

M/s OPEN TENDER

BHEL

HARIDWAR INDIA Vencd 00001

Emailid -

| Item Description | Quantity | Unit | Lot | Quantity | Lot Date |
|---|----------|------|-----|----------|------------|
| 1 ZWD050101013 INDUCTION HARDENING MACHINE FOR CASE HARDNESS 45 TO 62 HRC & CASE DEPTH 0.5 TO 3 MM AS PER ENCLOSED SPECIFICATION SIZE: - | 1 | | NO | 1 | 1 31/12/22 |

Special Instructions:

- A) Technical offers and inputs are required from vendors for establishment of Induction Hardening facility at Heavy Electricals Equipment Plant BHEL, Haridwar.
- B) This Expression of Interest (EOI) is for identification of prospective vendors and finalization of tender specifications only and not for procurement. There is no commercial aspect associated to this EOI.
- C) BHEL reserves the right to evaluate the responses, based on technical merits, in the process of short-listing and identification of the participants for further discussions.
- D) Technical specification are attached.
- E) Value considered in estimate field of indent is for reference only and not to be considered as actual.
- F) Vendor must comments against each point of technical specification.

General Instructions:

| SL | MATERIAL CODE | QUANTITY | UNIT | LOTNO | LOT DELIVERY QTY SCHEDULE |
|----|---------------|----------|------|-------|------------------------------|
|----|---------------|----------|------|-------|------------------------------|

Please visit our site www.bhelhwr.co.in for latest version of General Instructions and Standard Terms & Conditions (GISTC) for Tender Enquiries. All the bidders/vendors must ensure compliance of latest GISTC. Terms & Conditions printed overleaf of this Standard Tender enquiry format are null & void.

For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of contract / PO / WP against this NIT.

In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable.

Default purchase preference under Make in India order shall be 20% to suppliers with default minimum local content of 50% for all items / works / services.

For further details, please refer latest version of GISTC.

Procurements where the Estimated value to be procured is less than Rs. 5 lakhs shall be exempted from Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018

Kindly produce GeM seller Id with documentary proof along with your Bids/offers for case Value more than 25 Lacs.

SANJAY SINGH
SR. ENGINEER

BHARAT HEAVY ELECTRICALS LIMITED
HEEP: HARDWAR-249 403 (UA)
Fax : 0091 01334-226462, Phone : 0091 01334-281995, 284009
E-mail: sanjay.singh@bhel.in; +91 9899095970

Tender no. C/6580/2021/2285/T1

Date 29/12/2021

Subject: Expression of interest as detailed below:

1. Sealed tenders with the Tender No. and opening date clearly super scribed on the cover are invited for the supply of the following items.
2. Last date for obtaining tender documents and opening of tenders is indicated below. Tenders will be received up to 1.45 P.M. on opening date and opened on the same day at 2.00 P.M. in the Tender Room.
3. BHEL will not be responsible for any type of postal delay / incomplete information from vendor.
4. The notification shall be published on www.bhel.com or www.bhelhwr.co.in.
5. No price bid is to be submitted along with this offer.
6. EMD and Tender Fee is not applicable.

Details are as following:

| Sl. No. | EOI no. | Description of Equipment | Qty. (Nos .) | Last date for submission of the offer | Opening date |
|----------------|-----------------------------|--|---------------------|--|-------------------------------|
| 1. | C/6580/2021/2285/T/1 | INDUCTION HARDENING MACHINE FOR CASE HARDNESS 45 TO 62 HRC & CASE DEPTH 0.5 TO 3 MM | 01 | 31-01-2022 at 01:45 pm | 31-01-2022 at 02:00 pm |

- Technical Specifications & PQR are enclosed. Performa for performance feedback is also attached.
- **PREFERENCE TO MAKE IN INDIA**
For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 and subsequent Orders issued by respective Nodal Ministry shall be applicable even if issued after issue of this Tender Enquiry but before finalization of EOI.

As per Clause 3(b) of MII circular dt. 04.06.2021, Class I Local Supplier and Class II Local Supplier are eligible to participate in the tender and Non-Local Supplier are not eligible to participate in the tender. Offers received from Non-Local Supplier shall be straight away rejected.

Instruction to Bidders

Clause 1.0 – Tender submission

The following shall be super scribed on the envelope:

- 1. EOI TENDER NO. AND ITEM DESCRIPTION.**
- 2. DUE DATE FOR OPENING.**
- 3. “TECHNICAL BID”**

Vendor’s full name and address should be clearly mentioned on the envelope and shall be addressed to:

To,

**Tender Room
4th floor, Main Administrative Building
Heavy Electrical Equipment Plant,
BHEL, Ranipur
Hardwar- 249403**

Envelopes not marked as above are liable to be ignored and will not be opened.

- The bidders (originals manufacturers) will have to submit ink-signed offer / bid in original directly to BHEL. In case the bid is submitted by fax / email, the bidders shall simultaneously ensure submission of ink-signed original bid to BHEL also in the manner prescribed in this tender. Unsigned bids shall be ignored.
However, the suppliers or their authorized person may be allowed to attend the tender opening, if duly authorized by their principals, through a specific letter for a particular enquiry for opening on that particular day. General authorization letter is not acceptable.
- Any corrections / amendments shall be properly & fully authenticated with signature.

Clause 1.1:

TECHNICAL BID shall comprise of following documents:

- a) Complete Technical offer
- b) Catalogue of the Equipment, Complete reference of the past supply of equipment for the same or similar specification giving details of customer with Name of the contact person, Fax no, phone no, E-mail if available.
- c) Deviation with reference to Technical specification to be laid down on separate sheet.
- d) Any additional documents (please specify).

Note: No price bid is to be submitted along with this offer.

Clause 1.2:

Technical Bid will be opened on the date and time specified above, in the presence of those **vendors**, who wish to attend **the tender opening**.

Clause 1.3:

BHEL reserves the right to evaluate vendor’s process capability / quality systems etc. by visiting vendor works (if required)

Clause 1.4:

The offers of the bidders who are on the banned list and also the offer of the bidders, who engage the services of the banned firm, shall be rejected. The list of banned firms is available on BHEL website www.bhel.com

Thanking You,

**For & on behalf of BHEL, Hardwar
Sanjay Singh, Senior Engineer (Capital Purchase)**



BHARAT HEAVY ELECTRICALS LIMITED
HEAVY ELECTRICAL EQUIPMENT PLANT
Ranipur, Haridwar

EXPRESSION OF INTEREST

| | |
|---------|---|
| Subject | EXPRESSION OF INTEREST (EOI) FOR "SUPPLY,INSTALLATION, COMMISSIONING & PROVE OUT OF CNC INDUCTION HARDENING MACHINE FOR CASE HARDNESS 45 TO 62 HRC & CASE DEPTH 0.5 TO 3 MM ON ALLOY STEEL LIKE C40, 35NICRMO15, 38NICRMO4, 42CRMO4 ETC. AS PER ATTACHED SPECIFICATION." |
|---------|---|

Bharat Heavy Electricals Limited (BHEL), a leading Central Public Sector Enterprise of Govt. of India (www.bhel.com) catering to the core infrastructure sectors of energy, transportation, heavy engineering industry, Defence, renewable & non-conventional energy etc. is in process to diversify business verticals and to strengthen its value proposition and realign its global positioning, BHEL is in process of making strategic efforts to develop indigenous technological capabilities to fully tap and then leverage the potential opportunities of the Fourth Industrial Revolution.

To move forward in the field of special process of **Induction Hardening**, HEEP a manufacturing Unit of BHEL established in Haridwar engaged in manufacturing of Defence product (SRGM 76/62) & power plant equipment's is interested to establish a special and challenging **CNC Induction Hardening Machine** facility . In view of this an **EOI is requested for identification of prospective vendors and finalization of tender specifications for the CNC Induction Hardening machine meeting our requirements.**

Special Instructions:

1. Technical offers and inputs are required from vendors for establishment of Induction Hardening facility at Heavy Electrical Equipment Plant, BHEL, Haridwar. Vendor to clearly describe their capabilities, deviations from specifications and should also suggest possible solutions.
2. This Expression of Interest (EOI) is for identification of prospective vendors and finalization of tender specifications only and not for procurement. There is no commercial aspects associated to this EOI.
3. BHEL reserves the right to evaluate the responses, based on technical merits, in the process of short-listing and identification of the participants for further discussions.
4. Vendor to submit compliance for fulfillment of PQR conditions. Documents regarding PQR conditions to be submitted at the time of final tender.

Sumit
(Sumit Kumar
Sr. Eng./DABG-Tech)

Star
Rohit
(ROHIT CHAUDHARY
E2/WEX/BL2 & DABG)

Anat Kumar
(Anat Kumar
E2/WEX-CRC/FBME/DABG)
Page 1 of 2

Rajin Chaurasia
(Rajin Chaurasia)
ACM/DABG

Krishish
(KUMAR ABHISHEK)
Dy. Manager / DABG-Prod.

5. Vendors are advised to conduct a pre-bid meeting for any technical clarifications and site visit if required. In case any clarification is needed or site visit is required, parties may contact the following persons on phone or via e-mail:

- a. Sh. Sumit Kumar, Email: sumit-ku@bhel.in, Mobile: +91 7248116799
- b. Sh. Kumar Abhishek, Email: kabhishek@bhel.in, Mobile: +91 8004939859

Enclosures:

- 1. Technical Specifications
- 2. Annexure-1

Sumit
(Sumit Kumar
Sr. Eng. / DABG-Tech)

Sumit
(Sumit Kumar)
(Sr. Eng. / MTE)

Rohit
(Rohit Chaudhary)
(E2/WEX/BL2 & DABG)

Kabhishek
KUMAR ABHISHEK
SR. MANAGER / DABG-Prod

Rajiv Chaurasia
(Rajiv Chaurasia)

Anil Kumar
(Anil Kumar)
(E2/WEX-CAC / FBM & DABG)

TECHNICAL SPECIFICATION OF CNC INDUCTION HARDENING MACHINE FOR EOI

| SL NO. | | |
|--------|--|-------------------|
| 1 | INTRODUCTION : | |
| | Induction hardening (IH) is a special process used for the surface hardening of steel and other alloy steel components. The parts to be heat treated are placed inside a copper coil and then heated above their transformation temperature by applying an alternating current to the coil. The alternating current in the coil induces an alternating magnetic field within the work piece which causes the outer surface of the part to heat to a temperature within or above the transformation range followed by immediate quenching. It is an electromagnetic process using a copper inductor coil, which is fed a current at a specific frequency and power level. | Vendor to Note |
| 2 | BHEL Requirement: | |
| | In our product, many components of alloy steel of cylindrical and non cylindrical or irregular shapes are required to undergo induction hardening on certain face or edges to reduce wear and tear during operation at high speed. The value of hardness is specified on drawing and is usually controlled to 45-62 HRC with case depth of 0.5-3 mm depending on component and material used (Alloy Steel like C40, 35NiCrMo15, 38NiCrMo4, 42CrMo4 etc.) . Approximately 200 components of the product are having induction hardening requirement with some components having induction hardening at more than one place. A CNC Controlled Induction Hardening Machine is required for this purpose. | Vendor to confirm |
| 3 | BASIC PARAMETER: | |
| 3.1 | Type of Machine : CNC controlled auto scanning, single station with rotary table | Vendor to confirm |
| 3.2 | Admit between centres - 600 mm | Vendor to confirm |
| 3.3 | Case Depth - 0.5 to 3 mm | Vendor to confirm |
| 3.4 | Case Hardness - 45 to 62 Hrc | Vendor to confirm |
| 3.5 | Max.Job Size (LXWXH) - 600 x 400 x 350 mm | Vendor to confirm |
| 3.6 | Max.Weight of the Job - 100 Kg | Vendor to confirm |
| 3.7 | Input power - 415 Volts $\pm 10\%$, 50 Hz $\pm 3\%$ and 3 - phase | Vendor to confirm |
| 3.8 | Output Power | Vendor to inform |
| 3.9 | Output Frequency | Vendor to inform |
| 4 | SPECIFIC CHARACTERISTICS: | |
| 4.1 | Design, Supply, installation, testing, commissioning and proving of solid state (IGBT Based) CNC Induction Hardening Machine with rotary table of suitable capacity covers the following: | Vendor to confirm |
| 4.2 | The machine shall be used mainly for Induction Hardening and tempering of components. | Vendor to confirm |
| 4.3 | The induction hardening components should pass MPT (as per standard) for surface crack detection | Vendor to confirm |
| 4.4 | The machine shall be capable of functioning in Automatic and Manual mode. | Vendor to confirm |
| 4.5 | The machine shall be capable/designed to induction harden using scanning and sigle shot method | Vendor to confirm |
| 4.6 | The Machine shall be equipped with latest version of CNC Control System, prferably SIEMENS/ FANUC or equivalent. | Vendor to confirm |
| 4.7 | The scanning shall be done by moving the coil in 3-axis plane/2-axis plane with table rotation/suitable method to scan the complete harden surface of components. The movement for scanning can either be provided in the coil or on the job or combination of both coil and job rotation. | Vendor to confirm |
| 4.8 | The machine shall incorporate safety devices to provide protection to the operator and machine against all possible operational and machinery failures. Details of the safety features including various interlocking between sub-systems of the Induction hardening machine provided. | Vendor to confirm |
| 5 | ATMOSPHERIC CONDITIONS : | |
| 5.1 | The ambient temperature at the site at which the machine will be installed may vary from -4°C to $+50^{\circ}\text{C}$ over the year. The relative humidity may be as high as 98%. The atmosphere is expected to be dusty. The machines offered shall be suitably tropicalised to work under these atmospheric conditions without any adverse effect on their performance. | Vendor to confirm |
| 6 | SPARES : | |
| 6.1 | Vendor has to provide list of recommended spares required for 2 years (3-shifts) trouble free operation. | Vendor to offer |
| 7 | CONSUMABLES & ACCESSORIES : | |
| 7.1 | Vendor has to provide list of consumables and accessories used in machine. | Vendor to offer |
| 8 | TRAINING : | |
| 8.1 | BHEL Persons should be trained by vendor for CNC Programming for the machine, Electrical, Electronic & CNC maintenance for machine & other supplied equipments, Mechanical & Hydraulic maintenance of the machine, Operation of the machine & other supplied equipments | Vendor to confirm |
| 9 | PRE-ACCEPTANCE AT VENDOR'S WORKS : | |
| 9.1 | BHEL persons deputed for pre-acceptance at vendor's works and give dispatch clearance after satisfaction from all angles. During pre-acceptance, Demonstration of all features of the machine, control system & accessories to be check by the BHEL team. | Vendor to confirm |

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Star

Phdhy *Anttan* *Kishishel*

Rayin Chauhan
(Rayin Chauhan)

| | | |
|--------|---|-----------------------------------|
| 10 | ERRECTION & COMMISSIONING ; | |
| 10.1 | Vendor to take full responsibility for carrying out the erection, start up, testing of machine, it's control & all types of other supplied equipment/accessories. Successful proving of BHEL components by the supplier shall be considered as part of commissioning. | Vendor to confirm |
| 11 | PROVE OUT OF BHEL COMPONENTS | |
| 11.1 | Vendor to prove out 10-15% of total no. of components on offered machine at BHEL works during commissioning. Images of some components are attached in Annexure 1 for vendor ref. However Coils, fixtures & program for all 200 components are in vendor scope of supply. | Vendor to confirm |
| 12 | FINAL MACHINE ACCEPTANCE : | |
| 12.1 | Final acceptance shall be made by BHEL Hardwar after completion of following activities & successful commissioning : Demonstration of all features of the machine, Prove out of BHEL components, Training of BHEL machine operators & excutives in operation of complete machine, software & accessories etc by the supplier's experts / engineers during their stay at BHEL works. | Vendor to confirm |
| 13 | GENERAL INFORMATION | |
| 13.1 | All the information and drawings attached with tender document are exclusive property of BHEL Hardwar. Under no circumstances these should be passed to any third party without prior permission of BHEL and must not be used directly or indirectly detrimental to the interest of BHEL. | Vendor to accept & confirm. |
| 14 | PRE-QUALIFYING REQUIREMENTS (PQR) : | |
| 14.1 | Original Equipment Manufacturer (OEM) or their authorized dealers in India along with an authorization letter from OEM can submit offers. An authorized representative/Dealer in India, cannot quote for the same equipment from more than one OEM. | |
| 14.2 | The vendor should have supplied & commissioned at least one CNC Induction Hardening Machine (IHM) of same or higher configuration in the past ten years (From the date of opening of Tender) and the supplied machine must be operating satisfactorily for at least one year from the date of commissioning. | Vendor to accept & confirm/inform |
| 14.3 | Foreign OEM may directly provide after sales service and support. If foreign OEM recommends an Indian agent for after sale service and support, an authorization letter from OEM for the dealer/representative shall be provided with confirmation that after sale service support shall be provided by them. | |
| 14.4 | The OEM or their authorized service representatives shall have trained engineers for commissioning & service for the offered equipment and shall be in a position to provide prompt after sales service and spares support for our installations. | |
| 14.5 | The following information should be submitted by the vendor about the companies where same or higher configuration 'IHM' has been supplied. This is required from all the vendors for qualification of their offer. | |
| 14.5.1 | Name of the customer / company where referred 'IHM' is installed. | Vendor to inform. |
| 14.5.2 | Complete postal address of the customer. | Vendor to inform. |
| 14.5.3 | Month & Year of commissioning | Vendor to inform. |
| 14.5.4 | Parameters of 'IHM' supplied and application for which it is supplied. | Vendor to inform. |
| 14.5.5 | Name and designation of the contact person of the customer. | Vendor to inform. |
| 14.5.6 | Phone, Fax No. and email address of the contact person of the customer. | Vendor to inform. |
| 14.5.7 | Performance certificate/un priced Copy of purchase order or Commissioning report with supporting acceptance papers or a direct Email from the customer where 'IHM' has been supplied (If Possible). | Vendor to submit. |

Suk
 (Sumit Kumar
 Sr. Eng/DAB4-Tech)

Sujat Kumar
 (Sujat Kumar)
 Dy Mgr/MTE

For Spares, Maintainability
 & PDI
Rohit Chaudhary
 (ROHIT CHAUDHARY)
 (E2/WEX/BL2 & DAB4)

only for spares, maintainability
 & PDI
Amit Kumar
 (Amit Kumar)
 E2/WEX-cac/PBM2
 DAB4)

Kishor
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Rajiv Chaurasia
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