

TECHNICAL SPECIFICATIONS**BAND SAW MACHINE**

SL. NO.	DESCRIPTION OF BHEL REQUIREMENT	REQUIRED	OFFERED	DEVIATION
1.0	PURPOSE : The Band Saw Machine is to be used for cutting of squares and rounds of various sizes upto 260mm. . The materials proposed to be cut off on this machine are mainly Carbon steel , Alloy steel and stainless steels , hot rolled / forged and heat treated condition and having hardness upto 350BHN . The machine should be capable of cutting tougher	Vendor to confirm		
2.0	BROAD DESIGN FEATURES : The machine should be semi automatic , double column type with high natural stability and non vibrating drive for optimal cutting capacity. The complete drive and its frame should be laid parallel on a strong wear resistant column support.			
3.0	TECHNICAL SPECIFICATIONS : Capacity : Round 260mm Max. Square 260x260mm.max.	Vendor to confirm & intimate the exact details.		
3.1	Cutting Speed : 10-75 Mts/Min (Infinitely variable) or more			
3.2	Drive Motor :	Vendor to intimate the exact details.		
3.3	Blade size in mm. :			
3.4	Band saw blades. (Qty offered free and qty offered extra - price per piece should be mentioned).	Vendor to comply and intimate the asked details.		
4.0	OTHER TECHNICAL FEATURES/ACCESSORIES :	Vendor to comply		
4.1	Semi automatic type with hydraulic clamping vice and rapid reverse (with auto height stop on return stroke)of cutting arm for accurate cutting.			
4.2	Hydraulic blade tensioning system and guides to keep the blade and under constant load at all times during cutting.and tension release as soon as machine is off .			
4.3	Hydraulically controlled cutting feed for maintaining a constant cutting rate regardless of the work piece cross section.			
4.4	Power driven brush continually flushed by cutting fluid to keep the blade and saw guide free of chips for smooth cutting .			
4.5	Controlled differential cutting pressure for easy to difficult material cutting.			
4.6	Blade breakage sensor/ motion detector providing automatic shut off.			
4.7	Automatic saw blade shut off after completion of cutting.			
4.8	Self adjustment of saw blade guide to material width..			
4.90	Infinitely variable cutting speeds with direct display.			
4.10	Hydraulic clamping pressure regulator.			
4.11	Coolant system with electric pump, coolant flow regulator, coolant level glass and overflow indication.			
4.12	Material support stands with hardened rollers for cutting 6 meter long bars.			
4.13	Machine lighting equipment. Vendor to provide 5/15 Amp, 250 Volt socket near the panel for carrying out maintenance.			
4.14	Well-guarded blade and wheel cover.			
4.15	Separate cabinet of control panel with all necessary switch gears,fuses,indicators and push buttons& mounted on machine.	Vendor to comply and inform the desired details		
4.16	Colour of the machine shall be apple green. RAL 6011	Vendor to comply		
4.17	Semi automatic cutting cycle with the bar stock feed mechanism and hydraulic clamping vice for accurate and repetitive cutting.			
4.18	Working time meter/ Cutting time meter	Vendor to specify		
4.19	Infinitely variable feed control valve.	Vendor to comply		
4.20	Fully automatic lubrication system.			
4.21	Continuous indication of feed rate			
4.22	Bellows/ sleeves for columns.			
4.23	Hydraulic clamping pressure regulator.			
4.24	PLC based controls and all necessary software.PLC Make Simens/Messung/fanuc	Vendor to comply and furnish details.		
4.25	a. The clamping should be hydraulic and integrated with the machine. b. The minimum size of the blank should be 50 mm			
4.26	' V ' belt driven brush for perfect cleaning of chips from blade gullet.	Vendor to comply		
4.27	Clamping pressure display			
5.0	CHIP CONVEYOR : Screw type / Scraper type swarf conveyor with swarf chute for efficiently removing swarf leaving coolant behind.			
6.0	LEVELING & ANCHORING SYSTEM			
6.1	Complete set of anchoring materials including foundation bolts, nuts, washers, fixators, leveling shoes etc for alignment and fixing of the machine on the floor should be supplied. Details to be submitted.	Vendor to offer		

7.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE			
7.1	Tools and Equipment required for erection of the machine shall be brought by the vendor. Necessary tools like Torque Wrench, Spanners, Keys, grease guns etc. required for operation and maintenance of the machine should also be supplied by the vendor. List of such tools should be submitted with offer.	Vendor to offer		
8.0	ERECTION & COMMISSIONING			
8.1	Supplier to take full responsibility for carrying out the erection, start up, testing of the system, it's control & all types of other supplied equipment/accessories etc. 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. Compressed air pressure available in the shop is 5.0 Kg/Cm ² .	Vendor to confirm & offer		
9.0	SPARES: Spares for atleast 2 years, two-shift trouble free operation of machine shall be offered. The spare package should include items for machine, hydraulic, electrical systems and PLC (if applicable). It should include all attachments, accessories and peripherals. The spares must include 100 nos band saw blades also. The spares's offer should contain individual item wise list along with price breakup, specification and source of supply.	Vendor to confirm		
9.1	Electronic Spares: PLC power supply, CPU, input & output cards of one no.each type, drive controllers complete (if used any) - 1 no. each type.	Vendor to confirm		
9.2	Electrical devices: All different types of contractors, relays, timers, indicating lamps, limit switches, proximity switches and solenoid valves - 5 nos. each type. Lubrication system: Spares including motor, pump etc. Complete drive controller if any. Indicating lamps 50 nos. each type.	Vendor to confirm and submit necessary details including make and quantity		
9.3	Hydraulic system: All High pressure pump/ pumps, accumulators if any, piston cylinder , set of all types of oil seals, pressure gauges, solenoid valves, pressure regulators, flow control valves, filters, pressure switches, flow and float switches, high pressure hoses.			
9.4	Mechanical : Gear Box unit , rollers , safety clutches , brakes & wearable parts, Band saw guides, guide bearings, one set of driver & driven pulleys, chip removal wire brushes.			
9.5	DOCUMENTS & MANUALS : 5 sets of all operational and maintenance manuals containing all assembly/ sub assembly drawings, circuit diagrams of the machine hydraulic, pneumatic, coolant system, lubrication system and electrical system shall be supplied. The manuals should also contain detailed spare part list along with specification, part number and address of manufacturers.	vendor to confirm		
9.6	Basic Machine operation and maintenance/ service manual - 3 copies			
9.7	Electrical schematic of the machine- 3 copies			
9.8	All Documentations in CD - 1 set			
9.9	Complete list of parts used in the machine along with specification, part/ ordering numbers and address of manufacturer in case of purchased item- 3 copies.			
9.10	Spare part list along with specification, part number and address of manufacturers (including Brought out items) - 5 sets.			
9.11	Service and user manuals of all bought out items- 5 sets.			
9.12	Commissioning and interface manual of drive controller- 2 sets.			
10.0	TRAINING & PRE-DESPATCH INSPECTION : Training of BHEL personnel for mutually agreed period in the field of operation, mechanical/ hydraulic maintenance and electrical/ electronic maintenance shall be offered. Also BHEL training will do pre-dispatch inspection by witnessing accuracies, verification of all machine functions and cutting of max. size job for which material is to be arranged by Vendor. Dispatch clearance will be given after full satisfaction by B.H.E.L. trainees.			
11.0	ACCURACY TESTS : All accuracy tests to be conducted at supplier's as well as customer's work shall be indicated in the offer with complete details like type of tests to be carried out, acceptance norms etc. All accuracy tests to be indicated.			
12.0	FOUNDATION : In case any special foundation is required for installing the machine, detailed foundation drawings to be offered. The vendor should agree to supply 5 copies of machine layout and foundation drawings with one month of Placement of LOI / Order. All foundation bolts/ anchoring materials/ fixators/ leveling shoes etc. required for final erection of the machine shall have to be provided by the supplier along with basic machine.	Vendor to accept & confirm.		
13.0	ERECTION & COMMISSIONING : Civil works to be done by BHEL . The supplier shall do the Erection & Commissioning and provide necessary training and guidance during commissioning. The vendor has to repeat all geometrical accuracy tests for which all tools etc. are to be arranged by the vendor at their risk.			
14.0	PROVE-OUT & ACCEPTANCE : After successful erection and commissioning at BHEL, Hardwar supplier shall carry out field testing as per specified accuracy to prove the system. The prove out component will be mutually agreed (Capacity : Both round and Square will have to be tried. The total no. of lots to be tried will be mutually discussed). Supervision of one weeks (6 working days) routine production after satisfactory commissioning. Final acceptance shall be made by BHEL at BHEL, Hardwar after successful completion of erection, commissioning accuracy testing and supervision.			

15.0	OPERATING CONDITION:			
15.1	Supply condition: All machine electrical, controls and paint shall be suitably tropicalized. The machine should work trouble free in the following conditions: Power Supply : 3 Phase AC 415V (+10/ 15%) 50Hz +/-3%, 3 wire system Compressed Air : 3-5 Kg/Cm ²	Vendor to accept & confirm.		
15.2	Power Supply Voltage 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 should ensure the proper earthing for the equipment and its peripherals/accessories. Any material requirement for the same should be informed with foundation design/drawings so that same could be incorporated during construction of foundation. The vendor can take earthing connection from the nearest available location of the production shop.			
16.0	OTHER TECHNICAL DETAILS: Following technical details/ features are to be quoted/ submitted with the technical offer:			
16.1	The total connected load of the machine and peripherals.	Vendor to confirm		
16.2	Total machine weight and maximum weight of sub-assembly(s) to be handled during commissioning.			
16.3	Floor space requirement, over all size and height of the machine/ equipment.			
16.4	Service requirement of compressed air, water etc. indicating supply condition.			
16.5	Requirement of any special coating on foundation to prevent seepage of oil, water etc.			
16.6	Maximum noise level in full load condition, it should be well within the specified limits of regulatory body.			
16.7	Details of vibration dumping arrangement if applicable.			
16.8	PLC software. If any.			
16.9	Lay out of power lines pipelines of water, oil air supply etc.			
16.10	Detailed catalogues, sketch/ photograph of the machine accessories/ attachments.			
16.11	Reference list of customers to whom such machines have been supplied mentioning contact person of customer, machine model, major specification, year of supply etc.			
17.0	TROPICALISATION			
17.1	All electrical / electronic equipment shall be tropicalized.	Vendor to confirm		
17.2	All electrical & electronic control cabinets & panels should be dust and vermin proof.			
17.3	All electrical components in the cabinets should be mounted on DIN Rail.			
17.4	All motors shall conform to IEC or Indian Standards			
18.0	SAFETY ARRANGEMENTS			
18.1	Following safety features in addition to other standard safety features should be provided on the machine:	Vendor to confirm and comply		
18.2	All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations & noise.			
18.3	Emergency Switches at suitable locations should be provided.			
18.4	Automatic over load protection			
18.5	Adequate protection for all moving and rotating parts to be ensured			
19.0	ENVIRONMENTAL PERFORMANCE OF THE MACHINE			
19.1	The Machine should conform to following factors related to environment :	Vendor to confirm and comply		
19.2	Maximum noise level shall be 85 dB (A) at 1 meter 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. Supplier to demonstrate compliance to noise level, if asked for.			
19.3	There shall not be any emissions from the machine. All fumes etc. during machining shall be arrested by Fume extraction system.			
19.4	There should not be any effluent from the machine. In case there are any effluents from the machine, requisite effluent treatment plant or pollution control device should be built into the machine by the supplier.			
19.5	No hazardous chemicals shall be required to be used in the machine.			
19.6	If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.			
19.7	Paint of the machine should be oil / coolant resistant and should not get peeled off and mixed up with coolant.			
20.0	PACKING			
20.1	Rigid packing be made for all items of complete machine, all accessories and other supplied items to avoid any damage/loss in transit. When machine is despatched in containers, all small loose items shall be suitably packed in boxes.	Vendor to confirm.		
21.0	GUARANTEE			
21.1	Guarantee for complete conveyor system control if any and all supplied accessories/equipments for 24 months from the date of final acceptance of the machine. Any spare required during guarantee period shall have to be arranged by the vendor free of cost and duty levied (if any) have to be borne by the vendor.	Vendor to confirm.		

22.0	QUALIFYING CRITERIA :			
22.1	The Supplier should be a reputed original equipment manufacturer . They must have supplied & commissioned at least one no. Band Saw of same or higher sizes in the last five years. Following information should be submitted by the vendor about the companies where similar machines have been supplied. This is required from all the vendors for qualification of their offer.	Vendor to accept & submit details.		
22.2	Name of the customer / company, where such machine(s) is(are) installed.			
22.3	Complete postal address of the customer.			
22.4	Year of Commissioning.			
22.5	Application for which the machine is supplied.			
22.6	Name and designation of the contact person of the customer.			
22.7	Phone , FAX no. and email address of the contact person of the customer.			
22.8	Performance Certificate from the customer regarding satisfactory performance of the machine supplied to them.			