



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY

NOTICE INVITING TENDER

Phone : +91 431 257 7421/7833

Fax : 431 257 6826

Email : ykaruna@bhel.in

: vijayak@bhel.in

Website : www.bhel.com

TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two Parts	2631900038	30.09.2019	25.10.2019

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity
10	Horizontal Bandsaw Machine as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com and https://eprocure.gov.in)	01 No

Important points to be taken care during submission of offer

1. Delivery terms shall be FOR BHEL Stores, Trichy.
2. Compliance Form No: TRY/IND/06 to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
3. Delivery period required is 4 months from the date of Purchase Order.
4. Erection and commissioning shall be done at BHEL Trichy by the supplier.
5. Time period required for Erection and Commissioning shall be 1 month from the date of intimation by BHEL to Supplier.
6. EMD for this Tender will be (INR): 60,000 /-
7. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions, compliance form and technical specification can be downloaded from BHEL web site <http://www.bhel.com> and <https://eprocure.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference "2631900038".

Note: this is not an E-tender, hence Vendors are requested to ensure that the offer is reaching physically at our office before 14:00 Hrs. on the date of tender opening.

Tenders should reach us before 14:00 hours on the due date
Tenders will be opened at 14:30 hours on the due date
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED

V. Karunakaran
30/9/19

V. KARUNAKARAN
Dy. General Manager
Capital Equipment / MM
BHEL / Tiruchirappalli - 620 014

DOUBLE COLUMN BAND SAW MACHINE**PART – A****SECTION- 1: Qualifying Criteria**

The BIDDER has to compulsorily meet the Qualifying Criteria Indicated in **Section 1** to get qualified. Otherwise the technical offer will not be considered.

S NO.	REQUIREMENTS	BIDDER'S RESPONSE
1.1	Only those vendors (OEMs) should quote, who have commissioned in the last 10 years (on the first date of opening of Tender) at least ONE "Double Column Band saw with a cutting capacity of 600mm or above" (suitable for either round or square shaped etc. steel components) to any of the customer and the referred machine. The name and contact addresses of the customers to whom the machine has been supplied has to be furnished with details. BHEL reserves the right to accept or reject the OEMs based on the assessment of their technical and financial capability.	
1.2	Vendor has to submit at least One Performance Certificate from any of their customers to whom the machine was supplied, for satisfactory performance of the machine as given under Clause 1.2 above, for a minimum period of one year from the date of commissioning. (as on the first date of opening of Tender). For obtaining the Performance certificate, a suggestive format is provided in the annexure.	
1.3	BHEL reserves the right to verify the information provided by the bidder for the referred machine at their referred customer's works. It shall be the responsibility of the bidder to facilitate the visit of BHEL's team at their referred customer works. The Travel, Board & Lodging expenses for BHEL Personnel shall be borne by BHEL. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	

SECTION - 2:

The BIDDER / VENDOR are requested to provide the following information:-

S NO.	REQUIREMENTS	VENDOR'S RESPONSE
2.1	The BIDDER / VENDOR to furnish Reference List of Customers, with complete address, details of contact person, where Double Column Band saws have been supplied in the past with capacity details.	
2.2	Specify details of Double Column Band saws supplied to other units of BHEL, if any (Year of commissioning with details etc.)	
2.3	Details on SERVICE-AFTER-SALES Set-up in India including the Address of Agents / Service Centres in India.	
2.4	Any Additional data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

SECTION – 3:

The BIDDER to note:

S NO.	REQUIREMENTS	VENDOR'S RESPONSE
3.1	The BIDDER / VENDOR shall submit the offer in TWO parts. 1. Technical Offer [with PART A & PART B] 2. Commercial Offer and Price bid.	
3.2	The Technical Offer shall contain complete details against all clauses of Technical Specifications given by BHEL.	
3.3	The Technical Offer shall be supported by copies of product Catalogues, Data Sheets and technical details of Bought- Out- Items	
3.4	The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation.	

ANNEXURE

Suggestive Format of Performance Certificate:

The Performance certificate to be produced on **Customer's Letter Head**

PERFORMANCE CERTIFICATE

1.0	Machine Supplied by(Manufacturer's name)		
2.0	Make & Model number of the Machine		
3.0	Month & Year of Commissioning		
4.0	Application for which m/c is used		
5.0	Machine Details		
5.1	Maximum possible job Diameter to cut in mm		
5.2	Power of Bandsaw Drive Motor in HP/kW		
5.3	Length of Jobs / Components before Cutting		
5.4	Cutting speed range		
6.0	Performance of the Machine (Please tick the appropriate option)	Not Satisfactory	Satisfactory
7.0	Service after sales (Please tick the appropriate option)	Not Satisfactory	Satisfactory
8.0	Other remarks (if any)		
Date:		Signature & Seal of the Authority Issuing the Performance Certificate	

Part B : Technical specifications for “Double column band saw machine”. Qty – 1 No.

Page 1 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
1.0	PURPOSE / APPLICATION:	
1.1	The equipment is intended for sizing of Plates, pipes, tube bundles, forged and rolled bars in square-cut condition into small and varying lengths.	Bidder to confirm
2.0	JOB DETAILS:	
2.1	Raw-material is in the form of seamless steel pipes and ERW pipes with protective coating on the outside surface. And forged rods, hot-rolled bars and Plates are also earmarked for cutting / sizing in the proposed band-saw machine.	Bidder to confirm
2.2	MATERIAL SPECIFICATION: i. SA 234 WPB, WPC, WP 12 and WP 22 (As per ASTM Standards for hot-formed & normalised forgings) ii. SA 105, SA 106 Gr. B / Gr. C, SA 210 Gr. A1/C, SA 515 Gr.70 iii. SA 182 F12/F22, SA 209 T1, SA 213 T11/T22/T91, SA 335 Gr. P11/P12/P22/P91, SA 387 Gr.12/22, SA 335 Gr. P 23 / P 92 and Super 304 H iv. SA 240 TP 304, SA 312 TP 304, SA 312 TP 316 (i to iv as per ASTM Standards) v. All grade of Stainless steel, Inconel 617, Inconel 625 & Inconel 740H vi. Titanium and Titanium Alloys vii. As per DIN Standards: X 20CrMoV12.1, 14MoV6.3, 15NiCuMoNb5	Bidder to confirm
2.3	MATERIAL SIZES: Diameter, Thickness and length	
2.3.1	Plate dimensions (Maximum) : 1000 mm (L) x 600 mm (W) x 200 mm (T)	Bidder to confirm
2.3.2	Job Diameter Range (For Circular Jobs) : 30 mm to 600 mm	Bidder to confirm
2.3.3	Wall Thickness Range (For Pipes or Hollow Jobs) : 10.0 mm to 200 mm	Bidder to confirm
2.3.4	Round section Bar Dia (Max) : 600 mm	Bidder to confirm
2.3.5	Square section Bar Size (Max) : 600 mm x 600 mm	Bidder to confirm
2.3.6	Maximum Weight of Job : 3000 Kgs	Bidder to confirm
3.0	MACHINE SPECIFICATIONS: The offered equipment shall be a high production band-saw designed and built to the highest standards of quality and performance.	Bidder to confirm
4.0	BANDSAW MACHINE :	
4.1	Type: Horizontal Cut-Off Bandsaw.	Bidder to confirm
4.2	Cutting Capacity at 90 deg – Solid bar / Hollow Pipe. Max dia: 600 mm	Bidder to confirm
4.3	Cutting Saw Speed Range 20 to 100 mtrs. /min. (steplessly adjustable).	Bidder to confirm

Part B : Technical specifications for "Double column band saw machine". Qty – 1 No.

Page 2 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
4.4	Accuracy – Taper not exceeding 1mm while cutting pipe Dia. 600 mm.	Bidder to specify the accuracy of cutting.
4.5	Band Saw Drive Motor Power - Not to be less than 15 HP (11 kW)	Bidder to Specify & give power calculations.
4.6	Band Saw Dimensions.	Bidder to Specify
4.7	Band Wheel Diameter.	Bidder to Specify
4.8	(Flood) Coolant Flow Rate at nozzle tips around 30 to 50 litres per minute at 3 bar delivery pressure.	Bidder to confirm.
4.9	Coolant Pump Motor Capacity	Bidder to Specify
4.10	Coolant Tank Capacity & Dimensions.	Bidder to Specify
4.11	Hydraulic Motor Capacity.	Bidder to Specify
4.12	Hydraulic Oil Tank capacity.	Bidder to Specify
4.13	Total Power requirement in kVA.	Bidder to Specify
4.14	Oil Cooler for Hydraulic Oil: Bidder to quote for an Oil Chiller (if required) of suitable rating, to always maintain the Oil Temperature in the Oil Tank , below 45 Deg. C. [BHEL preferred make is ADVANCE COOLING or any other reputed make, acceptable to BHEL]	Bidder to give technical details of the Oil Chiller.
4.15	Complete range of band saw blades for the materials & sizes of jobs specified under clause 2.0 to be specified. Unpriced list to be enclosed with Technical Offer and the list with Unit Rate shall be provided with commercial offer. Ordering list of items & Qty will be decided at the time of Ordering. Prove out shall be made on the specified materials using the supplied blades.	Bidder to provide the list as specified.
5.0	WORK HOLDING DEVICE :	
5.1	Work Holding Type Right Angle & Hydraulically Clamped, and suitable to hold max and min ranges of Plate, Tube and Pipe.	Bidder to give details
5.2	No. of Rollers, Thickness of Rollers & Pitch of the Rollers in clamping Table for job setting.	Bidder to specify
5.3	Coolant collection tray below the table with suitable slope. Bidder to give details	Bidder to confirm
6.0	DESIGN & CONSTRUCTIONAL FEATURES :	
6.1	Double column, horizontal feed frame, guidance by two large- section solid chromium plated columns and maintenance free sleeve bearings.	Bidder to give details
6.2	Sturdy Base / Heavy Bed (Cast Iron is preferable) to provide rigid base to saw components	Bidder to give details
6.3	Inclined band cutting feature designed to shorten the effective cutting length.	Bidder to give details.
6.4	Mechanism and arrangement for accurate band/blade guidance	Bidder to give details

Page 2 of 11

Part B : Technical specifications for "Double column band saw machine". Qty – 1 No.

Page 3 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
6.5	Automatic hydraulic band tension, monitored electrically, to ensure correct band tension with system for automatic switch-off of drive.	Bidder to give details
6.6	Guide arm setting is to be synchronised with the adjustment of the movable vice jaw	Bidder to give details
6.7	Provision to protect the saw band from overloading.	Bidder to give details
6.8	Work height selector to allow raising of the band, to just clear the material stock	Bidder to give details
6.9	Central guide to provide a third guide to stabilise the band at the start of the cut	Bidder to give details
6.10	An electric motor driven wire brush on either side of the blade for blade cleaning. (To remove the chips from the gullets of the blade teeth).	Bidder to give details
6.11	Automatic load controlled feed regulation to provide constant cutting force.	Bidder to give details
6.12	Bandsaw Feed to stop automatically once the bandsaw stops.	Bidder to give details
6.13	Flood coolant system through an electrically driven pump. Separate pump units for flood coolant and flushing of chips preferred. Chip cleaning gun for flushing to be provided.	Bidder to give details
6.14	The coolant tank should be provided with coolant filtration and recirculation unit. (Filtration unit should contain primary and secondary filters like paper band filters).	Bidder to confirm.
6.15	The method of changing the saw band/blade should be easy and quick	Bidder to confirm.
6.16	The equipment shall have a centralised control panel so that all cutting parameters can be set from one position.	Bidder to confirm.
6.17	Solid state circuitry for control panel.	Bidder to confirm.
6.18	Cutting Line Indicator (shadow light) or Laser light indicator to indicate the cutting line prior to cutting for blade alignment.	Bidder to confirm.
6.19	The equipment shall have a centralised control for setting the parameters from both operator panel as well as on main panel.	Bidder to confirm.
6.20	Indicators on the main panel to display the blade speed & the blade cutting force, Clamping pressure etc.	Bidder to confirm.
6.21	A LED machine lamp with protective cover to be provided for cutting area visibility.	Bidder to confirm.
6.22	Replaceable Carbide strips for band guide combined with alignment rollers to provide lasting accurate band guidance.	Bidder to confirm.
6.23	The clamping pressure has to be adjustable with respect to the wall thickness of the pipe material.	Bidder to confirm.
6.24	The face plates of the vices are to be of replaceable wear plates.	Bidder to confirm.
6.25	The Pitch of the rollers provided in the Table shall be close enough to hold min size of the job cut off.	Bidder to confirm.
6.26	Lifting Hooks: Details on the provision of Lifting Hooks (by EOT Cranes) for the Main Machine Unit and Sub-Assemblies	Bidder to give details

Page 3 of 11

Part B : Technical specifications for "Double column band saw machine". Qty – 1 No.

Page 4 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
6.27	In case of any power interruption/pressing of an emergency pushbutton during cutting of a job, the drive motor shall start from the present position and complete the operation cycle, once the power is restored.	Bidder to confirm.
7.0	HYDRAULICS	
7.1	The hydraulics System should be centralized, modular / stacked valve construction having minimum number of pipes / pipe joints and located at suitable location with easy accessibility of components for maintenance.	Bidder to Furnish Details
7.2	Pumps, valves, accessories etc. shall be of Bosch-Rexroth / Vickers or reputed make acceptable to BHEL. (Details to be submitted). The seals used in cylinders shall be of Merkel / Parker / Bushak + Shamban / Hunger / Simrit make and shall withstand an over-loading of 25 %	Bidder to confirm & furnish details.
7.3	Each pump should have an independent motor. Tandem pumps shall be avoided.	Bidder to confirm
7.4	Suitable filtration system should be provided with Duplex / standby filter units. It is preferable to use re-usable type of filter elements in the system. The filter unit shall be of Hydac / Parker / Rexroth or equivalent reputed make acceptable to BHEL. (Details to be submitted).	Bidder to confirm & furnish details
7.5	The flexible hoses used in the system shall be of Gates / Aeroquip / Parker or any other reputed make acceptable to BHEL.	Bidder to specify
7.6	Failure indication for oil level, temperature, pressure, filter clogging should be provided.	Bidder to confirm
7.7	Automatic shut off provision during hose failures, chiller failure, low oil level etc. Pump unloading feature during idle running to be provided for energy conservation. Details should be submitted.	Bidder to specify
7.8	Air cooled radiator type Cooling system of sufficient capacity to maintain complete Hydraulic System at a temperature not exceeding 45 deg C irrespective of the ambient conditions.	Bidder to confirm & furnish details.
7.9	Hydraulic circuit is to be designed with minimum number of control valves. It should be possible to replace hydraulic elements like valves, manifolds etc., without disturbing the associated pipelines. The positioning of hydraulic elements should allow easy maintenance.	Bidder to furnish details
7.10	Maximum Operating Pressure of hydraulic system. The maximum pressure of the system should preferably not to exceed 315 bar.	Bidder to specify
7.11	Main Pump flow in lpm and Motor Power in kW.	Bidder to specify
7.12	Reservoir capacity (in litres).	Bidder to specify
7.13	All oil pipelines shall be of seamless steel and should undergo pickling process.	Bidder to confirm
7.14	One hand held minimess pressure gauge of suitable range with minimess hose (1.0 to 1.5m length) to be supplied along with the power pack. Check points to be provided in the system.	Bidder to confirm
7.15	Pressure gauge at the working level of the operator is to be provided for indicating working pressure.	

Page 4 of 11

Part B : Technical specifications for "Double column band saw machine". Qty – 1 No.

Page 5 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
7.16	Pressure setting adjustment (Pressure relief valve) has to be provided at operator level, to adjust the pressure based on requirement.	Bidder to confirm.
7.17	All cylinders used in the machine should have standard bore and rod sizes. The piston rod shall be hard chrome plated.	Bidder to furnish details.
7.18	Cylinder design shall be such that the lock nut on rod end can withstand the full load even the piston is at its extreme position. Cylinder seals also should not get affected during the above operation.	Bidder to confirm
7.19	The Power pack should be designed taking into account the energy efficiency (Hi-low pump system, proper unloading during idling, etc.). The motor used for pumps shall be energy efficient ones.	Bidder to furnish details
7.20	All the pipe / hose end fittings shall be of standard weld nipple with O-ring seating type (DIN 3865 or equivalent). No ferrule joints are to be used in the hydraulic system. All threaded connections shall be of metric sizes.	Bidder to confirm
7.21	The oil to be used shall be of standard ISO Viscosity Grades – 46 / 68.	Bidder to specify
7.22	The control voltages for all the Solenoids of the valves shall be of 24-V DC and all solenoid operated DC valves should have manual over-ride provision and LED indications.	Bidder to specify
7.23	The pipelines to be painted with standard colours as per the colour coding accepted internationally for hydraulic systems.	Bidder to furnish details
7.24	All hydraulic pipelines, hoses and electrical control cables to be neatly laid out with proper clamps and flexible hose conveyors wherever required.	Bidder to confirm
7.25	Suitable leakage oil collection metallic tray to be provided wherever required	Bidder to confirm
7.26	All the components in the hydraulic power pack shall be provided with identification numbers, as per the hydraulic circuit and should be pasted with metallic identification number plates.	Bidder to confirm
7.27	First fill of hydraulic oil to be provided by Bidder.	Bidder to confirm
8.0	LUBRICATION SYSTEM:	
8.1	Centralised automatic lubricating system for all sliding parts to be provided with metallic tubings. Lubrication system of SKF/CENLUB or reputed make acceptable to BHEL.	Bidder to provide details
9.0	ELECTRICAL & ELECTRONICS SYSTEMS	
9.1	415V + 10% / -10%, 50HZ +/-1.5 HZ, 3 Phase AC (3 wire system without neutral) Power Supply Source will be provided by BHEL at a single point near the machine, as per layout recommended by Bidder. 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 bidder.	Bidder to confirm
9.2	All electrical equipment shall be Tropicalized and shall have IP 54 degree of protection.	Bidder to confirm

Part B : Technical specifications for “Double column band saw machine”. Qty – 1 No.

Page 6 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
9.3	All electrical control cabinets & panels should be dust and vermin proof.	Bidder to confirm
9.4	All electrical components in the cabinets should be mounted on DIN Rail.	Bidder to confirm
9.5	Air Conditioners with Dehumidifiers for Electrical / Electronic Panels / Cabinets including Operator's Panel considering specified ambient conditions.	Bidder to provide details
9.6	All electrical panels should be provided with LED lamps for sufficient illumination and electric power receptacles of 220 Volts, 5/15 Amp. AC. All adapters/receptacles should have compatibility with Indian equivalents.	Bidder to confirm
9.7	Motors shall be of energy-efficient (EFF1 class) makes from M/s Siemens / ABB / Kirloskar / NGEF/Crompton Greaves/Hindustan/Bharat Bijlee or other reputed make confirming to IEC and acceptable to BHEL.	Bidder to confirm
9.8	All electrics such as contactors, relays, MCBs, MCCBs, limit switches and other control elements shall be of reputed make like Siemens, L&T, BCH, and Tele-technique/Schneider or any other reputed makes acceptable to BHEL.	Bidder to confirm
9.9	Electrical drives shall be of Siemens / ABB /L&T/ Eurotherm / Yaskawa / Mitsubishi or any other reputed makes acceptable to BHEL.	Bidder to confirm
9.10	PLC shall be of SEW / Allen Bradley / Siemens / Messung or any other reputed makes acceptable to BHEL.	Bidder to confirm
9.11	All limit switches used in the machine shall be sturdy and rigid and shall not fail frequently due to vibrations in the actuating mechanisms. The bidder may employ non-contact type limit switches/limit switches with metallic rollers having less spring-like properties to avoid vibration.	Bidder to confirm.
9.12	All components / devices / terminals are to be incorporated with ferrules.	Bidder to confirm
9.13	All cables moving with traversing axes should be installed in metallic cable drag chain. Additionally, all the cable trays required for laying of cables should be included in the offer.	Bidder to confirm
9.14	Bidder should ensure the proper earthing for the machine and its accessories.	Bidder to confirm
10.0	OPERATOR CONTROL PANEL	
10.1	The equipment shall have a centralised Controls of operation through machine panel in suitable location and a movable trolley type operation panel to be located in front and away from the machine with a minimum 5 mtr long control cable.	Bidder to confirm
10.2	Safety devices for hydraulic circuit, emergency stop buttons to be provided in the operation panel as well as in the machine panel and suitable interlock safety systems.	Bidder to confirm
11.0	GENERAL POINTS :	
11.1	The machine function shall be smooth and vibration free during cutting operating cycles.	Bidder to confirm
11.2	The offer shall clearly indicate the list of standard accessories that will be supplied along with the machine.	Bidder to confirm

Page 6 of 11

Part B : Technical specifications for "Double column band saw machine". Qty – 1 No.

Page 7 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
11.3	Other special accessories shall be quoted separately as optional items.	Bidder to confirm
11.4	All controls and other operating systems shall be located in a centralised convenient place for easy operation.	Bidder to confirm
12.0	SAFETY FEATURES:	
12.1	To stop the machine immediately, if the saw blade breaks or any slip during operation, due to jamming of blade into the work-piece.	Bidder to give details
12.2	Saw frame lift and lowering with safety switch.	Bidder to give details
12.3	The machine is to be equipped with saw blade safety covers, which completely covers the blade except for the actual cutting area.	Bidder to give details
12.4	A safety interlock to stop the machine automatically if a wheel cover is opened during operation.	Bidder to give details
12.5	For operator safety the machine vice control is to be interlocked with blade drive system (i.e. Blade drive will not operate unless machine vice is clamped).	Bidder to give details
13.0	OPTIONAL ACCESSORIES:	
13.1	Cutting Depth Control Unit: To stop the machine automatically as soon as the blade reaches the required depth of cutting.	Bidder to give details
13.2	Chip conveyor system with disposal bucket.	Bidder to give details
13.3	Overload Indicator: To indicate the overloading applied to the bandsaw blade.	Bidder to give details
13.4	Blade Run-Out Detector: To stop the machine automatically when the cutting goes taper (i.e., deviation of cutting from vertical direction).	Bidder to give details
13.5	Any Other Optional Accessories: Additional Optional Accessories which enhance the productivity of the machine to be described by the Bidder with the offer.	Bidder to give details
14.0	ENVIRONMENTAL PERFORMANCE OF THE MACHINE:	
14.1	Maximum noise level shall be 85 dB (A) at normal load condition, 1 metre away from the machine with correction factor for back ground noise, if necessary this will be measured as per international standards like DIN 45635-16. Bidder to demonstrate compliance to noise level, if so required.	Bidder to confirm
14.2	The machine shall be suitable for an ambient temperature of +45 deg C and relative humidity of 95 % respectively, but both do not occur simultaneously.	Bidder to confirm
14.3	The machine, including attachments and accessories, should be suitable for 24 hrs. Continuous operation to its full capacity for 24 hours a day and 7 days a week throughout..	Bidder to ensure and confirm the same
14.4	If any safety / environmental protection enclosure is required, it shall be built in the machine by the bidder.	Bidder to confirm
14.5	Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.	Bidder to confirm

Page 7 of 11

Part B : Technical specifications for "Double column band saw machine". Qty – 1 No.

Page 8 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
15.0	LEVELLING & ANCHORING SYSTEM	
15.1	Complete anchoring system including foundation bolts, anchoring materials, fixtures, levelling shoes etc shall be supplied for the Machine and its accessories.	Bidder to confirm
16.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE:	
16.1	The bidder shall bring special tools and equipment required for erection and commissioning the machine. Necessary tools like Torque Wrench, Spanners, Keys, Grease guns etc. for operation & maintenance of the machine should be supplied. List of such tools shall be submitted with offer.	Bidder to confirm
17.0	MACHINE SPARES :	
17.1	Item-wise break-up of mechanical, hydraulic, electrical spares used on the machine in sufficient quantity as per recommendation of Bidder for 2 years of trouble free operation on three shifts continuous running basis should be offered by bidder. The list to include following, in addition to other recommended spares. (Unit Price of each item of spare should be offered)	Bidder to provide details.
17.2	Mechanical & Hydraulic Spares: Bearings, couplings, gears, hydraulic & coolant pumps, Each type of hydraulic Valves, pressure switches / transducers/ gauges, filters, all Cylinder seal kits, All O- rings & Oil seals, Each type of Hydraulic Hoses, etc. Used in the machine.	Bidder to provide details.
17.3	Electrical: All types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, PLC I/O modules, limit switches, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch.	Bidder to provide details.
17.4	All types of spares for total machine and accessories should be available for at least ten years after supply of the machine. If machine or control is likely to become obsolete in this period, the bidder should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & Bidders to enable BHEL to procure these in advance, if required.	Bidder to provide details.
17.5	Bidder to confirm that complete list of spares for machine and accessories, along with specification / type / model, and name & address of the spare Bidder shall be furnished along with documentation to be supplied with the machine.	Bidder to confirm
18.0	DOCUMENTATION :	
18.1	THREE sets of following documents (Hard copies) in English language should be supplied along with the machine	Bidder to confirm
18.2	Detailed Operation and Maintenance manual of machine with all drawings of machine assemblies / sub-assemblies / parts including Electrical / Pneumatic/ Coolant / Hydraulic circuit diagrams. All Assembly/ Sub Assembly Drawings shall be supplied with the part list with component specification / BOM also. Component drawings for all wearing parts to be provided.	Bidder to confirm

Page 8 of 11

Part B : Technical specifications for "Double column band saw machine". Qty – 1 No.

Page 9 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
18.3	Catalogues, O&M Manuals and drawings of all bought out items, bearings wherever applicable.	Bidder to confirm
18.4	Hydraulic, coolant, pneumatic, lubrication and Electrical circuits with Bill Of Materials	Bidder to confirm
18.5	Detailed specification of all rubber items and hydraulic/lube fittings	Bidder to confirm
18.6	The bidder shall submit complete Master List of parts used in the machine.	Bidder to confirm
18.7	Electronic and electrical interconnecting drawings (i.e. Between machine, control panel and drives).) with detailed bill of materials, component layout drawings, PLC ladder diagrams, parameters list, detailed list of alarms & Input outputs, fault diagnostics guide and necessary licensed software (for uploading/downloading program) to be provided. Hard Copy in Original : 3 Nos.	Bidder to confirm
18.8	One set of approved drawings (GA, Mechanical, electrical, hydraulic, pneumatic, lubrication, coolant etc.) to be documented.	Bidder to confirm
18.9	One set of PLC program backup on CD	Bidder to confirm
18.10	One additional set of all the above documentation on CD ROM, wherever possible.	Bidder to confirm
19.0	DRAWING APPROVAL	
19.1	Bidder to submit all manufacturing drawings related to the equipment for BHEL approval within 1 month from the date of placement of order by BHEL. BHEL shall provide approval within 15 days after all the clarifications required have been submitted by supplier. Within one month after BHEL approval of manufacturing drawings, supplier to submit foundation drawing with details of static & dynamic loads. BHEL shall construct complete foundation for the machine.	Bidder to confirm
20.0	ERECTION & COMMISSIONING	
20.1	Bidder to provide supervision for carrying out the erection, start up, testing of machine, it's control system & all associated equipment supplied. Service requirement like power, air & water shall be provided by BHEL at only one point to be indicated by Bidder in their foundation/layout drawings.	Bidder to confirm
20.2	Successful proving of BHEL components by the Bidder shall be considered as part of commissioning. All tests, as mentioned at Specification Clause No. 26.0 (Machine Acceptance) shall form part of the commissioning activity.	Bidder to confirm
20.3	Portion, if any, of the machine, accessories and other supplied items where paint has rubbed off or peeled during transit or erection should be repainted and merged with the original surrounding paint by the bidder. For this purpose, the bidder should supply sufficient quantity of touch-up paint of various colors of paint used.	Bidder to confirm

Part B : Technical specifications for “Double column band saw machine”. Qty – 1 No.

Page 10 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
21.0	MACHINE PRE-DESPATCH INSPECTION AND ACCEPTANCE: (Tests/Activities to be performed at Bidder's Works)	
21.1	Complete machines shall be offered for Inspection to BHEL Team.	Bidder to confirm
21.2	Physical Inspection and Design/Constructional/Dimensional Compliance as per the approved drawings.	Bidder to confirm
22.0	MACHINE INSPECTION AND TESTS TO BE CARRIED FOR COMMISSIONING AT BHEL WORKS	
22.1	Physical Inspection and Design/Constructional/Dimensional Compliance. Ensuring proper working of all components and accessories of the machine erected.	Bidder to confirm
22.2	Full load test in maximum diameter pipe to demonstrate the maximum capacity of the machine and establishing the accuracy of the job as per the allowable taper for min. and max. sizes of pipes as per the specification.	Bidder to confirm
22.3	Geometrical accuracy test as per the chart submitted by the supplier. The instruments required to establish the geometrical accuracy test are in the scope of supplier.	Bidder to confirm
23.0	TRAINING at BHEL Works	
23.1	Training on Operation and maintenance of BHEL machine operators of complete machine minimum 5 days by the Bidder's experts/engineers during commissioning and prove out at BHEL works	Bidder to confirm
23.2	Training on Trouble Shooting & maintenance of Mechanical, Hydraulic, and electrical PLC System to be imparted to Maintenance Staff for min.2days after commissioning at BHEL.	Bidder to confirm
24.0	PAINTING	
24.1	a) The heavier machine parts are to be shot blasted for surface preparation prior to painting. b) One coat of Primer c) Two coats of Polyurethane Paint (Colour-Reseda Green-RAL 6011)	Bidder to confirm
25.0	PACKING	
25.1	Rigid packing for all items of complete machine, all Accessories and other supplied items to avoid any damage/loss in transit. All loose and small parts to be packed in sealed boxes. All electrical and electronic items to be packed separately to prevent any damage during transit. Bidder to confirm	Bidder to confirm
26.0	SPECIAL NOTES: The bidder should submit the following information:	
26.1	Machine Model	
26.2	Total connected load in kVA	
26.3	Floor area required (Length, Width, Height) for complete machine & accessories	

Page 10 of 11

Part B : Technical specifications for "Double column band saw machine". Qty – 1 No.

Page 11 of 11

Sl.No.	BHEL SPECIFICATION	BIDDER'S OFFER
26.4	Total weight of the machine	
26.5	Weight of heaviest part of machine	
26.6	Weight of the heaviest assembly/subassembly of Machine	
26.7	Dimensions of largest part/ subassembly/ assembly of the machine	
26.8	Quality plan followed in Bidder's works	
27.0	SCOPE OF SUPPLY	
27.1	a) Design, Manufacture, Supply, Erection, Commissioning and prove out of double column bandsaw- 600mm. b) Machine drawing and Foundation drawing to be submitted for BHEL approval c) First fill of Hydraulic Oil, Lubrication Oil and Grease d) All anchoring & foundation bolts, levelling plates for the complete machine and accessories. e) Levelling Instruments, Power Tools / Hand Tools / Special tools for erection and commissioning of the machine. f) Commissioning spares g) Band saw blades as per the list (Refer Cl. 4.15) h) Engineers for supervision with manpower for erection and commissioning, Job Quality and Productivity Prove-out.	Bidder to confirm
28.0	PERFORMANCE GUARANTEE	
28.1	The complete equipment shall be guaranteed for a minimum period of 12 months from the date of commissioning or 18 months from the date of dispatch whichever is earlier.	Bicder to confirm