



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

An ISO 9001
Company

CAPITAL PURCHASE / MATERIALS MANAGEMENT / MANUFACTURING

ENQUIRY	Phone: +91 431 257 79 38 Fax : +91 431 252 07 19 Email : tvenkat@bheltry.co.in Web : www.bhel.com
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	Enquiry Number: 2620700064	Enquiry Date: 08.08.2007	Due date for submission of quotation: 21.09.2007
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You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order

Item	Description	Quantity	Delivery (Item required at BHEL on)
10	Header Pipe Cutting Band Saw with handling Facility as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1 No.	30.03.2008

BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats along with technical specifications 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 “2620700064”.

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 Manager / Capital Purchase / MM / Manufacturing
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PART A.**SECTION – I : QUALIFYING CRITERIA**

The BIDDER / VENDOR has to meet the following requirements to get qualified for submitting an offer for the BANDSAW :

[Additional Sheets shall be attached with the OFFER, to provide requisite details]

S.No.	REQUIREMENTS	VENDOR's RESPONSE
1.0	Only those vendors (OEMs), who have supplied and commissioned at least FIVE Numbers of Double Column Bandsaw of Cutting Capacity 800 mm and above (suitable for either square or circular shaped solid jobs in steel) should quote. The Bandsaw Machines should presently be working satisfactorily for more than one year after commissioning. However, if such a Bandsaw has/had been supplied to BHEL, then such machine should be presently working satisfactorily for more than six months after its commissioning and acceptance in BHEL. The 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"	
2.0	Name of the Customer / Company where the machine is installed.	
3.0	Complete Postal Address of the Customer.	
4.0	Year of Commissioning.	
5.0	Parameters of Machine(s) supplied (parameters as mentioned in Clause 1.0 above) and application for which the machine is supplied.	
6.0	Name and designation of the contact person of the Customer.	
7.0	Phone No., FAX No. and e-mail address of the contact person of the Customer.	
8.0	Performance certificate from the customers regarding satisfactory performance of BANDSAW Machine supplied to them (Original Certificate or Through E-mail directly from the customer). The original performance certificate may be returned after verification by BHEL, if required by the vendor.	

SECTION – II : COMPANY PROFILE

The BIDDER is requested to provide details listed in the table given below :

S.No.	PARTICULARS	VENDOR's RESPONSE
9.0	Number of Years of Experience of the BIDDER / VENDOR in the field of Design, Manufacture, Supply and Commissioning of Double Column Bandsaw Machines.	
10.0	Number of Double Column Bandsaw Machines supplied and installed till date in the following category (based on CAPACITY) with details on customers : a) Above 800 mm b) 400 to 800 mm	
11.0	Details on Standards or Codes followed in the Design of Bandsaw Machine	
12.0	Details of Manufacturing Facilities : a) Fabrication Facilities b) Heat Treatment Facilities c) Machining/Grinding Facilities d) Assembly & Testing Facilities	
13.0	Details of Quality System (with Stages of Internal Inspection) followed for the Fabrication / Machining and Testing of Bandsaws	
14.0	Details on AFTER-SALES-SERVICE Set-Up in INDIA for providing timely service support to BHEL	

SECTION – III : BID / OFFER FORMAT

The BIDDER / VENDOR has to note the following :

S.No.	REQUIREMENTS
15.0	The BIDDER shall submit the offer in TWO PARTS - Technical [with PART A & PART B] & Commercial and Price Bid.
16.0	The OFFER shall contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by the Bidder, against each Clause. A just 'YES' or 'CONFIRMED' or 'NO-DEVIATION' or 'COMPLIES' or 'ACCEPTED' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer.
17.0	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details of 'Bought-Out-Items' with copies of Product Catalogue
18.0	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 of the inclusion of all the accessories, tooling, attachments, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.

PART B**TECHNICAL SPECIFICATIONS for
PIPE SIZING BAND-SAW with HANDLING FACILITY****1.0 PURPOSE / APPLICATION :**

The equipment is intended for sizing of pipes, tube bundles, forged and rolled bars in square-cut condition into small and varying lengths. The number of pieces per batch vary from single digit to few tens. A pipe in-feed and cut-bit discharge (material handling facility) roller conveyor also shall form part of the supply.

2.0 JOB DETAILS :

2.1.0 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 .

2.2.0 MATERIAL SPECIFICATION :

- 2.2.1 SA 234 WPB, WPC, WP 12 and WP 22
(As per ASTM Standards for hot-formed & normalised forgings)
- 2.2.2 SA 105, SA 106 Gr.B/Gr.C, SA 210 Gr.A1/C, SA 515 Gr.70
- 2.2.3 SA 182 F12/F22, SA 209 T1, SA 213 T11/T22/T91
SA 335 Gr.P11/P12/P22/P91, SA 387 Gr.12/22
- 2.2.4 SA 240 TP 304, SA 312 TP 304, SA 312 TP 316
(Sl. No. 2.2.2 to 2.2.4 As per ASTM Standards)
- 2.2.5 API 5L X42, API 5L Gr.B
- 2.2.6 As per Russian GOST Standards : 12 X 1M ϕ / Steel
- 2.2.7 As per DIN Standards : X 20CrMoV12.1, 14MoV6.3,
15NiCuMoNb5

2.3.0 MATERIAL SIZES :

- 2.3.1 Job Diameter Range
(for Circular Jobs) : 127 mm to 1,000 mm
- 2.3.2 Wall Thickness Range
(for Pipes or Hollow Jobs) : 10.0 mm to 150 mm
- 2.3.3 Size of Tube Bundles : 500 mm x 500 mm
Tube Diameter Range : 31.8 mm to 76.1 mm
- 2.3.4 Size of Rod Bundles : 400 mm x 300 mm
Rod Diameter Range : 25.4 mm to 100 mm
- 2.3.5 Minimum Job Length (at In-feed side) : 1,000 mm
- 2.3.6 Job with Maximum Length (Infeed) : 12,000 mm
(job size : O.D. - 660 mm, Thickness - 12.7 mm, Wt. – 2.5 MT)
- 2.3.7 Job with Maximum Weight : 15,000 kgs.
(for job size : O.D. - 800 mm, Thick –120 mm, Length – 6.0 M)

3.0 MACHINE SPECIFICATIONS :

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 upto 15,000 kgs. (15 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.

SI.No.	PARAMETERS	SPECIFICATIONS	OFFER
3.1.0	BANDSAW MACHINE :		
3.1.1	Type	Horizontal Cut-Off Bandsaw	
3.1.2	Cutting Capacity at 90 ° - SOLID	800 mm (for pipe outer diameter – 800mm wall thickness – 120 mm)	
3.1.3	Cutting Saw Speed Range	15 to 100 mtrs./min. (steplessly adjustable)	
3.1.4	Cutting Accuracy	Allowable Limit – Taper 0.1 mm for ϕ 300 mm	
3.1.5	Band Saw Drive Motor Power	Bidder to Specify (Not to be less than 12 kW) – Bidder to give power calculations .	

SI.No.	PARAMETERS	SPECIFICATIONS	OFFER
3.1.6	Band Saw Dimensions	Bidder to Specify	
3.1.7	Band Wheel Diameter	Bidder to Specify	
3.1.8	(Flood) Coolant Flow Rate	Around 30 to 50 lits. /min. at 3 Bar delivery pressure	
3.1.9	Coolant Pump Motor Capacity	Bidder to Specify	
3.1.10	Coolant Tank Capacity & Dimensions	Bidder to Specify	
3.1.11	Hydraulic Motor Capacity	Bidder to Specify	
3.1.12	Hydraulic Oil Tank Capacity	Bidder to Specify	
3.1.13	Total Power requirement in kVA	Bidder to Specify	
3.2.0 WORK HOLDING DEVICE :			
3.2.1	Work Holding Type	Right Angle & Hydraulically Clamped	
3.2.2	Infeed System	Powered	
3.2.3	Infeed Conveyor Length - Powered	4000 mm (minimum)	
3.2.4	Dead Roller Table (connected to powered infeed table)	In segments of 2000 mm	
3.2.5	Number of Dead Roller Table for infeed side extension	Minimum 4 Nos.	
3.2.6	Discharge Conveyor Length	3000 mm – Powered	
3.2.7	Dead Roller Out-feed Table	In segments of 2000 mm	
3.2.8	Number of Dead Roller Table for outfeed side extension	Minimum 2 Nos.	
3.2.9	Cut-Length Setting Range	100 mm to 6,000 mm	
3.2.10	Feed Stroke in Single Mode	Around 800 mm	
3.2.11	Digital Measuring Unit Accuracy	± 0.1 mm / meter	
3.2.12	Cut-Off Length Feeding Accuracy	± 1.0 mm / stroke	
3.4.0 DESIGN & CONSTRUCTIONAL FEATURES :			
3.4.1	Double column, horizontal feed frame, guidance by two large-section solid chromium plated columns and maintenance free sleeve bearings	Bidder to give details	
3.4.2	Sturdy Base / Heavy Bed (Cast Iron is preferable) to provide rigid base to saw components	Bidder to give details	
3.4.3	Inclined band travel feature. designed to shorten the effective cutting length	Bidder to give details	
3.4.4	Mechanism and arrangement for accurate band/blade guidance	Bidder to give details	

SI.No.	PARAMETERS	SPECIFICATIONS	OFFER
3.4.5	Automatic hydraulic band tension, monitored electrically, to ensure correct band tension with system for automatic switch-off of drive	Bidder to give details	
3.4.6	Guide arm setting is to be synchronised with the adjustment of the movable vice jaw	Bidder to give details	
3.4.7	Provision to protect the saw band from overloading.	Bidder to give details	
3.4.8	Work height selector to allow raising of the band, to just clear the material stock	Bidder to give details	
3.4.9	Central guide to provide a third guide to stabilise the band at the start of the cut	Bidder to give details	
3.4.10	An electric motor driven 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	
3.4.11	Automatic load controlled feed regulation to provide constant cutting force	Bidder to give details	
3.4.12	Bandsaw Feed to stop automatically once the saw band stops	Bidder to give details	
3.4.13	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	
3.4.14	Fixed discharge table with integral coolant return	Bidder to give details	
3.4.15	Provision to set the cutting length up to the single feed stroke which is read on a digital counter and also multiple stroke counter to make it possible to multiply the number of index cycles when pieces longer than the feed stroke are to be cut.	Bidder to give details	
3.4.16	Automatic length indexing by powered vice to work as per the preset length.	Bidder to give details	
3.4.17	The method of changing the saw band/blade should be easy and quick.	Bidder to give details	

SI.No.	PARAMETERS	SPECIFICATIONS	OFFER
3.4.18	The equipment shall have a centralised control panel so that all cutting parameters can be set from one position.	Bidder to give details	
3.4.19	Saw frame lift and lowering with safety switch	Bidder to give details	
3.4.20	Solid state circuitry for control panel	Bidder to give details	
3.4.21	Cutting Line Indicator (shadow light) to indicate mark on material for blade alignment .	Bidder to give details	
3.4.22	The equipment shall have a centralised control for setting the parameters from both Operator panel as well as on main panel.	Bidder to give details	
3.4.23	Indicators on the main panel to display the blade speed & the blade cutting force , Clamping pressure etc.,	Bidder to give details	
3.4.24	A fluorescent machine lamp with protective cover to be provided for cutting area visibility.	Bidder to give details	
3.4.25	Replaceable Carbide strips for band guide combined with alignment rollers to provide lasting accurate band guidance.	Bidder to give details	
3.4.26	Quick change from automatic batch cutting to single cut operation.	Bidder to give details	
3.4.27	Hydraulic double vice for simultaneous clamping on both sides of the saw band operated by hydraulic cylinders with regulated clamping pressure	Bidder to give details	
3.4.28	The hydraulic hold-downs are to be provided as additional top clamping for cutting Tubes / Bars in bundle,	Bidder to give details	
3.4.29	Manual control of shuttle Vice for moving work piece during set-up operations	Bidder to give details	
3.4.30	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.	Bidder to give details	

SI.No.	PARAMETERS	SPECIFICATIONS	OFFER
3.4.31	The face plates of the vices are to be of replaceable wear plates.	Bidder to give details	
3.4.32	The Dead Roller Table provided on both Infeed & Outfeed Sides shall be interchangeable	Bidder to give details	
3.4.33	The Pitch of the rollers provided in the Roller Table shall be close enough to hold min size of the job cut off.	Bidder to give details	
3.4.34	List of band saw blades to suit the various sizes (diameter and thickness) of the job, shall be indicated through a chart.	Bidder to give details	
3.5.0 SAFETY FEATURES :			
3.5.1	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	
3.5.2	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	
3.5.3	A safety interlock to stop the machine automatically if a wheel cover is opened during operation	Bidder to give details	
3.5.4	Saw frame lift and lowering with safety limit switch	Bidder to give details	
3.5.5	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	
3.6.0 OPTIONAL ACCESSORIES:			
3.6.1	Electric piece counter with display unit	Bidder to give details	
3.6.2	Chip conveyor system with disposal bucket	Bidder to give details	
3.6.3	Cutting Depth Control Unit: To stop the machine automatically as soon as the blade reaches the required depth of cutting	Bidder to give details	
3.6.4	Overload Indicator :- to indicate the overloading applied to the bandsaw blade	Bidder to give details	

SI.No.	PARAMETERS	SPECIFICATIONS	OFFER
3.6.5	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	
3.6.6	Remote Control Unit with 10 mtr. Long interconnecting cable provided with protective sheath, connected to the machine main panel for machine operations.	Bidder to give details	
3.6.7	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	

4.0 IMPORTANT POINTS :

SI.No.	DESCRIPTION	OFFER
4.1.0	415V + 10% / -10%, 50HZ +/-1.5 HZ, 3 Phase AC (3 wire system with out 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.	
4.2.0	All electrical equipment shall be Tropicalized and shall have IP 54 degree of protection	
4.3.0	All electrical control cabinets & panels should be dust and vermin proof	
4.4.0	All electrical components in the cabinets should be mounted on DIN Rail	
4.5.0	All electrical panels should be provided with CFL lamps for sufficient illumination and electric power receptacles of 220 Volts, 5/15 Amp. AC. All adapters/receptacles should have compatibility with Indian equivalents.	
4.6.0	Motors shall be from M/s Siemens / ABB or other reputed make conforming to IEC and acceptable to BHEL	
4.7.0	All electrics shall be of reputed make like Siemens, L&T, BCH, Tele-mechanique.	
4.8.0	Electrical drives shall be of Siemens / ABB / L&T / Eurotherm and PLC of SEW / Allen Bradley / Siemens / Messung	

SI.No.	DESCRIPTIONS	OFFER
4.9.0	All components / devices / terminals are to be incorporated with ferrules.	
4.10.0	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.	
4.11.0	Vendor should ensure the proper earthing for the machine and its accessories.	
4.12.0	Centralized Automatic Lubricating System to be provided with metallic tubings.	
4.13.0	All hydraulic elements used shall be of standard ones and shall be of Vickers / Rexroth or any other reputed make acceptable to BHEL.	
4.14.0	All hydraulic operating components to be mounted on the manifold in a centralised place on the hydraulic power pack .	
4.15.0	Hydraulic circuits shall be designed with minimum number of control valves and to suit oil of ISO VG 46 or 68 only. Also MINIMESS checkpoints to be provided wherever pressure is required to be read for setting and troubleshooting. One number of MINIMESS Pressure Gauge and Connecting Hose to be provided.	
4.16.0	All Hydraulic hoses shall be preferably from GATES,MARKWELL,Parker Hannifin,	
4.17.0	The Oil-Cooler (Heat Exchanger) shall be of Air-Cooled Radiator Type	
4.18.0	Centralised Automatic Lubricating System for all sliding parts to be provided with metallic tubings.	
4.19.0	The equipment has to be guaranteed for its performance and also of the sub-assemblies / bought-out items, for a minimum period of 24 months from the date of commissioning at BHEL Works.	
4.20.0	ENVIRONMENTAL PERFORMANCE OF THE MACHINE: [The Machine shall conform to following factors related to environment]	
4.20.1	Maximum noise level shall be 85 dB (A) at normal load condition, 1 M 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.	
4.20.2	The machine shall be suitable for an ambient temperature of +45 ° C and relative humidity of 95 % respectively, but both do not occur simultaneously.	
4.20.3	If any safety / environmental protection enclosure is required it shall be built in the machine by the vendor.	
4.20.4	Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.	

SI.No.	DESCRIPTIONS	OFFER
4.21.0	LEVELLING & ANCHORING SYSTEM	
4.21.1	Complete anchoring system including foundation bolts, anchoring materials, fixtures, leveling shoes etc shall be supplied for the Machine etc.	
4.22.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE	
4.22.1	The vendor shall bring special tools and equipment required for erection of 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	

50 MACHINE SPARES :

SI. No.	DESCRIPTION	OFFER
5.1.0	Itemised 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 shall be offered)	
5.2.0	Mechanical & Hydraulic Spares: Bearings, clutches, gears and all types of pumps, Valves, pressure switches / transducers, filters, seals, O rings, Hydraulic Hoses, etc.	
5.3.0	Electrical: All types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch.	
5.4.0	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.	
5.5.0	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.	

6.0 INSPECTION & MACHINE ACCEPTANCE :

SI. No.	DESCRIPTION	OFFER
6.1.0	The Machine shall be offered for inspection and performance prove-out trials, for the design capabilities of the machine, at Vendor's Works by BHEL Engineers, before dispatch.	
6.2.0	The Bidder shall train BHEL Personnel in Operation and Maintenance (Mechanical and Electrical / Electronics) of the Machine at Vendor's works. The prove-out trials (at Vendor's Works and at BHEL Works) shall be for the job sizes given at the time of technical discussions / order release.	
6.3.0	The Bidder shall depute his engineer(s) for supervising the erection and commissioning of the machine at BHEL Works and further prove-out trials. 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.	

7.0 DOCUMENTATION :

SI. No.	DESCRIPTION	OFFER
7.1.0	THREE sets of following documents (Hard copies) in English language should be supplied along with the machine	
7.1.1	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.	
7.1.2	Catalogues, O&M Manuals and drawings of all bought out items, bearings wherever applicable.	
7.1.3	Electronic and electrical interconnecting drawings (i.e. Between machine, control panel and drives). Hard Copy in Original : 3 Nos.	
7.1.4	Hydraulic, coolant, lubrication and Electrical circuits with Bill Of Materials	
7.2.0	Detailed specification of all rubber items and hydraulic/lube fittings	
7.3.0	The vendor shall submit complete Master List of parts used in the machine.	
7.4.0	One additional set of all the above documentation on CD ROM, wherever possible.	

8.0 FOUNDATION :

Sl. No.	DESCRIPTION	OFFER
8.1.0	BHEL shall construct complete foundation for the machine. Vendor shall furnish the foundation details.	Bidder to confirm

9.0 SCOPE OF SUPPLY:

[The Un-Priced Commercial Offer shall contain the following details]

S. No.	DESCRIPTION	OFFER
9.1.0	Basic Band-saw Machine with Standard Accessories	
9.2.0	Hydraulic Power Pack and Connected Circuitry with Tank	
9.3.0	Electrically run Flood Coolant Circulation System and Tank	
9.4.0	Rotary table and complete set of work holding devices like "V" blocks, adapters, screw-clamps, tightening nuts, carbide guides, etc. shall form part of the supply to cover all sizes of the work-pieces specified	
9.5.0	Remote Control & Optional Accessories as recommended by the Bidder	
9.6.0	Inter-connecting Cables (with Plug-In connectors) and Hoses (with Quick-Fix couplings)	
9.7.0	Complete range of Band-saw Blades in packs of five numbers for the sizes of jobs specified in ANNEXURES	
9.8.0	Complete set of Spares for Mechanical, Hydraulic, Electric and Electronic elements as per Clause 5.0	
9.9.0	Set of Operating and Maintenance Tools	
9.10.0	Inspection and Performance Prove-Out at Vendor's Works	
9.11.0	Training in Operation & Maintenance of the total system for BHEL Personnel	
9.12.0	Complete set of Documents as per Clause 7.0	
9.13.0	Erection & Commissioning at BHEL Works and Machine Prove-out Trials for various sizes of jobs	