



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY NOTICE INVITING TENDER	Phone: +91 431 257 79 38 Fax : +91 431 252 00 31 Email : tvenkat@bheltry.co.in Web : www.bhel.com
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TWO PART BID Tender to be submitted in two Parts	Enquiry Number: 2851300030	Enquiry Date: 26.11.2013	Due date for submission of quotation: 30.12.2013
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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	Qty.	Delivery Required	Delivery Terms Required
10	CNC Hydraulic Press Brake (Capacity 640 Tons) as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1 No.	8 Months from the date of Purchase Order.	F.O.R, BHEL Stores, POWER EQUIPMENT FABRICATION PLANT, BHARAT HEAVY ELECTRICALS LIMITED, Mundipar- 441804, Sakoli Taluk, Bhandara District, Maharashtra State.

Important points to be taken care during submission of offer:-

1. Compliance Form No. BND/IMP/02 & BND/IND/02A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
2. EMD for this Tender will be Rs. 2,00,000.00/-
3. Delivery shall not exceed 8 months from the date of Purchase Order.
4. 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.
5. The time period required for Erection & Commissioning of the item shall be 1 month from the date of intimation from BHEL requesting supplier to depute Service Engineers about site readiness
6. All the technical documents should be submitted in duplicate.

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 "2851300030".

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**

Sr. Manager / Capital Equipment / MM

T. VENKATESWARAN
Senior Manager
Capital Equipment / MM
BHEL, Tiruchirappalli - 620 014.

CNC HYDRAULIC PRESS BRAKE (CAPACITY 640 TONS)**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 “ CNC HYDRAULIC PRESS BRAKE 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 ‘CNC HYDRAULIC PRESS BRAKE MACHINE’ having all the following features:</p> <ol style="list-style-type: none"> 1. CNC hydraulic press brake machines of min. capacity 620 tons x 4100mm in length 2. CNC Dynamic crowning, which can provide crowning effect at any location of the bed. 3. Daylight min. 900mm <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 (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.</p>	

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.	
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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 CNC Hydraulic Press Brake have been supplied in the past.	
2.2	Specify details of CNC Hydraulic Press Brake 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	Tonnage capacity of machine		
5.2	Bed length		
5.3	Accuracy of bending in full length job of 16mm thick plate		
5.4	Ram tolerance		
5.5	Type and details of crowning		
5.6	Backgauge description		
5.7	Make of CNC control system		
5.8	CNC control system details		
5.9	CNC programming software details		
5.10	Hydraulic Punch mounting		
5.11	Single V die mounting system		
5.12	Front sheet holding and squaring system		
5.13	Daylight		
5.14	Stroke		
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 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 **CNC press brake, capacity 640Tons x 4.1M** 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: Sheet and plate forming and bending	Vendor to confirm	
1.2	Work Piece Material: Carbon Steel, Alloy Steel. Stainless steel and other materials which can be formed in the capacity of machine	Vendor to confirm	

S no	Technical Specification		Vendor's offer with Technical details
2.0	Specification		
2.1	MACHINE CONFIGURATION: A min. 640 ton capacity high precision CNC hydraulic Down stroke Press Brake machine with filled oil, bending tools, voltage stabilizer, CNC controller, cooler and hydraulic oil chiller unit and material supporting system is required for the precision bending of all types of steel/metal sheet and plates.	Vendor to confirm and explain the offered machine in detail	
2.2	CONSTRUCTION: Vendor to furnish details of material, hardness & constructional details including explanatory drawings of various components/ and assemblies of the whole machine; method of operation and control. Necessary lifting hook shall be provided for easy and safe transportation of machine from place to place within the shop floor.	Vendor to confirm and explain the offered machine in detail	
2.3	CAPACITY AND SIZE		
2.3.1	Machine tonnage capacity: min. 640 Tons	Vendor to confirm and specify (C&S)	
2.3.2	Working Length: min. 4100 mm	Vendor to (C&S)	
2.3.3	Minimum distance inside the frame: min. 3500 mm	Vendor to (C&S)	
2.3.4	Working height: 950 to 1000mm	Vendor to (C&S)	
2.3.5	Gap through side frames (throat) : min. 600mm	Vendor to (C&S)	
2.3.6	Reqd. daylight between table and ram: min. 950mm	Vendor to (C&S)	
2.3.7	Ram Stroke: min. 650 mm	Vendor to (C&S)	
2.3.8	Fast approach speed of ram: min. 100mm/sec.	Vendor to (C&S)	
2.3.9	Working speed of ram: min. 1-10 mm/sec	Vendor to (C&S)	

2.3.10	Return speed of ram: min. 90 mm/sec.	Vendor to (C&S)	
2.3.11	Allowed tolerance in ram axis movement: min +/- 0.01mm	Vendor to (C&S)	
2.3.12	Extra heavy duty backgauge. Backstop range of X1 and X2 shall be min. 700mm with sheet supporting type and angular fitment type fingers. 1100 mm with some additional support.	Vendor to (C&S)	
2.3.13	Backstop speed: min. 500mm/sec	Vendor to (C&S)	
2.3.14	Positioning accuracy of X-axis : min. +/- 0.02mm	Vendor to (C&S)	
2.3.15	Repeatability of backgauge: min. +/- 0.01mm	Vendor to (C&S)	
2.3.16	Adjustment speed of Z1 and Z2: min. 1000 mm/sec.	Vendor to (C&S)	
2.3.17	Height adjustment of R1 and R2: Manual 200 mm	Vendor to (C&S)	
2.3.18	Front sheet/plate supporting steel arms : Shall have 4 nos. min. 1.25 M long fitted with ball transfer unit having balls of min. 32mm diameter for the easy movement of the plates, fitted with scale, fully adjustable in vertical and horizontal directions with squaring facility and shall have swinging plate stoppers. The arms shall move on linear guides fitted on the front side of lower beam and shall be easily removable. Ample length of linear guides on both ends to allow parking of arms at sides.	Vendor to (C&S)	
2.3.19	Bending tolerance: +/- 20° in full length of job.	Vendor to (C&S)	
2.3.20	Method of tool clamping shall be Quick tool changing and manual clamping method for punches and dies, shall not require any manual interference for the exact alignment.	Vendor to (C&S)	
2.3.21	Double guiding system for ram at both ends	Vendor to (C&S)	
2.3.22	Temperature caused frame deflection compensation system	Vendor to (C&S)	
2.3.23	Automatic side frame deflection compensation system	Vendor to (C&S)	

2.3.24	Hardened wearing plate for upper and rear side of ram for clamping of punches.	Vendor to (C&S)	
2.3.25	Minimum allowable length of job where machine can develop full tonnage without causing any mechanical damage to machine parts or tools shall be specified.	Vendor to specify	
2.3.26	The bed shall have provision for the fitting and locking of single V dies and multiple V die block.	Vendor to (C&S)	
	CNC System		
2.3.27	No. of axes to be controlled : min. 8 (X1, X2, R, Z1, Z2, Y1, Y2, Crowning)	Vendor to (C&S)	
2.3.28	Display unit: min. 22” colour touch screen zooming facility	Vendor to confirm	
2.3.29	CNC System: Open Industrial control system with built in Bending software. CNC systems from any reputed company like Siemens, Fanuc, Delem, Cybele, Bystronic, Ursviken or LVD with their axes motors/drives will be preferred. Scales and encoders should be of Heidenhein make. A copy of the bending software is to be loaded in BHEL server so that it can be used by the engineering department to simulate the drawings of the components to check the possibility of the bending before freezing the design. Can be connected, operated and communicated with the machine through LAN. Facility to store the programs directly in the server from the machine through LAN. If hard disc is fitted in the CNC system then spare hard disc with complete backup to be provided	Vendor to (C&S)	
	Capabilities of CNC System		
2.3.30	The system shall have the features like capability to program the bends, calculate and determine the bending sequence, automatic adjustment for the bending allowance as per the empirical values already defined in the software, automatic adjustment of all the required axes for a bend. Contour programming. Stopping of machine if the plate is of different size than the programmed.	Vendor to (C&S)	
2.3.31	System shall have soft keys for the selection of specific operations on each display.	Vendor to (C&S)	
2.3.32	System shall show all CNC related and machine problems in plain English language.	Vendor to (C&S)	
2.3.33	It shall be possible to view the list of programs, list of tooling programmed, list of tooling used in the selected program.	Vendor to (C&S)	

2.3.34	The system shall have all the features like stroke counters, time study for each job, machine run hours, power used, job count etc.	Vendor to specify	
2.3.35	Feature of 2D and 3D simulation for bends both during checking as well as during production. Graphic display of full processing zone etc. in different colours, Zooming facility.	Vendor to (C&S)	
2.3.36	Latest drive unit to load or to copy programs. LAN connectivity for all system and software related requirements.	Vendor to (C&S)	
2.3.37	New Tools shall be programmable and understood by the system.	Vendor to (C&S)	
2.3.38	Any latest system that can be used to check the angle of the bend and send signals to the machine to reset the settings as per actual bend requirements. (optional)	Vendor to specify	
2.3.39	CNC system which gives automatic tool protection system.	Vendor to (C&S)	
2.3.40	Anti-crowning mechanism: CNC dynamic hydraulic crowning control system. The mechanism shall be able to provide crowning at any required location of the bed.	Vendor to (C&S)	
	Tooling		
2.3.41	High precision, laser/induction hardened and precision ground, segmented tooling with strength of min. 250 tons per meter length suitable for thick plate bending. The segments shall be in sizes of 515mm and 1030mm.	Vendor to (C&S)	
2.3.42	The punches: Punches shall be min. 275 mm in height. The tonnage capacity shall be min. 250 tons per meter. Straight punch with radius bits of 5, 6, 8, 10, 12, 15, 20 mm shall be included in the scope of supply.	Vendor to (C&S)	
2.3.43	High height single 'V' dies of V-width 40, 60, 75, 100, 125, 160, 200 and 250 mm. shall be included in the scope. The dies shall also be segmental to suit punch lengths.	Vendor to (C&S)	
2.3.44	Tool Holding system: The Punch holder shall be such that the punches can be fitted on both the sides of the ram. A clear scale shall be fitted on the ram and the table bed to assist the fitting of punches and dies. Manual clamping of punches and dies.	Vendor to (C&S)	
2.3.45	Full length hardened wearing plate shall be fitted for supporting the punches at ram to avoid any damage to ram seat.	Vendor to (C&S)	

3.0	Hydraulics: The hydraulic power pack with control valves, proportional valves and all hydraulic items shall of Rexroth/Yukan/Hoerbiger only First filling of all required Oils & Greases etc. to be supplied by vendor. Indigenous (Indian) source or Indian equivalent and specifications of oils/ greases are also to be provided by the vendor.	Vendor to confirm	
4.0	Lubrication		
4.1	Lubrication shall be of life-time-lubricated type wherever possible. Other lubrication points shall be of automatic type. Details shall be submitted along with Lubrication chart.	Vendor to confirm	
4.2	Centralized auto Lubrication shall be offered with metering cartridges and necessary electrical interlock.	Vendor to confirm	
5.0	Electrical		
5.1	The power supply available in BHEL is 415 V ± 10%, 50 Hz ± 3 Hz, 3 Phase AC (3 wire system without neutral) . The supplier shall provide Power Cable of 15 m length with suitable plug top and flexible cable protection cover and properly earthed.	Vendor to confirm	
5.2	All electrical & electronic control cabinets & panels should be dust and vermin proof	Vendor to confirm	
5.3	All electrical components in the cabinets should be mounted on DIN Rail	Vendor to confirm	
5.4	All electrical / electronic components should have compatibility with Indian equivalents	Vendor to confirm	
5.5	Motors shall conform to IEC or Indian Standards	Vendor to confirm	
5.6	All cables and cable trays required for the machine should be included in the offer.	Vendor to confirm	
5.7	Vendor should ensure that the machine and its peripherals are properly earthed.	Vendor to confirm	
5.8	The electrical components used shall be from reputed international make such as Siemens / Telemecanique / Merlin Genn / GE/ ABB and shall be in accordance with DIN/IEC Standards .	Vendor to confirm	
6.0	Safety Arrangements: Following safety features in addition to other standard safety features should be provided on the machine:		
6.1	Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to malfunctioning or mistakes.	Vendor to confirm	

6.2	A detailed list of safety alarms / indications provided on machine should be submitted by the supplier.	Vendor to confirm	
6.3	Emergency Switches at suitable locations as per International Norms should be provided.	Vendor to confirm	
7.0	Environmental Performance of the Machine: The Machine shall conform to following factors related to environment safety:		
7.1	Maximum noise level shall be 80 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 . Supplier to demonstrate compliance to noise level, if so required.	Vendor to confirm	
7.2	If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	Vendor to confirm	
7.3	Machine shall be capable of working in Indian conditions where the workshop temperature may go upto 45degrees C and RH above 95%. Suitable protections/devices shall be included in the scope to ensure that the machine shall work in these conditions.	Vendor to confirm	
7.4	Paint of the machine should be oil resistant and should not peel off.	Vendor to confirm	
8.0	Tools for Erection, Operation & Maintenance		
8.1	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	
9.0	Essential Accessories: Tooling		
9.1	All essential accessories shall be supplied with the machine. A list of all accessories shall be submitted with the offer.	Vendor to offer	
10.0	Spare		
10.1	Itemized breakup list of mechanical, hydraulic, electrical & electronic and CNC 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 specify	
10.2	Mechanical & Hydraulic Spares: All types of Valves, Pressure Switches, Transducers, Flow	Vendor to specify	

	Switches, Filters, Seals, O-rings, Hydraulic Hoses etc.		
10.3	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 specify	
10.4	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 specify	
10.5	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	
11.0	Documentation: Four sets of following documents (Hard copies) in English language should be supplied along with the machine	Vendor to confirm	
11.1	Operating manuals of Machine	Vendor to confirm	
11.2	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, pneumatic and 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	
11.3	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	

11.4	Catalogues, O&M Manuals of all bought out items including drawings, wherever applicable should be provided by the vendor.	Vendor to confirm	
11.5	Detailed specification of all rubber items and hydraulic/tube fittings	Vendor to confirm	
11.6	Complete Master List of parts used in the machine shall be submitted by the vendor,	Vendor to confirm	
11.7	Spare parts list		
11.8	One additional set of all the above documentation on CD ROM/HD	Vendor to confirm	
12.0	Training		
	Four BHEL Persons shall be trained at supplier's work for mutually agreed period in the area of (a) CNC Part Programming/ Technology, Use of all CNC Features, Programming for Measuring Systems & supplied accessories etc. (b) Electrical, Electronic & CNC maintenance for machine & other supplied equipments (c) Mechanical & Hydraulic maintenance of the machine & other supplied equipments (d) Operation of the machine & other supplied equipments. (e) for advanced features and specialised training if so required by BHEL Supplier to quote for man/week basis	Vendor to agree	
12.2	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 agree	
12.3	Two weeks supervision of independent operation of machine by BHEL after job prove out.	Vendor to agree	
12.4	Air-fare, boarding & lodging for the trainees shall be borne by BHEL.	Vendor to note	
12.5	Competent, English speaking experts shall be arranged by the vendor for satisfactory & effective training of BHEL personnel.	Vendor to agree	
12.6	Vendor to quote for training duration on a per man day basis.	Vendor to note	
13.0	Erection & Commissioning		
13.1	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. Other requirements like crane and helping personnel shall be arranged by the vendor. Details of these requirements should be informed by the vendor in advance.	Vendor to note	

13.2	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 15.0 (Machine Acceptance) shall form part of the commissioning activity.	Vendor to note	
13.3	Tools/Tackles and other necessary equipments required to carry out above activities should be brought by the supplier.	Vendor to note	
13.4	Commissioning spares, required for commissioning of the machine within stipulated time, shall be brought by the supplier on returnable basis	Vendor to note	
13.5	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 note	
13.6	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to submit	
13.7	Charges, duration, terms & conditions for E&C should be furnished in detail along with the offer	Vendor to submit	
14.0	Geometrical Accuracies		
14.1	The machine shall be tested for Geometrical Accuracy as per relevant ISO Standard or Equivalent Standard at supplier works	Vendor to specify and confirm	
15.0	Machine Acceptance (Tests/Activities to be Performed & Demonstrated by the Vendor)	Vendor to confirm	
15.1	Tests/Activities to be carried out at Vendor's works on the machine before dispatch		
15.1.1	The vendor shall inform the various standards (testing, measurements, motors, workmanship) applicable for this machine acceptance. Standards shall be Indian / International.	Vendor to furnish	
15.1.2	Data sheet of all machine parameters	Vendor to submit	
15.1.3	Internal routine test report	Vendor to submit	
15.1.4	Quality plan for final factory inspection to BHEL review.	Vendor to submit	
15.1.5	The machine should be tested for its full capacity at supplier works. Test piece shall be arranged by the supplier only.	Vendor to accept	
15.2	Tests/Activities to be carried out at BHEL works while commissioning the machine		
15.2.1	The machine should be tested for its full capacity at BHEL works. BHEL will supply the trial components for testing at BHEL.	Vendor to accept	

15.2.2	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 accept	
16.0	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 accept	
17.0	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 accept	
18.0	General		
18.1	Machine Model	Vendor to furnish	
18.2	Total connected load (kVA)	Vendor to furnish	
18.3	Floor area required (Length \times Width \times Height) for complete machine & accessories.	Vendor to furnish	
18.4	Painting of Machine / Electrical Panels to RAL 6011, PU Apple green	Vendor to note	
18.5	Total weight of the machine	Vendor to furnish	
18.6	Weight of heaviest part of the machine	Vendor to furnish	
18.7	Weight of the heaviest assembly / sub-assembly of the Machine	Vendor to furnish	
18.8	Dimensions of largest part/ sub-assembly/ assembly of the machine	Vendor to furnish	
18.9	Detailed catalogues, sketch/ photographs of the m/c and accessories/attachments should be submitted with the offer.	Vendor to submit	
18.10	Hydraulic Pneumatic & oil piping should be preferably metallic except places where flexible piping is essential. All the pipes required for the same shall be included in the standard scope of the machine.	Vendor to note	