



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY	Phone: +91 431 257 7421/ 7297 Email : vkarna@bhel.in , hari.r@bhel.in Web : www.bhel.com
NOTICE INVITING TENDER	

TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two Parts	2631900029	07.08.2019	02.09.2019

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14:00 hrs on the Date of tender opening.

Item	Description	Quantity
10	Cryogenic Bath as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or https://eprocure.gov.in/epublish/app)	1 No.

Important points to be taken care during submission of offer

1. Delivery terms shall be FOR BHEL Stores, Trichy for indigenous vendors and CFR Chennai Airport/ Seaport for foreign vendors.
2. Compliance Form MM/ CE/ TRY/ IMP/ 04 & MM/ CE/ TRY/ IND/ 04A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
3. Delivery period required is 3 months from the date of Purchase Order.
4. Erection and commissioning activities shall be done by the supplier, at BHEL, Trichy works.
5. Time period required for Erection and Commissioning activities shall be 4 weeks from the date of intimation by BHEL
6. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions (refer MM/CE/GENL/001- No EMD), compliance form and technical specification can be downloaded from BHEL web site <http://www.bhel.com> or from <https://eprocure.gov.in/epublish/app> under Enquiry reference "2631900029".

Tenders should reach us before 14:00 hours on the due date Tenders will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present	Yours faithfully, For BHARAT HEAVY ELECTRICALS LIMITED  07.08.19 R. HARI Engineer MM / Capital Equipment BHEL, TRICHY - 620 014 Engineer / MM/ Capital Equipment
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PART - A
QUALIFYING CRITERIA FOR
Cryogenic bath

S.No	BHEL Specification	Bidder's Offer
1.0	QUALIFYING CRITERIA	
1.1	Bidder / OEM must have manufactured, supplied and commissioned at least ONE Cryogenic Bath used for Testing at Sub-Zero Temperatures are eligible to quote.	
1.2	Bidder has to submit at least ONE Performance Certificate from their customer (end user), for satisfactory performance of “Cryogenic Bath capable of maintaining Sub-Zero Temperatures of -70 deg C or better” meeting the following conditions: a) The Cryogenic Bath must have been supplied within the last Five years as on the first date of tender opening. b) The Cryogenic Bath must have performed satisfactorily for at least one year during this period. For obtaining the Performance certificate, a suggestive format is provided at the end of part-A.	
1.3	PO document for the above mentioned supplied equipment to be enclosed	
1.4	BHEL reserves the right to verify the information provided by the Bidder. In case the information provided is found to be false/ incorrect, the offer is liable for rejection.	

2.0	INFORMATION TO BE PROVIDED BY BIDDER	
2.1	Bidder shall provide contact details(phone no & email id) including the address of his Agents / Service Centres in India	
2.2	Details of Cryogenic Bath supplied to other BHEL units if any	
2.3	The BIDDER to furnish Reference List of Customers(max 10 customers) including Contact details(phone no & email id).	

SECTION 3

The BIDDER to note:

S. No.	PARTICULARS	Bidder's offer
3.1	The BIDDER shall submit the offer in Two Parts – 1. Technical [with PART A & PART B] & 2. Commercial and Price Bid.	
3.2	The Bidder's offer against each clause in PART A & B of the offer should be filled by the BIDDER compulsorily with complete details.	
3.3	The BIDDER shall assure a continuous support for Spares and Service for Five Years, from the date of commissioning of the Cryogenic bath at BHEL Works.	
3.4	The Technical Offer shall be supported by Product Catalogue and Data Sheets in original and complete technical details / literature on the quoted model of equipment.	
3.5	The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation.	

Suggestive Format of Performance Certificate:

The performance certificate to be produced **on Customer's Letter Head.**

PERFORMANCE CERTIFICATE

- | | | |
|---|--|---------------------------------|
| 1 | Supplier name and Address | |
| 2 | Date of Commissioning (DD/MM/YYYY) | |
| 3 | Make and Model of the cryogenic bath | |
| 4 | Medium/Tank Temperature range | |
| 5 | Application used for | |
| 6 | Performance of the equipment
(Strike off whichever is not applicable) | Satisfactory / Not Satisfactory |
| 7 | Service support after sales
(Strike off whichever is not applicable) | Satisfactory / Not Satisfactory |
| 8 | Any Other remarks | |
| 9 | This performance certificate was issued on: (DD/MM/YYYY) | |

Signature & Seal of the Authority
Issuing the Performance Certificate

Contact details of issuing authority

Name & Designation:

Office No/ Mobile no:

Email ID:

Cryogenic Bath

Part B-Technical Specification

S. No	BHEL SPECIFICATION	OFFER BY BIDDER
1	Application: The Cryogenic Bath is intended to carry out Mechanical Testing of test specimens at Sub-Zero Temperatures. The equipment shall use appropriate LR grades of Leishman's stain solution or AR grade isopropyl alcohol or Methanol as medium for cooling the specimens. The equipment shall be able to cool and maintain the medium in the range of -70 deg C to +20 deg C and facilitate cooling of drop weight testing samples and impact testing sample of any grade of metals in the medium.	
2	Machine Configuration: [Scope of supply shall consist of the following]	
2.1	The medium used for cooling the bath shall be any appropriate LR grade of Leishman's stain solution or AR grade isopropyl alcohol or Methanol only	
2.2	The tank temperature range shall be -70 deg C to +20 deg C and the quoted model shall cool the medium to -70 deg C in not more than 1 hour at no load and not more than 4 hours at full load.	
2.3	Working space shall be 300x 200x 500 (depth/height) or higher so that the sample placement rack (refer Annexure for conceptual drg of sample placement rack) provided shall accommodate a minimum of 6 numbers of the following Test samples:- Impact Testing sample of size D 65mm x 400mm (H) each, with cumulative weight not more than 20kg	
2.4	The offered equipment shall have the following additional features:	
2.4.1	A digital microscope based PID , Auto tuning temperature indicator cum controller with 0.1 deg C display resolution for the tank. Vendor to specify	
2.4.2	Control Accuracy: ± 5 deg C or better. Vendor to confirm and specify	
2.4.3	Sensor: PT 100 Class A Sensor. Vendor to confirm	
2.4.4	Immersion type heater to maintain the constant temperature. Vendor to confirm	
2.4.5	Automatic High temperature safety cutoff. Vendor to confirm	
2.4.6	Stirrer driven by continuous electric motor for uniformity of temperature for the tank. Vendor to confirm	

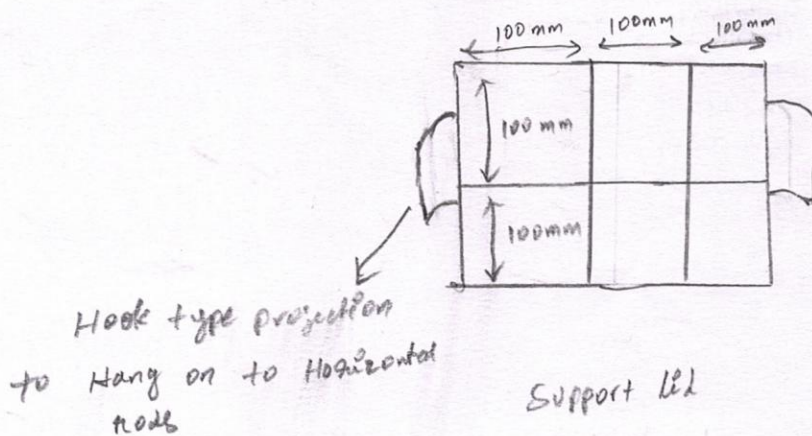
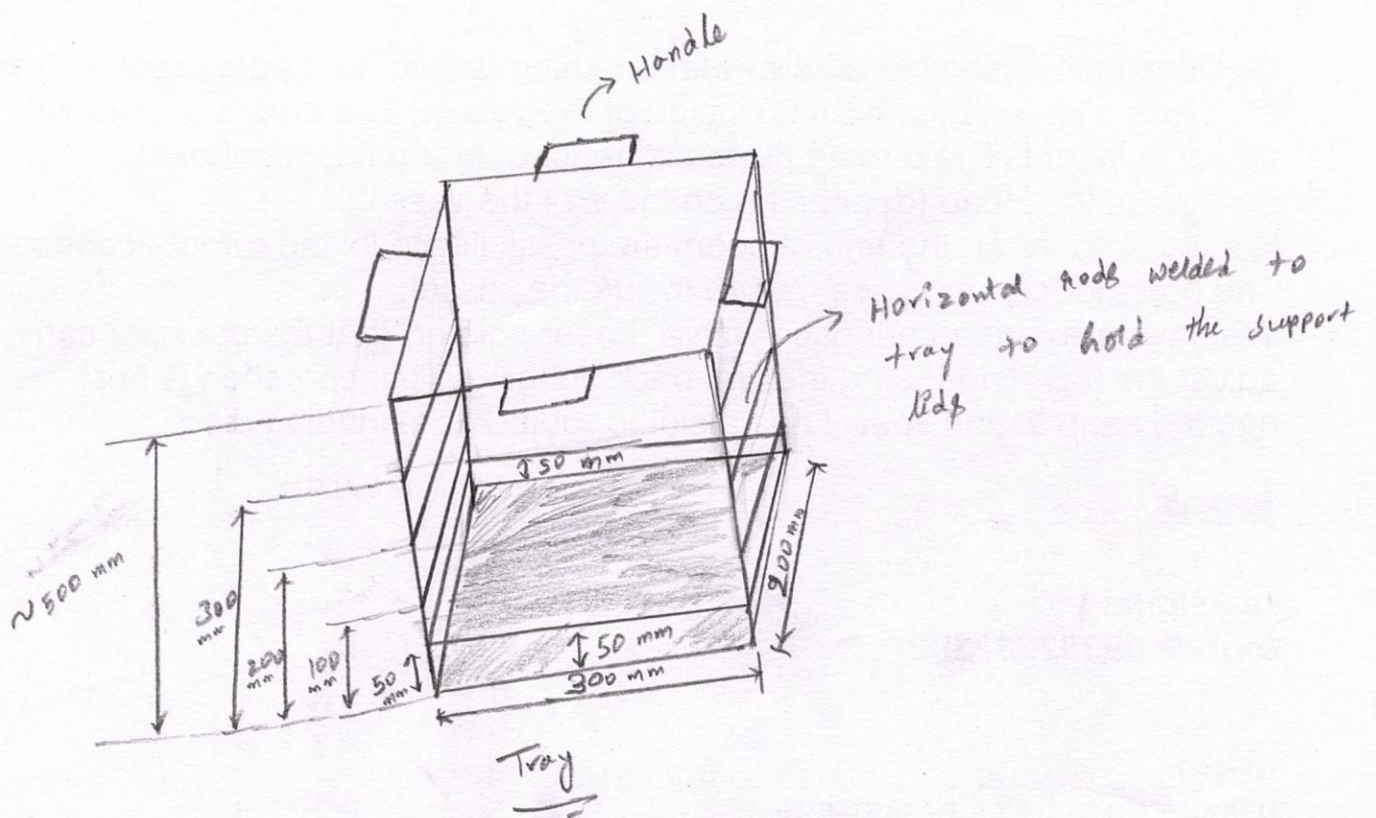
2.4.7	Built in CFC Free (Eco Friendly) Cascade refrigeration system with hermetically sealed compressors of reputed make like TECUMSEH, EMERSON, DANFOSS, Bitzer or any other reputed make acceptable to BHEL. Vendor to specify		
2.4.8	Condenser: Fin and tube type air cooled type. Vendor to specify		
2.4.9	Insulation: Polyurethane foam (PUF). Vendor to confirm		
2.4.10	Inner Tank made of stainless steel 304 grade		
2.4.11	Outer made of Mild steel with powder coated		
2.4.12	Input power supply: 415V±10% / Three Phase / 50Hz (3 wire system-with out neutral) will be provided by BHEL at one point. Supplier to provide suitable power cable of minimum 5m length		
2.5	The equipment shall have an appropriate drainage system to drain the cooling medium completely as and when desired		
2.6	The overall dimensions of the equipment : Vendor to specify		
2.7	The net weight of the equipment : Vendor to specify		
2.8	The cryogenic bath shall be portable and mobile, with castor wheel (minimum 4 nos) by manual pushing and must have wheel locking mechanism		
2.9	The cryogenic bath as a whole shall come in single enclosure and there shall be no stand-alone parts		
2.10	Protection: Necessary protective measures to ensure safety of the equipment and the operator shall be taken care including: a) Inbuilt protection for the cryogenic bath against overload/ Short- Circuit conditions b) All electronic circuitry of the equipment shall be protected suitably to prevent damage from dust and grinding particles c) Machine design to ensure proper earthing for the machine and its peripherals d) Safety of the operator shall be ensure in all circumstances		
2.11	Vendor must provide the following: 1. The equipment must be prefilled with sufficient amount of cooling medium by the supplier 2. The equipment must be prefilled with sufficient quantity of refrigerant.		
3	Operation & Maintenance (O & M) Manuals		
3.1	Manual Details	a) Manual shall contain all instruction of machine installation and for carrying out operation trial, testing in the correct sequence/ method	

		b) Manual shall clearly describe the operation of the cryogenic bath and all other items in item no 2.1 to 2.5 including compressor c) Manual shall contain general circuit diagrams, showing the interconnection of various elements and also details on PCBS (printed circuit Boards) like tapping voltages, Main electronic elements specification and ratings etc d) Manual to give other details like trouble shooting details etc e) Master list of parts & Spares used in the machine with Make, Model, rating etc	
3.2	Hard copy	2 sets of manuals in English Language	
3.3	softcopy	Soft copy of the manual in CD/DVD-1 No	
4	Pre-Dispatch Inspection	The equipment shall be offered for the pre-dispatch inspection (PDI) at the suppliers works by BHEL Engineers before dispatch of the equipment. During The PDI, A trial test is to be performed to ensure the capability of the equipment to cool and maintain the medium in temperature range -70 deg C to + 20 deg C and cool the medium to -70 deg C in not more than 1 hour at no load and not more than 4 hours at full load	
5	Commissioning	The equipment shall be installed and commissioned by the suppliers representative at BHEL works. Prove out of the equipment shall be carried out by the supplier representative to demonstrate the capability of the equipment to cool and maintain the medium in the temperature range of -70 deg C to +20 deg C and cool the medium to -70 deg C in not more than 1 hour at no load and not more than 4 hours at full load	
6	Training	The suppliers Service Engineer shall give training in the operation and maintenance of the Machine to BHEL staff after the successful commissioning of the Cryogenic Bath	
7	Performance Guarantee	The performance of the equipment shall be guaranteed for a period of 12 months from the date of commissioning at BHEL works or 18 months from the date of dispatch whichever is earlier	

Annexure- Sample Placement Rack-Conceptual drg enclosed

Annexure - A

Conceptual Sketch



NOT TO SCALE