size(To be matched with cable size) e. Fault level (MVA), Fault level duration(sec)
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INVENTORY NO 25588	Rev. no. 08	निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kumar Brijesh Dwivedi	18.03.16 18.03.16
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 भारती हेवी इलेक्ट्रिकल्स SIGN & DATE	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 29 Page 29 of 40
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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	SUPERSIDED INVENTORY NO.	f. Cable glands & lugs details (shall be suitable for power cable)
	14.3.3.	Type of DE/NDE Bearing
	14.3.4.	Motor Paint shade
	14.3.5.	Weight of
		a. Motor stator (KG)
		b. Motor Rotor (KG)
		c. Total weight (KG)
	14.4	List of accessories.
	14.4. 1.	Space Heaters (Nos./Power in watts/supply voltage)
	14.4.2.	Terminal Box for Space Heater (Yes/No)
	14.4.3.	Speed switch (Yes/No)
		No of contacts and contact ratings of speed switch
	14.4.4.	Insulation of bearing (Yes/No)
	14.4.5.	Noise reducer(Yes/No)
	14.4.6.	Grounding pads
		i) No and size on motor body
		ii) Nos on terminal Box
	14.4.7.	Any other fitments
	14.5	List of curves.
	14.5.1	Torque speed characteristic of the motor
	14.5.2	Thermal withstand characteristic
	14.5.3	Starting. current Vs. Time
	14.5.4	Starting. current Vs speed
	14.5.5	P.F. and Effie. Vs Load

Note:- Mark N.A. in motor data sheet whichever is not applicable.

भारती हेवी इलेक्ट्रिकल्स SIGN & DATE 	Rev. no. 08	निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kavita 10.03.16	10.03.16
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विवरण और तिथि SIGN & DATE		उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 30 Page 30 of 40
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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	16 ANNEXURE-III (SPECIFICATION OF MOTOR)														
	1.0	A suitable motor conforming to the purification unit requirement shall be supplied. The motor shall also meet the following requirement broadly. The motor shall confirm to IS : 4722, IS : 325, IS : 2253, IS : 2254, IS : 4029, IS : 3202, IS 12615:2011 & IS : 2148 or equipment BS : Specification. The motor shall meet all Indian statutory requirements.													
	1.1	Application	To drive feed pump (suction & discharge) and centrifuge												
	1.2	Type of Motor	Squirrel cage, induction motor												
	1.3	KW Rating at 500 ambient temp	It shall have at least 10-15% reserve capacity than required for drive the unit when it is discharging max. quantity at max. viscosity												
	1.4	KW actually required by driven equipment under specified operation/ start-up conditions.	Unit capacity												
	1.5	Min. Voltage required under starting conditions to bring driven equipment up to rated speed.	80% rated												
	1.6	Full load speed	It shall be commensurate with pump & centrifuge speed as per design												
	1.7	Full load current	As per design												
	1.8	Starting current	Not to exceed 600% of the rated exclusive of IS tolerance												
	1.9	Starting Torque	1.3 (Min) of rated torque												
	1.10	Break down torque	2.05 times (min) of rated torque												
	1.11	Efficiency at full load	IE2 AS PER IS 12615:2011												
	1.12	Power factor at full load	0.85 (Min)												
1.13 Motor shall be designed to withstand the voltage and torque stresses developed due to difference between the motor residual voltage and incoming supply voltage equal to 150% of the rated motor voltage during fast changeover of buses.															
2.0 STARTING DATA															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">2.1</td><td style="width: 25%;">Starting</td><td colspan="2">Suitable for DOL</td></tr> <tr> <td>2.2</td><td>Acceleration time with full load connected.</td><td colspan="2">To be furnished by supplier.</td></tr> <tr> <td>2.3</td><td>Permissible starting duty cycle, No. of Starts.</td><td colspan="2">3-Starts equally spread over an hour. 2-consecutive starts from hot condition without any injurious heating to the winding.</td></tr> </table>				2.1	Starting	Suitable for DOL		2.2	Acceleration time with full load connected.	To be furnished by supplier.		2.3	Permissible starting duty cycle, No. of Starts.	3-Starts equally spread over an hour. 2-consecutive starts from hot condition without any injurious heating to the winding.	
2.1	Starting	Suitable for DOL													
2.2	Acceleration time with full load connected.	To be furnished by supplier.													
2.3	Permissible starting duty cycle, No. of Starts.	3-Starts equally spread over an hour. 2-consecutive starts from hot condition without any injurious heating to the winding.													
विवरण और तिथि SIGN & DATE  3/4/16	Rev. no. 08	निर्माणकर्ता WORKED BY: जाँचकर्ता CHECKED BY:	Anil / Kavita A. S. Rajput / Devesh	Anil Kumar Kavita A. S. Rajput / Devesh	19.03.16 19.03.16										

SIGN & DATE	मी एपी इंडिया	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 31 Page 31 of 40
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SUPERSIDES INVENTORY NO	2.4 Overload (% of full load) that can be Carried by motor without impairing Overall performance and period for Which this overload is applicable.		Motor shall be capable for running at full load with 80% of rated voltage for 5 minutes and 70% of rated voltage for 1 Sec. Locked rotor with stand time under hot condition at rated voltage shall be at Least 2.5 sec more than starting time
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	2.5 Location		Turbine oil room indoor
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	2.6 Class of Insulation		Class-F, fungus resistant as per IS:3202 with temp rise limited to that of class B.
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	2.7 Shaft disposition mountings		As per Unit's supplier requirement.
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	2.8 Method of connections driven equipment		As per Unit's supplier requirement.
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	2.9 Direction of rotation and corresponding terminal designation		To suit pumps & centrifuge
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	2.10 Enclosure and ventilation		Totally enclosed fan cooled and flame proof IP55.
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	2.11 Bearing		As per supplier's design, min life 30,000 hrs
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	2.12 Grounding Device		Suitable arrangement shall be provided for earthing the motor at two separate and distinct connection points. Design of earthing conductor shall be as per IS: 4722-1992.
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	2.13 Terminal box		Flame proof terminal box to be provided with double compression Cable gland for AI cable Fault level : 45 KA for 0.01 Sec

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3.0 SPECIAL REQUIREMENTS:

- 3.1 The motor shall be rewound able
- 3.2 The motor shall have on line greasing facility.
- 3.3 Motor shall be suitable for working in an environment of oil fumes without any hazard.
- 3.4 Separate terminal box for space heater (if applicable) to be provided.
- 3.5 Motor bearings (DE & NDE) shall be sealed type to avoid frequent Re-greasing.
- 3.6 The motor construction shall be suitable for easy disassembly and reassembly.
- 3.7 The terminal box shall be suitable for top and bottom entry of cable and shall be suitable for PVC insulated PVC sheathed armoured aluminium cables and shall be capable of being rotated by 180° in steps of 90°.
- 3.8 Motor vibrations shall be acceptable as per IS: 12075; motor efficiency as per IS 12615:2011& noise level as per IS: 12065. Also mechanical vibrations shall be under limits as per IS: 10816-2.

4.0 DOCUMENTS TO BE SUPPLIED WITH DELIVERY WITH EACH UNIT. THESE SHALL BE SUPPLIED IN TWO COPIES & WORKABLE SOFT COPY.

SIGN & DATE	Anil Kumar Kavita	Rev. no. 08	निर्माणकर्ता WORKED BY:	Anil / Kavita	Anil Kumar Kavita	10.03.16
प्राप्ती युक्त वस्तु का क्रमांकीकरण क्रमांक	जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	जाँचकर्ता CHECKED BY:	10.03.16

 भारती हेवी इलेक्ट्रिकल लिमिटेड BHEE	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 33 Page 33 of 40
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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharti Heavy Electrical Limited It must not be used directly or indirectly in any way detrimental to the interest of the company	SUPERSEDES INVENTORY NO	17 ANEXURE-IV (SPECIFICATION OF INSTRUMENTS)																
	अधिकारी वाला द्वारा अधिकारी वाला कराना है	1) PRESSURE GAUGE																
		<p>The Pressure gauge should confirm to the following technical specification:-</p> <ul style="list-style-type: none"> a) The sensing element shall be SS-316bourden tube. b) The dial size shall be approx. 150 mm diameter. c) The casing shall be epoxy coated die-cast aluminium with threaded bezel ring. d) The movement shall be stainless steel rotary gear with nylon bearings. e) The process connection shall be G1/2" f) The over range protection should be 150% of max. range g) The pointer shall be `micrometer adjustable with zero facility on front. h) The accuracy shall be 1% of full scale. i) The gauge is to be provided with pulsation dampeners. 																
		2) TEMPERATURE INDICATOR																
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Type</td> <td>Bimetallic rigid system type. No use of mercury or any other hazardous/toxic material</td> </tr> <tr> <td>Case</td> <td>Die cast aluminium alloy moisture proof case, heavily enamelled black</td> </tr> <tr> <td>Dial Size</td> <td>100 mm</td> </tr> <tr> <td>Range</td> <td>As per design</td> </tr> <tr> <td>Accuracy</td> <td>1% of total range</td> </tr> <tr> <td>Bulb Material</td> <td>½" bulb diameter made of SS. 316</td> </tr> <tr> <td>Thermo-well</td> <td>SS-AISI316 (with thread size G1/2")</td> </tr> <tr> <td>Ambient Temp</td> <td>60° C max.</td> </tr> </table>	Type	Bimetallic rigid system type. No use of mercury or any other hazardous/toxic material	Case	Die cast aluminium alloy moisture proof case, heavily enamelled black	Dial Size	100 mm	Range	As per design	Accuracy	1% of total range	Bulb Material	½" bulb diameter made of SS. 316	Thermo-well	SS-AISI316 (with thread size G1/2")	Ambient Temp	60° C max.
Type	Bimetallic rigid system type. No use of mercury or any other hazardous/toxic material																	
Case	Die cast aluminium alloy moisture proof case, heavily enamelled black																	
Dial Size	100 mm																	
Range	As per design																	
Accuracy	1% of total range																	
Bulb Material	½" bulb diameter made of SS. 316																	
Thermo-well	SS-AISI316 (with thread size G1/2")																	
Ambient Temp	60° C max.																	
		3) MAGNETIC LEVEL SWITCH																
		<p>Process Connection: - Nb25</p> <p>Material: All parts coming in contact with the liquid made of stainless steel SS316</p> <p>Electrical characteristics</p> <p>Switch: Single pole double throw change over switch silver contact for handling the following currents</p> <p style="text-align: center;">AC 250V – 5.0A DC 250V – 0.25A</p> <p>Operating characteristics</p> <p>Differential – 6 MM i. e. 3 MM on either side of centre line working pr & Temp. : As per design</p> <p style="text-align: center;">Ambient Temp. : 60°C max.</p>																

वाला द्वारा दस्तावेज़ कराना है वाला द्वारा दस्तावेज़ कराना है औ वाला द्वारा दस्तावेज़ कराना है	SIGN & DATE  25/03/16	Rev. no. 08	निर्माणकर्ता WORKED BY: Anil / Kavita	जाँचकर्ता CHECKED BY: A. S. Rajput / Devesh	Anil Kumar Kavita	18.03.16
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	<p>उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)</p> <p>PRODUCT PURCHASE SPECIFICATION</p> <p>(HEEP: HARIDWAR)</p>	<p>ST39013</p> <p>पृष्ठ 40 का 36</p> <p>Page 36 of 40</p>
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COPYRIGHT AND CONFIDENTIAL	SUPERSEDES INVENTORY NO	20 ANNEXURE– VII (CHECK LIST)		
		A. CHECK LIST FOR MECHANICAL ITEMS	Vendor's confirmation (Yes/No)	Remarks (if any)
स्वतंत्रताकार एवं गोपनीय प्राप्ति के लिए उपलब्ध आवश्यक विविधताको प्राप्ति हो जाए प्राप्ति के लिए उपलब्ध आवश्यक विविधताको प्राप्ति हो जाए तो विक्री करने के लिए ये प्राप्ति करके दें तो विक्री करें।	प्राप्ति के लिए उपलब्ध आवश्यक विविधताको प्राप्ति हो जाए प्राप्ति के लिए उपलब्ध आवश्यक विविधताको प्राप्ति हो जाए तो विक्री करने के लिए ये प्राप्ति करके दें तो विक्री करें।	1. Is capacity of oil purifier as per BHEL specifications (i.e. 7500 LPH)?		
The information on this document is the property of Bhilai Heavy Electrical Limited It must not be used directly or indirectly in any way detrimental to the interest of the company	The information on this document is the property of Bhilai Heavy Electrical Limited It must not be used directly or indirectly in any way detrimental to the interest of the company	2. a) Is particle size of impurities in the clean oil as per BHEL specifications in single pass (i.e. class 15/12 or better as per ISO4406)? b) Is moisture content in the clean oil as per BHEL specifications in single pass (i.e. $\leq 500 \text{ ppm}$)?		
		3. Is the test certificate for particle size of impurities & moisture content provided as per BHEL specification?		
		4. Is mode of operation (i.e. purifier/clarifier) as per BHEL specifications & enquiry?		
		5. Is noise level as per BHEL specifications?		
		6. Is overflow sight fitting provided as per BHEL specifications?		
		7. Is capacity of oil feed & discharge Pump (i.e. at least 10% higher than capacity of the purifier) as per BHEL specifications?		
		8. a) Is copies of O&M manual (CD based & hard paper based) provided as per BHEL specifications? b) Are 2 copies (hard paper based) of O & M manuals kept inside the dispatch box as per BHEL specifications & enquiry?		
		9. Is polishing filter ($\beta_{30} = 1000$ or better) provided as per BHEL specifications?		
		10. Is supervision during erection & commissioning at site by vendor offered as per BHEL specifications & enquiry?		
		11. Is lube oil recirculation piping/ piping connection provided as per BHEL specifications & enquiry?		
		12. Are sufficient spares for satisfactory commissioning and for 3 years satisfactory operation of the purifier provided as per BHEL specifications?		
		13. Are detailed lists of recommended spares and commissioning spares along with price break up provided as per BHEL specifications & enquiry?		
		14. Is separate offer for conducting test for particle size of impurities and		

SIGN & DATE	Rev. no.	निर्माणकर्ता WORKED BY:	Anil / Kavita	Anil Kumar Kavita	18.03.16
INVENTORY NO	25538	जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	Rajput. Devesh	18.03.16

विवरण वा विवर SIGN & DATE	 उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 37 Page 37 of 40
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सुपरसेड इनवेंटरी नं. विवरण वा विवर क्रमांकित करना है	moisture content on one oil purification system provided as per BHEL specifications/enquiry? 15. Is the painting scheme as per BHEL specifications/enquiry? 16. Are all piping of oil purification system shall be stainless steel? 17. Deviations taken (Please specify clearly, if any): a) b) c) d)	
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Notes: Vendors shall fill relevant columns with Yes/ No/ Value offered.

Date:
Place:

Signature &
Seal of manufacturer

विवरण वा विवर SIGN & DATE	स्वत्वाधिकार एवं गोपनीय यह दस्तावेज़ को यहां पारंपरिक विवरण की वार्ता के रूपात् प्राप्त करता है तथा यहां पर्याप्त नहीं होना चाहिए है ताकि इसका उपयोग विवरण के लिए नहीं हो सके।
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वार्ता सुनी गयी INVENTORY NO.	Rev. no.	निर्माणकर्ता WORKED BY: जाँचकर्ता CHECKED BY:	Anil / Kavita A. S. Rajput / Devesh	Anil Kumar Kavita Devesh	18.03.16 18.03.16
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 भारत एलेक्ट्रिकल्स लिमिटेड	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 39 Page 39 of 40
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समर्थक संख्या SIGN & DATE 30/03/16	<p>20. All instrument as well as motor data sheet, wiring diagram write up is subject to BHEL/customer approval: yes/no</p> <p>21. panel to be designed for 110 V AC control voltage : yes/no</p> <p>22. For panel color exterior -Opaline green semi glossy finish, interior-glossy white and motor-smoke grey yes/no</p> <p>23. All HT & LT motors shall be energy efficient type with efficiency class 1: yes/no</p>	सुनिश्चित करना चाहे अनिश्चित करना चाहे
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Date:

Place:

Signature
Seal of manufacturer

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सिग्न एवं दाता
 SIGN & DATE

समर्थक संख्या
 INVENTORY
 NO.
 105308

Rev. no.
 08

निर्माणकर्ता WORKED BY: जाँचकर्ता CHECKED BY:	निर्माणकर्ता WORKED BY: जाँचकर्ता CHECKED BY:	Anil / Kavita A. S. Rajput / Devesh	Anil Kumar Kavita Rajput Devesh	18.03.16 18.03.16
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प्रिवेट लिमिटेड SIGN & DATE		उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39013 पृष्ठ 40 का 40 Page 40 of 40
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प्राप्ति युक्त वस्तु का परिवर्तन क्रमांक	SUPERSIDES INVENTORY NO.	Check list for OPU (Relay Based)
		<ol style="list-style-type: none"> Oil Purification Unit is relay based: yes/no On/Off control, indication and alarms is provided in local panel: yes/no Control panel is designed for 3 phase (415 v Ac) 3 wire incomer power supply system: yes/no Motor efficiency meeting as per special instruction/project requirement : yes /no Air requirement of pneumatic valves is mentioned: yes/no. A pressure switch at outlet of centrifuge and a level switch in anti-flood tank is provided for detection of liquid seal breakage: yes/no Cable glands for 415 V AC incomer is provided : yes/no Adequately sized copper ground bus is provided for each panel: yes/no Painting treatment as per addendum or special instruction mentioned in indent: yes/no Paint shade of control panel as per addendum/special requirement: yes/no Construction of panel as per specification/addendum: yes/no Control panel is provided with anti-vibration pads to withstand vibrations: yes/no. Plug and socket type connection for all instruments : yes/no Arrangement for Liquid seal breakage alarm is provided: yes/no Price break of spare item/spare of LS switchgear given along with offer: yes/no Motor data sheet shall be subject to customer/ BHEL approval: yes/no 20% spare terminals have been provided at panel: yes/no All instruments shall be of reputed make.
स्वतंत्रतार्थ गोपनीय प्राप्ति युक्त वस्तु का परिवर्तन क्रमांक प्राप्ति युक्त वस्तु का परिवर्तन क्रमांक प्राप्ति युक्त वस्तु का परिवर्तन क्रमांक	प्राप्ति युक्त वस्तु का परिवर्तन क्रमांक प्राप्ति युक्त वस्तु का परिवर्तन क्रमांक प्राप्ति युक्त वस्तु का परिवर्तन क्रमांक	<p>COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bhilai Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company</p>
प्राप्ति युक्त वस्तु का परिवर्तन क्रमांक	Rev. no. 08	<p>Date: &Place:</p> <p>Signature Seal of manufacturer</p>

प्राप्ति युक्त वस्तु INVENTORY NO.	25508	निर्माणकर्ता WORKED BY:	Anil / Kavita	Anil Kumar Kavita	18.03.16
		जाँचकर्ता CHECKED BY:	A. S. Rajput / Devesh	Devesh	18.03.16

Note: All page of inspection documents shall be numbered in chronology with the QAP clause , duly mentioning the corresponding QAP clause nos. at the top of each page. One index page containing the documents descriptions, their page no & QAP clause shall be attached upfront the inspection documents.

		LEGEND: ! RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER	FOR CUSTOMER USE	
MANUFACTURER/SUBCONTRACTOR		APPROVED BY		

ANNEXURE – 12

**DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH
REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED 04TH
JUNE, 2020 AND SUBSEQUENT ORDER(S)**

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub: Declaration reg. minimum local content in line with Public Procurement (Preference to Make in India), Order 2017-Revision, dated 04th June, 2020 and subsequent order(s).

Ref: 1) GeM Bid Specification No:
2) All other pertinent issues till date

We hereby certify that the items/works/services offered by..... (*specify the name of the organization here*) has a local content of _____ % and this meets the local content requirement for '**Class-I local supplier**' / '**Class II local supplier**' ** as defined in Public Procurement (Preference to Make in India), Order 2017-Revision dated 04.06.2020 issued by DPIIT and subsequent order(s).

The details of the location(s) at which the local value addition is made are as follows:

1. _____ 2. _____

3. _____ 4. _____

...

Thanking you,
Yours faithfully,

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

** - *Strike out whichever is not applicable.*

Note:

1. Bidders to note that above format, duly filled & signed by authorized signatory, shall be submitted along with the techno-commercial offer.
2. In case the bidder's quoted value is in excess of Rs. 10 crores, the authorized signatory for this declaration shall necessarily be the statutory auditor or cost auditor of the company (in the case of companies) or a practising cost accountant or practicing chartered accountant (in respect of suppliers other than companies).
3. In the event of false declaration, actions as per the above order and as per BHEL Guidelines shall be initiated against the bidder.



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

**General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry
(GISTC)**

For Indian Bidders (Version Jun-2025, Rev: 08)

Annexure-3

Declaration for treatment of cases regarding conflict of interest

The bidder notes that a conflict of interest would said to have occurred in the tender process and execution of the resultant contract, in case of any of the following situations:

- a) If its personnel have a close personal, financial, or business relationship with any personnel of BHEL who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of BHEL directly or indirectly;
- b) The bidder (or his allied firm) provided services for the need assessment/ procurement planning of the Tender process in which it is participating;
- c) Procurement of goods directly from the manufacturers/suppliers shall be preferred. However, if the OEM/Principal insists on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer/ supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer/ supplier could bid directly but not both. In case bids are received from both the manufacturer/ supplier and the agent, bid received from the agent shall be ignored. However, this shall not debar more than one Authorized distributor (with/ or without the OEM) from quoting equipment manufactured by an Original Equipment Manufacturer (OEM) in procurements under a Proprietary Article Certificate.
- d) A bidder participates in more than one bid in this tender process. Participation in any capacity by a Bidder (including the participation of a Bidder as a partner/ JV member or sub-contractor in another bid or vice-versa) in more than one bid shall result in the disqualification of all bids in which he is a party. However, this does not limit the participation of an entity as a sub-contractor in more than one bid if he is not bidding independently in his own name or as a member of a JV.

The Bidder declares that they have read and understood the above aspects, and the bidder confirms that such conflict of interest does not exist and undertakes that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s), in this regard. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

In case, the Bidder is found having indulged in above activities, the same will be considered as a violation of the tender conditions, and suitable action shall be taken by BHEL as per extant policies/ guidelines.

(Signature of the authorized signatory of the bidder)

Quotations / Bids not in accordance with General Instructions and Standard Terms & Conditions are likely to be ignored. Page 36 of 36