



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY NOTICE INVITING TENDER	Phone: +91 431 257 7421/4102/7833 Email : vkarna@bhel.in : hemaatha@bhel.in : vijayak@bhel.in Website : www.bhel.com
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TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two Parts	2731900012	20.05.2019	14.06.2019

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.

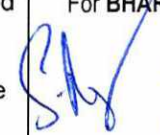
Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

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

Important points to be taken care during submission of offer

1. Delivery terms shall be FOR BHEL Stores, Trichy .
2. Compliance Form No: TRY/IND/08 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 shall be done at BHEL Trichy by the supplier.
5. Time period required for Erection and Commissioning shall be 3 weeks from the date of intimation by BHEL
6. EMD not applicable.
7. 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 compliance form and technical specification can be downloaded from BHEL web site <http://www.bhel.com> and <https://eprocure.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference "2731900012".

(This is not an E – Tender. Please submit your offer in hard copies) 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  S.PARTHASARATHY MANAGER CAPITAL EQUIPMENT / MM BHEL, TRICHY-620014.
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PART – A: Pre-Qualifying Criteria for Vacuum pump – 1 No.

PART - A: Pre - Qualifying Criteria

Section 1: Qualifying Criteria

The Bidder has to compulsorily meet the following requirements to get qualified, for evaluation of the technical offer.

S. NO.	PARTICULARS	BIDDER'S RESPONSE
1.1	Only those Bidders / OEMs, who have supplied and commissioned at least 1 number of Vacuum pump unit of 200 cum/hour or higher capacity in the past 5 years (as on the first date of opening of Tender) are eligible to quote	
1.2	Bidder has to submit at least ONE Performance Certificate from their customer, for satisfactory performance of the equipment specified in 1.1 and meeting the following conditions: a) The Equipment must have been supplied within the last five years as on the first date of tender opening. b) The Equipment must have performed satisfactorily for at least one year during this period. For obtaining the Performance certificate, a suggestive format is provided in Annexure-A .	
1.3	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.	

PART – A: Pre-Qualifying Criteria for Vacuum pump – 1 No.

Section 2: Information to be provided by the bidder:-

S. NO.	PARTICULARS	BIDDER'S RESPONSE
2.1	Vendor shall provide contact details(phone no & email id) including the address of his Agents / Service Centres in India	
2.2	Year of launch of the model quoted against this enquiry	
2.3	Number of "Vacuum pumps" supplied and commissioned till date in the quoted capacity (to quote pumps supplied during the last three years only)	
2.4	The BIDDER/VENDOR to furnish Reference List of Customers (max 10 customers) including Contact details (phone no & email id).	

PART – A: Pre-Qualifying Criteria for Vacuum pump – 1 No.

Section 3: The BIDDER to note:-

S. NO.	PARTICULARS	BIDDER'S RESPONSE
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 VENDOR'S RESPONSE 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 Ten Years, from the date of commissioning of the equipment 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 models of pumps.	
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.	



PART - A: Pre-Qualifying Criteria for Vacuum pump - 1 No.

ANNEXURE-A: Suggestive Format of Performance Certificate

PERFORMANCE CERTIFICATE
[on Customer's Letter Head]

1. Supplier of the Vacuum pump/ system :
2. Make & Model of the Vacuum pump/ system :
- 3 Total Capacity of the Vacuum pump/ system in cu.m/hr :
4. Month & Year of Commissioning :
5. Application for which vacuum pump/ system is used:
6. Performance of the Vacuum pump/ system
(Strike off whichever is not applicable) Satisfactory / Not Satisfactory
7. After sales service
(Strike off whichever is not applicable) Satisfactory / Not Satisfactory
- 7 Any Other remarks :

Performance certificate issued date:

Contact details of issuing authority:

Name & Designation:

Office No/ Mobile no:

Email ID:

Signature & Seal of the Authority
Issuing the Performance Certificate

Doc.No: SFF.BARC.ADD.011 A : Rev.No: 00



PART – B: Technical Specification for Vacuum pump – 1 No.

PART - B: Technical Specification

Note: -

1. The Column "Vendor's offer with Technical details & Remarks" of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous or unsustainable information against any of the clauses of the specifications / requirements shall be treated as non-compliance.
2. The offer and all documents enclosed with offer should be in **English language only**.

Name & Address of the Supplier:	Name & Address of the Indian agent:
Telephone no.:	Telephone no.:
Fax no.:	Fax no.:
e-mail:	e-mail:

SCOPE: -

This technical specification covers the requirements of Design, Manufacture, Supply, Erection and Commissioning of Vacuum pump with all the accessories for trouble free operation. Vacuum pump should be of industrial design for long operating life. Bidder shall be complying with the technical specification as given below.

Doc.No: SFF.BARC.ADD.011 B : Rev.No: 00



PART – B: Technical Specification for Vacuum pump – 1 No.

S.No.	APPLICATION:	BHEL SPECIFICATION	Bidder's Offer with technical details
1.0		The vacuum pump is intended to generate vacuum of 4 Torr (5.3 millibar) absolute pressure in order to remove the moisture/ water molecules and ensure complete dryness after Hydro-Test and draining of the job components by pumping out the evaporated liquid water molecules and adsorbed molecules at this vacuum pressure. The component to be vacuumed shall be in completely drained condition after hydro test. After completely draining the evacuation has to start from atmospheric pressure. Water molecules and surface adhering water traces present in the job has to be removed and completely dried by using this vacuum pump. The Vacuum pump has to run continuously in order to achieve 4 Torr vacuum in the steam generator vessel. The vacuum pump should run for few more hours even after achieving 4 Torr vacuum in order to ensure complete dryness of the vessel. After this the pump will be isolated and then complete dryness will be ascertained if the vessel retains 4 Torr vacuum /better for minimum 30 minutes.	
2.0	Job Description		
2.1	Job Details	Cylindrical components fabricated from Titanium, Stainless steel, carbon steel etc.	
2.2	Volume of the smallest component	0.13 m ³	
2.3	Volume of the largest component	5.5 m ³	

PART – B: Technical Specification for Vacuum pump – 1 No.

S.No.	BHEL SPECIFICATION		Bidder's Offer with technical details
2.4	Inlet port in the job	Inlet port of the job ranges from ID 17 mm to ID 48 mm. Bidder to specify the pump suction port size for connecting the vacuum pump to the job with suitable adaptors / flexible bellows / fasteners / 'O' rings. Bidder to provide the details of the adaptors/flexible bellow, 'O' rings, etc. Bidder to suggest suitable size of the port with the required sketch/ drawing such that the efficiency of vacuum pump is not affected.	
2.5	Flexible bellow on the suction side	The length of the flexible bellow shall be 2m or more. Bidder to confirm and provide details	
3.0	Working procedure		
	a) The Vacuum pump must be operated continuously to achieve vacuum of min. 4 Torr. b) The vacuum pump should run for few more minutes even after achieving 4 Torr vacuum in order to ensure complete dryness of the vessel. c) After this, the pump will be isolated and then complete dryness will be ascertained if the vessel retains 4 Torr vacuum or better for minimum 30 minutes. Bidder to confirm.		
4.0	Vacuum Pump Specification		
4.1	Pump Type	Rotary vane type vacuum pump OR Roto – dynamic mechanical pump (oil Operated). Bidder to indicate the offered pump type	
4.2	Make and model	Bidder to specify	
4.3	Pumping Capacity	200 m ³ /hr or better in order to achieve faster evacuation. Bidder to confirm and state the exact capacity of the offered pump.	
4.4	Drying Capacity of Pump	The offered Pump/s should be able to complete drying of the job (considering few water molecules and surface adhering water traces). Bidder to specify the time required to achieve the above by the quoted pump.	
4.5	Vacuum pressure	The vacuum pump should generate pressure of 4 torr (5.3 mbar) or better in the jobs specified in clause 2.0	



PART – B: Technical Specification for Vacuum pump – 1 No.

S.No.	BHEL SPECIFICATION		Bidder's Offer with technical details
4.6	Ultimate Vacuum of the pump	0.5 Torr (Approx. 0.6 mbar) or lower in gas ballast closed condition. Bidder to specify the Ultimate Vacuum achievable by the pump with gas ballast in closed and open conditions	
4.7	Motor rating in kW	Bidder to specify. The motor shall be of energy efficient class IE3 conforming to IEC or equivalent IS standards. Electric motor makes: ABB / SIEMENS / CROMPTON GREAVES / HINDUSTAN / BHARAT BIJLEE / KIRLOSKAR / SEW or any other make acceptable to BHEL.	
4.8	Cooling Arrangement	Pumping system should have proper cooling (Air/liquid cooled) arrangement to avoid overheating due to continuous use. Bidder to confirm and furnish the details of the cooling arrangement provided	
4.9	Filtering System	Exhaust oil filter is required to filter oil vapours entering the vacuum volume and thus the job surfaces shall be contaminant free. Bidder to confirm	
5.0	Operator control panel	Switch/control panel shall be provided for operating the pump system. Bidder to confirm and provide the details of the control panel.	
6.0	Connectors/Adapters		
6.1	Reading Gauge & reading meters	a) Suitable Electronic type digital meter for the intended range of vacuum to be selected and offered. Least count of the offered meter to be specified. b) Vacuum recording shall be at two locations-one near the pump outlet / within the pump (digital meter) and another near vessel inlet (analog gauge). Bidder to confirm and provide the details of the gauges c) The vacuum reading gauge heads and meters shall be	



PART – B: Technical Specification for Vacuum pump – 1 No.

S.No.	BHEL SPECIFICATION		Bidder's Offer with technical details
		calibrated with calibration standards traceable to International standards. Validity of the calibration shall be for 1 year. d) Suitable covers for locking the ports when not in use should be provided e) Suitable isolation valves shall be provided for meters/gauges f) Setup for vacuum holding and retaining in power cuts by means of suitable inter-locks/valves is to be provided. Bidder to provide the details	
6.2	Flow control valve between Job and pump	Bidder to provide Flow control Valve between the job and Pump to regulate the flow to avoid condensation of water molecules	
6.3	Air Leak Tight	All inter connections, valves and vacuum gauge connecting points including vessel port connecting arrangements shall be absolutely leak tight.	
6.4	Schematic Diagram	Bidder to provide basic schematic diagram along with the offer to understand the integration and operation of the entire system	
7.0	Carriage for Movement	The entire equipment including operator control panel shall be mounted on a carriage fitted with caster wheels for transportation from place to place. Suitable hooks for lifting the equipment by crane also to be provided.	
8.0	Input power supply	BHEL will provide power supply of 415 V $\pm$ 10%, 50Hz, 3Ph (3 wire system – without neutral) AC supply	
9.0	Input Power Cable	A 10 m long sheathed power input cable of suitable specifications is to be provided along with the equipment. Bidder to confirm	
10.0	Accessories		
10.1		All the accessories required to integrate the various sub-systems shall be offered. The accessories offered shall be listed and their application shall be described.	
		Bidder to furnish a list of Standard accessories like vacuum gauges with cables, bellows, 'O' rings,	

Doc.No: SFF.BARC.ADD.011 B : Rev.No: 00

PART – B: Technical Specification for Vacuum pump – 1 No.

S.No.	BHEL SPECIFICATION	Bidder's Offer with technical details
	etc. recommended for 2 years of trouble free operation in the technical offer with description, part number, quantity and specification etc. without price details. The same list shall be quoted in the commercial offer with price break up in a sealed cover.	
11.0 Spares		
11.1	Complete List of Spares including the following to be offered along with the machine– both Mechanical & Electrical: - All the PCB used in the system (if any) – 1 set - If the system is controlled through programmable microprocessor/ microcontroller, then the pre-programmed IC – 1 no. to be provided - In case the system is controlled through PLC then the licensed version of PLC software CD and backup program to be provided. - Complete set of Seals used (including pump) -- 5 Sets - Oil Filters Element- 6 nos - Bellows - 1 no in each size - Flow control valve used – 1 no - Analog Vacuum Gauge- 2 nos. This is to cover supply of Electrical, Electronic & Mechanical Spares / panel boards – Both for operation and maintenance for 2 years including oils, clamps, quick turn couplings, 'o' rings & seals etc. Bidder to furnish a list of critical spares recommended for 2 years of trouble free operation in the technical offer with description, part number, quantity and specification etc. without price details. The same list shall be quoted in the commercial offer with price break up in a sealed cover.	
11.2	TOOLS FOR ERECTION, OPERATION & MAINTENANCE: The Vendor shall bring special tools and equipment required for erection of the machine. Necessary tools like Spanners, Keys etc. for operation and maintenance of the machine should be supplied. List of such tools should be submitted with offer.	

PART – B: Technical Specification for Vacuum pump – 1 No.

S.No.	BHEL SPECIFICATION		Bidder's Offer with technical details
12.0	Documentation		
12.1	O&M Manuals to be Supplied with Equipment	Separate Operational Instructions & Maintenance Manual for Vacuum Pump & its associated Accessories in English to be provided	
12.2	Contents of the Manual	The O & M Manual shall contain details like: a) Operation Instructions & Maintenance manual for the total system b) Description & Constructional Details c) Mechanical Assembly Drawings d) Part Drawings e) Electrical Schematic Drawings f) Bill of Materials g) Printed Circuit Board Schematics (if any) h) Complete list of Bought-Out items with make and model number i) Technical Leaflets of Bought-Out Items j) List of Spare Parts (Both Electrical & Mechanical) with Make, Specifications/Rating k) Trouble Shooting Details l) Safety Instructions – For Erection, Testing, Operation and Maintenance. Bidder to confirm	
12.3	No of Copies	Hard Copies in Original - 3 Sets Soft Copy in CD - 1 No Bidder to confirm	
12.4	Test and calibration certificates	Performance / functional test reports / relevant calibration certificates for vacuum heads and meters shall be provided along with the equipment	



PART – B: Technical Specification for Vacuum pump – 1 No.

S.No.	BHEL SPECIFICATION		Bidder's Offer with technical details
13.0	Pre-Despatch Inspection	The equipment shall be offered for inspection & functional prove out test. This shall be witnessed by BHEL at suppliers works for performance evaluation prior to despatch. The following schedule of inspection is to be carried out prior to despatch from the suppliers works: a. Factory Inspection report for ultimate Vacuum level, time to reach this vacuum and its retaining capability for 3 hours by continuous running of the pump with gas ballast in open condition. (OR) Bidder may propose any equivalent test going to be demonstrated at their works during PDI acceptable to BHEL. b. Test Reports and calibration certificates for vacuum heads and meters.	
14.0	Commissioning & Performance Prove-Out test at BHEL	Bidder should take full responsibility of Installation and commissioning of equipment at BHEL works. After the installation, the supplier has to run the equipment and demonstrate its performance at BHEL works for equipment (as per sizes mentioned in Srl. No. 2.0) including vacuum generation & vacuum holding as per Srl. No 3.0.	
15.0	Training	Training on Operation and Maintenance for BHEL Staff during Installation & Commissioning of the equipment to be provided by the bidder	
16.0	Guarantee	Performance Guarantee for the entire equipment for a period of 12 months from the date of commissioning or 18 months from the date of despatch whichever is earlier shall be provided. Bidder to confirm	