



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

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: 2851300046	Enquiry Date: 27.12.2013	Due date for submission of quotation: 31.01.2014
--	---	---	---

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	Delivery Required	Delivery Terms Required
10	Plate Edge Milling Machine as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	01 No.	6 months from the date of Purchase Order	Indigenous Bidders: F.O.R, BHEL Stores, POWER EQUIPMENT FABRICATION PLANT, BHARAT HEAVY ELECTRICALS LIMITED, Mundipar- 441804, Sakoli Taluk, Bhandara District, Maharashtra. Foreign Bidders:- CFR Chennai or Mumbai Seaport/ Airport

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 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 (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 above Enquiry reference.**

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/ Capital Equipment / MM
--	--

PLATE EDGE MILLING 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	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 “ PLATE EDGE MILLING MACHINE ”. 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 ‘EDGE MILLING MACHINE’ having all the following features:</p> <ol style="list-style-type: none"> 1. Min. spindle power of 15KW (100% duty cycle) 2. Edge milling capacity of min. 100 mm on alloy steel <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	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 date of commissioning (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. For obtaining the Performance certificate, a suggestive format is provided.	
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 and Boarding 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 EDGE MILLING MACHINES have been supplied in the past.	
2.2	Specify details of EDGE MILLING MACHINES 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, 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	Spindle motor power (cont. rating)		
5.2	Milling capacity on steel		
5.3	Max milling in mm		
5.4	Spindle speed range (RPM)		
5.5	Spindle feed range (mm/rev)		
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	

Plate Edge Milling Machine

PART - B: Technical Specification

Note:-

1. The Column “**Vendor’s offer with Technical details**” in this specification 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. The offer and all documents enclosed with offer should be in **English language** only.
- 3.

Name & Address of the Supplier:	Name & Address of the Indian agent(if any)
Telephone no.:	Telephone no.:
Fax no.:	Fax no.:
e-mail:	e-mail:

Scope: - Supply, Erection & Commissioning of **Plate Edge Milling Machine** for BHEL complying with the specification as below.

S no	Technical Specification	Vendor's offer with Technical details
1.0	Purpose & Work Piece Material	
1.1	Purpose: The machine is meant for machining of plate edges for weld preparation. It involves edge trimming and bevelling at various degrees including J groove edge preparation. Machining thickness 10mm to 250mm and length upto 6.3M. Bunch of plates can also be used limited to height of 250mm.	Vendor to confirm
1.2	Work Piece Material: Carbon Steel, Alloy Steel. Stainless steel and other materials which can be machined in the capacity of machine	Vendor to confirm
2.0	Machine details	
2.1	The machine shall have a CI/fabricated and stress relieved base with work support table to hold plates of upto 6.3M in length with ample parking length for accommodating the carriage. The bed of base shall be heavy duty with machined surface to support the machine carriage;appropriately located heavy duty, extra wide and hardened rack below the working table, hardened and ground finish pinion fitted on the centreof the carriage, arrangement of guideways at bed and table support for the accurate and smooth movement of main carriage, The main carriage shall have a column fitted on it which supports the milling head. The main drive motor or feed motor with its gear box etc. shall be fitted centrally on the carriage. The milling head shall be able to move on hardened and ground guidewaysin vertical direction with automatic clamping features. It shall also be able to move in horizontal direction and shall be able to be angularly inclined in +/- 50 ^o to vertical. The carriage shall have an operator's platform fixed to saddle.Work clamping system (consist of job clamping table, vertical type hydraulic hold down cylinders with mounting frame attached to the work table, Hydraulic power pack).	Vendor to describe and confirm
2.2	BED	
2.2.1	The machine bed shall be made from Cast Iron/fabricated and stress relievedsteel with hardened and accurately machined and ground guide ways.	Vendor to specify and confirm (S&C)
2.2.2	This bed shall be attached to the work table firmly and aligned to ensure geometrical accuracy.	Vendor to confirm

S no	Technical Specification	Vendor's offer with Technical details
2.2.3	The machine carriage shall be mounted over the bed slide and travel longitudinally. The machine carriage base shall be turrctelined. Provision shall be there to protect spilling of any chips over the guides of carriage and slides.	Vendor to (S&C)
2.3	COLUMN: The machine column shall be made from Cast Iron/fabricated and stress relieved steel with hardened guide ways.	Vendor to (S&C)
2.3.1	The machine column shall be made from Cast Iron/fabricated and stress relieved steel with hardened guide ways.	Vendor to (S&C)
2.4	Milling Head and spindle:	
2.4.1	The milling head shall be mounted on the column and move vertically up & down on hardened and ground guide ways.	Vendor to (S&C)
2.4.2	Spindle speed (infinitely variable through inverter): 100-900rpm	Vendor to (S&C)
2.4.3	Spindle Motor AC variable speed motor of power 15 KW (continuous duty)	Vendor to (S&C)
2.4.4	Spindle Taper: ISO 50	Vendor to (S&C)
2.4.5	Spindle axis: Horizontal with swivel of +/- 50° shall be provided.	Vendor to (S&C)
2.4.6	Tool Clamping & Unclamping: Manual by draw bar.	Vendor to (S&C)
2.5	Traverses	
2.5.1	X-axis through AC Servo System: min. 6300mm	Vendor to (S&C)
2.5.2	Y-Axis (motorized movement):min. 400mm	Vendor to (S&C)
2.5.3	Z-axis (manual movement): min. 150mm	Vendor to (S&C)
2.5.4	Axes Clamping: manual clamping for Y and Z axes	Vendor to (S&C)
2.6	Feed rate:	
2.6.1	Feed rate X-Axis: 0-1000mm/min.	Vendor to (S&C)
2.6.2	Rapid feed rate for X axis: min. 4000mm/min.	Vendor to (S&C)
2.7	Feed Drive Mechanism:	
2.7.1	X-axis: AC Synchronous motor fed through inverter	Vendor to (S&C)
2.7.2	Movement through rack and pinion	Vendor to (S&C)
2.7.3	Electrical wires and cables shall move in drag chain over the machine supported on top beam.	Vendor to (S&C)
2.7.4	Suitable stoppers and limit switches shall be provided	Vendor to (S&C)

S no	Technical Specification	Vendor's offer with Technical details
2.7.5	Y-axis shall be motorised through screw rod and box nut with DRO	Vendor to (S&C)
2.7.6	Manual Z axis through graduated hand wheel by screw rod and nut	Vendor to (S&C)
2.7.7	All guide ways shall be well protected through telescopic covers.	Vendor to (S&C)
2.8	Work piece clamping arrangement	Vendor to describe in detail
2.8.1	Work Table: The work table shall be of cast iron/fabricated& stress relieved steel, precisely machined and perfectly aligned to the bed.	Vendor to (S&C)
2.8.2	Side frame: This shall be heavily ribbed frame with min. throat of 200 mm, fabricated and stress relieved to withstand the back force. This frame shall be firmly attached to the machine base.	Vendor to (S&C)
2.8.3	Top beam: The top beam shall be extra-large heavily ribbed frame and shall be connected rigidly with the side frame.	Vendor to (S&C)
2.8.4	Width of work table: this shall be of width around 500mm	Vendor to (S&C)
2.8.5	Working height of table: shall be around 1000mm	Vendor to (S&C)
2.8.6	Hydraulic clamping cylinders: 8-10 Nos. double acting rear flange mounted hydraulic clamping system each min. 7.5 tonscapacity shall be provided. : Clamping range shall be 10 mm to 300 mm directly above the work table	Vendor to (S&C)
2.9	Work support table	Vendor to describe in detail
2.9.1	Heavy duty I beams fitted with min. 32mm dia ball sockets for free movement of plates. The beams shall be fitted at appr. pitch of 1.25-1.4M distance. The length of I beams shall not be less than 4M. One end of beams shall be bolted at work table, another end and centre shall be supported on vertical steel columns which in turn grouted to floor.	Vendor to (S&C)
2.9.2	The left side of the machine when seen from front shall have a fabricated bed plate type table of 2M length to support and clamp small jobs. It shall be placed between 1 st and 2 nd beams.	Vendor to (S&C)

S no	Technical Specification	Vendor's offer with Technical details
2.9.3	Suitable and sufficient no. of stoppers shall be provided for the initial placement of the plate.	Vendor to (S&C)
2.10	Hydraulic Power pack:	Vendor to describe in detail
2.10.1	The hydraulic power pack and all its concerned fittings like valves, control circuits, piston & cylinder etc. shall of Hoerbiger/Bosch Rexroth/Yuken make only	Vendor to (S&C)
2.10.2	The power pack shall have one main pump and one auxiliary pressure compensating pump. Once the required clamping pressure is achieved the main pump should be switched off and the pressure shall be maintained till the machining operation is over. The auxiliary pump shall take care of any pressure drop.	Vendor to (S&C)
2.10.3	Operating pressure	Vendor to (S&C)
2.10.4	Hydraulic circuit shall be submitted for approval after ordering.	Vendor to (S&C)
2.10.5	Filtration System shall be provided.	Vendor to (S&C)
2.10.6	Failure indications shall be provided.	Vendor to (S&C)
2.10.7	Automatic shut-off provision shall be provided	Vendor to (S&C)
2.10.8	Hyd clamp actuation shall be through ON/OFF switch	Vendor to (S&C)
2.10.9	Hyd power pack shall be suitable for cl. No. 2.8.6	Vendor to (S&C)
2.10.10	The sump shall have adequate capacity for hydraulic oil	Vendor to (S&C)
2.10.11	Oil cooler for hydraulic oil to keep at ambient temp. if the working temperature is increasing beyond ambient temp.	Vendor to (S&C)
2.10.12	Separate power pack of suitable capacity for automatic axis clamping system	Vendor to (S&C)
3.0	Lubrication	
3.1	Lubrication shall be of life time wherever possible. Other lubrication points shall be of automatic type. Details shall be submitted by the vendor.	Vendor to (S&C)
3.2	Centralized auto lubrication shall be provided for guide ways with metering cartridges and necessary electrical interlock with fail safe mechanism.	Vendor to (S&C)

S no	Technical Specification	Vendor's offer with Technical details
3.3	At the end of guideways necessary oil collection tray arrangement shall be provided to collect the oil to avoid oil spillage over floor.	Vendor to (S&C)
3.4	First filling of all required oils & Greases etc. to be supplied by vendor. Indigenous (INDIAN) source of Indian equivalent and specifications of oils/greases are also to be provided by the vendor.	Vendor to (S&C)
4.0	Bearings	
4.1	All bearings shall of SKF/FAG/TIMKEN make only.	Vendor to (S&C)
5.0	OPERATOR PLATFORM AND PANEL:	Vendor to describe in detail
5.1	Suitabletravelling type operator's platform attached with column shall be provided in the machine. The platform shall be capable of withstanding approx.. 100 kgs of load. Operator's control panel shall be suitably located for convenient, efficient and safe operation of the machine. All switches like feed, spindle on and off push buttons, direction selection, auto/manual selection switch, feed potentiometer, hydraulic clamping/declamping switches etc shall be provided with interlocks. Layout showing complete details shall be submitted with the offer.	Vendor to (S&C)
6.0	CONTROL PANEL	
6.1	A floor mounted control panel shall be provided near the machine to accommodate the electrical components like relays, switch gear etc.it shall be provided with suitable cooling arrangement.	Vendor to (S&C)
7.0	ELECTRICAL	
7.1	Machine shall work on 415V +/- 10% 50 Hz, 3 phase AC (3 wires system without neutral), Power supply will be provided by BHEL at a single point near the machines as per layout recommended by the vendor. All types of cables,connections,circuit breakers etc. required for connecting BHEL's power supply point to different parts of the machine control/control cabinets shall be the responsibility of vendors. Requirement of grounding/earthing with required material details is to be informed by vendor well in advance so that same could be incorporated during construction of foundation.	Vendor to confirm

S no	Technical Specification	Vendor's offer with Technical details
7.2	All electrical & electronics control cabinets & panels shall be dust and vermin proof and shall have IP 54 protection.	Vendor to confirm
7.3	All electrical components in the cabinets shall be mounted on DIN Rail.	Vendor to confirm
7.4	All electrical & electronics panels including operator's panel shall be provided with CFL for sufficient illumination. All adapters/receptacles shall have compatibility with Indian equivalent.	Vendor to confirm
7.5	Motors shall conform to IEC or Indian standard.	Vendor to confirm
7.6	The axis motor, the speed controller shall be of Siemens/Fanuc/ABB/Schneider/Yasakawa /Panasonic/Rexroth make only.	Vendor to confirm
7.7	The electrical components used shall be from reputed international makes such as Siemens/Fanuc/ABB/Schneider/Telemecanique and shall be accordance with DIN/IEC standards.	Vendor to confirm
7.8	Digital read out for X and Y axis.	Vendor to confirm
8.0	Safety Arrangements	
8.1	Machine shall have adequate and reliable safety interlocks/devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistakes.	Vendor to (S&C)
8.2	Detailed list of safety alarms/indications provided on machine shall be specified by the supplier	Vendor to (S&C)
8.3	All pipes, cables etc. on the machine shall be well supported and protected. These shall not create any hindrance to machine operator's movement for effective use of machine.	Vendor to confirm
8.4	Emergency switches at suitable locations as per International norms shall be provided	Vendor to (S&C)
9.0	Environmental Performance of the Machine: The Machine shall conform to following factors related to environment safety:	
9.1	Maximum noise level shall be 80 dB (A) at normal load condition, 1 m away from the machine with correction factor for background noise, if necessary. This will be measured as per international standards like DIN 45635-16 . Supplier to demonstrate compliance to noise level, if so required.	Vendor to confirm

S no	Technical Specification		Vendor's offer with Technical details
9.2	If any safety / environmental protection enclosure is required it shall be built in the machine by the vendor.	Vendor to confirm	
9.3	Paint of the machine shall be oil resistant and shall not peel off.	Vendor to confirm	
10.0	Tools for Erection, Operation & Maintenance		
10.1	Special 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. for operation and maintenance of the machine shall be supplied by the vendor. List of such tools shall be submitted with the offer.	Vendor to confirm	
11.0	Essential Accessories: Tooling		
11.1	All essential accessories shall be supplied with the machine. A list of all accessories shall be submitted with the offer.	Vendor to confirm	
12.0	Spare		
12.1	Complete parts manual. Itemized breakup list of mechanical, hydraulic, electrical & electronic and electronic spares used in 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, in addition to other recommended spares (Unit Price of each item of spare should be offered in the price bid)	Vendor to confirm	
12.2	Mechanical & Hydraulic Spares: All types of Valves, Pressure Switches, Transducers, Flow Switches, Filters, Seals, O-rings, Hydraulic Hoses etc.	Vendor to confirm	
12.3	Electrical & Electronic Spares: All types of Relays, Contactors, Proximity Switches, Limit switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch etc.	Vendor to confirm	
12.4	All types of spares for total machine and accessories should be available for at least 10 years after supply of the machine. If the machine or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & suppliers to enable BHEL to procure these in advance, if required.	Vendor to confirm	

S no	Technical Specification	Vendor's offer with Technical details
12.5	The complete list of spares for machine and accessories, along with specification / type / model, name & address of the spares supplier along with documentation, to be supplied with the machine.	Vendor to confirm
13.0	Documentation: Four sets of following documents (Hard copies) in English language should be supplied along with the machine	Vendor to confirm
13.1	Operating manuals of Machine	Vendor to confirm
13.2	Full details of Control system along with diagnostic/trouble shooting details, maintenance manuals for control system comprising of interface circuit, mounting instructions, trouble shooting, drive circuit diagrams, etc. Drawings for control schematics and electronic modules, electrical wiring, hydraulic system, Lubrication details, spare parts manual including their pictorial views as applicable showing each part identified by a number. All CNC concerned manuals like Installation manual, Connecting manual, Diagnostic manual, Parameter manual, programming manual PLC manual, circuit diagram & PLC ladder diagram, Interfacing manual, Complete software backup and hard copy of the PLC program also on CD; CNC machine data, setting data and machine alarms to be provided. Two sets of each of these are to be forwarded within six weeks from the date of placing the purchase order.	Vendor to confirm
13.3	Detailed Maintenance manual of machine with all drawings of machine assemblies/sub-assemblies/parts including Electrical / Pneumatic/ Hydraulic circuit diagrams and all assembly/ Sub Assembly Drawings shall be supplied with the parts list.	Vendor to confirm
13.4	Catalogues, O&M Manuals of all bought out items including drawings, wherever applicable should be provided by the vendor.	Vendor to confirm
13.5	Detailed specification of all rubber items and hydraulic/lube fittings	Vendor to confirm
13.6	Complete Master List of parts used in the machine shall be submitted by the vendor,	Vendor to confirm
13.7	Spare parts list	Vendor to confirm
13.8	One additional set of all the above documentation in soft copy	Vendor to confirm

S no	Technical Specification	Vendor's offer with Technical details
14.	Training	
14.1	Four BHEL Persons shall be trained at supplier's works for mutually agreed period in the area of (a) Electrical, Electronic, mechanical, hydraulics machine & other supplied equipment (b) Operation of the machine & other supplied equipment. Supplier to quote for man/week basis	Vendor to confirm
14.2	Training of BHEL machine operators in operation of complete machine & accessories etc. by the supplier's experts / engineers during their stay at BHEL works.	Vendor to confirm
14.3	One week supervision of independent operation of machine by BHEL after job prove out.	Vendor to confirm
14.4	Air-fare, boarding & lodging for the trainees shall be borne by BHEL.	Vendor to confirm
14.5	Competent, English speaking experts shall be arranged by the vendor for satisfactory & effective training of BHEL personnel.	Vendor to confirm
14.6	Vendor to quote for training duration on a per man day basis.	Vendor to confirm
15.	Erection & Commissioning	
15.1	Vendor shall submit the preliminary general layout drawing including control panel for getting BHEL's approval with in one month of date of release of LOI. Final layout drawing shall be submitted within 45 days of LOI. The vendor shall also indicate detailed procedure and specifications of grouting required for the machine which will be carried out by supplier.	Vendor to confirm
15.2	Supplier to take full responsibility for carrying out the erection, start up, testing of machine. Its control & all types of other supplied equipment, machining of test pieces etc. Service requirement like power, air & water shall be provided by BHEL at only one point as indicated by the supplier in their foundation/layout drawings. All material handling and other requirements like crane and helping personnel shall be arranged by the vendor. Details of these requirements shall be informed by the vendor in advance.	Vendor to confirm

S no	Technical Specification	Vendor's offer with	Technical details
15.3	Successful trial of the machine by supplier at BHEL on trial components shall be considered as part of commissioning. All tests as mentioned in Clause 17.0 (Machine Acceptance) shall form part of the commissioning activity.	Vendor to confirm	
15.4	Tools/Tackles and other necessary equipments required to carry out above activities shall be brought by the supplier.	Vendor to confirm	
15.5	Commissioning spares, required for commissioning of the machine within stipulated time, shall be brought by the supplier on returnable basis	Vendor to confirm	
15.6	Any portion of the machine, accessories and other supplied items where if paint has rubbed or peeled off during transit or erection should be repainted and merged with the original surrounding paint by the vendor, for this purpose. The vendor should supply sufficient quantity of touch-up paint of various colours of paints used.	Vendor to confirm	
15.7	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to confirm	
15.8	Charges, duration, terms & conditions for E&C should be furnished in detail along with the offer	Vendor to confirm	
16.0	Geometrical Accuracies		
16.1	The machine shall be tested for Geometrical Accuracy as per relevant ISO Standard or Equivalent Standard at supplier works	Vendor to confirm	
17.0	Machine Acceptance (Tests/Activities to be Performed & Demonstrated by the Vendor)		
17.1	Tests/Activities to be carried out at Vendor's works on the machine before dispatch		
17.1.1	The vendor shall inform the various standards (testing, measurements, motors, workmanship) applicable for this machine acceptance. Standards shall be Indian / International.	Vendor to confirm	
17.1.2	Data sheet of all machine parameters	Vendor to confirm	
17.1.3	Internal routine test report	Vendor to confirm	
17.1.4	Quality plan for final factory inspection to BHEL review.	Vendor to confirm	
17.1.5	The machine shall be tested for its full capacity at supplier works. Test piece shall be arranged by the supplier only.	Vendor to confirm	

S no	Technical Specification	Vendor's offer with Technical details
17.2	Tests/Activities to be carried out at BHEL works while commissioning the machine	
17.2.1	The machine shall be tested for its full capacity at BHEL works. BHEL will supply the trial components for testing at BHEL	Vendor to confirm
17.2.2	Demonstration of all features of the machine & accessories if any to the satisfaction of BHEL for efficient and effective use of the machine.	Vendor to confirm
18.0	Packing: Sea worthy & rigid packing for all items of complete machine & accessories to avoid any damage/loss in transit. When machine is despatched, all small loose items shall be suitably packed in boxes	Vendor to confirm
19.0	Guarantee: 24 months from the date of commissioning of the machine. Free replacement of any defective part or service with additional 12 months guarantee on replaced item.	Vendor to confirm
20.0	General	
20.1	Machine Model	Vendor to specify
20.2	Total connected load (kVA)	Vendor to specify
20.3	Floor area required (Length x Width x Height) for complete machine & accessories.	Vendor to specify
20.4	Painting of Machine / Electrical Panels shall be Apple green, to colour code RAL 6011 (polyurethane)	Vendor to confirm
20.5	Total weight of the machine	Vendor to specify
20.6	Weight of heaviest part of the machine	Vendor to specify
20.7	Weight of the heaviest assembly / sub-assembly of the Machine	Vendor to specify
20.8	Dimensions of largest part/ sub-assembly/ assembly of the machine	Vendor to specify