



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

An ISO 9001
Company

ENQUIRY	Phone: +91 431 257 79 38
NOTICE INVITING TENDER	Fax : +91 431 252 07 19
	Email : tvenkat@bheltry.co.in
	Web : www.bhel.com

TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two Parts	2631300109	07.09.2013	17.10.2013

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	Hydraulic Bolt Tensioner as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1 No.

Important points to be taken care during submission of offer

1. Checklist No. TRY/IMP/03 and TRY/IMP/03A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
2. 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.
3. Delivery required: Four months from the date of Purchase Order.
4. The time period required for Erection and Commissioning shall be 6 days from the date of intimation from BHEL requesting supplier to depute Service Engineers about site readiness.
5. EMD for this tender will be ₹ 40,000.00

BHEL's General guidelines / instructions (refer MM/CE/GENL/001-EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference "2631300109".

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

Sr. Manager / Capital Equipment / MM

T. VENKATESWARAN
Senior Manager
Capital Equipment / MM
BHEL, Tiruchirappalli - 620 014

Hydraulic Bolt Tensioner
Part –A (Qualifying Criteria)

SECTION – I

The BIDDER is expected to give complete details against each clause in the table given below, with additional sheets those may be attached (giving clear reference number) to furnish and cover the requisite details / documents.

Sl. No.	PARTICULARS	BIDDER'S RESPONSE
1	BIDDER to provide the Profile of their Company	
2	The Bidder (OEM) shall have a minimum of five years of Continuous Experience in the field of Design, Manufacture and Supply of Hydraulic Bolt Tensioners.	
3	List of customers to whom Hydraulic Bolt Tensioners were supplied, installed and commissioned till date.	
4	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centres in India.	
5	Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

Hydraulic Bolt Tensioner
Part –A (Qualifying Criteria)

SECTION – II: The BIDDER has to compulsorily meet the following requirements to get qualified for submitting an offer for the "**Hydraulic Bolt Tensioners**".

Sl. No.	REQUIREMENTS	BIDDER'S RESPONSE
1	Only those Bidders (OEMs) should quote, who have supplied and commissioned at least three numbers of Hydraulic Bolt Tensioners, in the past five years (on the date of opening of Tender) and such equipment should presently be working satisfactorily for more than one year after commissioning (on the date of opening of Tender).	
	The Bidder should submit following information where the Hydraulic Bolt Tensioners have been supplied:	
1.1	Name and postal address of the customer or company where similar equipment are installed.	
1.2	Name and designation of the contact person of the customers.	
1.3	Phone, FAX no and email address of the contact person of the customers.	
1.4	Month and Year of commissioning of the equipment.	
1.5	Application for which the equipment are supplied	
2	Along with the Technical offer, the Bidder should submit any one <u>Performance certificate from the customers for the satisfactory performance of the equipment supplied as per clause 1.0 above</u> (For obtaining the Performance certificate, a suggestive format is provided in SECTION – IV).	
3	Offers of only those Bidders who meet the above Qualifying Criteria will be considered for further evaluation.	
4	BHEL reserves the right to verify the information provided by Bidder. In case the information provided by Bidder is found to be false/ incorrect, the offer shall be rejected.	

Hydraulic Bolt Tensioner
Part –A (Qualifying Criteria)**SECTION – III**

The BIDDER has to comply with the following, for accepting the Technical Offer for scrutiny by the Purchaser:

S. No.	REQUIREMENTS	BIDDER'S COMPLIANCE
1	The BIDDER shall submit the offer in TWO PARTS-Technical [with PART A & PART B] & Commercial and Price Bid.	
2	The offer shall contain a comparative statement of Technical Specifications given by BHEL and the offered details submitted by the Bidder, against each clause. Merely stating 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words wherever 'Bidder to Specify' details in the technical comparative statement may lead to disqualification of the Technical Offer.	
3	The Technical Offer shall be supported by product Catalogues & Data Sheets and also technical details of Bought-Out-Items with copies of Product Catalogue to the extent possible.	
4	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 of the inclusion of all the accessories, tooling's, attachments, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.	
5	BIDDER has to indicate the Country of Origin for the supply of equipment.	

Hydraulic Bolt Tensioner
Part –A (Qualifying Criteria)

SECTION – IV

PERFORMANCE CERTIFICATE
(On Customer's Letter Head)

1. Supplier of the "Hydraulic Bolt Tensioners" :

2. Make & Model of the "Hydraulic Bolt Tensioners" :

3. Month & Year of Commissioning :

4. Application for which the "Hydraulic Bolt Tensioners" is used :

5. **Size of the bolt and load per bolt** for which the "Hydraulic Bolt Tensioners" is used :

6. Performance of the equipment : Satisfactory / Good / Average /
(Strike off whichever is not applicable) Not Satisfactory

7. After Sales Service : Satisfactory / Good / Average /
Not Satisfactory

8. Any other remarks :

Date:

Signature & Seal of the Authority
issuing the Performance Certificate

Hydraulic Bolt Tensioner Qty-1 No
Part –B (Technical) Page 1 of 6

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER
1.0	<p>Purpose: Indented equipment is to be used for tightening of a flange cover with a nozzle welded to a long shell of a heat exchanger, hydraulically. Studs are to be pulled hydraulically and the nuts are to be tightened manually. Retained elongation is the measure of tightness. Completion of tightening of all the studs is to be carried out in a sequential manner by tightening 4 or 6 numbers of studs simultaneously.</p>	Vendor to note
2.0	<p>Job profile: The required geometrical details are given in Skt. No.30-T-33-39657. Nozzles are having 12 numbers (30° apart) of M27x3 threaded holes in a PCD of 295mm. Flange – termed as Hand Hole cover of thickness 69 mm (71mm on centre portion) is being used to close the nozzle. Dia 39mm and height 40 mm Sleeves are being used between the M27x3Nuts and the cover. Nuts in this case are Gear Nuts having 25 Teeth (m = 1.75) and height of the Nut is 27 mm. Studs are projecting beyond the nut to a length of 78mm and the top portion of the stud is having M22 X 2 threads to a length of 22mm, which is to be used for pulling. Final Load per bolt for studs is 25 Tons. No lubricant will be used in the fasteners being tightened.</p>	Vendor to note
3.0	<p>Scope of Supply: Scope of supply shall include design, manufacture, supply and commissioning of the following:</p> <ol style="list-style-type: none"> 1. Pneumatically operated Pump for pumping the oil at a pressure of about 1500 bar- 1 No. 2. Bolt Tensioner heads for the job specified vide 2.0 - 6 Set. 3.a High Pressure hydraulic Hoses of length 3.0 m each with quick connect couplings - 4 No. 3.b High Pressure hydraulic Hoses of length 0.6 m each with quick connect couplings - 12No. 3.c Straight & 'T' Connectors for the above hoses - 6 set 4. Extension measuring arrangement during bolt tensioning - 2Set. 5. Spares for 300 numbers of tightening cycles or for 2 years - 1 Set. 	Vendor to confirm
3.1.0	<p>Pneumatic Pump: The pump should consist of the following mentioned important components. All items shall be of high quality materials:</p>	Vendor to confirm
3.1.1	<p>Frame: The pneumatic (air driven) pump shall be mounted on compact and rigid steel carrying frame and shall be painted in Blue colour.</p>	Vendor to confirm
3.1.2	<p>Air Inlet port (screwed type – industry standard bayonet connector) with ON/ OFF Valve to connect the inlet air hose, open and close the inlet air into the pump.</p>	Vendor to confirm
3.1.3	<p>Air Filter with drain valve to filter and drain out the dirt and water from the inlet air.</p>	Vendor to confirm
3.1.4	<p>Air Pressure Regulator to control the air pressure into the pump. It should have a locking mechanism to lock it any position by pushing down the cap and opening by pulling up the cap of the regulator.</p>	Vendor to confirm
3.1.5	<p>Air Pressure Gauge to display the controlled air pressure applied to the pump.</p>	Vendor to confirm

Hydraulic Bolt Tensioner Qty-1 No

Part –B (Technical) Page 2 of 6

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER
3.1.6	Air Pressure Limit Valve to limit the maximum air pressure applied to the pump which in turn to limit the maximum pressure being developed by the pump.	Vendor to confirm
3.1.7	Air Lubricator to be provided for Oil mist lubrication for the pump if the pump is not a lubrication free air pump.	Vendor to specify
3.1.8	Exhaust Silencer must be of maintenance free to connect at the exhaust port of the pump, to reduce the noise of air at exhaust.	Vendor to confirm
3.1.9	Oil Reservoir shall be of suitable capacity (minimum of 7.5 Lit) having filters at both inlet and outlet openings and a Cap at the inlet. Oil should flow to the pump by gravity.	Vendor to confirm
3.1.10	Non return Valves of suitable capacity should be fitted at the Oil Inlet to the pump as well as Outlet from the Pump.	Vendor to confirm
3.1.11	High pressure 4 way distribution block with self-sealing Quick Connect Couplings shall be provided at the outlet of the pump – 4 ports for discharging the oil to the tensioning heads and 4 ports for collecting the return oil from the tensioning heads. Blank quick connect nipples and plastic dust covers shall be provided for each port (total 8 sets).	Vendor to confirm
3.1.12	Oil Pressure Release valve to releasethe pressure from the system (bolt tensioners) as well as to build up pressure in the system.	Vendor to confirm
3.1.13	Oil Pressure Gauge with gauge guard: A dual scale (Kg/Cm ² or PSI and bar) damped pressure gauge calibrated to a minimum of 1700 bar (1530Kgf/cm ² –min. or 22760 Psi min.) shall be fitted in the system. A rust resistant metallic grill (gauge guard) also should be provided to avoid any damage to the glass of the gauge.	Vendor to confirm
3.1.14	Oil: First fill up – Oil to be supplied by the vendor. Specification of the oil to be used is to be specified.	Vendor to confirm
3.2.0	Bolt Tensioner heads shall consists of the following mentioned items: <ol style="list-style-type: none"> 1. Load shell 2. Bridge 3. Threaded puller 4. Nut rotating socket 5. Tommy bar 	Vendor to confirm
3.2.1	All items shall be suitable for the purpose and job specified vide cl. 1.0 and 2.0	Vendor to confirm
3.2.2	Suitable high quality material shall be used and Black surface treatment for corrosion prevention is to be ensured.	Vendor to confirm
3.2.3	Load cells shall have twin ports with quick- connect couplings (same as that available in outlet port of Pump Ref. Cl. 3.1.11) for connection of multiple tools. Dust covers shall be provided for the ports.	Vendor to confirm

Hydraulic Bolt Tensioner Qty-1 No

Part –B (Technical) Page 3 of 6

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER
3.2.4	Piston shall be of Nitro carburised.	Vendor to confirm
3.2.5	It is preferred to have Piston stroke indicator in the load cell.	Vendor to confirm
3.3.0	Hydraulic Hose shall be suitable for the purpose and job specified vide cl. 1.0 and 2.0	Vendor to confirm
3.3.1.	Hydraulic hoses shall be suitable for a pressure of 1500 bar (minimum) and factor of safety shall be 3 (minimum).	Vendor to confirm
3.3.2.	Construction hoses shall be of a small core tube of suitable material surrounded by multiple high tensile steel spiral windings. Outside of the hoses shall be moulded with a Blue coloured plastic coating . Pressure rating and expiry date shall be printed on the hoses.	Vendor to confirm
3.3.3.	As mentioned in 3.0, the hoses are in two different lengths (3.0 m length 3 No. and 0.6 m length 9 No.) Quantity includes spares requirement).	Vendor to confirm
3.3.4.	Each hose should have strongly fastened with quick-connect couplings suitable to connect with the pump and the load cell (ref. cl. 3.1.11 and 3.2.3). Connector and Dust cap shall be provided for both ends of all the hoses.	Vendor to confirm
3.3.5.	Quick Connect couplings shall be provided in such a way that all the six load cells could be able connected either parallel or in series or in diagonally opposite. Otherwise, separate “T” connectors must be supplied.	Vendor to specify.
3.4.0	Extension measuring arrangement during bolt tensioning shall be usable for the job specified. Drawing shall be submitted along with this offer for technical evaluation.	Vendor to confirm
3.5.0	One complete set of O&M Spares (Mechanical, Electrical, Pneumatic and Hydraulics) for 300 operating cycles or for maximum of two years of trouble free operation of all the equipment / accessories being supplied is to be offered. item-wise Un-priced list with ordering specification, make etc shall be enclosed with this offer and priced list shall be attached with the commercial bid.	Vendor to provide
4.0	General: The stud tensioner shall be designed with the following provisions to accommodate the flange design and operational requirements.	Vendor to confirm
4.1	Tensioning/de-tensioning of Six (6) studs placed diagonally apart. Final retained load per stud is 25 Tons.	Vendor to confirm
4.2	Easy alignment and Quick operation is to be ensured.	Vendor to confirm
4.3	Uniform tensioning force and stroke shall be ensured in all the tensioners.	Vendor to confirm
4.4	Proper design of seating area on to the flange surface for the given job details.	Vendor to provide

Hydraulic Bolt Tensioner Qty-1 No

Part –B (Technical) Page 4 of 6

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER
4.5	Safety interlock mechanism (ensure that the hydraulic pull system is properly engaged before pressurising).	Vendor to confirm
4.6	Input Air Supply: BHEL will provide compressed air supply at 60 to 70 psi (4.1 to 4.8 bar) .	Vendor to confirm
5.0	Hydraulic system:	
5.1	The flexible hoses used in the system shall be of a reputed make and shall be acceptable to BHEL.	Vendor to specify
5.2	Maximum Operating Pressure of hydraulic system	Vendor to specify
5.3	Main Pump flow in lpm and Motor Power in KW.	Vendor to specify
5.4	Reservoir capacity (in litres)	Vendor to specify
5.5	The oil to be used shall be of standard ISO Viscosity Grades – 32 / 46 / 68	Vendor to specify
5.6	Environment temperature.	Vendor to provide
5.7	Set up for calibration and testing of hydraulic tensioner.	Vendor to provide
5.8	Hose testing methods (standard followed).	Vendor to provide
5.9	Calibration curve with Load Vs. Pressure.	Vendor to provide
5.10	The pumping system shall be equipped with strainers, filters etc. and shall be mounted on mobile unit.	Vendor to provide
6.0	Painting : All non-working surfaces and control panels shall be given a primer coat & two coats of paint as specified in Vendor’s Painting scheme. All unpainted surfaces shall be protected from rust during transit.	Vendor to confirm
7.0	Packing : The “Hydraulic Bolt tensioner”, its accessories and spares shall be packed rigidly to avoid any transit damage and dispatched	Vendor to confirm
8.0	Installation and commissioning at BHEL: Installation and commissioning of the “Hydraulic Bolt Tensioner” at BHEL shall be in the scope of vendor	Vendor to confirm
9.0	Acceptance at vendor’s works: The Hydraulic Bolt Tensioners shall be offered for BHEL’s Inspection at vendor’s works prior to dispatch and all features shall be demonstrated.	Vendor to confirm
10.0	Acceptance at BHEL works: During commissioning the vendor should demonstrate all features of the Hydraulic Bolt Tensioner using prove out component. Prove-out components are to be demonstrated for the desired stud sizes at BHEL. Materials for prove-out shall be supplied by the BHEL.	Vendor to confirm
11.0	GUARANTEE: 12 months from the date of acceptance of the “Hydraulic Bolt Tensioner” at BHEL or 18 months from dispatch whichever is earlier.	Vendor to confirm

Hydraulic Bolt Tensioner Qty-1 No

Part –B (Technical) Page 5 of 6

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER
12.0	Documentation: 3 sets of the following documents shall be furnished during inspection and supply:		Vendor to confirm
12.1	GA drawings/ Exploded view & Cross section assembly of major items		
12.2	The operator instruction manual		
12.3	Maintenance instruction manual		
12.4	Safety Instructions &Construction features		
12.5	List of bought out items, specification, make etc		
12.6	Guarantee / warranty cards of all bought-outs		
13.0	Check List : Please ensure that the following documents are submitted along with this “ Technical offer ”		Vendor to ensure
	Filled Up “ Part-A ” of Technical specification		
	“ Performance Certificate ” as specified in Section IV of Part-A		
	Filled Up “ Part-B ” of Technical specification		
	List of spares (Refer Clause 3.5.0)		
	GA drawings/ Exploded view & Cross section assembly of major items		
	Catalogues of the items being offered		
	Drawings for the extension measurement system (Refer Cl. 3.4.0)		
	List and Makes of the bought-outs		

