

BHARAT HEAVY ELECTRICAL LIMITED, JHANSI

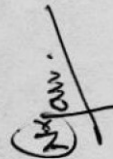
Spec. No.	MT-6235
Item No.	MT-3/2/1555
Location	New Bogie Shop
Qty.	01 No.
SCOPE: Design, Manufacturing, Supply, Erection & Commissioning of 50 Ton Bush Press MACHINE along with suitable accessories	

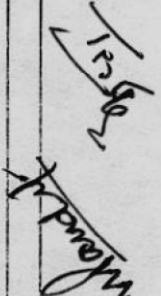
Note:

- Vendor must submit complete information against clause No. 22 (Qualifying criteria) and the offers meeting this clause would only be processed.
- The "offered" column and the "deviations" column (if applicable) of this format shall be filled in by the vendor and submitted along with the offer. Technical details also need to be submitted along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specification / requirements shall be treated as non-compliance.
- The offer and all the documents enclosed with the offer shall be in English only.

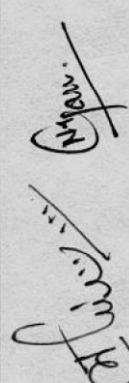
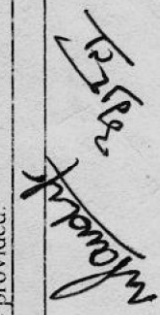
SPECIFICATION CUM COMPLIANCE CERTIFICATE OF 50 TON BUSH PRESS MACHINE

Sr. No.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	BIDDER OFFER	DEVIATION / REMARK
1 PURPOSE:				
1.1	This machine will be used for pressing metal clad rubber cylindrical bushes in housing of various locomotive assemblies	Vendor to confirm		
2 MACHINE SPECIFICATION				
2.1 PARAMETERS				
2.1.1	Type: 'C' frame, Variable stroke,	Vendor to confirm		
2.1.2	Forward Capacity - 50 Tonnes	Vendor to confirm		
2.1.3	Cylinder Bore/ Ram Dia	Vendor to specify		
2.1.4	Stroke - 900 mm(min)	Vendor to confirm and specify		
2.1.5	System Pressure (Max.)	Vendor to specify		
2.1.6	Daylight - 900 mm (min)	Vendor to confirm and specify		
2.1.7	Throat - 600 mm	Vendor to confirm and specify		
2.1.8	Table height form ground Level - 800 mm (Approx.)	Vendor to confirm and specify		
2.1.9	Table Size - 700 x 1500 mm (min)	Vendor to confirm and specify		
2.1.10	U" Cutout in table - 125 mm (approx.)	Vendor to confirm and specify		
2.2.11	"T" Slot in table	Vendor to specify		
2.1.12	Ram table Size - 450 X 450 MM (min)	Vendor to confirm and specify		
2.1.13	T' Slot in Ram table	Vendor to specify		
2.1.14	Location Bore in Ram Table	Vendor to specify		
2.1.15	Lock Screw Size	Vendor to specify		

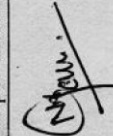
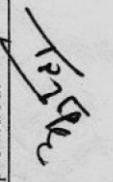




Sr. No.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	BIDDER OFFER	DEVIATION / REMARK
2.1.16	Speed	Vendor		
2.1.16.1	Approach - 20 - 65 mm/Sec (Approx.)	Vendor to confirm and specify		
2.1.16.2	Pressing - 0.5 - 3 mm/ Sec (Approx.)	Vendor to confirm and specify		
2.1.16.3	Return - 95 mm/ Sec (Approx.)	Vendor to confirm and specify		
2.1.17	Electric motor Capacity	Vendor to specify		
2.1.18	Pressure to Tonnage conversion chart to be provided on machine	Vendor to confirm		
2.1.19	Analogue and digital pressure gauge to be provided for pressing application	Vendor to confirm		
2.2	HYDRAULIC SYSTEM :			
2.2.1	System should be centralised. Hydraulic Tank of suitable capacity shall preferably be located at floor level separate from machine structure.	Vendor to confirm and specify		
2.2.2	Make Rexroth / Vickers Sperry or equivalent from a reputed manufacturer. (Details to be submitted)	Vendor to confirm and specify		
2.2.3	Filtration System (suction strainer, pressure line filter etc.)	Vendor to confirm and specify		
2.2.4	Failure indications (Filter choke, Low pressure, oil temperature, low oil level etc.)	Vendor to confirm and specify		
2.2.5	Automatic shut off provision (Details to be submitted)	Vendor to confirm and specify		
2.2.6	Refrigerated type cooling system of sufficient capacity to maintain complete Hydraulic System, including lubrication oil, hydrostatic oil and gearbox oil, etc. at a temperature not exceeding 40 deg C irrespective of the ambient conditions.	Vendor to confirm and specify		
2.2.7	Hydraulic pump capacity (flow / pressure)	Vendor to specify and specify		
2.2.8	Each pump should have an independent motor. Tandem pumps should not be used.	Vendor to confirm and specify		
2.2.9	First filling of all required oil & grease etc. should be supplied by vendor. Indigenous (Indian) source, or Indian Equivalent, and specifications of oils/ greases also should be provided by the vendor.	Vendor to confirm		
3	CONSTRUCTION DETAILS:			
3.1	The press consists of a 'C' frame structure of weldable quantity fatigue resistant steel. Inside the frame are mounted the cylinder unit and the hydraulic system with an inbuilt oil tank. The ram is guided properly and is attached with a stroke control system to set the predetermined stroke and retracted position of the ram	Vendor to confirm and submit G.A		
3.2	Furnish design and constructional features of the press.	Vendor to specify		
4	PRESS OPERATION & CONTROLS:			
	Control cabinet (manual or semi automatic) shall be provided for operation and control of the pumps, valves, switchgears, sensor, indicators, relays etc., as applicable. Additional foot switch for the operation of the press to be provided. Selector switches for auto/ manual pressing, fast/inching operation, limits for stroke and pressing to be provided.	Vendor to specify and submit details.		
5	ELECTRICAL SYSTEM :			

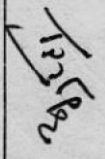



Sr. No.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	BIDDER OFFER	DEVIATION / REMARK
5.1	415V + 10% / -15%, 50HZ +/3 HZ, 3 Phase AC Power Supply Source will be provided by BHEL at a single point near the machine, as per layout recommended by Vendor. All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the machine/control cabinets, shall be the responsibility of vendor. Requirement of grounding/earthing with required material details is to be informed by vendor well in advance so that same could be incorporated during construction of foundation.	Vendor to confirm		
5.2	Motors shall conform to IEC or Indian Standards	Vendor to confirm		
5.3	Vendor should ensure the proper earthing for the machine and its peripherals.	Vendor to confirm		
5.4	All electrical components in the cabinets should be mounted on DIN Rail.	Vendor to confirm		
5.5	All electrical equipment shall be suitably protected by HRC fuses/ MCBs/ Overload relays & single phase preventives.	Vendor to confirm		
5.6	All electrical & electronic control cabinets & panels should be dust and vermin proof.	Vendor to confirm		
5.7	Centralized electrical panel with auxiliary step down transformer, contactors, back up protection fuses, indicating lamps etc. to be provided with audio and visual alarms for each equipment. - All controls and annunciation equipment should be suitable for 240 V AC. - Suitable interlock as described against each equipment shall be provided for safe and trouble free operation. - All instrument control hardware and alarms shall be mounted on a suitable control panel. - The machine shall be fully equipped with adequate instrumentation having provision of Auto and manual operation as mentioned. All necessary control and indicating panel shall be provided.	Vendor to confirm		
6	SAFETY ARRANGEMENTS:			
6.1	Apart from standard safety arrangements machine should also have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistakes. Machines functions should be continuously monitored and audio visual warning indication / alarm number with message (on panels) should be available.	Vendor to confirm		
6.2	A detailed list of all alarm / indications provided on Plants should be submitted by the supplier with the offer.	Vendor to confirm and specify		
6.3	Oil & water pipe lines should not run with electrical cable in the same tray / trench.	Vendor to confirm		
6.4	All the pipes, cables etc. on the machine should be well supported and protected.	Vendor to confirm		
6.5	All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations.	Vendor to confirm		
6.6	Emergency Switches at suitable locations as per international norms are to be provided.	Vendor to confirm		

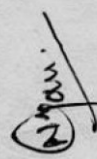
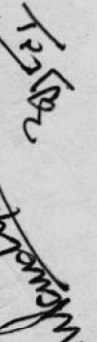




Sr. No.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	BIDDER OFFER	DEVIATION / REMARK
6.7	Safety lights at suitable locations.	Vendor to confirm		
7	ENVIRONMENTAL PERFORMANCE OF THE MACHINE :			
7.1	Maximum noise level shall be 85 dB(A) at normal load condition, 1 M away from the machine.	Vendor to confirm		
7.2	There shall not be any emissions from the machine.	Vendor to confirm		
7.3	Tropicalisation: All electrical / electronic equipment shall be tropicalized.	Vendor to confirm		
7.4	No hazardous chemicals shall be required to be used in the machine.	Vendor to confirm		
7.5	If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	Vendor to confirm		
7.6	Paint of the machine should be oil resistant and should not peel off.	Vendor to confirm		
8	MACHINE LIGHTS:			
8.1	Machine Lights for sufficient illumination of complete working area should be provided for clear visibility.	Vendor to confirm		
8.2	All light fittings, consumables, adapters/receptacles should have compatibility with Indian equivalents	Vendor to confirm		
9	LEVELING AND ANCHORING SYSTEM:			
9.1	Complete anchoring system including foundation bolts, anchoring materials etc. shall be vendors scope.	Vendor to confirm		
10	TOOLS FOR ERECTION, OPERATION & MAINTENANCE :			
10.1	Tools required for erection & commissioning of the press has to be arranged by the vendor. One set of tool kit for maintenance and operation of the press to be supplied.	Vendor to confirm		
11	SPARES:			
11.1	Itemised breakup of mechanical, hydraulic, electrical and electronic 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, make & model of spare shall be offered.	Vendor to confirm and submit		
11.1.1	a) Mechanical & Hydraulic Spares: All types of Pumps, Valves, Pressure Switches, Transducers, Flow Switches, Filters, Seals, O-rings, Hydraulic Hoses etc.	Vendor to confirm and submit		
11.1.2	b) Electrical /Electronic Spares: All types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch.	Vendor to confirm and submit		
11.2	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 & suppliers to enable BHEL to procure them in advance, if required	Vendor to confirm		

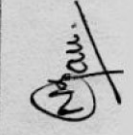
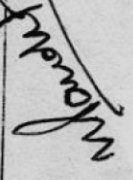
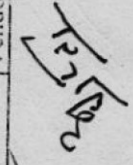




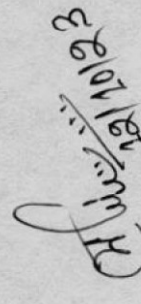
Sr. No.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	BIDDER OFFER	DEVIATION / REMARK
11.3	Vendor to confirm that complete list of spares for machine and accessories, along with specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine	Vendor to confirm and submit		
12 DOCUMENTATION:				
12.1	Five sets (Hard copies) of following documents (Hard copies) in English language should be supplied along with the machine.	Vendor to confirm		
12.2	Operation and maintenance manual with hydraulic sequence chart.	Vendor to confirm		
12.3	Catalogues, O&M Manuals of bought out items, including drawings (Electrical & electronic circuit, PLC Logic, machine assembly drawings, hydraulic circuit).	Vendor to confirm		
12.4	One additional set of all the above documentation in soft copy.	Vendor to confirm		
13 FOUNDATION:				
	Vendor shall submit the preliminary layout drawing for getting BHEL's approval. Complete foundation design including details like static / dynamic loads etc. and final layout drawings shall be submitted by the supplier with in a month after getting PO for BHEL's approval. The Layout should consist of all requirements pertaining to complete machine and all accessories. BHEL shall construct complete foundation for the machine.	Vendor to confirm		
14 ERECTION AND COMMISSIONING :				
	Erection and commissioning is the responsibility of the supplier. Service requirement like power, air & water shall be provided by BHEL at only one point to be indicated by supplier in their foundation/layout drawings. Other requirements like crane shall also be provided by BHEL as per availability. Details of these requirements should be informed by vendor in advance.	Vendor to confirm		
14.1	Tools, Tackles, instruments and other necessary equipment required for commissioning of the machine should be brought by the supplier.	Vendor to confirm		
14.2	Commissioning spares, required for commissioning of the equipment within stipulated time, shall be brought by the supplier on returnable basis.	Vendor to confirm		
14.3	All Cover Plates required for the equipment and its peripherals including pits, if any, shall be supplied and installed by the vendor.	Vendor to confirm		
14.4	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 colours of paint used.	Vendor to confirm		
14.5	Duration for E&C after call of commissioning from BHEL - 2 Months Max.	Vendor to confirm and specify		
14.6	E&C schedule for machine in Bar chart	Vendor to submit		
14.7	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All tests, as mentioned at clause 16.0 (Machine Acceptance Criteria) shall form the part of commissioning activity.	Vendor to confirm		

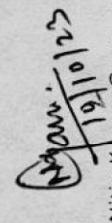




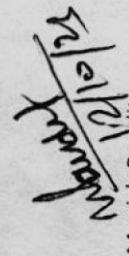
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15	FIXTURES & ACCESSORIES:			
15.1	Vendor to design, Manufacture and supply required number of fixtures for Bushes pressing. Drawing of bushes and housings shall be provided to vendor only after submission of NDA as per clause No. - 22.11	Vendor to confirm and specify.		
16	MACHINE ACCEPTANCE:			
16.1	Tests/activities should be carried out at supplier's works on the machine before dispatch.	Vendor to confirm		
16.1.1	Vendor to demonstrate all the functions of the machine.	Vendor to confirm		
16.1.2	Vendor to demonstrate machine accuracies as per DIN/ISO/IIS standard test chart at vendors works during inspection of the machine by BHEL engineers.	Vendor to confirm		
16.1.3	Vendor to furnish the test chart	Vendor to submit		
16.2	Tests to be carried out at BHEL works while commissioning the machine.			
16.2.1	Vendor to demonstrate machine accuracies as per test chart.	Vendor to confirm		
16.2.2	Vendor to demonstrate all the functions of the press for its proper function.	Vendor to confirm		
16.2.3	Job prove out for min 10 bush pressing operation	Vendor to confirm		
16.2.4	Vendor to arrange load cell for calibration of bush press machine.	Vendor to confirm		
17	PACKING:			
17.1	Proper packing of the items is to be ensured to avoid any damage in transit.	Vendor to confirm		
18	GUARANTEE:			
18.1	24 Months from the date of acceptance of the machine.	Vendor to confirm		
19	TRAINING:			
19.1	BHEL Persons shall be trained at BHEL Works in the field of Operation and Mechanical, Electrical & Electronics maintenance of machine & other supplied equipment.	Vendor to confirm		
20	AMBIENT CONDITIONS & THERMAL STABILITY:			
20.1	Ambient Conditions : Temperature = 5 to 50 degree Celsius , Relative Humidity : 95 %	Vendor to Note and confirm		
20.2	Thermal Stability of the complete Plant keeping in view specified Ambient Conditions and accuracy requirements of BHEL components and trouble free operation of the Plant should be ensured by VENDOR.	Vendor to Note and confirm		
21	GENERAL:			
21.1	Machine Model:	Vendor to specify		
21.2	Total connected load (KVA):	Vendor to specify		
21.3	Floor area required (Length, Width, Height) for complete equipment & accessories	Vendor to specify		
21.4	Painting of machine/electrical panels: RAL 6011 Apple green (polyurethane paint)	Vendor to confirm		
21.5	Total weight of the equipment.	Vendor to specify		
21.6	Weight of heaviest part of machine	Vendor to specify		

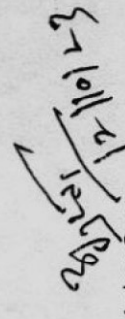




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21.7	Vendor to submit, along with offer, the reference list of customers where similar machines have been supplied mentioning the customer, Machine Model, major specifications of the supplied machine, Year of Supply etc.	Vendor to specify		
21.8	Detailed catalogues, sketch/ photographs of the machine should be submitted with the offer.	Vendor to specify		
21.9	Delivery period: 5 months Max.	Vendor to confirm and specify		
22	QUALIFYING CRITERIA			
22.1	Qualifying Criteria: Only OEM or OEM authorized dealer / partners, who have supplied at least 02 numbers min. 50 ton capacity Throat type presses in the past 7 years from the date of tender opening should quote. If the bidder is OEM-authorized dealer or partner or distributor then bidder to submit valid authorization certificate from OEM & Letter from OEM for technical support for this tender. The following information is also to be submitted by all the bidders for qualification of their offer.	Vendor to Confirm		
22.2	Purchase order copy (Unpriced) for supply of 2 nos. Bush Press Machine of min. 50 ton capacity during last 7 years from the date of this enquiry. If the bidder is OEM-authorized dealer or partner or distributor Purchase Order in the name of principal is also accepted.	Vendor to submit		
22.3	One no. Performance certificate from the customer of the same machine for min. one-year satisfactory operation from date of commissioning during last 7 years from the date of this enquiry.	Vendor to submit		
22.4	Name of the customer/company where similar machine is supplied.	Vendor to submit		
22.5	Complete postal address of the customer.	Vendor to submit		
22.6	Date of supply	Vendor to submit		
22.7	Date of commissioning.	Vendor to submit		
22.8	Name and designation of the contact person of the customer.	Vendor to submit		
22.9	Phone number & email address of the customer's contact person.	Vendor to submit		
22.10	BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false / incorrect, the offer shall be rejected.	Vendor to Confirm		
22.11	Vendor shall be required to submit signed NDA (Non Disclosure Agreement) with BHEL. All relevant drawing will be shared with vendor only after submission of NDA (Attached). Offer without NDA shall not be considered.	Vendor to Confirm and submit		


 Lalit Kumar Verma
 (Mgr. / WEX)


 Nitin Kumar Gaur
 (DGM/ WEX)


 Manish Pandit
 (Mgr. / LMM)


 Ankur Gupta
 (Mgr. / LME)