



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT/ MATERIALS MANAGEMENT

An ISO 9001
Company

ENQUIRY	Phone: +91 431 257 76 53 Fax : +91 431 252 00 31 Email : skaruna@bheltry.co.in Web : www.bhel.com
NOTICE INVITING TENDER	

TWO PART BID Tender to be submitted in two parts.	Enquiry Number: 2851300044	Enquiry Date: 19.12.2013	Due date for submission of quotation: 24.01.2014
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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	Double Column Band Saw – 850mm	01 No.

as per the technical specification, general guidelines instructions & commercial conditions applicable (to be downloaded from web site www.bhel.com or <http://tenders.gov.in>)

Important points to be taken care during submission of offer

1. The rate of EMD for this Tender will be (INR) 1,50,000/-.
2. The Compliance Form for Commercial Terms & Conditions to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
3. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions (refer MM/CE/GENL/001-EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference "2851300044".

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


Engineer / MM / Capital Equipment

DOUBLE COLUMN BAND SAW 850 MM WITH HANDLING FACILITY**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	VENDOR'S RESPONSE
1.1	The BIDDER / VENDOR (OEM) shall have a minimum of TEN Years of Continuous Experience in the Design, Manufacture & Supply of " LARGE SIZED DOUBLE COLUMN BAND SAW WITH HANDLING FACILITY ". Vendor shall indicate the actual no. of years of experience in the field	
1.2	<p>Only those vendors (OEMs) should quote, who have commissioned in the past (10) years (on the original date of opening of Tender) at least ONE "Double Column Band saw" with a cutting capacity of minimum 850mm and with band saw drive motor power of not less than 18kW</p> <p>EITHER (i) in at least one country other than the country of origin to establish vendor's (OEM's) global business activity OR (ii) in India; and the referred machine is presently working satisfactorily for more than one year after commissioning (on the original date of opening of Tender). The name and contact addresses of the customers to whom the machine has been supplied has to be furnished with details.</p> <p>BHEL reserves the right to accept or reject the OEMs based on the assessment of their technical and financial capability.</p>	
1.3	<p>Vendor has to submit at least ONE PERFORMANCE CERTIFICATE from their customers in India or from the customers to whom the machine was supplied outside the country of origin, 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 original date of opening of Tender). (Original Certificate or through E-mail directly from the customer). The original performance certificate may be returned after verification by BHEL, if required.</p> <p>For obtaining the Performance certificate, a suggestive format is provided in the annexure.</p>	

S NO.	REQUIREMENTS	VENDOR'S RESPONSE
1.4	BHEL reserves the right to verify the information provided by the Vendor for the referred machine at their referred customer's works. It shall be the responsibility of the vendor 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 sawshave been supplied in the past with capacity details.	
2.2	Specify details of Double Column Band sawssupplied 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, DataSheets 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.	

Suggestive Format of Performance Certificate:

The Performance certificate should be produced on **Customer's Letter Head** and submitted along with the offer.

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 Pipe Diameter to cut in mm	
5.2	Maximum pipe thickness which can be cut	
5.3	Maximum length can be accommodate in the in feed table	
5.4	Size of Rod Bundles	
5.5	Size of Tube Bundles	
5.6	Machine control system	
5.7	Is the machine Hydraulically operated?	
5.8	Taper cutting Accuracy of the machine	
6.0	Performance of the Machine (Please tick the appropriate option)	Not Satisfactory
		Average
		Good
		Satisfactory
7.0	Service after sales (Please tick the appropriate option)	Not Satisfactory
		Average
		Good
		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 850 MM WITH HANDLING FACILITY****Note:-**

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

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

- 3.0 Scope: - Design, Manufacture, Supply, Erection & Commissioning of DOUBLE COLUMN BANDSAW 850mm complying with the specification as below.

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
1.0	PURPOSE / APPLICATION:	
1.1	The equipment is intended for sizing of pipes, tube bundles, forged and rolled bars in square-cut condition into small and varying lengths. A pipe in-feed and cut-bit discharge (material handling facility) roller conveyor also shall form part of the supply.	
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 and hot-rolled bars in the form of bundles are also earmarked for cutting / sizing in the proposed band-saw machine.	
2.2	MATERIAL SPECIFICATION: Carbon Steels, Alloy Steels and Stainless Steels	
2.3	MATERIAL SIZES: Diameter, Thickness and length	
2.4	Job Diameter Range (For Circular Jobs) : 127 mm to 850 mm	
2.5	Wall Thickness Range (For Pipes or Hollow Jobs) : 10.0 mm to 120 mm	
2.6	Size of Tube Bundles : 500 mm x 500 mm; length-12 metres	
2.7	Tube Diameter Range : 31.8 mm to 76.1 mm	
2.8	Size of Rod Bundles : 400 mm x 300 mm	
2.9	Rod Diameter Range : 25.4 mm to 100 mm	
2.10	Minimum Job Length (at In-feed side) : 1,000 mm	
2.11	Maximum Job Length (In feed) : 12,000 mm (Job size: O.D. - 711 mm, Thickness - 12.7 mm, length-12 metres, Wt. – 2.5 Metric Tons)	
2.12	Maximum Job Weight : 12,000 kgs. (For job size: O.D. - 812 mm, Thick –90 mm, Length – 8.0 metres, Wt- 12.0 Metric Tons)	

850mm Bandsaw with Handling Facility

Part B

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
3.0	MACHINE SPECIFICATIONS:	
3.1	The offered equipment shall be a high production semi-automatic stock feed band-saw designed and built to the highest standards of quality and performance. The in-feed unit shall be powered stock feed system and have precision indexing capability to automatically feed long work-pieces weighing up to 12,000 kgs. (12 MT). The system is to include a Digital Read-Out for setting cut-off lengths and shall be located at the Operator's Control Station. The in-feed and out-feed (discharge) conveyor length have to be extended by adding Dead Roller Table (available in segments) to the Powered Tables on either side.	
4.0	BANDSAW MACHINE :	
4.1	Type: Horizontal Cut-Off Bandsaw. Vendor to conform	
4.2	Cutting Capacity at 90 deg - Solid/Hollow Pipe max dia: 850 mm (For Max Dia 812x90 mm Thickness) Vendor to conform	
4.3	Cutting Saw Speed Range 15 to 100 mtrs. /min. (steplessly adjustable). Vendor to conform	
4.4	Accuracy – Taper not exceeding 1mm while cutting pipe Dia. 812 mm. Vendor to specify the accuracy of cutting.	
4.5	Band Saw Drive Motor Power (Not to be less than 18 kW) Vendor to Specify Vendor to give power calculations.	
4.6	Band Saw Dimensions. Vendor to Specify	
4.7	Band Wheel Diameter. Vendor to Specify	
4.8	(Flood) Coolant Flow Rate at nozzle tip around 30 to 50 litres per min. at 3 bar delivery pressure. Vendor to conform.	
4.9	Coolant Pump Motor Capacity. Vendor to Specify	
4.10	Coolant Tank Capacity & Dimensions. Vendor to Specify	
4.11	Hydraulic Motor Capacity. Vendor to Specify	
4.12	Hydraulic Oil Tank capacity. Vendor to Specify	
4.13	Total Power requirement in kVA. Vendor to Specify	
4.14	Complete range of band saw blades in packs of five numbers for the sizes of jobs specified under clause 2.0 to be supplied. List to be enclosed. Vendor to confirm.	

P.RAMANATHAN

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M.RAMADOSS

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R.VARADHARAJAN

Page 3 of 17

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
5.0	WORK HOLDING DEVICE :	
5.1	Work Holding Type Right Angle & Hydraulically Clamped, and suitable to hold max and min ranges of tube/pipe. As per clause 2.4. Vendor to give details	
5.2	Powered Infeed System. Vendor to give details	
5.3	Powered Infeed table Length 4000 mm (minimum). Vendor to give details	
5.4	Dead Roller in-feed Table quantity 4 nos (connected to powered infeed table) in segments of 2000 mm, with suitable tapered coolant collection tray. Vendor to give details	
5.5	Powered out feed System. Vendor to give details	
5.6	Powered Discharge table Length (mimumum) 3000 mm from Job holding clamp. No Idler rollers are allowed in-between motorised out feed table and Job holding clamp. Vendor to give details.	
5.7	Dead Roller out-feed Table quantity 2 nos (connected to power out feed table) in segments of 2000 mm, with suitable tapered coolant collection tray. Vendor to give details	
5.8	Number of additional dead rollers between in feed and Job holding clamp. Vendor to give details	
5.9	Roller thickness to be not less than 6 mm in Powered and Dead Roller feed table. Vendor to give details of roller diameter and thickness.	
5.10	Pitch between rollers. Vendor to specify details.	
5.11	Coolant collection tray below the table with suitable slope. Vendor to give details	
5.12	Cut-Length Setting Range 100 mm to 6,000 mm. Vendor to conform	
5.13	Feed Stroke in Single Mode around 800 mm. Vendor to conform	
5.14	Digital Measuring Unit Accuracy ± 0.1 mm / meter. Vendor to conform	
5.15	Cut-Off Length Feeding Accuracy ± 1.0 mm / stroke. Vendor to conform	
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. Vendor to give details	
6.2	Sturdy Base / Heavy Bed (Cast Iron is preferable) to provide rigid base to saw components Vendor to give details	
6.3	Inclined band cutting feature designed to shorten the effective cutting length. Vendor to give details.	

850mm Bandsaw with Handling Facility

Part B

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
6.4	Mechanism and arrangement for accurate band/blade guidance. Vendor to give details	
6.5	Automatic hydraulic band tension, monitored electrically, to ensure correct band tension with system for automatic switch-off of drive. Vendor to give details	
6.6	Guide arm setting is to be synchronised with the adjustment of the movable vice jaw. Vendor to give details	
6.7	Provision to protect the saw band from overloading. Vendor to give details	
6.8	Work height selector to allow raising of the band, to just clear the material stock. Vendor to give details	
6.9	Motorised Central guide to provide a third guide to stabilise the band at the start of the cut. Vendor 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). Vendor to give details	
6.11	Automatic load controlled feed regulation to provide constant cutting force. Vendor to give details	
6.12	Bandsaw Feed to stop automatically once the saw band stops. Vendor 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. Vendor 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). Vendor to confirm.	
6.15	Fixed discharge table with integral coolant return. Vendor to give details	
6.16	Provision to set the cutting length up to the single feed stroke which is read on a digital counter and also multiple stroke counters to make it possible to multiply the number of index cycles when pieces longer than the feed stroke are to be cut. Vendor to give details	
6.17	Automatic length indexing by powered vice to work as per the preset length. Vendor to give details	
6.18	The method of changing the saw band/blade should be easy and quick Vendor to give details	
6.19	Saw frame lift and lowering with safety switch. Vendor to give details	
6.20	The equipment shall have a centralised control panel so that all cutting parameters can be set from one position. Vendor to give details	
6.21	Solid state circuitry for control panel. Vendor to give details	

850mm Bandsaw with Handling Facility

Part B

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
6.22	Cutting Line Indicator (shadow light) or Laser light indicator to indicate the cutting line prior to cutting for blade alignment. Vendor to give details	
6.23	The equipment shall have a centralised control for setting the parameters from both operator panel as well as on main panel. Vendor to give details	
6.24	Indicators on the main panel to display the blade speed & the blade cutting force, Clamping pressure etc. Vendor to give details	
6.25	A LED machine lamp with protective cover to be provided for cutting area visibility. Vendor to give details	
6.26	Replaceable Carbide strips for band guide combined with alignment rollers to provide lasting accurate band guidance. Vendor to give details	
6.27	Quick change from automatic batch cutting to single cut operation. Vendor to give details	
6.28	Hydraulic double vice for simultaneous clamping on both sides of the saw band operated by hydraulic cylinders with regulated clamping pressure. Vendor to give details	
6.29	The hydraulic hold-downs are to be provided as additional top clamping for cutting Tubes / Bars in bundle, Vendor to give details	
6.30	Manual control of shuttle vice for moving work piece during set-up operations. Vendor to give details	
6.31	Shuttle vice has to clamp and unclamp in sequence with machine vice. The clamping pressure has to be adjustable with respect to the wall thickness of the pipe material. Vendor to give details	
6.32	The face plates of the vices are to be of replaceable wear plates. Vendor to give details	
6.33	The Dead Roller Table provided on both in feed & out feed Sides shall be interchangeable. Vendor to give details	
6.34	The Pitch of the rollers provided in the Roller Table shall be close enough to hold min size of the job cut off. Vendor to give details	
6.35	List of band saw blades to suit the various sizes (diameter and thickness) of the job, shall be indicated through a chart. Vendor to give details	
6.36	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.	

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
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. Vendor 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 % Vendor to confirm & furnish details.	
7.3	Each pump should have an independent motor. Tandem pumps shall be avoided. Vendor 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). Vendor 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. Vendor to specify	
7.6	Failure indication for oil level, temperature, pressure, filter clogging should be provided. Vendor to confirm & furnish details	
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. Vendor to specify	
7.8	Refrigerant type Cooling system of sufficient capacity to maintain complete Hydraulic System at a temperature not exceeding 40 deg C irrespective of the ambient conditions. Vendor 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. Vendor to furnish details	
7.10	Maximum Operating Pressure of hydraulic system. The maximum pressure of the system should preferably not to exceed 315 bar. Vendor to specify	
7.11	Main Pump flow in lpm and Motor Power in kW. Vendor to specify	
7.12	Reservoir capacity (in litres). Vendor to specify	
7.13	All oil pipelines shall be of seamless steel and should undergo pickling process. Vendor to confirm	

850mm Bandsaw with Handling Facility

Part B

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
7.14	One hand held mininess pressure gauge of suitable range with mininess hose (1.0 to 1.5m length) to be supplied along with the power pack. Check points to be provided in the system. Vendor to confirm	
7.15	Pressure gauge at the working level of the operator is to be provided for indicating working pressure.	
7.16	Pressure setting adjustment (Pressure relief valve) has to be provided at operator level, to adjust the pressure based on requirement. Vendor 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. Vendor 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. Vendor 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. Vendor 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. Vendor to confirm	
7.21	The oil to be used shall be of standard ISO Viscosity Grades – 46 / 68. Vendor 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. Vendor to specify	
7.23	The pipelines to be painted with standard colours as per the colour coding accepted internationally for hydraulic systems. Vendor 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. Vendor to confirm	
7.25	Suitable leakage oil collection metallic tray to be provided wherever required. Vendor 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. Vendor to confirm	
7.27	First fill of hydraulic oil to be provided by Vendor. Vendor to confirm	

P.RAMANATHAN

G.SUBRAMANIAN

M.RAMADOSS

DEEPU THOMAS

R.VARADHARAJAN

Page 8 of 17

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
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. Vendor 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 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. Vendor to confirm	
9.2	All electrical equipment shall be Tropicalized and shall have IP 54 degree of protection. Vendor to confirm	
9.3	All electrical control cabinets & panels should be dust and vermin proof. Vendor to confirm	
9.4	Air Conditioners with Dehumidifiers of suitable capacity to be provided for all Electrical / Electronic Panels / Cabinets including Operator's Panel considering specified ambient conditions. Make: Rittal / Warner & Finley or any other reputed make acceptable to BHEL. Detailed specifications to be submitted.	
9.5	All electrical components in the cabinets should be mounted on DIN Rail. Vendor to confirm	
9.6	All electrical panels should be provided with CFL/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. Vendor 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 conforming to IEC and acceptable to BHEL. Vendor to confirm	
9.8	All electrics such as contactors, relays, MCCBs, MCBs, 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. Vendor to confirm	
9.9	Electrical drives shall be of Siemens / ABB /L&T/ Eurotherm / Yaskawa / Mitsubishi or any other reputed makes acceptable to BHEL. Vendor to confirm	
9.10	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 vendor may employ non-contact type limit switches/limit switches with metallic rollers having less spring-like properties to avoid vibration. Vendor to confirm.	
9.11	All components / devices / terminals are to be incorporated with ferrules. Vendor to confirm	

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
9.12	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. Vendor to confirm	
9.13	Vendor should ensure the proper earthing for the machine and its accessories. Vendor to confirm	
10.0	PLC CONTROLS	
10.1	All sequence of operation of the machine shall be through PLC control. Machine shall be able to operate through auto and manual cycles. Vendor to confirm	
10.2	The PLC controls shall be from SEW/Messung/ Seimens / Allen Bradley. Vendor to confirm	
10.3	PLC & MMI Shall be of Latest Version. Vendor to confirm	
10.4	Licensed Software of PLC & MMI suitable for Windows 7 to be Supplied by vendor. Vendor to confirm	
10.5	Interfacing Cable for PLC CPU & MMI to be Supplied by Vendor. Vendor to confirm	
11.0	OPERATOR CONTROL PANEL	
11.1	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. Vendor to confirm	
11.2	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. Vendor to confirm	
12.0	MACHINE LIGHTS:	
12.1	CFL/LED Machine Light to be provided as built for sufficient illumination of complete working area for clear visibility. Vendor to confirm	
12.2	A magnetic base 24-volt portable spotlight with sufficiently long cable should also be provided. Vendor to confirm	
13.0	GENERAL POINTS :	
13.1	The machine function shall be smooth and vibration free during cutting operating cycles. Vendor to confirm	
13.2	The offer shall clearly indicate the list of standard accessories that will be supplied along with the machine. Vendor to confirm	

850mm Bandsaw with Handling Facility

Part B

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
13.3	Other special accessories shall be quoted separately as optional items. Vendor to confirm	
13.4	All controls and other operating systems shall be located in a centralised convenient place for easy operation. Vendor to confirm	
14.0	SAFETY FEATURES:	
14.1	To stop the machine immediately, if the saw blade breaks or any slip during operation, due to jamming of blade into the work-piece. Vendor to give details	
14.2	The machine is to be equipped with saw blade safety covers, which completely covers the blade except for the actual cutting area. Vendor to give details	
14.3	A safety interlock to stop the machine automatically if a wheel cover is opened during operation. Vendor to give details	
14.4	Saw frame lift and lowering with safety limit switch. Vendor to give details	
14.5	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). Vendor to give details	
15.0	OPTIONAL ACCESSORIES:	
15.1	Electric piece counter with display unit. Vendor to give details	
15.2	Chip conveyor system with disposal bucket. Vendor to give details	
15.3	Cutting Depth Control Unit: To stop the machine automatically as soon as the blade reaches the required depth of cutting. Vendor to give details	
15.4	Overload Indicator: To indicate the overloading applied to the bandsaw blade. Vendor to give details	
15.5	Blade Run-Out Detector: To stop the machine automatically when the cutting goes taper (i.e., deviation of cutting from vertical direction). Vendor to give details	
15.6	Remote Control Unit with 10 mtr. Long interconnecting cable provided with protective sheath, connected to the machine main panel for machine operations. Vendor to give details	
15.7	Any Other Optional Accessories: Additional Optional Accessories which enhance the productivity of the machine to be described by the Vendor with the offer. Vendor to give details	

P.RAMANATHAN

G.SUBRAMANIAN

M.RAMADOSS

DEEPU THOMAS

R.VARADHARAJAN

Page 11 of 17

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
16.0	ENVIRONMENTAL PERFORMANCE OF THE MACHINE:	
16.1	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. Vendor to demonstrate compliance to noise level, if so required. Vendor to confirm	
16.2	The machine shall be suitable for an ambient temperature of +10deg to +50 deg C and relative humidity of 95 % respectively, but both do not occur simultaneously. Vendor to confirm	
16.3	If any safety / environmental protection enclosure is required it shall be built in the machine by the vendor. Vendor to confirm	
16.4	Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant. Vendor to confirm	
17.0	LEVELLING & ANCHORING SYSTEM	
17.1	Complete anchoring system including foundation bolts, anchoring materials, fixtures, leveling shoes etc shall be supplied for the Machine and its accessories.	
18.0	AMBIENT CONDITIONS & THERMAL STABILITY	
18.1	Total machine and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Ambient Conditions: Temperature: +10 to +50 Degree Celsius Relative Humidity: 95% maximum.	
18.2	The machine, including attachments and accessories, should be suitable for 24 hrs. Continuous operation to its full capacity for 24 hour a day and 7 days a week throughout. Vendor to ensure and confirm the same.	
19.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE:	
19.1	The vendor 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.	

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
20.0	MACHINE SPARES :	
20.1	Item-wise break-up of mechanical, hydraulic, electrical spares used on the machine in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation on three shifts continuous running basis should be offered by vendor. The list to include following, in addition to other recommended spares. (Unit Price of each item of spare should be offered)	
20.2	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.	
20.3	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.	
20.4	All types of spares for total machine and accessories should be available for at least ten years after supply of the machine. If machine or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & Vendors to enable BHEL to procure these in advance, if required.	
20.5	Vendor to confirm that complete list of spares for machine and accessories, along with specification / type / model, and name & address of the spare Vendor shall be furnished along with documentation to be supplied with the machine.	
21.0	DOCUMENTATION :	
21.1	THREE sets of following documents (Hard copies) in English language should be supplied along with the machine	
21.2	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.	
21.3	Catalogues, O&M Manuals and drawings of all bought out items, bearings wherever applicable.	
21.4	Hydraulic, coolant, pneumatic, Lubrication and Electrical circuits with Bill Of Materials	
21.5	Detailed specification of all rubber items and hydraulic/lube fittings	
21.6	The vendor shall submit complete Master List of parts used in the machine.	

Sl.No.	BHEL SPECIFICATION	VENDOR'S OFFER
21.7	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.	
21.8	One set of approved drawings (GA, Mechanical, electrical, hydraulic, pneumatic, lubrication, coolant etc.) to be documented.	
21.9	One set of PLC program backup on CD	
21.10	One additional set of all the above documentation on CD ROM, wherever possible.	
22.0	MACHINE FOUNDATION	
22.1	BHEL shall construct complete foundation for the machine. Vendor shall furnish the foundation details.	
23.0	DRAWING APPROVAL	
23.1	Vendor to submit all manufacturing drawings related to the equipment for BHEL approval within 1 month of ordering by BHEL. BHEL shall provide approval within 15 days after all the clarifications 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.	
24.0	ERECTION & COMMISSIONING	
24.1	Vendor to provide supervision for carrying out the erection, start up, testing of machine, it's control system & all associated equipment supplied. Service requirement like power, air & water shall be provided by BHEL at only one point to be indicated by Vendor in their foundation/layout drawings.	
24.2	Successful proving of BHEL components by the Vendor 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.	
24.3	Portion, if any, of the machine, accessories and other supplied items where paint has rubbed off or peeled during transit or erection should be repainted and merged with the original surrounding paint by the vendor. For this purpose, the vendor should supply sufficient quantity of touch-up paint of various colors of paint used.	

SI.No.	BHEL SPECIFICATION	VENDOR'S OFFER
25.0	MACHINE PRE-DESPATCH INSPECTION AND ACCEPTANCE: (Tests/Activities to be performed at Vendor's Works)	
25.1	Complete machines shall be assembled and offered for Inspection to BHEL Team.	
25.2	Physical Inspection and Design/Constructional/Dimensional Compliance as per the approved drawings.	
25.3	Full load test in maximum diameter pipe to demonstrate the maximum capacity of the machine.	
25.4	Geometrical accuracy test as per the chart submitted by the supplier.	
26.0	MACHINE INSPECTION AND TESTS TO BE CARRIED FOR COMMISSIONING AT BHEL WORKS	
26.1	Physical Inspection and Design/Constructional/Dimensional Compliance. Ensuring proper working of all components and accessories of the machine erected.	
26.2	Full load test in maximum diameter pipe to demonstrate the maximum capacity of the machine and establishing the accuracy of the job as per clause 4.4 for min. and max. Sizes of pipes supplied by BHEL.	
26.3	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.	
27.0	TRAINING at BHEL Works	
27.1	Training on Operation and maintenance of BHEL machine operators of complete machine minimum 5 days by the Vendor's experts/engineers during commissioning and prove out at BHEL works	
27.2	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.	
27.3	Training on Trouble Shooting & maintenance of Hydraulic System to be imparted to Maintenance Staff	
28.0	PAINTING	
28.1	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)	

850mm Bandsaw with Handling Facility

Part B

SI.No.	BHEL SPECIFICATION	VENDOR'S OFFER
29.0	PACKING	
29.1	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. Vendor to confirm	
SI.No.	BHEL SPECIFICATION	VENDOR'S OFFER
30.0	PERFORMANCE GUARANTEE	
30.1	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.	
31.0	SPECIAL NOTES : The vendor should submit the following information:	
31.1	Machine Model	
31.2	Total connected load in KVA	
31.3	Floor area required (Length, Width, Height) for complete machine & accessories	
31.4	Total weight of the machine	
31.5	Weight of heaviest part of machine	
31.6	Weight of the heaviest assembly/subassembly of Machine	
31.7	Dimensions of largest part/ subassembly/ assembly of the machine	
31.8	Quality plan followed in Vendor's works	

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Page 16 of 17

SI.No.	BHEL SPECIFICATION	VENDOR'S OFFER
32.0	SCOPE OF SUPPLY	
32.1	<p>SUPPLIER'S SCOPE</p> <ul style="list-style-type: none"> a) Design, Manufacture, Supply, Erection, Commissioning and prove out of double column bandsaw-850mm. 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) Complete range of Band saw blades in packs of five numbers for the sizes of jobs specified under clause: 2.0. h) Engineers for supervision with manpower for erection and commissioning i) Job Quality and Productivity Prove-out 	
32.2	<p>BHEL SCOPE</p> <ul style="list-style-type: none"> a) Drawings approval b) Civil foundation work as per manufacturer's drawing c) Unloading of double column bandsaw at BHEL works d) Pipes for job trials and prove out at BHEL e) EOT Crane only inside shop f) Single Compressed air point at the location indicated in the drawing g) Single Electrical Supply point at the location indicated in the drawing h) Welding consumables required for erection if any 	