



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 Fax : +91 431 252 00 31 Email : tvenkat@bheltry.co.in Web : www.bhel.com
NOTICE INVITING TENDER	

TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two Parts	2621300026	21.09.2013	25.10.2013

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	C – Frame Hydraulic Press (Goose Neck Type) – 600 Ton as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1.00 No

Important points to be taken care during submission of offer

1. Delivery required 10 months from the date of purchase order.
2. Erection & Commissioning period required 3 Weeks from the date of intimation by BHEL to vendor for deputation of their Engineers for E&C.
3. EMD for this Tender will be (INR) : 2,00,000.00
4. Checklist No. **TRY/IMP/02 & TRY/IND/02A** to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
5. 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.

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 "**2621300026**".

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

C-FRAME HYDRAULIC PRESS (Goose Neck Type) – 600 TON
PART A – QUALIFYING CRITERIA

SINo	Requirements	Vendor's Response
1.0	QUALIFYING CRITERIA	
1.1	The BIDDER / VENDOR (OEM) shall have a minimum of TEN Years of Continuous Experience in the Design, Manufacture & Supply of “C-Frame Hydraulic Press”. Vendor may indicate the actual no. of years of experience in the field	
1.2	Only those vendors (OEMs), who have manufactured, supplied and commissioned at least one“ C-Frame Hydraulic Press ”having all the following features: 1. Capacity – minimum 600T 2. Daylight – not less than 3000mm 3. Throat Depth (Gap between ram center-line and face of press column) – not less than 1500mm in the past ten years are only eligible to quote. Such supplied machine should at present be working satisfactorily for at least one year after its commissioning (as on the date of opening of this Tender). The name and contact addresses of the customers to whom the machine has been supplied has to be furnished with details.	
1.3	Vendor has to submit at least one Performance Certificate from their customers in India, for satisfactory performance of “ C-Frame Hydraulic Press ” as given in under clause 1.2 above , for a minimum period of one year (as on date of opening tender). For obtaining the Performance certificate, a suggestive format is provided.	
1.4	BHEL reserves the right to verify the above information provided by vendor. In case the information provided is found to be false/ incorrect, the offer shall be rejected.	
2.0	INFORMATION TO BE PROVIDED BY VENDOR	
2.1	The BIDDER / VENDOR to furnish Reference List of Customers, with complete address, details of contact person, where C-Frame Hydraulic presses have been supplied in the past.	
2.2	Specify details of C-Frame Hydraulic presses supplied to other units of BHEL, if any (Year of commissioning, Press Capacity, Day light&Throat depth etc.)	
2.3	Details on SERVICE-AFTER-SALES Set-up in India including the Address of Agents / Service Centres in India.	
2.4	Any Additional data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

Suggestive Format of Performance Certificate:

The performance certificate should be produced **on Customer's Letter Head.**

PERFORMANCE CERTIFICATE

- 1 Supplier of the machine :
- 2 Make & Model of the M/C :
- 3 Month & Year of Commissioning :
- 4 Machine Details :
 - a) Hydraulic Press Capacity (Tons)
 - b) Day Light (mm)
 - c) Throat Depth (mm)
- 5 Performance of the Machine : Satisfactory / Good / Average / Not Satisfactory
(Strike off whichever is not applicable)
- 6 After sales service : Satisfactory / Good / Average / Not Satisfactory
(Strike off whichever is not applicable)
- 7 Any Other remarks :

Date: Signature & Seal of the Authority

Issuing the Performance Certificate

C-FRAME HYDRAULIC PRESS (Goose Neck Type) – 600 TON

PART B – TECHNICAL SPECIFICATION

Note:-

- 1.0 The Column “**Vendor’s offer with Technical details & Remarks**” of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous or unsustainable information against any of the clauses of the specifications / requirements shall be treated as non-compliance.
- 2.0 The offer and all documents enclosed with offer should be in **English language** only.

Name & Address of the Vendor:	Name & Address of the Indian agent:
Telephone no.:	Telephone no.:
Fax no.:	Fax no.:
e-mail:	e-mail:

- 3.0 **Scope:** - Design, Manufacture, Supply, Erection & Commissioning of **C-FRAME HYDRAULIC PRESS (Goose Neck Type)-600 TON** for BHEL complying with the specification as below.

PURPOSE / APPLICATION:

The down-stroking and vertical hydraulic press is intended to correct the two-plane bend (bow) introduced due to the deformation caused by heavy welding of tubular parts and other attachments to seamless steel pipes (forming the main part of the boiler component – called as HEADER) or that developed during heat treatment operation of these fabricated boiler components. Invariably, the job subjected to straightening (bow correction by pressing) process is stress relieved after welding operation.

The sketch of a typical job is given in the **ANNEXURE-1**, attached for reference. The straightening is done by inverting the header and positioning on two vertical supports, such that the job becomes simply supported at two points and inserted within the “C” Frame of the Press. For bow correction, the force is applied through the ram of the press with controlled downward movement. A line sketch for this arrangement is given in **ANNEXURE – 2**.

C-Frame Hydraulic Press (Goose Neck Type) - 600 Ton - Part B

SI.No	SPECIFICATION	PARAMETER	VENDOR's OFFER with complete technical details
1.0	HYDRAULIC PRESS		
1.1	Type of Press	Vertical, Single-point Hydraulic-Gap Frame type, Down-stroking Press.	
1.2	Capacity	600 Tons(minimum)	
1.3	Working Hydraulic Pressure	315 bar (maximum)	
1.4	Press holding time at max. load	Min. two minutes holding time	
1.5	Return Capacity	Around 15 Tons	
1.6	Frame	Goose-Neck type	
1.7	Stroke of Piston	500 mm	
1.8	Diameter of Piston	Vendor to specify	
1.9	Ram Diameter	Around 500 mm	
2.0	DIE SPACE		
2.1	Shut Height [stroke down adjustment up to top of the bolster (Floor level) and to bottom of ram]	2600 mm	
2.2	Daylight	3100 mm	
2.3	Gap (distance between ram center-line and face of press column)	1700 mm (minimum)	
3.0	FRAME		
3.1	Type	Welded steel gap	
3.2	Overall Height of Press above Floor Level to facilitate EOT crane travel	Height shall be limited to 7200 mm	
4.0	SPEEDS		
4.1	Pressing speed	6 mm / sec.	
4.2	Fast advance	15 mm / sec.	
4.3	Fast return	40 mm / sec.	
4.4	Speed shall be decelerated before the end of return stroke to avoid jerk and vibration.	Vendor to Confirm	

C-Frame Hydraulic Press (Goose Neck Type) - 600 Ton - Part B

SI.No	SPECIFICATION	VENDOR'S OFFER with complete technical details
5.0	DESIGN & CONSTRUCTIONAL FEATURES :	
5.1	Press construction shall be such that it consists of a single extra heavy inner plate and reinforcing members to ensure adequate strength (fully stress relieved prior to machining). Vendor to Specify.	
5.2	All structures are to be built with high quality rolled steel plates, cut to shape, interlocked and welded into strong rigid box sections. Vendor to specify.	
5.3	Full tonnage to be available throughout the stroke. Vendor to confirm.	
5.4	Stroke length and change over positions of press speeds are to be controlled by adjustable top and bottom and slow down limit switches. The limit switches to be positioned suitably avoiding damage by chain hooks during job handling. Frame width at front shall not exceed 1.5mtr, to make job handling with crane easier. Vendor to confirm.	
5.5	Anchoring Material and Foundation Design shall be so rigid to withstand the pressing load and not to get detached in long run.	
5.6	Chequered plate of minimum 8mm thick to cover the pit around the hydraulic press	
6.0	HYDRAULICS	
6.1	The System should be centralized, modular / stacked valve construction having minimum number of pipes / pipe joints and located at suitable location with easy accessibility of components for maintenance. Vendor to Furnish Details	
6.2	Pumps, valves, accessories etc shall be of Bosch-Rexroth / Vickers or equivalent reputed make acceptable to BHEL. (Details to be submitted). The seals used in cylinders shall be of Merkel / Parker / Bushak + Shamban / Hunger / Simrit make and shall withstand an over-loading of 25 % Vendor to confirm & furnish details.	
6.3	Each pump should have an independent motor. Tandem pumps shall be avoided. Vendor to confirm	
6.4	Suitable filtration system should be provided with Duplex / standby filter units. It is preferable to use re-usable type of filter elements in the system. The filter unit shall be of Hydac / Parker / Rexroth or equivalent reputed make acceptable to BHEL. (Details to be submitted). Vendor to confirm & furnish details	

C-Frame Hydraulic Press (Goose Neck Type) - 600 Ton - Part B

Sl.No	SPECIFICATION	VENDOR's OFFER with complete technical details
6.5	The flexible hoses used in the system shall be of Gates / Aeroquip / Parker or any other reputed make acceptable to BHEL. Vendor to specify	
6.6	Failure indication for oil level, temperature, pressure, filter clogging should be provided. Vendor to confirm & furnish details	
6.7	Automatic shut off provision during hose failures, chiller failure, low oil level etc. Pump unloading feature during idle running to be provided for energy conservation. Details should be submitted. Vendor to specify	
6.8	Cooling system of sufficient capacity to maintain complete Hydraulic System at a temperature not exceeding 50 deg C irrespective of the ambient conditions. Vendor to confirm & furnish details	
6.9	The press is to be equipped with an inter-cooler (REFRIGERANT type) and temperature indicator to keep the oil temperature within the allowable temperature 50°C.	
6.10	Hydraulic circuit is to be designed with minimum number of control valves. It should be possible to replace hydraulic elements like valves, manifolds etc, without disturbing the associated pipelines. The positioning of hydraulic elements should allow easy maintenance. Vendor to furnish details	
6.11	Maximum Operating Pressure of hydraulic system. The maximum pressure of the system should preferably not to exceed 315 bar. Vendor to specify	
6.12	Main Pump flow in lpm and Motor Power in kW. Vendor to specify	
6.13	Reservoir capacity (in litres). Vendor to specify	
6.14	All oil pipelines shall be of seamless steel and should undergo pickling process. Vendor to confirm	
6.15	One hand held minimes pressure gauge of suitable range with minimes hose (1.0 to 1.5m length) to be supplied along with the power pack. Check points to be provided in the system.	
6.16	Pressure gauge at the working level of the operator on the press side wall is to be provided for indicating working pressure and Tonnage in single dial.	
6.17	Pressure setting adjustment (Pressure relief valve) has to be provided at operator level, to adjust the pressure based on requirement.	

Sl.No	SPECIFICATION	VENDOR'S OFFER with complete technical details
6.18	Hydraulic unit will be located on top of the press with suitable pump for pumping top up oil from ground level.	
6.19	Hydraulic main cylinder shall be of double acting type, accurately finished without external score marks on piston RAM and leak proof.	
6.20	All cylinders used in the machine should have standard bore and rod sizes. The piston rod shall be hard chrome plated. Vendor to furnish details	
6.21	Cylinder design shall be such that the lock nut on rod end can withstand the full load even the ram is at its extreme down position. Cylinder seals also should not get affected during the above operation.	
6.22	The Power pack should be designed taking into account the energy efficiency (Hi-low pump system, proper unloading during idling, etc.). The motor used for pumps shall be energy efficient ones. Vendor to furnish details	
6.23	All the pipe / hose end fittings shall be of standard weld nipple with O-ring seating type (DIN 3865 or equivalent). No ferrule joints are to be used in the hydraulic system. All threaded connections shall be of metric sizes. Vendor to confirm	
6.24	The oil to be used shall be of standard ISO Viscosity Grades – 46 / 68. Vendor to specify	
6.25	The control voltages for all the Solenoids of the valves shall be of 24-V DC and all solenoid operated DC valves should have manual over-ride provision and LED indications. Vendor to specify	
6.26	The pipelines to be painted with standard colours as per the colour coding accepted internationally for hydraulic systems. Vendor to furnish details	
6.27	All hydraulic pipelines, hoses and electrical control cables to be neatly laid out with proper clamps and flexible hose conveyors wherever required. Vendor to confirm	
6.28	Suitable leakage oil collection metallic tray to be provided wherever required. Vendor to confirm	

Sl.No	SPECIFICATION	VENDOR'S OFFER with complete technical details
6.29	All the components in the hydraulic power pack shall be provided with identification numbers, as per the hydraulic circuit and should be pasted with metallic identification number plates. Vendor to confirm	
6.30	Hydraulic oil will be supplied by BHEL during commissioning at BHEL works. Vendor to provide the oil during pre-dispatch inspection. Vendor to confirm	
7.0	ELECTRICAL & ELECTRONICS SYSTEMS	
7.1	415V with a voltage fluctuation of +/- 10%, 50HZ with a fluctuation of +/-3%, 3 Phase AC (3 wire system without neutral) power supply will be provided by BHEL at a single point near the machine, as per layout recommended by Vendor. All cables, connections, circuit breakers etc. required for connecting BHEL's power supply to the machine shall be in the scope of vendor. Vendor to confirm	
7.2	Tropicalization: All electrical / electronic equipment shall be tropicalized. Vendor to confirm	
7.3	All cables moving with traversing axes, if any, should be installed in caterpillar / Drag chain. Additionally, all the cable trays required for laying of cables should be included in the offer. Vendor to confirm	
7.4	Cables shall be routed through totally enclosed cable trays. There shall not be cable trenches. Vendor to Confirm	
7.5	All the Cable Hoses Shall be of Spiral Steel Reinforced PVC Conduit type. Vendor to confirm	
7.6	All the Power & Control Cables Shall be from IGUS, Lapp or equivalent make acceptable to BHEL.	
7.7	Vendor should ensure the proper earthing for the machine and its peripherals. Vendor to confirm	
7.8	All electrical devices like contactors, relays and limit switches, push buttons etc. shall be from Siemens / L&T / Alstom / Cuttler Hammer / Telemecanique.	
7.9	All electrical components shall conform to IEC or Indian Standards. Vendor to confirm	
7.10	All electrical components in the cabinets should be mounted on DIN Rail. Vendor to confirm	
7.11	All electrical and electronic panels should be provided with CFL lamps for sufficient illumination and power plug point of 220Volts, 5/15 Amp AC. All adapters /plug point should have compatibility with Indian equivalent. Vendor to confirm	

C-Frame Hydraulic Press (Goose Neck Type) - 600 Ton - Part B

SI.No	SPECIFICATION	VENDOR's OFFER with complete technical details
7.12	All electrical & electronic control cabinets & panels should be vermin and dust proof. All Electric enclosures shall have IP 54 protection. Vendor to confirm	
7.13	Air Conditioners with Dehumidifiers of suitable capacity to be provided for all Electrical / Electronic Panels / Cabinets including Operator's Panel considering specified ambient conditions. Vendor to Specify. Make: Rittal / Warner & Finley or any other reputed make acceptable to BHEL. Detailed specifications to be submitted.	
7.14	All components/devices/terminals are to be incorporated with ferrules. (Numbered)	
7.15	A Digital tri-vector Energy meter shall be provided in the electrical panel to Display the Voltages, Currents, Power factor, Power & Energy Parameters.	
7.16	Motors and drives shall be of M/s Siemens / NGEF / KEC / ABB or any other reputed makes acceptable to BHEL conforming to IS / IEC Standards. Vendor to confirm (Vendor should indicate make and type in the offer)	
7.17	All S1 Duty Motors shall be of Energy Efficient IE2 type as per IS 12615: 2011.	
7.18	All feedback systems & field sensors, limit switches, proximity switches, pressure switches, temperature controllers, should be for heavy duty application and wired up with flexible PVC insulated screened cables. All field elements shall have easy accessibility for maintenance. Vendor to confirm	
8.0	PLC CONTROLS	
8.1	All sequence of operation of the press shall be through PLC control. Press shall be able to operate through auto and manual cycles. The ram stroke shall be pre-selectable through MMI.	
8.2	The PLC controls shall be from Messung / Seimens / Allen Bradley / ABB.	
8.3	PLC & MMI Shall be of Latest Version.	
8.4	Licensed Software of PLC & MMI suitable for Windows 7 to be Supplied by vendor.	
8.5	Interfacing Cable for PLC CPU & MMI to be Supplied by Vendor.	

C-Frame Hydraulic Press (Goose Neck Type) - 600 Ton - Part B

SI.No	SPECIFICATION	VENDOR'S OFFER with complete technical details
9.0	OPERATOR CONTROL PANEL AND DRO	
9.1	Control of operation through operation panel (movable trolley type) to be located in front and away from the press with a minimum 5 mtr long control cable.	
9.2	Safety devices for hydraulic circuit, emergency stop buttons to be provided in the operation panel as well as in the press frame and suitable interlock safety systems.	
9.3	DRO for ram movement and pre-selectable operation for various settings.	XXXXXXXXXX
10.0	MACHINE LIGHTS:	
10.1	Fluorescent Machine Light to be provided as built in with "C" Frame of the Press for sufficient illumination of complete working area for clear visibility.	
10.2	A magnetic base 24-volt portable spotlight with sufficiently long cable should also be provided.	
11.0	GENERAL POINTS :	
11.1	The Press function shall be smooth and vibration free during press operating cycles.	
11.2	The offer shall clearly indicate the list of standard accessories that will be supplied along with the machine	
11.3	Other special accessories shall be quoted separately as optional items	
11.4	All controls and other operating systems shall be located in a centralised convenient place for easy operation.	
12.0	SAFETY ARRANGEMENTS:	
12.1	Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistakes.	
12.2	A detailed list of all alarms / indications provided on machine should be submitted by the Vendor.	
12.3	All the pipes, cables etc. on the machine should be well supported and protected.	
12.4	All the rotating parts (if any) used on machine should be statically & dynamically balanced to avoid undue vibrations and suitable covers to be provided. Motor-pump unit shall be mounted on anti-vibration pads.	
12.5	Emergency Switches at suitable locations as per International norms are to be provided.	
12.6	Suitable platform (suitable for walking around power pack for maintenance) with chequered plate, hand railing around press top and approach ladder with safety cage.	

SI.No	SPECIFICATION	VENDOR'S OFFER with complete technical details
13.0	ENVIRONMENTAL PERFORMANCE OF MACHINE : [The Machine shall conform to following factors related to environment]	
13.1	Maximum noise level shall be 85 dB (A) at normal load condition, 1 M away from the machine with correction factor for back ground noise, if necessary. This will be measured as per international standards like DIN 45635-16. Vendor to demonstrate compliance to noise level, if so required.	
13.2	If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	
13.3	Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.	
14.0	LEVELING & ANCHORING SYSTEM:	
14.1	Complete anchoring system including foundation bolts, anchoring materials, fixtures, leveling shoes etc is under the vendor's scope.	
15.0	AMBIENT CONDITIONS & THERMAL STABILITY	
15.1	Total machine and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Ambient Conditions: Temperature: 25 to 50 Degree Celsius Relative Humidity: 95% maximum.	
15.2	The machine, including attachments and accessories, should be suitable for 24 hrs. Continuous operation to its full capacity for 24 hour a day and 7 days a week throughout. Vendor to ensure and confirm the same.	
16.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE:	
16.1	Extension for Ram required – Min. Rod dia. 125mm, Length 600mm – 1 No, 800mm – 1 No, 1000mm – 1No. The extension rod to be fitted with Ram. Fitting / Coupling arrangement to be specified by vendor. The extension rod shall not get bent or damaged during pressing.	
16.2	Necessary tools like Torque Wrench, Spanners, Keys, Grease guns etc. for operation & maintenance of the machine should be supplied. List of such tools shall be submitted with offer.	

C-Frame Hydraulic Press (Goose Neck Type) - 600 Ton - Part B

SI.No	SPECIFICATION	VENDOR'S OFFER with complete technical details
17.0	MACHINE SPARES :	
17.1	Item-wise break-up of mechanical, hydraulic, electrical spares used on the machine in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation on three shifts continuous running basis should be offered by vendor. The list to include following, in addition to other recommended spares. (Unit Price of each item of spare should be offered)	
17.2	Mechanical & Hydraulic Spares: Bearings, couplings, gears and all types of pumps, Valves, pressure switches / transducers/ gauges, filters, Cylinder seal kit, All O- rings & Oil seals, Hydraulic Hoses, etc.	
17.3	Electrical: All types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch. PLC CPU, IO modules, Scale with Readout, MMI.	
17.4	All types of spares for total machine and accessories should be available for at least ten years after supply of the machine. If machine or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & Vendors to enable BHEL to procure these in advance, if required.	
17.5	Vendor to confirm that complete list of spares for machine and accessories, along with specification / type / model, and name & address of the spare Vendor shall be furnished along with documentation to be supplied with the machine.	
18.0	DOCUMENTATION	
18.1	THREE sets of following documents (Hard copies) in English language should be supplied along with the machine	
18.2	Detailed Operation and Maintenance manual of machine with all drawings of machine assemblies / sub-assemblies / parts including Electrical / Pneumatic/ Coolant / Hydraulic circuit diagrams/ PLC Ladder Diagram / PLC Backup Upload & Download Procedures. All Assembly/ Sub Assembly Drawings shall be supplied with the part list / Bill Of Materials also	
18.3	Catalogues, O&M Manuals and drawings of all bought out items, bearings wherever applicable.	

SI.No	SPECIFICATION	VENDOR'S OFFER with complete technical details
18.4	Electronic and electrical interconnecting drawings (I.e. between machine, control panel and drives). Hard Copy in Original: 3 Nos.	
18.5	Hydraulic and Electrical circuits with BOM	
18.6	Detailed specification of all rubber items and hydraulic fittings	
18.7	The vendor shall submit complete Master List of parts used in the machine.	
18.8	One additional set of all the above documentation on CD ROM.	
18.9	Specification with drawings of clutch plates & brake plates.	
19.0	MACHINE FOUNDATION	
19.1	BHEL shall construct complete foundation for the machine. Vendor shall furnish the foundation details.	
20.0	DRAWING APPROVAL	
20.1	Vendor to submit all manufacturing drawings related to the equipment for BHEL approval within 1 month of ordering by BHEL. BHEL shall provide approval within 15 days after all the clarifications sought have been submitted by supplier. Within one month after BHEL approval of manufacturing drawings, supplier to submit foundation drawing with details of static & dynamic loads including for chimney.	
21.0	ERECTION & COMMISSIONING	
21.1	Vendor to provide supervision for carrying out the erection, start up, testing of machine, it's control system & all associated equipment supplied. Service requirement like power, air & water shall be provided by BHEL at only one point to be indicated by Vendor in their foundation/layout drawings.	
21.2	Successful proving of BHEL components by the Vendor shall be considered as part of commissioning. All tests, as mentioned at Specification Clause No. 23.0 (Machine Acceptance) shall form part of the commissioning activity.	
21.3	Portion, if any, of the machine, accessories and other supplied items where paint has rubbed off or peeled during transit or erection should be repainted and merged with the original surrounding paint by the vendor. For this purpose, the vendor should supply sufficient quantity of touch-up paint of various colors of paint used.	

Sl.No	SPECIFICATION	VENDOR'S OFFER with complete technical details
22.0	MACHINE INSPECTION AND ACCEPTANCE: (Tests/Activities to be performed at Vendor's Works)	
22.1	Stage Inspection	
22.1.1	Stage Inspection for Fabricated Parts prior to heat-treatment and machining, Physical Verification of Piston, Cylinder and Seals prior to assembly at Vendor's Works	
22.1.2	Verification of NDT reports such as LPI / MPI / RT reports of all welds on the press frame as per the quality procedures. Vendor to confirm.	
22.2	Pre-dispatch Inspection	
22.2.1	Complete machines shall be assembled and offered for Inspection by BHEL Team.	
22.2.2	Physical Inspection and Design/Constructional/Dimensional Compliance as per the approved drawings.	
22.2.3	Full load test (600 Ton) to demonstrate the maximum capacity of the machine.	
23.0	MACHINE INSPECTION AND TESTS TO BE CARRIED FOR COMMISSIONING AT BHEL WORKS	
23.1	Physical Inspection and Design/Constructional/Dimensional Compliance.	
23.2	Full load test to demonstrate the maximum capacity (600T) and other operational requirements.	
23.3	Two headers bow correction will be done in the press as a part of Prove Out. Bow correction will be done BHEL operators under the supervision of Commissioning Engineer.	
24.0	TRAINING at BHEL Works	
24.1	Training on Operation and maintenance of BHEL machine operators of complete machine by the Vendor's experts/engineers during commissioning and prove out at BHEL works	
24.2	Training on Trouble Shooting & maintenance of PLC System to be imparted to Maintenance Staff	
24.3	Training on Trouble Shooting & maintenance of Hydraulic System to be imparted to Maintenance Staff	
25.0	PAINTING	
25.1	a) The heavier machine parts are to be shot blasted for surface preparation prior to painting. b) One coat of Primer c) Two coats of Polyurethane Paint (Colour-Reseda Green-RAL 6011)	

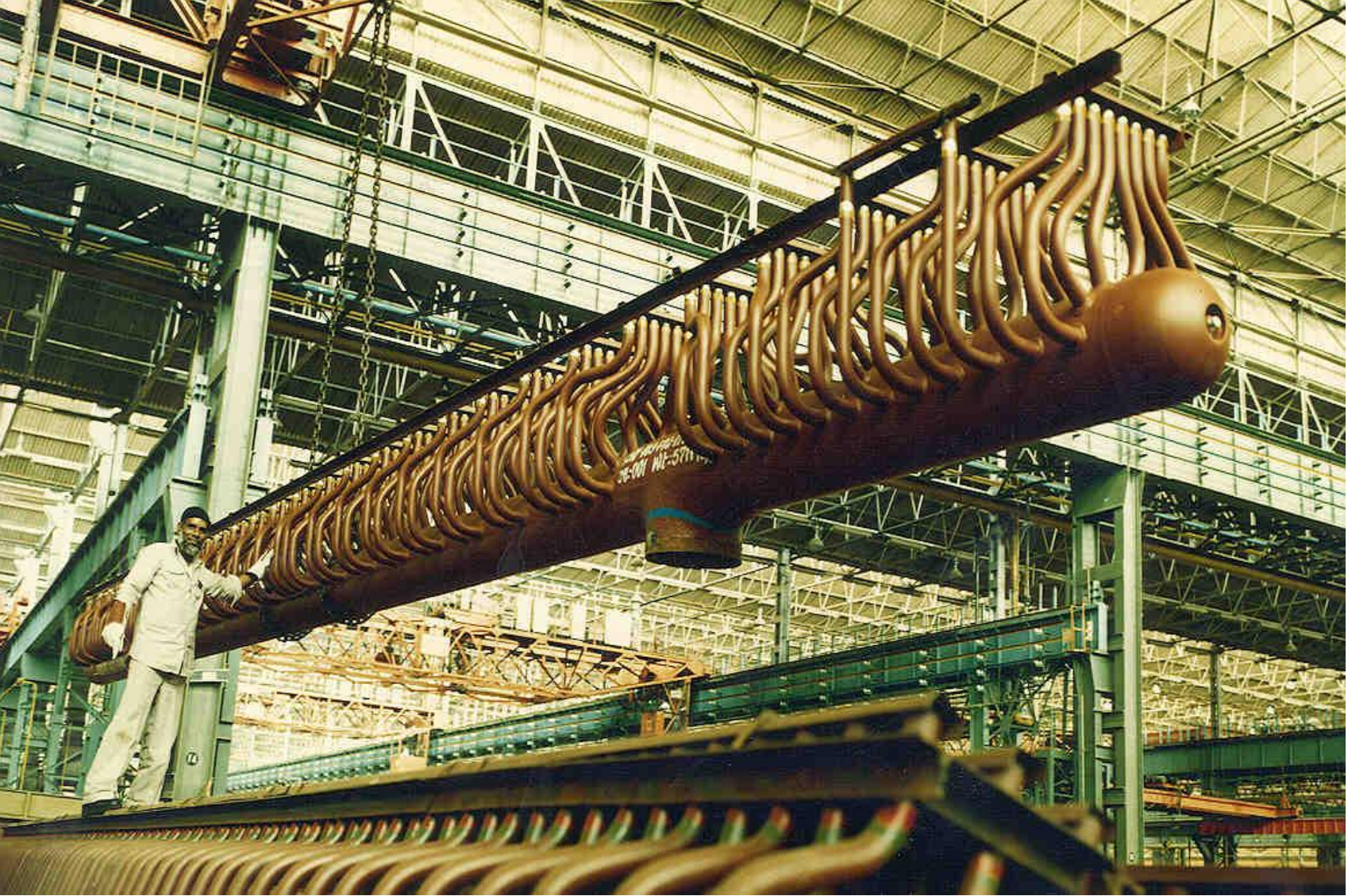
C-Frame Hydraulic Press (Goose Neck Type) - 600 Ton - Part B

SI.No	SPECIFICATION	VENDOR'S OFFER with complete technical details
26.0	PACKING	
26.1	Rigid packing for all items of complete machine, all Accessories and other supplied items to avoid any damage/loss in transit. When machine is dispatched in containers, all small loose items shall be suitably packed in boxes	
27.0	PERFORMANCE GUARANTEE	
27.1	The completed equipment shall be guaranteed for a minimum period of 12 months from the date of commissioning or 18 months from the date of dispatch whichever is earlier.	
28.0	SPECIAL NOTES : The vendor should submit the following information:	
28.1	Machine Model	
28.2	Total connected load in kVA	
28.3	Floor area required (Length, Width, Height) for complete machine & accessories	
28.4	Total weight of the machine	
28.5	Weight of heaviest part of machine	
28.6	Weight of the heaviest assembly/subassembly of Machine	
28.7	Dimensions of largest part/ subassembly/ assembly of the machine	
28.8	Quality plan followed in Vendor's works	

C-Frame Hydraulic Press (Goose Neck Type) - 600 Ton - Part B

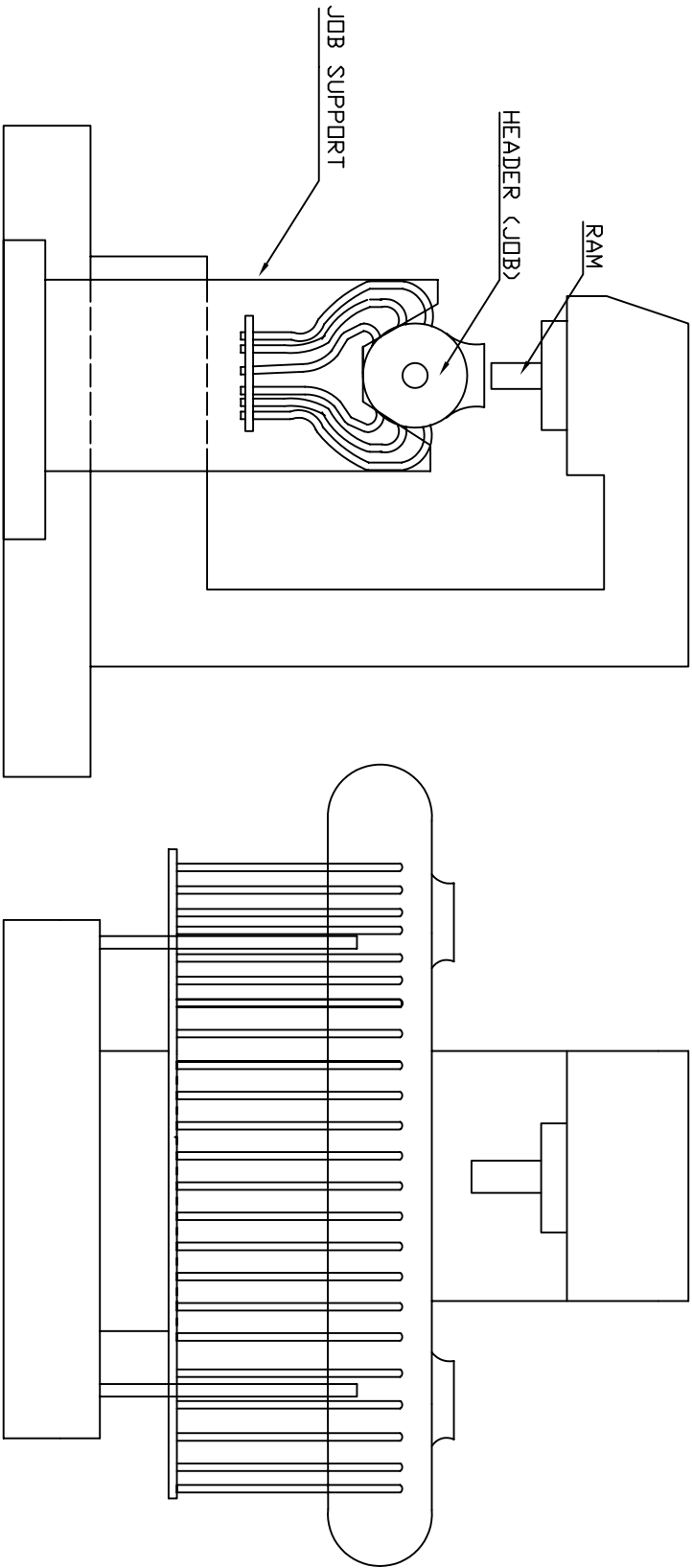
SI.No	SPECIFICATION	VENDOR's OFFER with complete technical details
29.0	SCOPE OF SUPPLY	
29.1	SUPPLIER'S SCOPE	
	<ol style="list-style-type: none"> 1. Design, Manufacture, Supply, Erection, Commissioning and prove out of C-Frame Hydraulic Press (Goose Neck Type) – 600T 2. Hydraulic Oil, grease during pre-dispatch inspection 3. All anchoring & foundation bolts, levelling plates for the complete machine. 4. Levelling Instruments, Power Tools / Hand Tools / Special tools for erection of the machine. 5. Commissioning Engineers for supervision of erection and commissioning 6. Job Quality and Productivity Prove-out 	
29.2	BHEL SCOPE	
	<ol style="list-style-type: none"> 1. Drawings approval 2. Civil foundation work as per manufacturer's drawing 3. Unloading of Press at BHEL works 4. First Fill of Hydraulic Oil 5. Headers and Stands for trials and prove out 6. EOT Crane inside shop 7. Single Compressed air point at the location indicated in the drawing 8. Single Electrical Supply point at the location indicated in the drawing 9. Welding machines and consumables required for erection if any 10. Manpower for erection 	

ENCLOSURES: ANNEXURE – 1 & 2



TYPICAL JOB AFTER STRAIGHTENING

ANNEXURE-1



ANNEXURE - 2