



BHARAT HEAVY ELECTRICAL LIMITED
CENTRAL FOUNDRY FORGE PLANT
MAINTENANCE & SERVICES

M&S/MFG/HFP/01

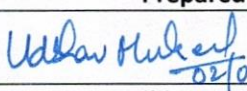
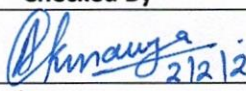
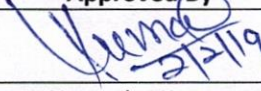
Rev. No. 01

Date:02/02/2019

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Specification for Horizontal High Pressure Triplex Plunger Pump

Clause No.	Description	
1.0	GENERAL DESCRIPTION: This specification covers the supply of Horizontal High Pressure Triplex Plunger Pumps (including erection & commissioning) for running of 9000 T Heavy Forge Press in CFFP, BHEL Haridwar	
2.0	TECHNICAL PARAMETERS:	
2.1	Type	Horizontal High Pressure Triplex Plunger Pump reciprocating type
2.2	Application	For pumping water to be used in operation of 9000 T Open Die Forge Press
2.3	Operating Fluid	Pure Water (at 10 – 60 Deg. Celsius)
2.4	No. of Plungers	3 nos.
2.5	Discharge Flow Rate	Min. 1450 LPM
2.6	Pump Speed	≤ 200 RPM
2.7	Working Pressure	250 Bar
2.8	Suction Pressure	3 – 6 Bar
2.9	Safety Valve Pressure	~ 290 Bar
2.10	Ambient Air Temperature	5 – 45 Deg. Celsius
3.0	ACCESSORIES:	
3.1	Control Panel	Mounted type for displaying at least: • Suction Pressure • Discharge Pressure • Lube oil pressure • Lube Oil temperature • Gear box oil temperature • Pressure gauge indicating pump pressure To be designed for 415/220 V, 50 Hz with all sensors, switchgear items, complete internal panel wiring

Prepared By	Checked By	Approved By
 Udbhav Mukesh, Sr Engineer (HFS Maint.)	 Anil Kumar Maurya Manager (Forge Shop Maint.)	 Narendra Kumar SDGM (M&S)



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		Protection/ Safety Interlocks: 1. Lube oil low pressure protection 2. Discharge overload pressure protection 3. Suction pressure protection 4. Gear box oil temperature and crank case oil temperature protection Test Points: Pressure test points on suction line, discharge line and bypass line Gauges: • Lube oil pressure gauge • Discharge side pressure gauge
3.2	Pump accessories	Pump accessories to include at least following items: 1. Pilot Operated Solenoid valve for loading – unloading of pump 2. Suction Pulsation bladder assembly, discharge pulsation bladder assembly, bypass line pulsation bladder assembly – all fit on the pump 3. Lube oil system for power end (including oil pump, motor, motor coupling, base frame, safety valve, Pump pressure regulator, heat exchanger, double filter, pressure gauge, pressure switch, connections for Cooling water line as per requirement of lube oil system) 4. Safety valve (@ 290 bar) 5. Suction side valve, discharge side shut off valve and by pass valve. 6. Pump end coupling (one end fit on pump, other end with pilot bore for gear box) set 7. Booster Pump (with base frame, motor, coupling, suction strainer and other accessories) Discharge: 5000 l/min or higher RPM: 1500 Motor subscribing to 415 V, 50 Hz, 3 phase supply 8. Stuffing box cooling circuit. 9. Two sets of tool kits The Pump shall be complete in all respects. All the accessories/ assemblies shall be properly mounted on the Pump/ or on the frame of the Pump. Exclusions: Gear box, Motor, Gear box to motor Coupling. And any other item required for successful erection, commissioning, testing and proving of system.

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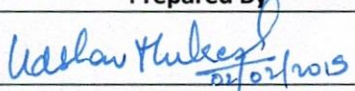
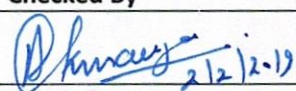
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4.0	SCOPE:
4.1	Supply (including sea worthy packing), erection, commissioning, testing and proving of system at Heavy Forge Shop, CFFP/BHEL Haridwar
4.2	Drawings to be approved by CFFP/BHEL Haridwar
4.3	Supplier shall provide O&M Manual in – 5 hard copies leather bound (in English only), 2 soft copies (in English only) in pen drive
4.4	List of optional and mandatory spare parts along with costs (quoted separately)
4.5	Vendor will also provide T-s curve, rating of motor along with technical data for 6.6 KV, 3 phase, 50 Hz and other necessary data for selection/design of motor for the pump. Offer submitted without this shall be liable to be rejected.
5.0	EXCLUSIONS: • VCB for main pump motor starters • Boost pump motor starters • Gear box, Motor, Gear box to motor Coupling

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