



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

RESEARCH and DEVELOPMENT / MHD Complex

SUPPLY OF HYDRAULIC TORQUE WRENCH	Phone: +91 431 257 8608 Fax : +91 431 252 0696 Email : saru@bheltry.co.in Web : www.bhel.com
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Reference Number: R&D:MM: 01/2009	Date: 01.04.2009	Due date for submission of quotation: 24.04.2009 14.30 hrs
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You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order

BHEL/Trichy is looking for offers for supply of Hydraulic Torque wrench as per the specification Spec. No: R&D: OTSC: 65 Rev 01 10.03.2009 attached. Interested bidders may please send the offers to the following address before the due date.

S Arumugam
SDGM/MM/R&D
MHD Complex
BHEL
Trichy-620014

Bharat Heavy Electricals Limited
Research and Development
Tiruchirappalli –620 014

Spec. No: R&D: OTSC: 65 Rev 01

10.03.2009

I. TECHNICAL SPECIFICATION FOR HYDRAULIC TORQUE WRENCH

- | | | |
|-----------------------------------|---|--|
| 1. Name of the Tool | : | Torque Wrench with power pack complete with accessories. |
| 2. Type of the Torque Wrench | : | Hydraulic Operated. |
| 3. Tooling Accuracy | : | $\pm 3\%$. |
| 4. Maximum Torque | : | 14,000 Nm. |
| 5. Minimum Torque | : | To be specified by the Vendor. |
| 6. Weight | : | To be specified by the Vendor. |
| 7. Noise Level | : | To be specified by the Vendor. |
| 8. Vibration Level | : | To be specified by the Vendor. |
| 9. Rotation | : | Uni-Swivel Multi Axis 360° x 180°. |
| 10. Housing Material | : | To be specified by the Vendor. |
| 11. Repeatability to be certified | : | $\pm 1\%$. |
| 12. Power to Weight Ratio | : | To be specified by the Vendor. |
| 13. Operation | : | Double Acting. |
| 14. Finish Required | : | Corrosion Resistant Finish. |
| 15. Position | : | Reaction arm will be in front portion of the Hydraulic Torque Wrench. |
| 16. Inserts | : | Sectional Inserts.
(a) Sizes to be specified by the Vendor.
(b) Sizes specifically required: 50,60,65 & 90 mm (Size across flats).
* Separate Quotation for inserts covering lowest nut to highest nut shall be furnished.
(c) Depth of the inserts minimum required is 60 mm. |
| 17. Safety Measures | : | (a) The tool should have Anti Backlash secondary Pawl to prevent backward rotation of ratchet gear caused by stud torsion.
(b) External Ratchet freeing device to enable quick release of the tool in case of binding up with nuts.
(c) Torsion free internal mechanism.
(d) There should be no torsion stress on Hydraulic Cylinder and the reaction arm should not connect with Hydraulic portion of tool body. |

18. Design : (a) Unibody Design (No bolted joints).
(b) Applicable in critical area and can use special / modified reaction arm like track pad fixture, or a reaction arm designed and made to suit the application.
(c) The tool must be compatible to tension the bolts with the help of special washers if required in the future.
(b).

Technical Requirements of Pump:

19. The maximum flow rate of oil should not be less than 10 liters / min at minimum (Should be adequate to maintain the rated torque)
20. The Hydraulic pump must have an inbuilt heat exchanger suitable for use in Indian environment.
21. For avoiding whip lashing of the hoses and for added stability and control, the hoses should be of joined construction type i.e. the hoses should not be detachable from one another.
22. The remote control pendant to control the torque wrench should be at least 6 meters long.
23. The Hydraulic pump must be completely automatic with facility to set torque and operate the tool automatically without need to operate remote control switch during every cycle. The power pack should provide acoustic signals when the final torque is reached.
24. The hose of 4.5 meters length should be steel braided with safety factor of 4:1.
25. The pump should operate with 230 V \pm 10%, 50 \pm 2% Hz AC single-phase power.
26. Weight of pump to be specified by the vendor.
27. Specification of hydraulic oil to be specified by the vendor.
28. The hydraulic pump / power pack shall be fitted with safety relief valve.

II GENERAL :

1. Validity of offer : The offer shall have a minimum validity period of 3 months.
2. Delivery : The equipment shall be delivered within 3 months from the date of placement of P.O.
3. Others : (a) List of Equipment along with supply is to be furnished along with photo / Catalogue.
(b) Test certificate to be produced along with supply.
(c) Warranty clause to be specified in the offer.

- (d) Reference list of addresses to which similar equipment supplied to be specified in the offer.
- (e) Training and demo of the equipment shall be given to BHEL staff at BHEL before and after supply of equipment.
- (f) The equipment should be calibrated and necessary calibration certificates should be supplied along with the equipment.

III SCOPE OF SUPPLY - (Supply of Hydraulic Wrench with the following items.)

- 1 Hydraulic torque wrench with square drive head of size suitable for inserts ranging from 50 to 90 mm, capable of developing maximum torque of 14000 Nm – 1No
- 2 Suitable power pack for the specified torque range operating at supply voltage of 220 V \pm 10%, 50 Hz, AC – 1No
- 3 Hydraulic hoses of 4.5 meter length with necessary end connectors suitable for the wrench and power pack – 1set
- 4 Inserts of sizes having 50,60,65 and 90mm (size across flats) , with depth of inserts minimum of 60mm suitable for the drive.- (The sockets of all inserts should match with the drive head.) Each 1 No.
- 5 The supply shall be complete with all essential accessories required to meet the intended application covering the entire torque and insert size range.

IV SPARES:

- 1 Hydraulic hose. – 1 set
- 2 Recommended spares for the wrench and the power pack for the trouble free operation of 2 years, indicating the cost of each item.

V SUBMISSION OF BIDS:

1. Bidders shall submit the offer in **TWO INNER ENVELOPES** as indicated below which shall be sealed in one outer envelope.

Envelope I This sealed envelope should contain technical bid together with **un-priced** non-technical commercial bid. This envelope should be clearly marked **“Part I - Technical and un-priced commercial bid”**, indicating Enquiry No., Due Date and Address & Reference of the Bidder.

Envelope II This sealed envelope should contain **price details**. This envelope should be clearly marked **“Part II - Price bid”**, indicating Enquiry No., Due Date and Address & Reference of the Bidder.

Both the envelopes (Part I & II) shall be put in one cover, duly sealed, superscribing as Part I and Part II of Enquiry No., due date of opening and the address and reference of the Bidder.

2. Tender should not be addressed to any Individuals name but only by designation to:

SDGM /MM/ R&D

MHD Complex

BHARAT HEAVY ELECTRICALS LIMITED

TIRUCHIRAPALLI - 620 014

TAMIL NADU, INDIA

3. Tenders should be free from **CORRECTION AND ERASURES**, Corrections if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

Offers should be in **ENGLISH** and accompanied by detailed technical literature, catalogue and details of process facility in **ENGLISH**.

4. Contents of Part I (Technical & Unpriced Commercial Bid)

4.1 Technical

This part shall include / indicate the following:

Offer should contain complete scope of supply with all technical details, specifications.

4.2 Commercial

This part shall include / indicate the following:

Delivery and other commercial terms and conditions. Terms of payment, Taxes & duties applicable, Offer validity and delivery schedule.

A copy of “Un-Priced Part II” i.e., a copy of the Price Bid without the price details to be enclosed.

5 Contents of Part II (Price- Bid)

This part should contain the schedule of price particulars and to be co-related to the technical details provided in Part I.

6 Opening of Tenders

The Part I - Technical and non-technical commercial bid alone would be opened on the Tender opening date.

The Part II - Price bid of Technically suitable Bidders alone would be opened.

The Technically suitable Bidders would be informed about the tender opening date.

Clarifications if any required by BHEL for Technical evaluation would be sought from bidders before opening of Part II - price bid.

Prepared by: L.M.Subramanian

Checked by: R.Dhanuskodi

Approved by: S.Arumugam