



BHARAT HEAVY ELECTRICALS LIMITED
HEEP: HARDWAR-249 403 (UA)
Phone : 01334 – 28 5203/5479
E-mail : agoyal@bhel.in

Due Date: 30.07.2020

Ref: PPX/EM/EOI/20-21/Support Ring

Notice Inviting Expression of Interest for empanelment of New Vendors

The Heavy Electrical Equipment Plant (HEEP) located in Haridwar, is one of the major manufacturing plants of BHEL. The core business of HEEP includes design and manufacture of large steam and gas turbines, turbo generators, hydro turbines and generators and so on. **We are looking for reputed Vendors having capability to supply Support Ring used for support and consolidation of overhang structure of large turbo Generators.**

The specification of these items may be obtained from BHEL after submission of Ink Signed Non-Disclosure Agreement (Annexure-2). The Non-Disclosure Agreement is to be submitted to the following person (s) for obtaining Specifications:

Contact Person 1:

Mr. Anil Kumar
Designation: DGM (PPX/EM)
Email ID: achauhan@bhel.in
Tel: +91 1334 28 4683

Contact Person 2:

Mr. Ankur Goyal
Designation: Dy. Manager (PPX/EM)
Email ID: agoyal@bhel.in
Tel: +91 1334 28 5203

The offers received will be technically evaluated by BHEL & successful short listed parties will be asked to submit their detailed Techno-Commercial offers through formal NIT/Enquiry, for our future requirements. Vendors shall confirm that there is no deviation with respect to BHEL Specifications. However, deviations, if any, are to be listed as a separate attachment. The offers that do not meet the substantial requirements of our specifications are liable to be ignored.

Following documents are to be necessarily filled and submitted along with the technical offer:

1. Details/ Documents in support of Pre-Qualification Requirement (**Annexure-1**)
2. Non-Disclosure Agreement (**Annexure-2**)
3. Company registration certificates (PAN card/D&B/ROC/CBEC etc)
4. Quality control documents / procedure.
5. Details of Manufacturing Facility
6. Company Profile.
7. Financial report of the company.
8. Past experience along with documentary proof.
9. Details such as technical features, experience details, product catalogues, reference lists or any other relevant information.
10. List of equipment manufactured in-house.
11. List of Bought out items along with vendor's list equipment with experience details with respect to size rating and year of operations.

Only Technical BID along with the documents mentioned above should be sent & the envelope containing the offer shall be duly sealed and super scribed as **"Technical Offer for (ITEM NAME) AGAINST Reference No. PPX/EM/EOI/20-21/ Support Ring, SUBMITTED BY (Name of company)"**



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The last date for submission of Technical offers is 30.07.2020.

- The Technical Offers complete in all respect must be addressed to “Shri S.Bajpai, AGM (PPX/EM)” **and should reach before 13:45 Hrs (IST) on 30.07.2020.** Tenders will be opened on the same day at 14:00 Hrs (IST) in the Tender Room.
- Late offers will not be considered in any case. BHEL will not be responsible for any type of postal delay / incomplete information from vendor.
- EMD & Tender fee are not applicable.
- The Quotation should be from the Principle / Original Manufacturer, falling which the Quotation is likely to be ignored. In case the quotation is submitted through agent, the quotation must accompany original authorization letter from Principle / Original Manufacturer.
- Amendments / Corrigendum, if any, will be hosted on our website only.
- For any further clarifications, feel free to contact the undersigned or log on to www.bhel.com or www.bhelhwr.co.in or www.tenders.gov.in

(Anil Kumar)
DGM (PPX-EMI)



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ANNEXURE-1

PRE-QUALIFICATION REQUIREMENTS (TECHNICAL) FOR EOI OF SUPPORT RING

- ITEM DESCRIPTION:** Support Ring is a critical component in conical shape, used for support and consolidation of the overhang structure of large size turbo-generators (500 MW and higher ratings). The complete overhang of the Stator Winding rests on the Support Ring. These components are made by using glass roving and Epoxide resin system hardened by heat manufactured by filament winding technique. Fibre glass roving of Aluminium Boro Silicate Glass (E glass) as per DIN EN 14020 with a coupling agent suitable for epoxy resin should be used for manufacturing of Support Ring. All items except Support Ring are made up of Epoxy Glass Mat material. Bonding Epoxy resin must have an Operating Temperature of Min.150°C (as per DIN EN ISO 2578) and Glass Transition Temperature of Min.160°C (as per DIN EN 61006). All the surfaces should be varnished with a transparent epoxy varnish suitable for class B & above. The varnish should have good dielectric properties and good protection against chemicals & moisture. Gluing of threaded bush shall be done by using suitable epoxy adhesive system which has excellent chemical resistance & suitable for class E & above.

- EXPERIENCE:** The vendor should have manufactured and supplied Support Ring in finished machined condition for large size turbo-generators (500 MW and higher ratings) to reputed power plant equipment manufacturers world-wide during the last 7 years from date of enquiry.

The supplied material should have following properties:

S.No	Test Parameter	Value	S.No	Test Parameter	Value
1	Glass Fibre Content	70-85%	6	Modulus of Elasticity	Min.25000 N/mm ²
2	Bonding Material	15-30%	7	Bending Strength	Min.700 N/mm ²
3	Gross Density	1.8-2.2 g/cm ³	8	Impact Strength	Min.300 KJ/m ²
4	Compressive strength in parallel direction	Min.500N/mm ²	9	Electrical strength proof test in oil in parallel to layers for 25mm electrode spacing.	25 KV, 1 minute proof
5	Compressive strength in perpendicular direction	Min.110N/mm ²	10	Electrical strength proof test in oil in perpendicular to layers for 3mm electrode spacing.	15 KV, 1 minute proof

In support of which, vendor to submit the following documents: -

- Vendor should have manufactured and supplied the above material against at least 3 Purchase Orders in last 10 years from the date of enquiry. Vendor to furnish copies of Purchase Orders of the same.
 - Vendor to furnish Test Certificates (for dimensional, mechanical and electrical test, etc.) for each Purchase Orders furnished against Clause 2a.
 - End User Certificate: Vendor to furnish at least one Certificate from End User or Generator Manufacturer certifying that the Support Rings supplied by the vendor has been successfully used in assembly of TG stator (500 MW and higher ratings) and the said Turbo-generator has been in operation for at least 1 year. The End User Certificate should be pertaining to any one of the above Purchase Order furnished against Clause 2a.
- MANUFACTURING FACILITY:**
 - Vendor to confirm that they have all the in-house facilities for manufacturing the support cone with minimum 2500mm outer diameter and 900mm height having conical profile on inner side.
 - Vendor should have facilities to meet all the dimensional requirements of drawing i.e. positioning and drilling of holes perpendicular to conical surface at a particular PCD, milling of ducts within drawing tolerances (± 0.1 mm) and surface finish ($3.2\mu\text{m}$ at critical locations and $6.2\mu\text{m}$ at rest of the locations). Machining should be performed with suitable machines to ensure the dimensional accuracy as per ordered drawing. Any deviation with respect to ordering drawing Requirements is not acceptable. Vendor to confirm the same and provide valid calibration certificates of machines available at their works used for manufacturing/machining of support ring.
 - In case vendor does not have in house facilities for any manufacturing operation/activity and same is subcontracted by vendor, vendor should furnish details of sub-vendors and facilities available at sub-vendor works.
 - TESTING FACILITIES:**
 - Vendor to confirm that they have all the in-house facilities for testing this item for properties mentioned in sl. No. 2. If the vendor intends to outsource any testing activity, particulars of the same along with details of the laboratory to be furnished to BHEL.
 - Vendor should have the facility of dimensional measurement through CMM machine with common center line at ID & OD side of the support ring. Vendor to share details of CMM machine available at their works along with valid calibration certificates. Vendor should also provide the dimensional measurement report of the component generated through CMM machine pertaining to any one of the above Purchase Order furnished against Clause 2a.
 - BHEL reserves the right to verify the information submitted by the vendor. In case the information is found to be false or incorrect, the offer shall be rejected. All the documents should be furnished in English language only. If the documents are not in English, then they must be accompanied by duly certified English translations of the same.