

BHARAT HEAVY ELECTRICALS LIMITED,
(A Government of India Enterprises)
Heavy Plates & Vessels Plant
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NOTICE INVITING TENDER(NIT)

**Category of Tender: TWO BID
(PRICED + UN - PRICED)**

**SUB: RETROFIT AND RECONDITIONING OF
1600T HYDRAULIC PRESS**

Our Ref: **MM/2/10/3804/CAP/W-111/5111**

DATE: 22.09.2014

Sealed quotations in duplicate are invited from suppliers on or before **20.10.2014** SUPERSCRIBING OUR REFERENCE AND CATEGORY OF TENDER on the cover, for supply of the under mentioned stores within the above due date, otherwise send **REGRET LETTER**, strictly subject to the Terms & Conditions attached herewith.
LATE TENDERS ARE NOT ACCEPTABLE.

ITEM No.	DESCRIPTION / SPECN. / SIZE	QTY
1.	RETROFIT AND RECONDITIONING OF 1600T HYDRAULIC PRESS (Estimated Cost of work is Rs. 18 Crore approx.)	1 No.
	Encl: 1. Technical Specifications 29 Pages 2. General Terms/ commercial terms and conditions 9 Pages (INCLUDING CHECK LIST)	

For BHARAT HEAVY ELECTRICALS LIMITED,

MANAGER (MP-Misc. & CPS)

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

BRIEF SCOPE:

Complete retrofit and reconditioning mechanical, electrical, electronics, Hydraulics and Instrumentation items and to convert from water Hydraulics to Oil Hydraulics. Prove-out press parameters as indicated in the specs, complete painting and handing over to Production at BHEL works by the vendor.

NOTES:

1. Vendor must submit complete information for all the clauses mentioned below. The offers meeting this clause would only be processed.
2. The column "**BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS**" of this format shall be filled in by the Vendor and submit 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 and lead to disqualification of the offer without asking queries.
3. The offer and all documents enclosed with offer should be in English language only.
4. Vendors MUST visit BHEL, Visakhapatnam and study the existing Press before submission of quotation. The cut-off date for visit to BHEL for inspection of 1600T Hydraulic press, clarification to the vendors to be completed 7 days prior to the tender due date.
5. Reconditioning of the press should be completed with in 6 Months from the date of receipt of PO. Vendor to mobilize resources accordingly to complete the job in 6 Months in all respects.
6. Vendors must indicate makes of all components that are being supplied as a part of this tender shall be clearly indicated in a separate sheet.

ADDRESS OF THE SUPPLIER :	ADDRESS OF THE INDIAN AGENTS (in case of Foreign Vendors):
TELEPHONE NOS.:	TELEPHONE NOS.:
FAX NOS.:	FAX NOS.:
E-MAIL ADDRESS:	E-MAIL ADDRESS :

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

QUALIFICATION CRITERIA FOR RECONDITIONING OF 1600T HYDRAULIC PRESS

SL NO	PRE-QUALIFICATION	Bidders Offer
A.1.	<p>PRE-QUALIFICATION REQUIREMENTS(Proofs to be enclosed for verification) All the following conditions are to be satisfied by the bidder. Documentary proof is to be enclosed with techno-commercial bid satisfying all these conditions. In case the bidder fails to enclose the same, the offer will be liable for rejection.</p>	
1.	<p>The party must be a reputed Manufacturer / Reconditioner of Hydraulic Presses of 1000T or above with at least 7 Years of experience in this field by the date of closing of this tender. Party must submit at least three satisfactory performance certificates issued by customers during that period compulsorily. Copies of purchase orders/work orders and corresponding completion certificates should be submitted as proof for verification. Offers without these documents are liable for rejection. List of the customers along with respective contact officers addresses (including Phone no. / E-Mail ID) for whom Hydraulic Presses were manufactured / rebuilt should be enclosed with the offer.</p>	
2.	<p>The average annual turnover during the last three Years ending March 31st 2013 should be at least Rs 5.4 Crores (CA certified copy of balance sheet / P&L statements to be enclosed).</p>	
3.	<p>Latest Bankers' solvency (not later than six months from the date tender notice) for an amount of Rs 5.4 Crores from any scheduled commercial bank.</p>	
4.	<p>Experience of having successfully completed similar works during the last 7 Years by this tender date should be either of the following.</p> <p>Three similar completed works costing not less than the amount each equal to 40% of the estimated cost of the tender.</p> <p style="text-align: center;">or</p> <p>Two similar completed works costing not less than the amount each equal to 50% of the estimated cost of the tender.</p> <p style="text-align: center;">or</p> <p>One similar completed work costing not less than the amount each equal to 80% of the estimated cost of the tender.</p>	
A.2	<p><u>Definition of similar works</u> Manufacture / reconditioning of medium or Higher capacity Hydraulic Presses of the following types and sizes</p> <p>1. Hydraulic Presses of 1000T or above.</p>	
A.3	<p>BHEL reserves the right to verify the information provided by vendor (including visit by a team of BHEL Officials to the Customer Works of the Vendor). In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.</p>	

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

1.0 General:

BHEL is having one number of 1600T Hydraulic Press(Model: CTD-1600-4) supplied by M/s. ZDAS, Czechoslovakia commissioned during the Year 1970 with the specifications mentioned below. The press is working on water Hydraulics system. At present the Press is working with frequent breakdowns. It is proposed to completely retrofit, recondition and convert from Water Hydraulics to Oil Hydraulics, to achieve energy efficient, safe and trouble free operation of press.

BRIEF FUNCTION OF THE EXISTING PRESS:

The CTD-1600-4 Press is a four – column vertical hydraulic press with three top and one bottom cylinders and one – sided longitudinal feed. It is intended for the pressing of boiler drum bottoms, dished ends and various parts of metal plates. The middle press cylinder serves to press spherical bottoms of pressure vessels. Outer press cylinders (2 pcs) serve to hold. These are holding the plate during forming, their force is adjustable. Locking device serves to connect the middle press cylinder with the outer cylinders. The press can be then used as die press of total maximal force. Return cylinders serve to return the movable crosshead and middle press cylinder to basic upper position. The bottom ejecting cylinder serves as holding during forming. The press feed serves to move the formed material from the furnace to the press axis.

Middle press cylinder stroke and stroke of the movable crosshead is controlled by position sensors - wire switches. Pressure of middle press cylinder, outer press cylinders and bottom cylinder will be controlled by pressure sensors.

The aim of overhaul and modernization is to rectify the present problems and to meet working parameters as per tender specifications of the press with the specified design parameters in addition to increased safety, reliability and comfort in operating. The above features shall be achieved by replacement/reconditioning of the existing cylinders, by change of the interconnecting pipes, by completion of missing safety elements, by provision of a new electric system, cabling and a new control system for the technological process. It is assumed that the plungers surface is not damaged; however this is necessary to be verified (during dismantling inside the cylinders) and the surface roughness is to be measured. The plungers surface outside the cylinders is OK. In the event of damage of the inside, the regrinding and boring shall be done by the vendor.

The damaged bolts(with or without nuts) wherever noticed or bolts of skid plates or the bolts damaged while dismantling, have to be replaced with new Standardized bolts (or nuts) during the overhaul and modernization of the press.

Reconstruction of the press mechanical part

After the preliminary inspection of the press equipment has been performed, the damaged parts have to be specified and offered for press overhaul or modernization, including the repair of the main parts.

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

Machine operation: The press is of a vertical special design with four columns and three beams, two of which are stationary and one moving. It is further provided with three top stamping cylinders (centre and side cylinders), one bottom stamping cylinder and one sided longitudinal feed. Centre cylinder bottom plate is having also T slot for tool mounting and can work independently. Two side cylinders are fixed with moving beam is also having T slot and pressing can be done with 2 side cylinders also. Moving beam is guided by the four columns of the press with the help of guide bush. In combined operation when centre cylinder is keyed with moving beam and work together side cylinders, Pre filling of all three cylinders are required to be done and charging to be done together to achieve full load. Bottom cylinder moves in the opening of the Centre Bed and hence interlock is to be provided to operate bottom cylinder up and down only when table is at centre position. Accordingly table movement is possible only when the bottom cylinder is at lowest position.

Scope - CTD 1600-4 Press Overhaul & Modernization comprise:

1. Mechanical part repair
2. supply and installation of new oil Hydraulic system with new inter connecting pipe lines as a replacement to the existing water Hydraulics system.
4. Supply and installation of new Electrical systems, cabling and operator panel
5. Reconditioning of hydraulic cylinders
6. Technical documentation
7. Training and prove out of press parameters

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

The Technical data of the Existing 1600T Press.

SNO	DESCRIPTION	UNIT OF MEASURE	EXISTING	BHEL'S REQUIREMENT (OIL HYDRAULICS)
TECHNICAL DETAILS OF EXISTING PRESS				
2.0	Operating on Water Hydraulics		Water Hydraulics	To be changed to Oil Hydraulics
2.1	Working force of press(all three cylinders)	Tonnes	1600	1600
2.2	Working force of center stamping cylinder	Tonnes	1100	1100
2.3	Working force of two side stamping cylinder	Tonnes	500	500
2.4	Working force of bottom cylinder	Tonnes	1000	1000
2.5	Working force of return movement of center stamping cylinder	Tonnes	230	230
2.6	Working force of return cylinders	Tonnes	250	250
2.7	Working force of return movement of bottom stamping cylinder	Tonnes	250	250
2.8	Working force of table cylinder	Tonnes	50	50
2.9	Stroke of Press	Mm	3600	3600
2.10	Stroke of center stamping cylinder	Mm	3600	3600
2.11	Stroke of bottom stamping cylinder	Mm	1600	1600
2.12	Stroke of feed of Press	Mm	4000	4000
2.13	Speed of no – load movement	Mm / sec	200	BHEL prefers to retain this value. However, if it is increasing the pump capacity and numbers requirement, following may be adopted. Max achievable with the pumps to satisfy the stamping speed parameter. Vendor to specify.
2.14	Stamping speed	Mm / sec	50	0 - 30mm/sec(ininitely variable) with only center cylinder (Capacity 1100T), 0 - 12mm/ sec (ininitely variable) with all cylinders (in full load condition 1600T)
2.15	Return speed	Mm / sec	100	Approximately 100, vendor to specify.

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

SNO	DESCRIPTION	UNIT OF MEASURE	EXISTING	BHEL'S REQUIREMENT (OIL HYDRAULICS)
2.16	Rate of table feed of Press	Mm / sec	400	0 – 200 mm/sec(infinitely variable)
2.17	Clamping surface of sliding table to press	Mm dia	5000X5000/1050	5000X5000/1050
2.18	Clear height between moving beam and table of press	Mm	4300	4300
2.19	Center to center distance of columns	Mm	3000X5800	3000X5800
2.20	Clear width between stops of columns	Mm	2300X5030	2300X5030
2.21	Dimension of Press: Width	Mm	14200	14200
2.22	Length	Mm	9000	9000
2.23	Height above the floor	Mm	12000	12000
2.24	Depth below floor	Mm	7000	7000
2.25	Overall Height	Mm	19000	19000
2.26	Biggest Electric motor input	Kw	260	Vendor to specify the total power requirement to meet the revised speeds.
2.27	Working circuit operating pressure	Mpa	25	Vendor to specify
2.28	Working fluid temp range	°C	20 – 65	Vendor to specify
2.29	Purity of working fluid fill			Vendor to specify
2.30	Working fluid filtration			Vendor to specify
2.31	Cooling water consumption at 30° Temp			Vendor to specify
2.32	Working fluid volume for the first fill	dm ³		Vendor to specify and supply Indian equivalents.
2.33	Hydraulic drive preliminary dimensions (l X w X h)			Vendor to specify
2.34	Air pressure for air vessel pressurization(accumulator)	Mpa	Min 0.5	Vendor to specify

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)				
3.0	SCOPE OF WORK						
3.1	Dismantling of press plungers and Cylinders	Dismantling of the main press plungers, return cylinders and pistons. Examination of surface quality of plungers, surface regrinding according to the requirement, or machine grinding at a minimum reduction after check in demounting.	Vendor's scope				
3.2	Rectification / modification of cylinders	<ul style="list-style-type: none"> a. Complete cleaning of the cylinders b. Welding up of any major scoring marks by using appropriate certified electrodes. c. Die penetration test in welded areas for cracks d. Machining of the welded areas if required e. Rebuilding by welding, cladding and regrinding, light scoring. f. If warranted micron level grinding is required. g. In case of excessive bore taper, the bore need to be reworked to get the original dimensions. h. Super finishing of the bore i. Reconditioning/Modification of all cylinders by machining of sealing space and scale removal. Details of cylinders and their drawings are attached.	Vendor's scope				
3.3	Change of Bronze bushes and packings etc	supply and change of bronze bushes and packings of press cylinders, return cylinders, ejector cylinders and feed cylinders by the vendor.	Vendor to design packings required for all cylinders to be operated by oil Hydraulics				
3.4	Machining of Press Centre Bed	The existing centre bed of the press is broken and needs to be repaired/replaced earlier into 2 pieces which were welded and fitted back. BHEL is having a spare bed. Vendor to assess the requirement of machining if any to suit the fit up requirement & consider the same in the scope. If the above referred spare bed is not suitable, existing bed to be repaired and reconditioned to suit the requirement.	Vendor to visit and assess prior to bidding.				
		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 5px;">Outer Bed</td> <td style="padding: 5px;">Centre</td> <td style="padding: 5px;">Bed</td> <td style="padding: 5px;">Outer Bed</td> </tr> </table>	Outer Bed	Centre	Bed	Outer Bed	
Outer Bed	Centre	Bed	Outer Bed				

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.5	Modernization of locking device	Existing locking and unlocking Mechanical/ Hydraulic arrangement device of middle press cylinder with side cylinders is very old (Hydraulic locking is not working at present). A sketch is attached for easy understanding. Vendor to supply and install new Hydraulic locking system so as to enable the operator to control from console.	Vendor has to repair back the locking and unlocking device by replacing with new locking arrangement. Vendor may also suggest alternative locking arrangement with details.
3.6	Cylinder mounting platen	For top platen, repair of threaded areas for cylinder mounting, clean up and painting.	Vendor's scope
3.7	Moving Platen	<ul style="list-style-type: none"> a. Cleaning of full platen b. Assessing the damage to the seating surface and rectification c. Assessing the wear out / damage to the Liner bushing in the moving platen and rectification 	Vendor's scope Vendor to specify the scope in detail.
3.8	Platen area	<ul style="list-style-type: none"> a. Assessing the damage to the platen area b. Complete clean up of the surface c. Complete rectification by means of welding, grinding, machining or hand works by expert scraping teams. d. Salvage to the areas like clamping slots, bolts shall be done in the best manner possible. If possible welding and machining again. 	Vendor's scope
3.9	Bottom moving Platen	<ul style="list-style-type: none"> a. Removal of all fitments in the platen and making it free for dismantling b. Assessing the damage in the platen's on the working surface. c. Reconditioning of the same by welding and subsequent machining or grinding as required. d. Removing of all guide bushes. e. Concluding the dimensions of replacement bush from rod size. f. Supply and replacement of guide bushes. g. Finishing of the same before assembly or machining in Sutu. h. Checking condition of fastening bolts and threads and doing rectification / replacement as required. 	Vendor's scope

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.10	Piping	<ul style="list-style-type: none"> a. Removed/ un wanted existing pipelines should be handed over to BHEL. b. Designing new piping drawings for the same c. Supply and commissioning of new pipe lines, fittings d. Piping of the machine after complete erection of main frame assembly 	Vendor's scope
3.11	Erection & Commissioning	<ul style="list-style-type: none"> a. Complete inspection and checking all parts b. Final pressure testing and leak testing of cylinders c. Erection of all items specified above after component inspection. d. Power pack positioning e. Piping and leak testing f. Electrical wiring of the machine and fixing of limit switches. g. No load condition test h. Idle movement test of Platens i. Load testing of the press 	Vendor's scope
3.12	Component trials	<ul style="list-style-type: none"> a. Loading of die into the press. Prove out of specific press parameters like speed, feed, working forces without load. b. One or two jobs will be loaded by BHEL and Vendor to prove press specific parameters like speed, feed, working forces with loads. c. While tool changing or power failure, the tool has to hold continuously. 	Vendor's scope
3.13	Limit switches	All limit switches have to be replaced with new ones	Vendor to supply and commission
3.14	New centralized lubrication system	New centralized lubrication system to be provided: Vendor to specify the scope in detail.	Vendor to supply and commission

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.15	Hydraulic System	<p>Complete new Hydraulic system is to be designed and commissioned to the press. The System should be centralized. Hydraulic Tank shall be suitably located so as to provide positive suction head.</p> <p>Pumps, valves, accessories etc shall preferably be of Rexroth / Vickers Sperry or equivalent from a reputed manufacturer acceptable to BHEL. (Details to be submitted). The seals used in cylinders shall be of Merkel / Parker / Bushak + Shamban / Hunger / Simrit make . Suitable filtration system should be supplied for servo oil and other system oil. Duplex filters with change over facility should be used. Failure indication for oil level, temperature, pressure, filter clogging should be provided. Accessories, pyrometer to be added for measuring temperature. All oil pipelines shall be of seamless steel. Pipelines should undergo pickling process. The Power pack should be designed taking into account the energy efficiency (Hi-low pump system, proper unloading during idling, etc). The oil to be used shall be of standard ISO Viscosity Grades – 32 / 46 /68. Pressure measuring minimess check points (preferably with 1/4” BSP stud end) shall be provided for important pressure measurements from operation, trouble shooting and maintenance point of view. Two sets of handheld minimess pressure gauge of suitable range with minimess hose (1.0 to 1.5m length) also has to be supplied along with the power pack. The hydraulic power pack shall be provided with minimum number of pipes / pipe joints and as far as possible usage of manifolds / stacked valves construction is preferred. The power pack should be designed taking into account the energy efficiency(Hi-low pump system, proper unloading during idling etc). Over loading of pumps should not occur.</p>	<p>Vendor to supply and commission The system & scope is to be furnished in detail by the vendor.</p>

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.16	Features of the hydraulic drive	<p>a) Hydraulic elements – new pumps, controls, filters, and coolers should be from reputable world manufacturers, guaranteeing a high reliability in operation with minimum requirements for maintenance</p> <p>b) The drive should be easily accessible for repair, adjustment and maintenance purposes</p> <p>The hydraulic drive should be direct oil type. The main pumps are to be piston axial-flow variable displacement ones with the possibility to set variable delivery of oil into working cylinders.</p>	Vendor to supply and commission
3.17	Main pumping sets	<p>Required no of main pumping sets should be provided. The main pumping set should consist of a combination of the main pump with electric motor. The main pump should be a variable-displacement one of proved high-pressure piston design. The motor output shall be designed to suit the requirement. The pump with electric motor is to be flexibly mounted in a horizontal position near the tank of the press.</p>	Vendor to supply and commission
3.18	Control circuit	<p>The control circuit should consist of the control circuit pump combination with electric motor. The pumps are used as pressure fluid source to control filling valves, auxiliary functions etc. This circuit should comprise a bladder accumulator and an accumulator block with safety valve preventing the circuit from overloading.</p>	Vendor to supply and commission
3.19	Cooling and filtering circuit	<p>Cooling system of suitable capacity to be supplied and installed with suitable heat exchanger. Complete pipe line in cooling system for both water and oil line is in the scope of vendor. Alternatively vendors can also provide refrigerant system which ever is economical.</p> <p>Required no. of cooling and filtering circuits must be provided. The cooling and filtering circuit should contain a pumping set, a cooling tower, and a re-usable filter that is capable of holding a large amount of impurities. If vendor wants to put throw away filter, a reusable filter may be used in line prior to throw away filter to improve the life of throw away filter. Mechanical clog indication must be provided to under stand clogging of filter.</p> <p>BHEL will provide water at room temperature at single point near by press as per required pipe size. Vendor to specify the water requirement – pipe size and flow.</p> <p>Part of the drive are coolers bodies with fittings to connect the cooling water inlet and outlet. Piping</p>	Designing of cooling tower, supply and commissioning is in vendor's scope.

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
		with further fittings etc. of the cooling water inlet and outlet between the press(heat exchanger) and cooling tower is to be arranged and commissioned by the vendor.	
3.20	Pre fill Tank and accessories	<p>The tank is to be supplied and commissioned on the floor in suitable place. The tank should be fitted with a working fluid level indicator to stop the operation of the drive when there is a lack of fluid. The tank is also to be fitted with a temperature sensor (used to control the operation of coolers and lock the main and control pumping sets when exceeding the maximum temperature of working fluid), a visual level indicator, a thermometer, and with an Breather and a filling device to fill the tanks with working fluid. Initial filling of the tank is to be done by the vendor.</p> <p>Air tank with fittings to connect the pressure air inlet, piping with further fittings etc. for inlet of pressure air between the press air tank and source of the pressure air is in the scope of vendor.</p>	Vendor to supply and commission
3.21	Air vessel	<p>If required, the air vessel is to be provided which is a low-pressure vessel that is used as a working fluid source in the rapid feed of the slides of the press. The fluid should be refilled through new filling valves into the middle and outer cylinders. The air vessel is to be provided with a working-fluid level indicator, fittings to ensure its reliable and safe operation, and with a pressure air connection. Vendor to submit complete lay out of Hydraulic system including pre filled tank and main tank.</p>	Vendor to specify

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.22	Hydraulic control manifolds	<p>Control manifolds are to be designed to unload the pumps, to control the pressure fluid supply from the main pumps to working cylinders of the press, and to distribute the working fluid of the control circuit. Control manifolds are to be made of forged blocks fitted with cartridge valves, solenoid valves, safety and other hydraulic elements to ensure the correct operation of the press. All the pipe / hose fittings shall be of standard weld nipple with O-ring seating type (DIN 3865 or equivalent) and no ferrule joints are to be used in the hydraulic system. All threaded connections shall be of metric sizes. Suitable vibro-mounts, compensators (flexible bellows), flexible hose at the pump outlet, polypropylene pipe & hose clamps, etc are to be provided to minimize the vibration induced and transmitted to the hydraulic joints.</p> <p>The blocks are to be provided with screwed and flanged joints for connecting of external piping..</p> <p>The layout of installing Hydraulic system is to be proposed by the vendor. The space available near the operating panel or cellar shall be used for accommodating the hydraulic system.</p>	Vendor to supply and commission
3.23	Polluted fluid pit	<p>If required, a concrete sump pit shall be provided in the cellar (by BHEL), from which the polluted oil shall be pumped out. Supply and commissioning of Pump and connected piping is vendor's scope. Vendor to specify the size of the pit.</p>	
3.24	Connecting Piping	<p>All the pipe lines connecting from power pack to Press and interconnecting pipe lines are to be supplied by vendor. The connecting piping is to be designed for twice the rated pressure of the hydraulic system of the press. All oil pipelines shall be of seamless steel. Pipelines should undergo pickling process.</p>	Vendor to supply and commission

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.25	Electrical Systems, Cabling and Technological Process Control System	<p>The scope of supply also to include new electrical equipment including cable distributions conforming to the technological solution of the press itself. The scope of offer also to include the design of electrical part of the press.</p> <p>The press motion, i.e. the path of the slide, is to be monitored by switches.</p> <p>The parts of electrical equipment, which relate to operator safety (emergency stopping, modes, hand control, operation switch, position of the slide or guards of the space under the slide.</p>	Vendor to supply and commission
3.26	Supply and Service Specification Power and switchboard	<p>Parameters: Sheet-metal box construction, Degree of protection IP 54, required no. Of switchboard bays with subpanels.</p> <p>Description: The power set of switchboards comprises the main switch, supply part, power circuits, contactors and soft starter (Siemens / BTH / Havells or any other make acceptable to BHEL) for drives, ventilating and lighting. Digital input/output cards, analog/digital input cards and analog/digital output cards for control of proportional valves and for swivelling of plates in the pumps, a relay coupler, auxiliary switching elements, lighting, ventilation and other related components are to supplied and installed by the vendor.</p> <p>Motor: Motors shall conform to IEC or Indian Standards. should be furnished by vendor in the offer. Motors shall be Energy Efficient type EFF-1. Make of motor should be furnished by vendor in the offer.</p>	Vendor to supply and commission
3.27	Master control desk	<p>A new control desk should be provided and installed near the press and contain a lockable mode select switch, push-button control, indicator lamps. All motions are individually controlled by means of push-buttons / joy-sticks.</p> <p>speed based on joy-stick position should be provided for the following operations</p> <p>a) Control of Centre Cylinder for Pressing & Return b) Control of Side Cylinder for Pressing c) Combined Pressing of Centre Cylinder with side cylinders. d) Return cylinder movement e) Ejector f) Bed movement</p>	Vendor to supply and commission

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.28	Technical data (of the supply system)	The subject of the Work has to be designed to conform to the following parameters: <i>Item/parameter Value</i> Supply system 3 Phase (3 wire system with out neutral) ~ 415V(tol:+-10%),50Hz(+3%) Power Supply Source will be provided by BHPV at a single point near the machine. Vendor has to tap the supply from the single point given by BHEL. <i>Motor capacity to be decided by vendor</i> Degree of protection for electrical equipment IP54	Vendor to supply and commission
3.29	Total connected load	Vendor to indicate total connected load for the entire press (including hydraulic power packs) when the machine is running in full load	Vendor to specify
3.30	Mechanical worn out parts	Mechanical worn out parts consists of a. Bushes for 4 Columns b. Guides for table bed. are to be replaced by the vendor.	Vendor to supply and commission
3.31	SAFETY ARRANGEMENTS:	Following safety features in addition to other standard safety features should be provided on the machine:	
	a.	Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, workpiece and the operator due to the malfunctioning or mistakes. Machine functions should be continuously monitored and alarm / warning indications through lights/ alarm number with messages (on display and panels) should be available.	Vendor to Confirm and furnish details. List of interlocks to be furnished
	b.	A detailed list of all alarms / indications provided on machine should be submitted by the supplier.	Vendor to furnish details.
	c.	Oil & water pipe lines should not run with electrical cable in the same tray / trench.	Vendor to Confirm
	d.	Failure of any control should not result in a hazardous situation (Fail Safe mode)	Vendor to Confirm
	e.	Emergency Switches at suitable locations as per International Norms are to be provided.	Vendor to Confirm
	f.	Oil & water pipe lines should not run with electrical cable in the same tray / trench.	Vendor to Confirm
	g.	Failure of any control should not result in a hazardous situation (Fail Safe mode)	Vendor to Confirm

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
	h.	Interlocks should be provided to ensure that the press / table movement system shall operate in safely designed sequence and no malfunction / safety hazard should result due to accidental operation of a switch or control.	Vendor to Confirm
	i.	Safety arrangements to be followed during maintenance of the press and its accessories should be clearly defined	Vendor to furnish details
	j.	Suitable provision should be made to prevent dropping down of the ram in case of failure of oil pressure in any of the return cylinders or failure of power supply	Vendor to furnish details with write up
	k.	Fail safe features to be built-in to protect the press and operating personnel from any hazard in the event of failure of hydraulic oil pressure or electric power supply	Vendor to furnish details
	l.	Manually operated shut-off valves and other valves important for safe operation of the press and its accessories should be provided with suitable sensors to signal their status for safe control of operation & operating sequence	Vendor to Confirm
	m.	The ram should descend only when the job is located in one of the selected position in normal pressing mode. However, in setting mode, it should be possible to operate the ram at slow speed, irrespective of the job position.	Vendor to Confirm
	n.	The ejector should remain in the home position and become nonfunctional during the shell forming operation.	Vendor to Confirm
	o.	Safety Lights at both ends of moving job loading system (preferably Flashing during travel).	Vendor to furnish details
3.32	Interface cables, connectors, Switch gears	Make: LAPP / Finolex / BCH / Siemens or other reputed brands acceptable to BHEL	Vendor to confirm and specify
3.33	Contactors	Make: Siemens / Telemecanic or other reputed brands acceptable to BHEL	Vendor to confirm
3.34	Relays, Timers	Make: BCH / Siemens/ OMRON or other reputed brands acceptable to BHEL	Vendor to confirm and specify
3.35	limit switches	Make: Teknic / BCH / L&T or other reputed brands acceptable to BHEL	Vendor to confirm and specify
3.36	Cable drag chains	Make: Kabelschlepp / IGUS or other reputed brands acceptable to BHEL	Vendor to confirm and specify

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
3.37	Seals	Merkal / Hunger / Bushak & Shamban/Parker or other reputed brands acceptable to BHEL	Vendor to confirm
3.38	Hoses	Gates / Aeroquip or other reputed brands acceptable to BHEL	Vendor to confirm
3.39	Hydraulic parts	Rexroth / Vickers/ Parker or other reputed brands acceptable to BHEL	Vendor to confirm
4.0	<p>Painting of the Press : Complete Press body and it's connected parts, piping, exhaust shall be painted with two coats of reputed brand of Premium enamel Apple Green color paint. Interior of the Press are to be painted with two coats of enamel paint(Color to be specified by BHEL). Wherever oil comes in contact with interior of the body, oil resistant paint to be used. Letters, numerals etc. will have to be painted with a different color as required / as indicated by BHEL at the time of final painting. For electrical panel boxes inside area is to be painted with two coats of white enamel paint. Painting should be carried out according to the standard procedure for painting including cleaning and removing old paint, applying metal primer putty etc. Good finish should be ensured. The pipelines to be painted with standard colors as per the color coding accepted internationally for hydraulic systems. Overall Press aesthetic view should be taken care of.</p>		Vendor to confirm.
5.0	<p>JOINT INSPECTION:</p> <ol style="list-style-type: none"> 1. Complete dismantling of the press assemblies required to carry the above works into individual parts, degreasing, chemically cleaning, pre-painting of structural parts, joint inspection to finalize the detailed list of <ol style="list-style-type: none"> a. Spares to be bought out b. Spares to be manufactured <p>The list should be approved by BHEL. Drawings of spares to be manufactured and specifications for bought out items shall be submitted to BHEL by the vendor for approval.</p> <p>SPARES : For the above mentioned spare parts (electrical/mechanical / hydraulic/ electronics) required to be replaced beyond the spares quoted by the vendor along with offer, approved by BHEL after joint inspection, BHEL will supply spares available with them or procuring the spares.</p>		Vendor to note

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

	<p>2. A separate tender will be floated for these spares (bought out spares and spares to be manufactured). The vendor shall also compulsorily participate in the above tenders quoting for all the spares. The spares will be ordered on the lowest party and the spares will be given to the vendor for assembly into the machine. No extra cost will be paid for the fitment and assembly of these spares.</p> <p>a. Spares required to be replaced other than those agreed to during joint inspection will have to be approved by BHEL before such replacement is affected. Cost of such spares shall be absorbed by the Contractor. BHEL will not pay for these items.</p> <p>b. Prior intimation has to be given to BHEL by the contractor for deputing the team for joint inspection at BHEL / contractor works.</p>	
6.0	Prove-out test	
6.1	QAP to BHEL for approval and vetting before start of the reconditioning work.	
6.2	<p>Vendor to prove out confirm Operating parameters like load, speeds, safety inter locks, sequence of operations, movements and other functional aspects of supplied items.</p> <p>Vendor to carry out pressing of two dished ends (both hot bending and cold calibration) and two dished ends, of any size within the specification, at BHEL works. Material for the prove-out components shall be provided by BHEL. Vendor shall be fully responsible for prove-out components.</p>	
7.0	BHEL's Scope of work:	
7.1	20 Ton existing EOT Crane will be given for Material handling during retrofitting. Vendor has to bring higher capacity Crane whenever required.	
7.2	Provide all utilities like air, light, power and LPG required for retrofitting and testing/trail runs.	
7.3	The presently available documents with BHEL related to Press only will be given to vendor. Vendor has to check the available drawings before submitting the offer. Any civil works arise during retrofitting will be done by BHEL, vendor has to provide the drawings and requirements in advance .	
8.0	Miscellaneous	
8.1	The supplier should give point-by-point reply to the specifications	Vendor to specify

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
8.2	<p>The following manuals (3 Hard copies and 1 soft copy) should be supplied.</p> <ol style="list-style-type: none"> 1.Electrical Circuit/Block diagrams. 2.Details of all Mechanical modifications & fittings with drawings. 3.Hydraulic line diagram and explanation of the hydraulic system. 4.Operating sequence – Pictorial & descriptive explanation of various stages involved in hot pressing of a hemispherical/semi-ellipsoidal dished end and cold pressing. 5.Operator controls and operator desk schematic 6. Functional description of the various subsystems of the press, accessories and tooling with sketches wherever possible. 7. Description of diagnostics offered. 8.Cylinder cross sectional Assembly drawings (after cylinder rectification) 9.Function diagram. 10.Manufacturing drawings for all supplied maintenance / wearing accessories, pressing tool support fixtures etc. 11. Catalogues, O&M Manuals of all bought out items including drawings, wherever applicable. 12. Detailed specification of all rubber items and hydraulic / lube fitting. 13. Vendor to confirm that Drawing of General Arrangement / Systems requiring BHPV approval shall be submitted in the event of an order. These drawings shall be mutually agreed to during technical discussions. 	Vendor to confirm for supply
8.3	The maintenance manual should contain the system description and its working, trouble shooting, circuit diagrams, waveforms, test points etc along with the diagnostic features.	Vendor to confirm
8.4	<p>The supplier should provide at least 3 days training at Supplier's works/BHEL in the area of</p> <ol style="list-style-type: none"> a. Maintenance of Electrical & Electronic controls b. Maintenance of Mechanical & Hydraulic systems c. Operation & Safety 	Vendor to specify
8.5	The supplier should provide 1 Year warranty for supplied/reconditioned parts from the date of acceptance of reconditioning the Press.	Vendor to specify
8.6	Place of Work: The supplier can execute the complete reconditioning and retro fitment activity at BHEL, Visakhapatnam or at supplier's works. If the press/parts are to be taken to the supplier's works, the transportation cost (to & fro, insurance, loading & un-loading) has to be borne by the vendor.	Vendor to specify

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

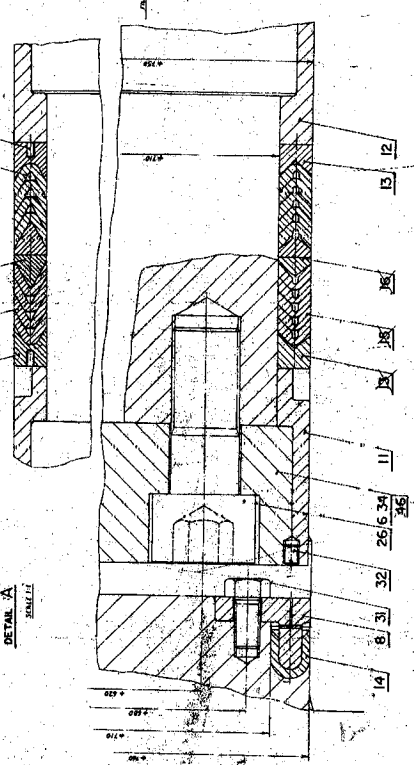
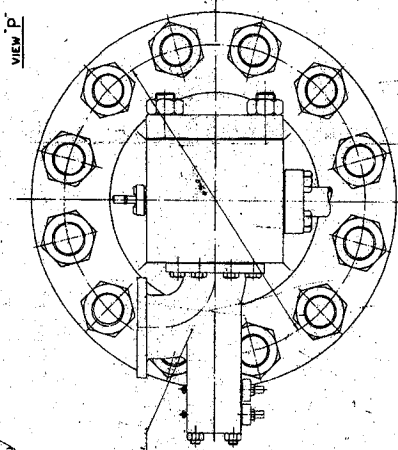
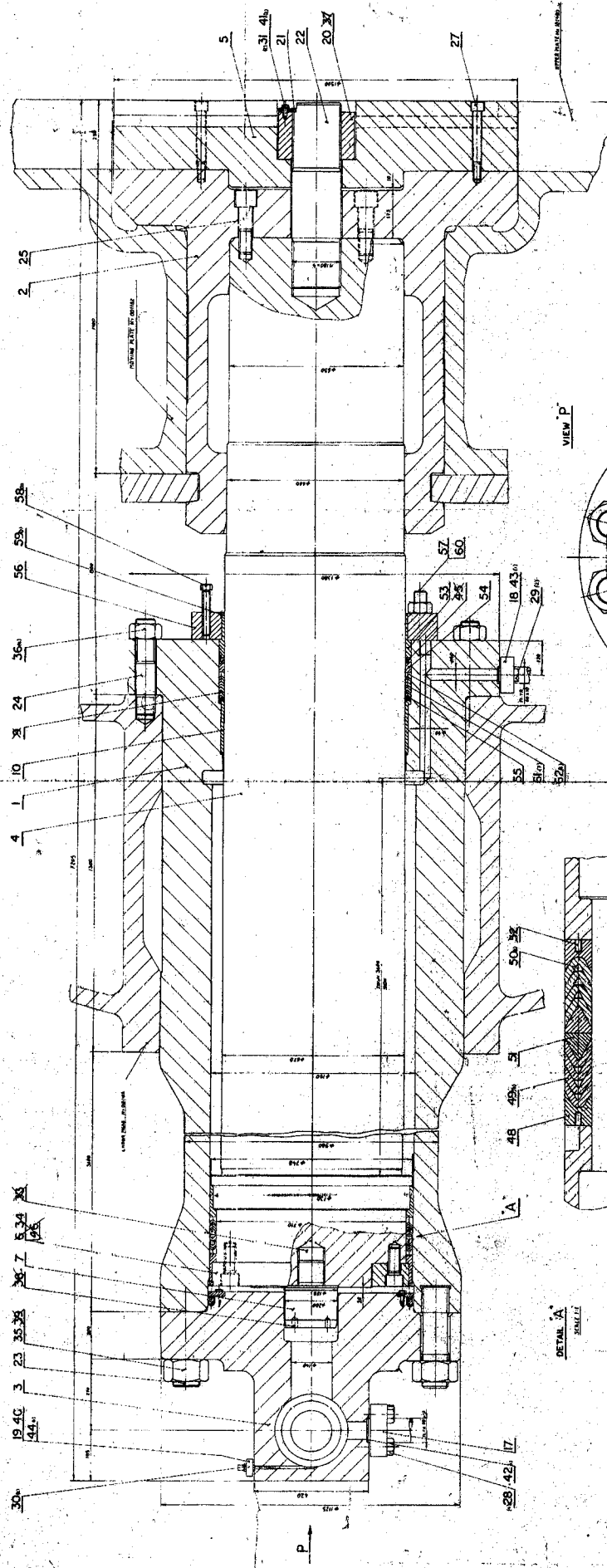
S.No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
8.7	Name plates, instruction plates shall be replaced with new ones. One plate with press specifications in full, name & address of reconditioning party, year of reconditioning etc. should be riveted on front side for one of the column surface.	Vendor to specify
8.8	Oiling points with periodicity, type of oil to be used shall be indicated on the machine.	Vendor to specify
8.9	Bar chart showing the time required for the following elements to be given covering the period of delivery quoted a) Dismantling of required press parts including cylinders at BHEL works b) Design and submission of hydraulics and electrical circuits for bhel approval c) Manufacture and supply of hydraulic system d) Reconditioning of cylinders e) Rectification of mechanical parts f) Erection and commissioning	Vendor to confirm
8.10	Any minor replacements and other related works shall be done with out any price implication	Vendor to confirm
8.11	BHEL reserves the right to inspect the progress as well as workmanship at any stage of the work. Decision of BHEL Representative shall be final in the matter of inspection at any stage. Vendors shall extend necessary co-operation to enable such inspection.	Vendor to confirm
8.12	All discarded / removed parts shall be returned to BHEL.	Vendor to confirm
8.13	The vendor is required to study the press, the scope of supply and certify the completeness of scope in order to execute the work. In case of any discrepancies in the scope of work, the vendor is required to highlight the same to BHEL before submission of the offer.	Vendor to specify
8.14	Complete Lodging, Boarding and transportation facilities for the vendor or their personnel are at vendor's scope (during dismantling period, re-erection & re-commissioning period and for troubleshooting during performance guarantee period). BHEL is not responsible for this.	Vendor to confirm
8.15	Interpretation: Any dispute of difference of opinion in respect of the interpretation, effect or application of this particular condition of the Contract or of the amount recoverable hereunder from the vendor shall be decided by the Contractee and the decision shall be final and conclusive.	Vendor to confirm

RETROFIT AND RECONDITIONING AND UP GRADATION OF 1600T HYDRAULIC PRESS

S.No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
8.16	Subletting: The vendor shall not sublet or assign this work or any part thereof without the written permission of BHEL. In the event of the vendor subletting or assigning this work or any part thereof without such permission, BHEL shall be entitled to cancel the contract and execute the contract elsewhere at the risk and account of the vendor and the vendor shall be liable for prove out, performance of the press, guarantee and any loss or damage which BHEL may sustain in consequence of or arising out of such contract elsewhere .	Vendor to confirm

1600T Press - Details of Cylinders

Sl.No.	Name of Cylinder	Type of Operation	Ram Size		Cylinder			Qty.	Reference Drawing No.
			OD- (MM)	Long(MM)	ID-(MM)	OD-(MM)	Long-(MM)		
1	Central Pressing Cylinder	Double action	φ748	6550	φ750	φ1125	4600	RAM - 1 No. Cylinder - 1	M0/679/G.5-145
2	Side Stamping	Single action	φ355	5000	φ380	φ520	4500	RAM - 2 No.	M1/815/G.5-196
3	Return Cylinder	Single action	φ250	4520	φ250(+)	φ430	4140	RAM - 2 No.	M1/816/G.5-19
4	Lower Pressing Cylinder	Double action	φ355 (Expanding Mandrel)	2350 (Expanding Mandrel)	1) φ760 (Pressing Cylinder) 2) φ355 (Stationery Plunser)	φ930 (Pressing Cylinder) φ705	2000 (+) (Pressing Cylinder) 2000 (+) (Stationery Plunser)	RAM - 1 No. Cylinder - 1	M0/861/G.5-228
5	Table Cylinder	Single action	φ160	4575	Build up Double Cylinder Rectangular Shape Size 400x575x4550 long Double bore size φ 180 mm x 4550 long.			RAM - 2 No. Buildup Double Cylinder - 1	M0/686/G.5-148 (Cylinder) M1/225/G.5-511 (RAM)



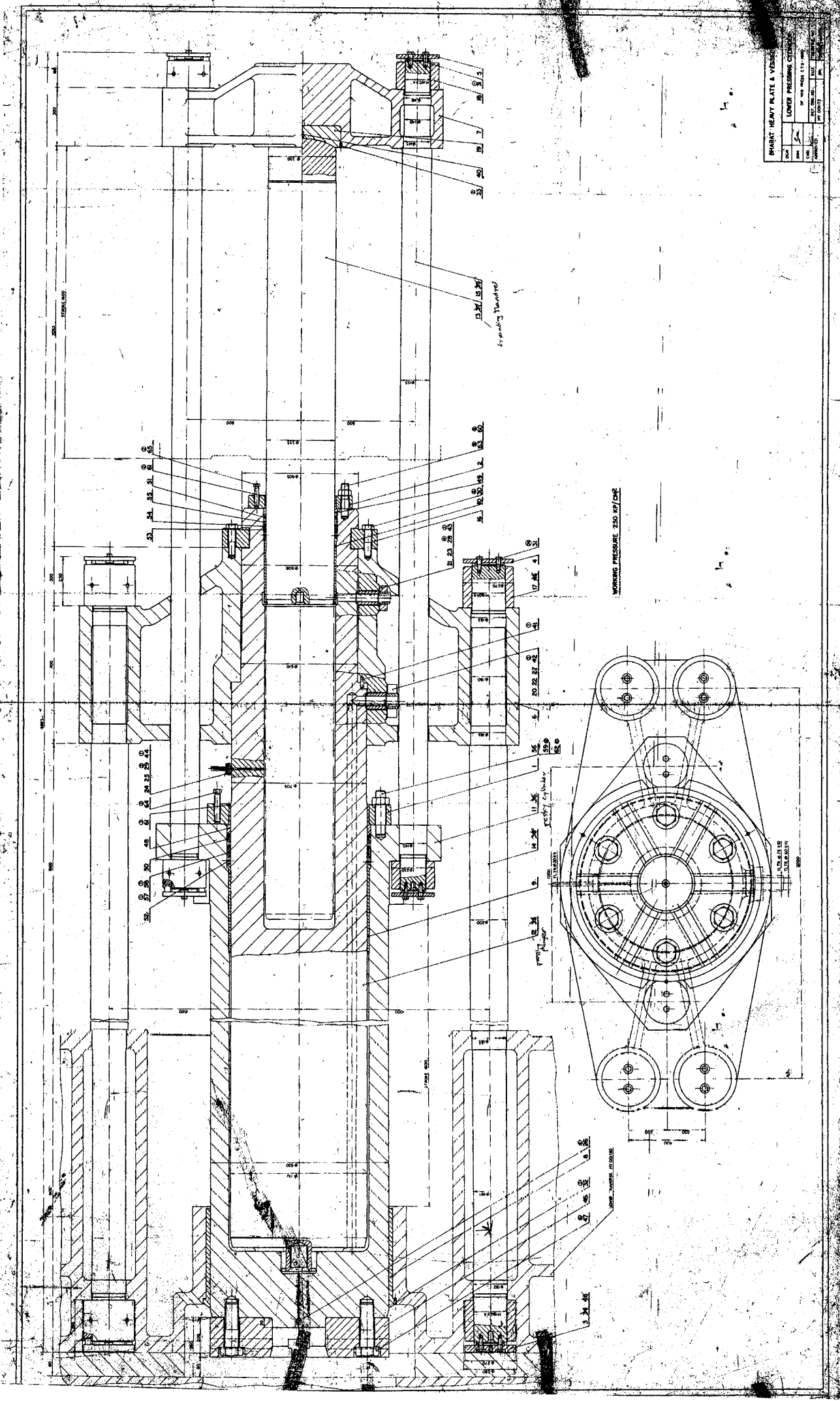
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 Date: 19/11/55
 Drawn: M. S. S. (M/S)
 Checked: M. S. S. (M/S)
 No. of copies: 10
 No. of sheets: 1

BHARAT HEAVY PLATE & VESSELS LTD.			
DATE	BY	FOR	REVISION
		CENTRAL PRESSURE CYLINDER	
		FOR PRESS. STD. 1000	
		NO. OF SHEETS	
		NO. OF PARTS	
		NO. OF SHEETS	

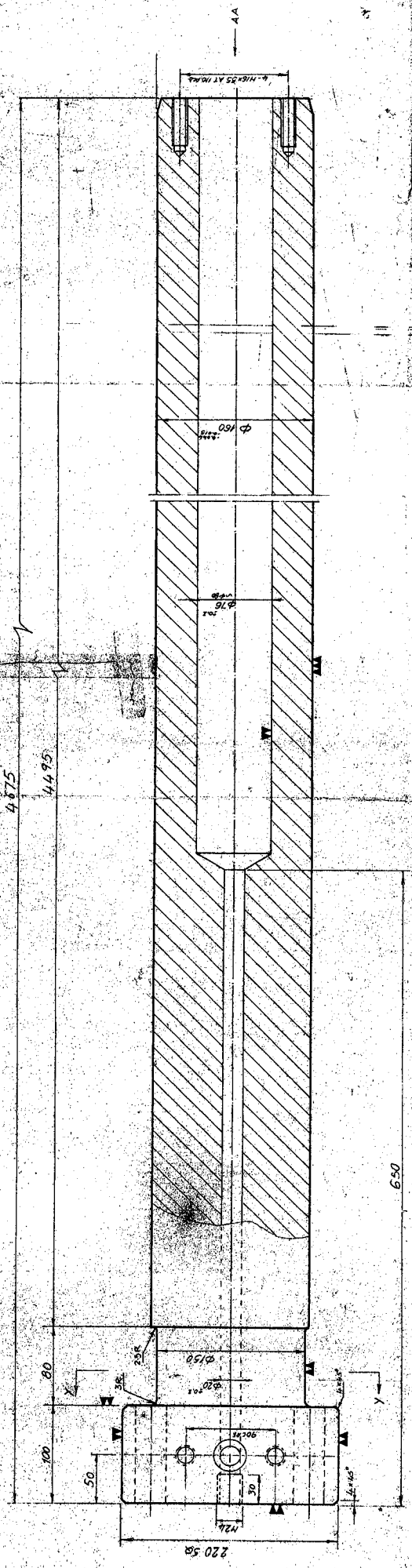
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PART: HEAVY PLATE & VESSEL		LOWER PRESSING CYLINDER	
NO.	REV.	DATE	BY

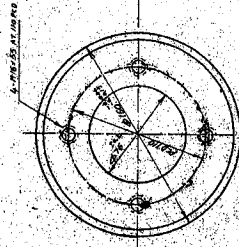
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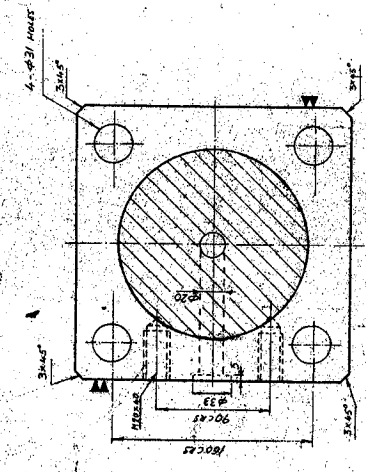
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.



MAT STEEL
SPEC EN 56 D
QTY 2 Pcs
MFG UNIT 590 MG



VIEW A-A



SECTION Y-Y

DESCRIPTION	QUANTITY	UNIT	REMARKS
RAM FOR DUEL FEED			
CYLINDER (70mm x 160mm)			
DATE	BY	CHKD	APPROVED
SCALE	1:1		
REF. NO.	BY	CHKD	APPROVED

REFERENCE: BY 1/1/21
PART NO: 5 JAW 06529

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

MIL-10-1-151



COMMERCIAL TERMS AND CONDITIONS FOR SUBMISSION OF OFFER**1.0 QUOTATIONS**

Bidders shall submit the offer in TWO INNER ENVELOPES as indicated below which shall be sealed in one outer envelope.

Envelope I: This sealed envelope should contain all the copies of technical bid together with un-priced commercial bid. This envelope should be clearly marked “**Part I – Technical and Un-priced commercial bid**” Indicating Tender No., Due Date and Address & Reference of the Bidder.

Envelope II: This sealed envelope should contain price details this envelope should be clearly marked “**Part II - Price bid**” indicating Tender No., Due Date and Address & Reference of the Bidder.

Both the envelopes (Part I & II) shall be put in one cover, duly sealed, super scribing as Part I and Part II of Tender No., due date of opening and the address and reference of the Bidder

The above offer should reach this office on or before the due date by 14.00 Hrs (IST)
Tender should not be addressed to any Individuals name but only designation to

Sr. Manager (MM)
BHARAT HEAVY ELECTRICALS LIMITED
HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM - 530 012 (A P), INDIA.

Tenders should be free from CORRECTION AND ERASURES. Corrections if any must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

Offers should be in ENGLISH and accompanied by technical literature catalogue and detailed dimensional drawings in ENGLISH or otherwise the offers will not be considered.

2.0 PART I (TECHNICAL & UN-PRICED COMMERCIAL BID)**2.1 Technical**

This part shall include / indicate the following:

- 2.1.1. Offer should contain complete scope of supply with all technical details, specifications, delivery and other commercial terms and conditions.
- 2.1.2. Point by point confirmation for the Technical Specification enclosed is to be provided. If there are any deviations the same should be clearly specified. Offers received without conformation to our specification will be rejected.
- 2.1.3. List of customers to whom same or similar equipment have been supplied along with performance certificates to be enclosed.
- 2.1.4. Relevant catalogue to be attached.
- 2.1.5. List of spares parts (with part numbers) for two years operation and maintenance should be attached.

2.1.6. Information on shipping weight and cubage (length, width & height) to be provided

2.1.7. In case of foreign bidder offer, the Principal's technical offer only should be enclosed.

2.2 Un-Priced Commercial

This part shall include / indicate the following

2.2.1. Port of shipment / Station of dispatch

2.2.2. Terms of payment

2.2.3. FOB/FCA price along with freight charges up to Chennai port (for foreign bidders) Ex-works/FOR Dispatch Station price along with freight charges up to BHEL Visakhapatnam (for Indian bidders)

2.2.4. Taxes, Service tax & duties including Cess applicable.

2.2.5 Delivery Schedule

2.2.6. Filled-in check list to be enclosed

2.2.7. Offer validity

2.2.8. Country of origin

2.2.9. Percentage of agency commission if any along with a copy of Agency agreement The FOB/FCA/CFR Prices quoted shall include the agency commission.

2.2.10. A copy of "Un-Priced Part II 'i.e., a copy of the Price Bid without the price details to be enclosed.

2.2.11 BHEL Visakhapatnam is eligible for availing CENVAT / VAT credit on both inputs and capital inputs. The suppliers invoice should separately indicate the amount of duty / taxes and should invariably mention the following details:

1. The Central excise registration number, range division and commission rate of the supplier's jurisdiction.
2. The rate of duty and 8 digit central excise tariff heading of the item supplied.
3. The TIN, VAT, CST registration number of the supplier.

The duplicate copy of the invoice is required for availing CENVAT credit and original copy for availing VAT credit, if purchased within the state.

In case of foreign bidders the duplicate copy of the electronic Bill of Entry along with TR6 challan should be made available for availing CENVAT credit on CVD, Cess (S) and SAD.

3.0 **PART II (PRICE – BID)**

This part should contain the schedule of price particulars and to be co-related to the technical details provided in Part-I

4.0 **OPENING OF TENDERS**

The Part I – Technical & un-priced commercial bid alone would be opened on the Tender opening date.

The Part II – Price bid of technically suitable Bidders alone would be opened. The Technically suitable Bidders would be informed about the Price Bid opening date. Clarifications if any required by BHEL Visakhapatnam FOR Technical evaluation / commercial evaluation would be sought from Bidders before opening of Part II – price bid.

GENERAL

5.1 Incomplete offers will not be considered.

5.2 **Fixed priced:** Prices quoted by the bidder shall be fixed and not subject to any escalation whatsoever during the period of bid validity and execution of the Purchase Order A bid submitted with an adjustable price will be treated as non- responsive and rejected Prices shall be written in words and figures. In the event of difference, the price in words shall be valid and binding. Unit prices shall be considered correct in the event of any discrepancy with regards to total price.

5.3 **Bid currency:** Indian bidders should submit the prices only in Indian Rupees. Foreign bidders may submit their bid in their home currency, which should be clearly indicated in the un-priced commercial bid as well as in the price bid. Price bid opening date/ RA date will be considered as effective date for considering exchange rate to evaluate the offers.

- 5.4 **Terms of Delivery:** Bidders are required to quote their best delivery period. Foreign Bidders should submit their offer for net FOB/ FCA – Nearest Sea Port / Air Port as well as CFR / Chennai Seaport/ Airport. Freight charges up to Chennai port to be indicated separately. Indian Bidders should submit their offer for Dispatching station as well as FOR BHEL Visakhapatnam basis. Freight charges from works to BHEL Visakhapatnam to be indicated separately. Delivery from the date of Letter of Intent to be mentioned in the offer.
- 5.5 **Taxes and Duties:** All Taxes and Duties payable as extra to the quoted price should be specifically stated in offers along with CST & TIN No/ Tariff No. etc, failing which the purchaser will not be liable for payment of such Taxes and Duties (Our TIN No.28280189432, APGST No. VSP/04/1/1023 dated 24.08.1968. CST No.VSP/04/1/1012 dated 24.08.1968 & BHEL Visakhapatnam ECC No AAA CB 7076 N-XM001. Assessment circle Visakhapatnam.)
- 5.6 **Validity:** The offers for main equipment and spares shall be kept open for acceptance for a period of 120 days (one hundred and twenty days) from the dates of opening of the tender (part I)
- 5.7 **Terms of Payment:**
- 5.7.1 **Indian Bidders:**
- 5.7.1.1 80% of supply portion along with taxes & duties will be made within 45 days of receipt of material and Balance 20% along with 100% of the Erection & Commissioning portion after submission of BG and after completion of Erection & Commissioning of the equipment at BHEL, Visakhapatnam
- 5.7.2 **Foreign Bidders**
An Irrevocable letter of Credit shall be established for 80% of FOB/FCA/CFR/ (excluding Indian Agent's commission) 2 months prior to shipment and valid for 3 months for negotiation against shipment Letter of Credit shall be opened through a branch of State Bank of India in the country where order shall be placed. In case, in the country where order is placed, State Bank of India is not there, Letter of Credit will be confirmed by foreign banker. Balance 20% of FOB/FCA/CFR value shall be paid through sight draft on Commissioning & acceptance of the equipment at BHEL Visakhapatnam, against submission of 10% performance bank guarantee. All Bank charges outside India are to supplier's account. Lump sum erection and commissioning charges if any, shall be payable after satisfactory erection & commissioning of the equipment by sight draft against certificate issued by the competent authority.
- 5.7.3 **Common to both India & Foreign Bidders.**
Erection & Commissioning (E&C) charges will be released after deduction of Income Taxes as per the Govt. of India rules. The TDS certificate will be issued by BHEL. Applicable service tax on E&C charges will be payable extra. The liability of depositing the same to the Govt. will be of the supplier.
- 5.7.4 **Loading criteria common to both Indian and foreign bidders:** Vendor should accept the payment terms specified above. However for any deviation to the payment terms offered with reference to the above criterion will be loaded with prime lending rate of SBI prevailing on date of opening of price bid + 2%, which shall be computed for the differential period between BHEL Visakhapatnam terms of payment and the offered basic price.
- 5.8 DUNS number (allotted by M/s. DUN & Bradstreet) shall be mentioned in your offer.
- 5.9 **Guarantee:** The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier.
Offers from vendors not accepting to the requested guarantee period will be rejected.

- 5.10 **Contract Execution Bank Guarantee (CEBG):** The successful tenderer shall furnish a Bank Guarantee from any Nationalized Bank for 5% of Purchase Order value (FOR Dispatching station value – Excluding taxes, duties, freight & insurance – for Indian bidders) & (FOB/FCA value – excluding freight & insurance – for foreign bidders) confirming that the order will be executed as per the terms and conditions and this should be valid till final dispatch date (LR/GR/BL/AWB) with additional 2 months claim period. Letter of Credit will be processed only after receipt of CEBG. The CEBG is to be furnished within 3 weeks from the date of Purchase order.
Offers from vendors not accepting to submit CEBG will be rejected.
- 5.11 **Performance Bank Guarantee (PBG):** The supplier shall furnish a Bank guarantee from any Indian Nationalized Bank approved by BHEL Visakhapatnam in the format, given by BHEL Visakhapatnam along with purchase order for 10% of the Purchase Order value (FOR Dispatching station value – Excluding taxes, duties, freight & insurance – for Indian bidders) & (FOB/FCA value – excluding freight & insurance – for foreign bidders) valid for period of guarantee with additional claim period of 2 months.
Offers from vendors not accepting to submit PBG will be rejected.
- The CEBG & PBG shall be obtained from any Indian Nationalized Bank/ Scheduled Commercial Banks.
- 5.12 **Liquidated damages:** Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional penalty at the rate of ½% of the value of goods for each week of delay subject to a maximum of 10% of the Purchase Order value.
- 5.12.1 **Loading Criteria for Liquidated Damages:** Any deviation from above LD Clause to the extent for which LD is not agreed by the vendor i.e., differential % value will be loaded on basic price, e.g. If some vendor agrees for say maximum of 6% LD then his price will be loaded by 4% (10 – 6) of his quoted basic price.
- 5.13 **Risk purchase:** If the supplier fails to deliver the goods within the delivery specified in the Purchase Order, BHEL Visakhapatnam will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the delivery period mentioned in the Purchase Order.
Offers from vendors not accepting the above Risk Purchase terms will be rejected.
- 5.14 **Indian Agent & Agency commission:** An Indian Agent can represent only one Foreign Manufacturer against a particular Tender. The FOB/FCA/CFR price quoted by the Foreign bidder shall include the agency commission. However, the agency commission component payable to their Indian Agents shall be shown separately in the offer. This will be paid by BHEL Visakhapatnam in India Rupees, on satisfactory commissioning & acceptance of the equipment. Copies of current Agency Agreement / Authorization Letter in respect of Agency Commission shall be furnished along with offer. For calculation of Rupee equivalent of Agency Commission exchange rate as prevailing on the date of Purchase Order will be taken.
- 5.15 **Short shipment / Warranty replacement:** In case of any short shipment in the main equipment / spares, customs duty levied on such supplies, shall be borne by the supplier. Any warranty replacement during the warrantee period shall be on FOR, BHEL Visakhapatnam, basis.

- 5.16 **Inspection & Testing:** All goods shall be subject to inspection by BHEL Visakhapatnam or its authorized representatives at supplier's works or at BHEL Visakhapatnam stores. The supplier will not charge for the facilities provided for inspection of goods. In case of machine tools the machine would be inspected and proved at supplier's works prior to dispatch however, final inspection and acceptance of the machine will be carried after installation of the machine at BHEL, Visakhapatnam.
- 5.17 **Operating and Maintenance manuals:** The Bidders shall clearly mention in their offer that Operating Maintenance Manuals as called for in the Technical Specification in the required number of copies will be provided.
- 5.18 **Cenvat & VAT credit. (for Indian Bidders only):** The quotation must indicate Tariff item number and rate of Excise Duty applicable. The original Excise Duty Gate Pass will be required to be furnished in case charges to us. If the bidder is availing Cenvat credit for his input materials, the effect of proforma credit should be passed on to the purchaser.
- 5.19 **Packing:** The Supplier shall arrange for packing suitably in all respects considering the peculiarity of the material involves for normal transport by sea / air / rail road and suitably protected against effect of tropical salt laden atmosphere in the event of shipment being delayed at ports.
- 5.20 **Salient Points of HSE** (Health, Safety & Environment) that are to be considered while submissions of offer are:
- 5.20.1 Consumption benchmarks related to output shall be provided wherever applicable for key input resources (energy/fuels/chemicals)
- 5.20.2 Competency requirements for operation, maintenance and calibration, if any, shall be communicated
- 5.20.3 If any Hazardous chemicals as per MSIHC (Manufacturing, Storage and import of Hazardous Chemicals) Rules 1989/94/2000 are used, the MSDS shall be provided, along with on site & OFF site emergency plan (as applicable).
- 5.20.4 The noise level at operator level shall be within 90 DbA
- 5.20.5 OH&S (Occupational Health and Safety) control measures for safe working of machine as applicable shall be specified
- 5.20.6 The machine/equipment shall be fitted with guard for rolling and moving parts and shall comply with applicable OH&S legislations and Factories Act 1948
- 5.20.7 The supplier shall submit the layout drawing of operating controls, displays etc and operating instructions to enable ergonomics evaluation and approval
- 5.20.8 The recommended PPE (Personal Protective Equipment) for the equipment shall be furnished
- 5.20.9 Alarm System (both visual and audible) and Automatic switch off of the equipment shall be provided for any intrusion, overloading, short circuiting or any malfunctioning of the equipment.
- 5.20.10 Details of all hazardous / harmful substances discharges as by-products / wastes during operations of the machine / equipment, such as fumes, gases, dust particles, aerosols UV./IR (Ultra violet / Infra red) radiations, etc shall be furnished, along with their concentrations and their TLV, (Threshold Limit Value)

- 5.20.11 Appropriate pollution control measures shall be proposed to keep the emissions from the machinery / processes within the prescribed limit as stated in Environment Protection Rules 1986.
- 5.20.12 All furnaces, process units, DG sets, paint booths, shot blasting chambers, etc shall be provided with stack(s) of sufficient height as per guidelines laid down in the Environment Protection Rules 1986.
- 5.20.13 wherever industry specific standards are not available for control of pollutants, general emission standards shall be used
- 5.20.14 Chemicals banned due to their negative impact on the environment shall not be used on the process
- 5.20.15 Fuels with sulphur content less than 0.05% shall be proposed.
- 5.20.16 Details regarding nature of waste generated and appropriate disposal practices available shall be provided, along with the operation procedure of the plant / process.
- 5.20.17 Hazardous chemicals and flammable substances shall be transported only through authorized transporters and all safety practices as laid down in applicable legislative requirements such as Central Motor Vehicle Rules, Manufacture, Storage and Import of Hazardous Chemical 1989, etc. shall be followed.
- 5.20.18 Primary materials used in the equipment shall be specified and they shall be eco - friendly.
- 5.21 Evaluation of offers shall be on the basis of delivered cost (Net cash outflow to BHEL Visakhapatnam).
- 5.22 BHEL Visakhapatnam also reserves its right to allow to the Public Sector Enterprises ordering and price preference facilities as admissible under the existing policy.
- 5.23 BHEL Visakhapatnam reserves its right to reject a tender due to unsatisfactory past performance in the execution of a contract at another project / unit.
- 5.24 BHEL Visakhapatnam shall be at liberty to reject or accept any tender, part or in full, at their own discretion and any such action is not liable for any question or claim against BHEL Visakhapatnam.
- 5.25 BHEL Visakhapatnam reserves the right to go for a Reverse Auction (RA) instead of opening the submitted sealed bid, which will be decided after technical evaluation. Information and general terms and conditions governing RA are given below.

GENERAL TERMS AND CONDITIONS OF RA (REVERSE AUCTION)

Against this enquiry for the subject item/system with detailed scope of supply as per enquiry specifications. BHEL Visakhapatnam may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING ON INTERNET.

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. BHEL Visakhapatnam will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
3. BHEL Visakhapatnam will inform the vendor in writing in case of reverse auction, the details of service provider to enable them to contact & get trained.

4. Business rules like event date, time, start price, bid decrement, extensions etc. also will be communicated through service provider for compliance.
 5. Vendors have to fax the Compliance form in the prescribed format (provided by Service provider) before start of Reverse auction. Without this, the vendor will not be eligible to participate in the event.
 6. BHEL Visakhapatnam will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL Visakhapatnam like Packing & Forwarding charges, taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL Visakhapatnam standard Commercial terms & conditions) for each of the vendor to enable them to fill-in the price and keep it ready for keying in during the Auction.
 7. Reverse auction will be conducted on scheduled date & time.
 8. At the end of Reverse Auction event, the lowest bidder value will be known on the network.
 9. The lowest bidder has to Fax the duly signed Filled-in prescribed format as provided on case-to-case basis to BHEL Visakhapatnam through Service provider within 24 hours of Auction without fail.
 10. Any variation between the on-line bid value and the signed document will be considered as sabotaging the tender process and will invite disqualification of vendor to conduct business with BHEL Visakhapatnam as per prevailing procedure.
 11. In case BHEL Visakhapatnam decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL Visakhapatnam shall be opened as per BHEL Visakhapatnam's standard practice.
- 5.26 **Force Majeure clause:** If at the time during the continuance of this contract the performance in whole or in part by either party of any obligations under this contract shall be prevented or delayed by reason, of any war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, explosions epidemics, quarantine, restrictions or acts of GOD (hereinafter referred to as events) then provided notice of happening of any such events is given by either party to other within twenty one days from the date of occurrence thereof neither party shall reason of such events be entitled to terminate this contract nor shall either party have any such non performance and delay is resumed as soon as practicable after such events has come to an end or ceased to exist, if the performance in whole or part of any obligation under this contract is prevented or delayed by reason or any such event claims for extension of time shall be granted for period considered reasonable by the purchaser subject to prompt notification by the seller to the purchaser of the particulars of the events and supply to the purchaser if required of any supporting evidence. Any waiver of time in respect of partial installment shall not be deemed to be a waiver of time in respect of remaining deliveries.

CHECK LIST

Bidder's acceptance to BHEL Visakhapatnam's Standard Commercial Terms & Conditions.

Applicable for Indian bidders

(To be submitted along with the offer – please do not change the format)

BHEL Visakhapatnam Tender No: & Date:	Bidders Confirmation / response
Prices have been quoted on "FIRM PRICE" basis only (Yes / No)	
Prices have been quoted on "F.O.R BHEL Visakhapatnam" basis only (Yes / No)	
P & F (Please confirm whether included or not)	
Freight (Please confirm whether included or not)	
Insurance (Please confirm whether included or not)	
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – please Specify)	
Sales Tax (please Specify)	
Excise Duty (please Specify)	
Delivery period from the date of Purchase Order (please Specify). A loading @ ½ % of the Purchase Order value per week will be done for the grace period requested. For evaluation 4 weeks will be considered as one month. Vendors quoting a delivery period beyond the 'the requested delivery plus the allowed grace period' is liable for rejection.	
Liquidated damages as per clause 5.12 (we require acceptance to @ ½% per week subject to a maximum of 10%) (Yes / No)	
Risk Purchase as per clause 5.13 (Yes / No) (Offers from vendors not accepting the Risk Purchase terms will be rejected)	
Payment terms (As per Clause No. 5.7.1) (Yes / No)	
Contract Execution Bank Guarantee (CEBG) as per Clause 5.10 (Yes / No) (Offers from vendors not accepting to submit CEBG will be rejected)	
Performance Bank Guarantee (PBG) as per Clause 5.11 (Yes / No) (Offers from vendors not accepting to submit PBG will be rejected)	
Guarantee as per clause 5.9 (The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier) (Yes / No) (Offers from vendors not accepting to the guarantee period will be rejected)	
Inspection (please Specify the Place of Inspection)	
Erection & Commissioning/ Installation/ Training (Please confirm whether charges are included in the total cost or not)	
Approximate Net Weight of the total Consignment	
Approximate Gross Weight of the total Consignment	

Signature & Office Seal of the bidder

CHECK LIST

Bidder's acceptance to BHEL Visakhapatnam 's Standard Commercial Terms & Conditions.

Applicable for foreign bidders (To be submitted along with the offer – please do not change the format)

BHEL Visakhapatnam Tender No: & Date:	Bidders Confirmation / response
Prices have been quoted on "FIRM PRICE" basis only (Yes / No)	
Prices basis (FOB/CFR/CIF – Please Specify)	
Insurance (Please confirm whether included or not)	
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – please Specify)	
Currency in which quoted (please Specify)	
Port of loading (please Specify)	
Country of Origin (please Specify)	
Delivery period from the date of Letter of Intent (please Specify) A loading @ ½ % of the Purchase Order value per week will be done for the grace period requested. For evaluation 4 weeks will be considered as one month. Vendors quoting a delivery period beyond the 'the requested delivery plus the allowed grace period' is liable for rejection.	
Liquidated damages as per clause 5.12 (we require acceptance to @ ½% per week subject to a maximum of 10%)	
Risk Purchase as per clause 5.13 (Offers from vendors not accepting the Risk Purchase terms will be rejected) (Yes / No)	
Payment terms (As per Clause No. 5.7.2)	
Agency commission (refer clause 5.14)	
Contract Execution Bank Guarantee (CEPG) as per Clause 5.10 (Yes / No) (Offers from vendors not accepting to submit CEBG will be rejected)	
Performance Bank Guarantee (PBG) as per Clause 5.11 (Yes / No) (Offers from vendors not accepting to submit PBG will be rejected)	
Guarantee as per clause 5.9 (The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier). (Offers from vendors not accepting to the requested guarantee period will be rejected) (Yes / No)	
Inspection (please Specify)	
Erection & Commissioning/ Installation/ Training (Please confirm whether charges are included in the total cost or not)	
Dimension of the Largest Part (please Specify)	
Packing Schedule (No of containers and their Sizes) (please Specify)	
Approximate Net Weight of the total Consignment (please Specify)	
Approximate Gross Weight of the total Consignment (please Specify)	

Signature & Office Seal of the bidder