	PRODUCT STANDARD HYDRO TURBINE ENGINEERING	HT 00262
		Rev. 01
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<u>SPECIFICATION FOR HIGH PRESSURE HYDRAULIC PLUNGER TYPE</u> <u>PUMP-MOTOR SET</u>		

1.0 APPLICATION:

The pump-motor set is required to operate 12 hours continuously for testing of spiral casing/ distributor / MIV/ BF valve and other assemblies of hydro turbine. It shall meet the requirement given in the input data sheet enclosed (Annexure-A).



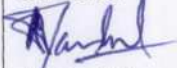
2.0 SCOPE OF SUPPLY:


Pump-motor set shall be supplied along with following accessories (mounted on pump motor set). See attached picture of pump for general information.

- 2.1 Reduction gear box (Radicon make or other reputed make) with coupling for motor to gear box or geared motor
- 2.2 Bush type coupling for gear box / geared motor to pump with coupling guard.
- 2.3 Non return valve
- 2.4 Spring loaded safety valve
- 2.5 Isolating valve (globe valve / needle valve)
- 2.6 Stainless steel pressure regulator cum safety valve with pressure adjustment range as given in input data sheet.
- 2.7 Glycerine filled pressure gauge, of reputed make, with 3-way isolating cock. Maximum operational limit of pressure gauge shall be 1.3 times greater than the normal working pressure.
- 2.8 Stainless steel by-pass valve with its hose.
- 2.9 Pulsation dampener.
- 2.10 Starter panel – Suitably mounted on pump motor common base frame.
- 2.11 Trolley type base frame, with lifting lugs (complete unit to be mounted on the base frame).
- 2.12 Suction filter with stainless steel element. Degree of filtration 50-75 micron.
- 2.13 2 nos. suction hose pipes each of length 10 metre. 2 nos. delivery hose pipes each of length 10 metre with ¾" BSP connection suitable for working pressure given in input data sheet. Suitable provision to be provided to connect two hose pipes together if required.
- 2.14 2 sets of spare sealing rings, springs, gland packings, gaskets etc. (Break up to be furnished in the offer)
- 2.15 Utility box (Tool box).

3.0 MOTOR DETAILS

Suitable TEFC induction motor of adequate capacity for duty specified and shall be suitable for $415 \pm 10\%$ volt, 3-phase, $50 \pm 5\%$ Hz AC supply. Insulation shall be of Class F but temperature rise shall be limited to Class B at continuous running at full rated load. Degree of protection shall be IP54 / IP55. Motor rating shall be at least 20% in excess of max. brake horsepower required in the entire range of operation. Motor shall be of reputed make such as ABB, GE, Bharat Bijli, Siemens, Crompton Greaves or any other make for which prior approval from BHEL shall be required.

Rev. No.	Date of Rev.	Remarks	Approved		
			 J.S. Hanspal, AGM (HOD)-HTE		
01	12.09.2016	Clause 2.12 revised. S. No. 14 of check list revised.	Prepared  Pushpendra Mani Sr.Engr-HTE	Checked  A Mandal AGM-HTE	Date of issue (Rev 00) 11.03.2016
			Saved in server as no. 42009900262		

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<u>SPECIFICATION FOR HIGH PRESSURE HYDRAULIC PLUNGER TYPE</u> <u>PUMP-MOTOR SET</u>		

4.0 **GUARANTEE**

The complete pump-motor set along with accessories shall be guaranteed for period of 24 months from the date of dispatch. During guarantee period, all manufacturing defects and short comings (if any) in performance of pump-motor unit shall be made good by the vendor free of cost.

5.0 **INSPECTION & TESTING**

Inspection shall be carried out in the presence of BHEL / TPIA representative at vendor's works as per approved QA plan and drg. The pump-motor unit to be tested as a whole unit. The test shall determine the performance of pump motor set and will be witnessed by BHEL / TPIA inspector. Each pump shall be tested with the electric motor to be supplied against the purchase order. Test bed motor shall not be used.

6.0 **DOCUMENTS / INFORMATION REQUIRED FROM VENDOR ALONGWITH OFFER**



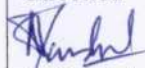
- 6.1 Head v/s Discharge curve
- 6.2 Efficiency curve
- 6.3 General arrangement drawing of complete assembly with bill of material (BOM) & weight. Quantity and grade of oil to be filled in the crank case & gear box.
- 6.4 Details of electric motor viz KW rating, RPM, Voltage, make etc.
- 6.5 Size and details of suction and delivery connection.
- 6.6 QA plan (in line with sample QA Plan furnished along with enquiry) for approval.


Vendor to start the manufacturing only after getting the drawing and QA plan approved from BHEL.

7.0 **DOCUMENTS REQUIRED AFTER PLACEMENT OF ORDER**

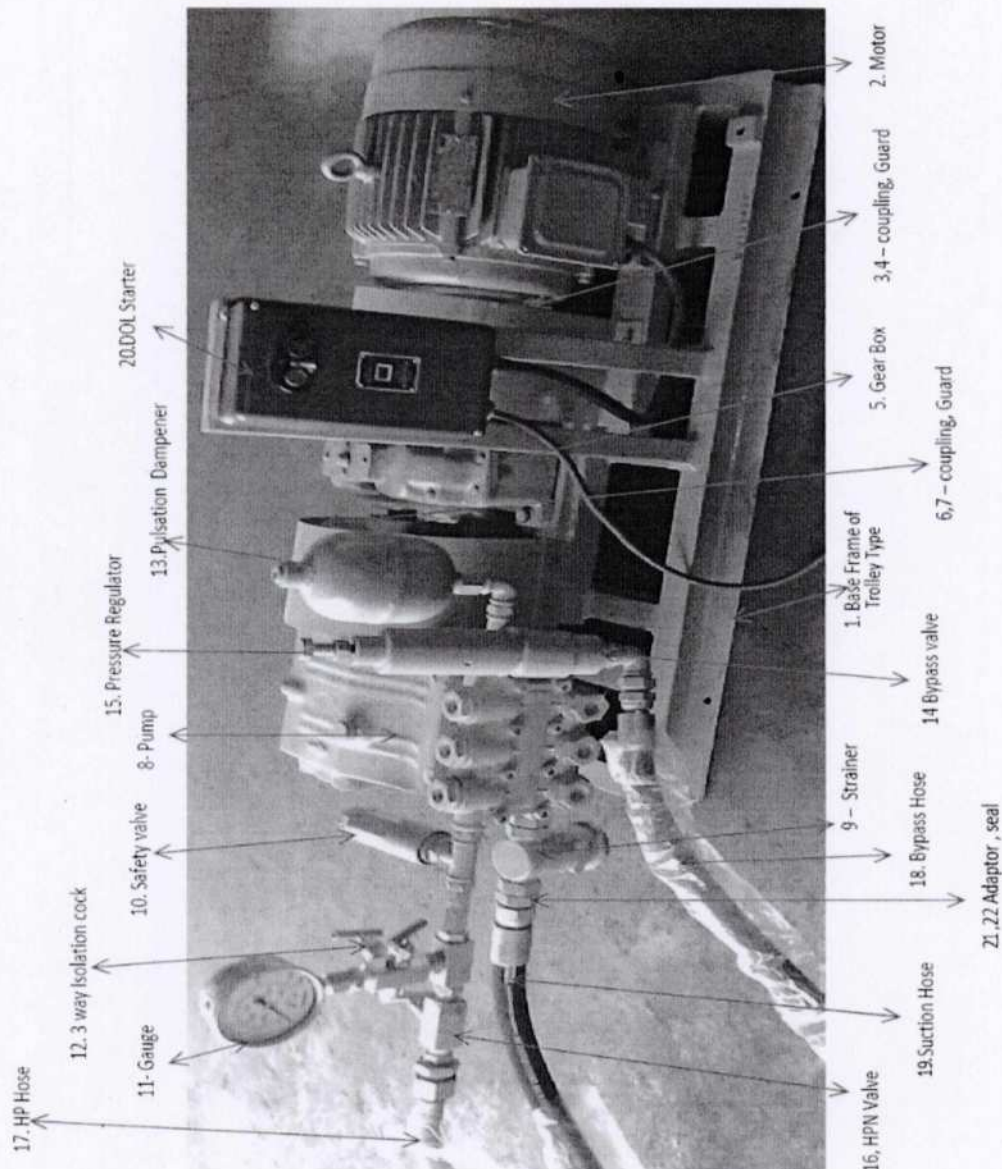
Vendor shall furnish the following documents.

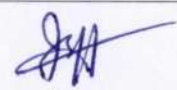


- 7.1 Operating and Maintenance manual, complete with catalogues.
- 7.2 Shipping details.
- 7.3 Inspection and test certificates.
- 7.4 Guarantee & warranty certificate.


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<u>SPECIFICATION FOR HIGH PRESSURE HYDRAULIC PLUNGER TYPE</u> <u>PUMP-MOTOR SET</u>		

High Pressure Plunger Type Pump - Motor Assembly



Rev. No.	Date of Rev.	Remarks	Approved  J.S.Hanspal, AGM (HOD)-HTE		
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<u>SPECIFICATION FOR HIGH PRESSURE HYDRAULIC PLUNGER TYPE</u> <u>PUMP-MOTOR SET</u>		

CHECK LIST

(Check list to be filled in by vendor and submitted along with the offer)

- | | |
|---|----------|
| 1. Pump-motor set suitable for data provided in input data sheet | YES / NO |
| 2. Scope of supply as per Clause no. 2.0 | YES / NO |
| 3. Motor details as per Clause no. 3.0 | YES / NO |
| 4. Glycerine filled pressure gauge shall be supplied | YES / NO |
| 5. Size of suction end connection | _____ |
| 6. Size of delivery end connection | _____ |
| 7. General arrangement drawing with details asked | YES / NO |
| 8. Spares as per Clause no. 2.0 shall be supplied | YES / NO |
| 9. Starter panel shall be supplied | YES / NO |
| 10. Head vs discharge curve enclosed | YES / NO |
| 11. Efficiency curve enclosed | YES / NO |
| 12. QA plan enclosed | YES / NO |
| 13. Documents listed in Clause no. 7.0 shall be furnished. | YES / NO |
| 14. Degree of filtration of suction filter shall be 50-75 micron. | YES / NO |

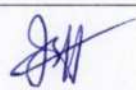

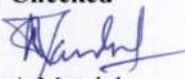
BHEL's enquiry no./date _____

Name of project _____

Name/stamp of vendor _____

Name and authorized signature _____

Date: _____

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Saved in server as no. 42009900262					

676786/2022/HEP-HTE40204 Heavy Electricals Limited, Bhopal

Annexure-A
to HT 00262

Hydro Turbine Engineering

Project: *Shahpur Kandi HEP*PI No.: *240212253***INPUT DATA SHEET****(Specific for a project, to be filled by indenter)**


- i) Type of Pump : High pressure plunger type.
- ii) Application : For hydraulic pressure testing
- iii) Quantity of pump : See enquiry
- iv) Pump discharge : 30 lpm (minimum)
- v) Working pressure : 15 kg/sq cm
- vi) Pressure adjustment range : 2 kg/sq cm to 15 kg/sq cm
- vii) Fluid to be handled : River water
- Temp. range of fluid : 0°C to 35°C

Date: *07/02/2022*

Name & Signature

Ymvi:
07/02/2022
 PRABHAT KUMAR
 Project Manager
 एच.टी.ई. विभाग/H.T.E. Division
 बी.एच.ई.एल. भोपाल/BHEL, BHOPAL

676786/2022/HEP-HTE40204

			SAMPLE QUALITY ASSURANCE PLAN							QAP No.QA/HT/927			
BHARAT HEAVY ELECTRICALS LIMITED -BHOPAL			CUSTOMER : BHEL BHOPAL		Dt. 19.09.2016		Applicable Spec. : HT00262		Rev. :		Date :		
			PRODUCT : High Pressure Hydraulic Plunger Type Pump Motor Set		Project:				Page 1 of 1				
Sl.No.	Components	Characteristics	Class	Type of Check	% of Check	Ref. Doc.	Acceptance Norms	Format of Record	*D	P	W	V	Remarks
I)	RAW MATERIAL INSPECTION												
1)	Stainless Steel Items,Castings, Bar Material etc.	Chemical composition	Major	Chemical Analysis	Sample	Respective Mail Standard	Respective Standard	T.C	✓	2	-	1	
2)	Stainless Steel Items,Castings, Bar Material etc.	Mechanical Properties	Major	Mechanical Test	Sample	Respective Mail Standard	Respective Standard	T.C	✓	2	-	1	
3)	Rubber Items	Mechanical Properties	Major	Mechanical Test	Sample	Respective Mail Standard	Respective Standard	T.C	✓	2	-	1	
II)	BOUGHT OUT ITEMS INSPECTION												
1)	Motor with IP 54/55 Grade of protection	Size rating	Major	Verification	100%	Appd. BOM/G.A Drg.	Appd. BOM/G.A Drg.	Routine T.C/C.C	✓	2	-	1	
2)	Starter Panel	Voltage & Amperage	Major	Verification	100%	Appd. BOM/G.A Drg.	Appd. BOM/G.A Drg.	T.C/C.C	✓	2	-	1	
III)	INPROCESS INSPECTION												
1)	Plunger	Dimentional	Major	Measurement	100%	Drawing	Drawing	IR	✓	2	1	-	
2)	Pump Body Suction Body Discharge Body	Dimentional	Major	Measurement	100%	Drawing	Drawing	IR	✓	2	1	-	
IV)	FINAL INSPECTION												
1)	Pump Motor Set with Valves, Suction and Delivery Hoses, Pressure Gauges	Verification of items as per Approval Drg. / BOM	Major	Visual	100%	Appd. BOM/G.A Drg.	Appd. BOM/G.A Drg.	IR	✓	2	1	-	
2)		Functional / Performance Check	Critical	Hydrostatic Pressure Test	100%	Appd. G.A Drg./Spec	Appd. G.A Drg./Spec	IR	✓	2	1	-	
3)	Final Documentation	-	Major	Visual	100%	Spec.	Spec.	TC	✓	2	1	-	
4)	Painting	DFT Shade	Major	Visual & Measurement	100%	Appd. G.A Drg.	Appd. G.A Drg.	IR	✓	2	-	1	
5)	Packing and Identification (Name Plate, Suction & Delivery stickers)	-	Major	-	100%	Appd. G.A Drg.	Appd. G.A Drg.	IR	✓	2	-	1	
LEGEND: P - Perform W - Witness V - Verification 1 BHEL/TPI 2 Vendor / Sub-vendor * For items marked (tick) in colum D) Test Certificate / Compliances Certificates shall be submitted to BHEL for records TPI - Third party inspection Agency T.C - Test Certificate CC Compliance Certificate IR - Inspection Report						Prepared By Signature & Stamp		Approved By BHEL QA Signature & Stamp					