

Form No:



**BHARAT HEAVY ELECTRICALS
LIMITED**
Tool Engineering
TECHNICAL SPECIFICATION FOR
HYDRAULIC TORQUE WRENCH FOR
CONDENSATE EXTRACTION PUMPS

PR:5000017264

Rev. No. 00

Page 1 of 4

COPYRIGHT AND CONFIDENTIAL
The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED,
It must not be used directly or indirectly in any way detrimental to the interest of the company.

1. SCOPE

This standard specifies the requirements of Hexagonal type Ratchet head model of Hydraulic Torque Wrench with compatible hydraulic power pack operating with a design Torque of approximately $6000 \pm 10\%$ N-m at a maximum pressure of 700 bar, for tightening the nuts of Condensate Extraction pumps

2. CODES AND STANDARDS

2.1 The design, material, construction, manufacture, inspection, testing and performance of the Hydraulic Torque wrench shall be specified by the supplier.

3. DESIGN AND CONSTRUCTION

3.1 The design requirements, material of construction of main parts of Hydraulic Torque Wrench are as specified in the design data of this specification.

3.2 Compact, lightweight drive unit is preferred

3.3 Accuracy of $\pm 3\%$ with standard Torque chart

3.4 Owing to the limited access applications, Low profile design shall be envisaged

3.5 Minimum Nose radius(R) shall be maintained for fitment in confined spaces as per clause 4.0

3.6 The Hydraulic Torque wrench shall be suitable for continuous operation at maximum pressure.

3.7 The couplings shall be provided with $360^\circ \times 360^\circ$ uni-swivel couplings to enable connections with ease.

3.8 The Hydraulic Torque wrenches shall be driven by the portable power pack (wrench pumps) to suit the design conditions as per the datasheet.

3.9 The Hydraulic Torque wrench shall be suitable for tightening the nuts of CEPs of AF 70mm and AF 65mm with necessary adaptors.

3.10 Power pack should be capable of operating minimum Two Torque wrenches simultaneously and equipped with oil cooler.

5.

Bill of material

- The Hydraulic Torque Wrench shall contain the following Equipment and accessories.
- (i) Hydraulic Torque Wrench Ratchet Head: (Qty-2 Nos)
 Torque wrench Ratchet Head Suitable for 70mm Nut AF, easily fitted to use with torque wrench cylinder unit. Minimum radius cassette head for fitment in confined spaces.
 - (ii) Hydraulic Torque Wrench Drive Cylinder Unit: (Qty-2 Nos)
 Female hexagon ratchet head model hydraulic torque wrench cylinder unit.
 - (iii) Electrically Operated Pump Suitable for Torque Wrench: (Qty-1 No)

Hydraulic Pump Unit (Power Pack) consisting of :

- Torque wrench Pump suitable for use
- Easily adjustable torque setting pressure relief valves
- Accessories such as the pressure gauges, integral inline filters etc.,
- Lubricating oil systems, cooling systems etc.,

(iv) Hydraulic Hose for Connecting Pump and Torque Wrench: (Qty-2 sets)
 10 meters length hose, twin type, fitted with quick release coupler on both ends, to withstand the design pressure.

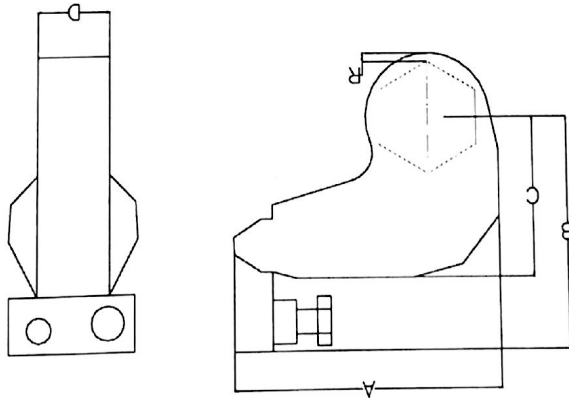
4.

Dimensions chart (approx.) :

The following dimensions shall be maintained by the vendor to suit BHEL requirement

A (mm)	250
B (mm)	170
C (mm)	135
D (mm)	40
R (mm)	10-15

Fig : Torque wrench head



TECHNICAL SPECIFICATION FOR
HYDRAULIC TORQUE WRENCH FOR
CONDENSATE EXTRACTION PUMPS

COPYRIGHT AND CONFIDENTIAL
 The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED,
 It must not be used directly or indirectly in any way detrimental to the interest of the company.

6. INSPECTION AND TESTING

- 6.1 The Hydraulic Torque wrench shall be tested at design conditions and the test report shall be submitted.
- 6.2 Material test certificates code requirements shall be furnished.
- 6.3 Test will be witnessed by customer / consultants/BHEL unless otherwise waived.

7. GUARANTEE

- 7.1 The Hydraulic Torque Wrench shall be guaranteed for its performance and workmanship 18 months after putting into operation or 24 months after supply whichever is earlier.
- 7.2 Review/approval of vendor's documents shall not relieve the vendor from their responsibilities for compliance with the applicable codes, standards & good engineering practices.

8. SAFETY CLAUSE

Vendor shall provide to the purchaser instructions on specific safety procedures for installation; start up, commissioning and maintenance of the item being supplied.

9. Accepted Brands

The Hydraulic Torque wrench as per the clause 1 shall be of Hi-Force-UK make or any other equivalent.

10. Documents for Submission

Six sets of documents along with Operating manual shall be submitted along with the equipment.



Form No:

BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING & SYSTEMS DIVISION

PR:5000017264

TECHNICAL SPECIFICATION FOR
HYDRAULIC TORQUE WRENCH FOR
CONDENSATE EXTRACTION PUMPS

Rev. No. 00

Page 4 of 4

COPYRIGHT AND CONFIDENTIAL
 The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED,
 It must not be used directly or indirectly in any way detrimental to the interest of the company.

FORMAT FOR DESIGN DATA FOR HYDRAULIC TORQUE WRENCH WITH POWER PACK
(TO BE FILLED UP AND SUBMITTED BY THE BIDDER AT THE TIME OF OFFER)

Sl.No.	Description	Unit	Purchaser's requirement / Bidder's Data
1	Design Torque	N-m	6000±10% N-m (approx.)
2	Design Pressure	bar	<----Bidder to furnish-->
3	Maximum size across flats for the ratchet head	mm	70mm
4	Dimension 'A'	mm	<----Bidder to furnish-->
5	Dimension 'B'	mm	<----Bidder to furnish-->
6	Dimension 'C'	mm	<----Bidder to furnish-->
7	Dimension 'D'	mm	<----Bidder to furnish-->
8	Dimension 'R'	mm	<----Bidder to furnish-->
9	Weight of the Torque Wrench	Kg	<----Bidder to furnish-->
10	Weight of the Power pack	Kg	<----Bidder to furnish-->
11	Provision of remote operation	.	mandatory
12			
13			

RECORD OF REVISIONS

Rev. No.	Date	Revision Details	Revised	Approved

Prepared	Checked	Approved	Date
Narasimha BNRAO/ SULOCHANNA	<i>[Signature]</i> PODDAR (SM /Tech (Pumps))	<i>[Signature]</i> M. RAVI (AGM/TR&TE)	01.03.16

M. RAVI
Add. General Manager / TR & TE
BHEL, HYD-32