



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

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Email : tvenkat@bheltry.co.in

Web : www.bhel.com

TWO PART BID

Enquiry
Number:

Enquiry
Date:

Due date for submission
of quotation:

Tender to be submitted in two Parts

2631300106

05.09.2013

10.10.2013

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity
10	Universal Milling Machine as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1.00 No

Important points to be taken care during submission of offer

1. Delivery required 5 months from the date of purchase order.
2. EMD for this Tender will be (INR) : 40,000.00
3. Checklist Nos. TRY/IMP/03 and TRY/IND/03A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
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.

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 "2631300106".

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

PART A
QUALIFYING CRITERIA FOR THE SUPPLY OF
UNIVERSAL MILLING MACHINE

SECTION – I: QUALIFYING CRITERIA

The BIDDER/VENDOR has to compulsorily meet the following requirements to get Qualified for submitting an offer for **UNIVERSAL MILLING MACHINE**.

S. No.	REQUIREMENTS	VENDOR'S RESPONSE
1.0	The BIDDER shall have a minimum of THREE years of Continuous experience in the field of Design, manufacturing and supply of UNIVERSAL MILLING MACHINES .	
2.0	<p>Only those vendors, who have supplied and commissioned at least THREE UNIVERSAL MILLING MACHINES in the past five years (as on the date of opening of Tender) and such machine is presently working satisfactorily for more than one year after commissioning should quote.</p> <p>2.1The vendor should submit the following information where similar machine have been supplied, for qualification of their offer.</p> <p>2.2 Name and postal address of the customer/company where similar machine is installed.</p> <p>2.3 Name and designation of the contact person of the customer.</p> <p>2.4Phone, FAX no. and email address of the contact person of the customer.</p> <p>2.5One performance certificate from the customer regarding satisfactory performance of machine supplied to them. The certificate should be current and on the letterhead of the customer. It should contain information regarding model/size of machine, year of commissioning and performance of M/c.</p>	
3.0	BHEL reserves the right to verify the information provided by vendors. In case the information provided by vendors is found to be false/incorrect, the offer shall be rejected.	

SECTION – II

The **BIDDER / VENDOR** is requested to provide the following information.

S. No.	PARTICULARS	VENDOR'S RESPONSE
4.0	Profile of the company bringing-out the years of experience of the BIDDER in the field of design, manufacturing, integration and supply of UNIVERSAL MILLING MACHINE	
5.0	Number of UNIVERSAL MILLING MACHINE supplied, installed and commissioned till date (with details on machine type / model, configuration, customer and quality)	
6.0	Year of supply of latest, UNIVERSAL MILLING MACHINE	
7.0	Details on International Standards / Design Process Codes followed in Design and Manufacture of the Equipment.	
8.0	Details on SERVICE-AFTER-SALES set-up in India including the address of agent/service centers in India. Competency and experience of the local service agency are to be provided.	
9.0	Any additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

SECTION – III

The BIDDER to Note:

S.No.	REQUIREMENTS	VENDOR's RESPONSE
10.0	The BIDDER / VENDOR shall submit the offer in TWO PARTS - Technical [with PART A & PART B]& Commercial and Price Bid.	
11.0	The technical Offer shall be supported by Product Catalogues and description.	
12.0	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 mere 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement [without any supporting technical write-ups, photos and datasheets] may lead to disqualification of the Technical Offer.	
13.0	The BIDDER / VENDOR shall assure a continuous support for SPARES and SERVICE for five Years, from the date of commissioning of the equipment at BHEL Works.	
14.0	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.	
15.0	Soft copy if any, giving the salient features of the proposed machine with all sub-systems and auxiliaries, and /or showing live-demo of an existing and working machine of similar configuration and capacity may be provided.	
16.0	In case of preliminary qualification of the offer, on technical grounds, the BIDDER may be called for a detailed technical discussion on the original technical offer at BHEL Works, with a sufficient notice period.	

PART-B TECHNICAL SPECIFICATION OF UNIVERSAL MILLING MACHINE

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDER'S OFFER with Technical Details
1.0	PURPOSE & WORK PIECE MATERIAL		
1.1	PURPOSE: The machine is intended for machining of ferrous, non-ferrous, casting, forging, etc. And test samples preparation.		
2.0	CONFIGURATION : Universal Milling Machine		
3.0	Construction : The machine should have a rigid construction suitable for heavy stock removal	Vendor to confirm	
3.1	Machine should be metric execution	Vendor to confirm	
4.0	TABLE		
4.1	Size of Table (LxB):Approx...2000x300mm	Vendor to specify	
4.2	Work piece Clamping area :Min.1600mm x300mm	Vendor to confirm	
4.3	Max.Weight of work-piece:400kg.	Vendor to confirm	
4.4	Details of T-Slots (no/size/pitch):	Vendor to specify	
4.5	Power operated traverses- Longitudinal -950 mm or more Transverse/cross -300 mm or more Vertical -350 mm or more	Vendor to specify	
4.6	Load carrying capacity of table	Vendor to specify	

Universal Milling Machine Specification

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details
5.0	MILLING SPINDLE	
5.1	Spindle Speed range	40-1800 RPM
5.2	Taper in spindle:	ISO 50
5.3	Spindle motor power (AC continuous Duty S1): The spindle motor shall be of reputed make acceptable to BHEL (Details of model ,make,type,etc. to be finished in the offer	Min.7.5 KW Vendor to specify
5.4	No. of speed ranges :around18	Vendor to Specify
5.5	Min/Max/ distance spindle lower face to table top- 50 / 400	Vendor to Specify
5.6	Swivelling of milling head	Vendor to Specify
6.0	FEEDS	Vendor to Specify
6.1	Rapid feeds –Longitudinal, Cross& Vertical	Vendor to Specify
6.2	Cutting Feed range Longitudinal & Cross travel	Vendor to Specify
6.3	Feed drivers shall be through AC servo motor. Vendor to furnish details of the make ,rating and model no. of the AC servo motors and AC servo Drivers with the offer	Vendor to Specify and furnish the details
6.4	Details of the feed mechanism for the longitudinal,cross and vertical movements to be furnished with the offer	Vendor to furnish
6.5	DRO with scales shall be provided for the longitudinal cross and vertical axes the make shall be HEIDENHAIN/FAGOR/ELECTRONIC	Vendor to Specify and furnish the details

Universal Milling Machine Specification

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details
7.0	MACHINE LIGHTS	
7.1	Machine Lights for sufficient illumination should be provided for clear visibility.	Vendor to Confirm
7.2	Light fittings,consumables,adapters/receptacles should have compatibility with Indian equivalent	Vendor to Confirm
8.0	Lubrication System	
8.1	Lubrication system preferably centralised for lubrication of all rotating & moving parts, guide ways, lead screws, gears, spindle, etc...	Vendor to Specify
8.2	First filling of all required Oil&Grease, etc... Should be supplied by vendor	Vendor to Specify
9.0	COOLANT SYSTEM:	
9.1	Re-circulating flood coolant system with filtration to filter chips and swarf	Vendor to specify
9.2	Coolant collection and recirculation system should be leak proof to avoid spillage on shop floor	Vendor to Confirm
9.3	Coolant pump & motor details are to be submitted with the offer	Vendor to specify / submit
9.4	Coolant Tank Capacity	Vendor to specify
10.0	ELECTRICAL	
10.1	415V ± 10 %, 50 HZ,3 Phase AC (3wire system without neutral) Power supply will,as per layout recommended by vendor.All types of cables, connection, 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. Requirement of grounding /earthing with required material details is to be informed by vendor well in advance so that the same could be incorporated during construction of foundation.	Vendor to Confirm

Universal Milling Machine Specification

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details
10.2	Tropicalisation: All electrical /electronic equipment shall be tropicalized	Vendor to Confirm
10.3	All electrical & electronic control cabinets & panels should be dust and drum vermin proof and shall have IP 54 protection	Vendor to Confirm
10.4	All electrical components in the cabinets should be mounted on DIN Rail	Vendor to Confirm
10.5	Vendor should ensure proper earthing for the machine and its peripherals	Vendor to Confirm
11.0	SAFETY ARRANGEMENTS:	
11.1	Machine should have adequate and reliable safety interlocks or devices to avoid damages to the machine, work piece and the operator due to the malfunctioning or mistake.	Vendor to Confirm
11.2	All the pipes, cables, etc. on the machine should be well supported and protected . These should not create any hindrance to machine operator's movement for effective use of the machine	Vendor to Confirm
11.3	All the rotating parts used on the machine should be statically & dynamically balanced to avoid undue vibrations	Vendor to Confirm
11.4	Emergency Switches at suitable locations as per international norms should be provided	Vendor to Confirm
12.0	ENVIRONMENTAL PERFORMANCE OF THE MACHINE	Vendor to Confirm
12.1	Maximum noise level shall not exceed 85 dB(A) at normal load condition, 1 metre away from the machine	Vendor to Confirm
12.2	There shall not be any emissions from the machine except fumes of cutting fluid during machining	Vendor to Confirm

Universal Milling Machine Specification

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details
12.3	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	Vendor to Confirm
12.4	No hazardous chemical shall be used in the machine	Vendor to Confirm
12.5	If any safety / environmental production enclosure is required it should be built in the machine by the vendor	Vendor to Confirm
12.6	Paint of the machine should be oil/coolant resistant and should not peel off and mix up with coolant	Vendor to Confirm
13.0	TOOLINGS	
13.1	Adaptors for milling : The vendor shall supply the required milling adaptors (Screwed end)	Vendor to Confirm
14.0	LEVELLING &ANCHORING SYSTEM	
14.1	Complete levelling and anchoring system including foundation bolts, anchoring steel materials, fixators, levelling shoes, etc. should be supplied.	Vendor to Confirm
15.0	TOOLS FOR OPERATION & MAINTENANCE	
15.1	Necessary tools like torque wrench, spanners, keys, grease guns, etc. for operation and maintenance of the machine should be supplied. List of such tools should be submitted along with offer.	Vendor to Confirm Vendor to Submit
16.0	ACCESSORIES	
16.1	MACHINE VICE: QTY. 1No. 1. Type: Heavy Duty 2. Minimum opening of jaws: 200 mm	Vendor to specify

Universal Milling Machine Specification

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDER'S OFFER with Technical Details
16.2	Vertical milling head capable of swivelling to 45° on both sides shall be provided	Vendor to Confirm	
17.0	SPARES:		
17.1	<p>1) The vendor shall recommend and submit list of spares required for the machine for one year of trouble free operation on two shifts/day basis under headings as</p> <p>a) Mechanical spares and</p> <p>b) Electrical & electronic spares</p> <p>2)Un-priced list of spares with quantities ,specified at a&b above, should be submitted with the technical offer</p>	Vendor to Submit	
17.2	All types of spares for the machine and its accessories should be available for minimum ten years, after supply of the machine. If any spares or controls are likely to become obsolete details of the same to be provided to enable BHEL to procure them in advance	Vendor to Confirm	
17.3	In case of ordering, a complete list of spares for the machine and its accessories along with spares specification /type/model and name &address of the spares supplier shall be submitted along with documentation while supplying the machine.	Vendor to Confirm	
18.0	DOCUMENTATION:		Vendor to Confirm
18.1	Along with the offer the vendor should furnish a dimensional lay-out drawing of the machine and its accessories.	Vendor to Confirm	
18.2	3 sets of following documents (Hard copies) in English language should be supplied along with the machine.	Vendor to Confirm	

Universal Milling Machine Specification

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details
18.2.1	Operating manuals of machine	Vendor to Confirm
18.2.2	Detailed maintenance manual of machine with all drawings of machine assemblies /sub-assemblies /parts including electrical /lubrication /Coolant circuit diagrams	Vendor to Confirm
18.2.3	Catalogues/O&M manuals of all bought out items	Vendor to Confirm
18.2.4	Detailed specification of all fittings	Vendor to Confirm
18.2.5	Bearings: Make & Specification for all bearings used in the machine	Vendor to Confirm
18.2.6	PLC program printouts (ladder diagram Statements list) with comments in English .- if M/C incorporates PLC controls	Vendor to Confirm
18.2.7	PLC program & PLC data on CD .- incorporates PLC controls	Vendor to Confirm
18.2.8	The vendor shall submit complete Master list of spares used in the machine	Vendor to Confirm
18.3	One additional set of all the above documentation on CD ROM should be provided.	Vendor to Confirm
19.0	INSPECTION & TRAINING:	Vendor to Confirm
19.1	<p>The machine shall be offered for inspection by BHEL engineers at supplier works.</p> <ul style="list-style-type: none"> a) Trial machining shall be demonstrated to show all the features of the machine. b) The vendor shall train Two BHEL Engineers in operation and maintenance (mechanical, electrical / electronic) of the machine at vendors works for a period not exceeding 2 working days 	Vendor to Confirm

Universal Milling Machine Specification

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details
19.2	Travel fare, boarding & lodging for the BHEL Engineers shall be borne by BHEL	
19.3	The vendor shall impart training to BHEL's machine operators and maintenance crew in operation and maintenance after commissioning of the machine at BHEL works.	Vendor to Confirm
19.4	Competent ,English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHEL personnel	Vendor to Confirm
19.5	Vendor to quote on the basis of per man per day for training at vendor's works	Vendor to specify
20.0	FOUNDATION :	
20.1	Vendor shall submit the preliminary layout drawing for getting BHEL's approval within one month from the date of Letter Of Intent (LOI). Vendor shall submit complete foundation details including static and dynamic loads within three month after getting BHEL's approval. The layout should consist of all requirements pertaining to complete machine including space requirement for accessories. BHEL shall construct complete foundation for the machine.	Vendor to Confirm
20.2	The vendor shall indicate detailed specification of grouting compound and Grouting procedure, etc. for foundation bolts of the machine.	Vendor to specify

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details
21.0	ERECTION& COMMISSIONING:	
21.1	<ol style="list-style-type: none"> 1. Supplier to take full responsibility for supervision of the erection. Start up, testing of machine. its control system &all types of other supplied equipment's. Machining of test pieces, etc. are the responsibilities of the supplier. 2. Service requirements like power will be provided at one point to be indicated by supplier in their foundation /layout drawings. 3. Other requirements like crane and helping personnel shall be provided by BHEL, free of cost. 	Vendor to confirm
21.2	Tools, Tackles, Test mandrels, instruments and other necessary equipment required to carry out all above activities should be brought by supplier.	Vendor to confirm
21.3	The supplier shall arrange commissioning spares required for commissioning of the machine.	Vendor to confirm
22.0	ACCURACY TESTS:	
22.1	GEOMETRICAL ACCURACY:	
22.2	Geometrical accuracy tests shall be in accordance with manufacture`s standard. Detailed test charts for the same, clearly showing the accuracies to be achieved on the machine, shall also be submitted with the offer.	Vendor to confirm
22.3	All above accuracies are to be demonstrated to BHEL engineers during pre-acceptance tests at supplier`s works and during commissioning at BHEL Works.	Vendor to confirm
23.0	AMBIENT CONDITIONS &THERMAL SATHIABILITY	

Universal Milling Machine Specification

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details
23.1	Power supply :AC 415 V ± 10% Frequency :50 Hz ±3HZ Phases:3Phase 3 wire system Compressed air supply: 60-70 psi Ambient Temperature :max 45 °C Relative Humidity=85% Vendor to confirm that machine is suitable for above conditions.	Vendor to confirm
23.2	Weather conditions are tropical. Atmosphere may be dust laden during some part of the year. Machine will be installed in the normal shop floor Condition. Vendor to confirm that machine is suitable for above.	Vendor to Confirm
23.3	Thermal Stability of the machine shall be good enough to withstand the specified ambient Conditions in order to meet the accuracy requirements of BHEL Components. Vendor to confirm for trouble free operation of the machine.	Vendor to Confirm
23.4	The Vendor should confirm that the machine and its accessories is suitable for continuous operation and it's full capacity for 24 hours a day and 7 days a week throughout.	Vendor to Confirm
24.0	MACHINE ACCEPTANCE : (Tests/Activities should be performed by Vendor)	
24.1	Tests/Activities should be carried out at Suppliers Works on the machine before despatch:	
24.2	Geometrical accuracies as per test chart of supplier	

Universal Milling Machine Specification

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details	Clause
24.3	The machine should be tested for continuous running of 24 hrs. If any breakdown occurs during this test, the test should be repeated for 24 hours from restarting.	Vendor to Confirm	
24.4	Demonstration of all features of the machine, Control system & accessories.	Vendor to Confirm	
24.5	Machining of test piece. Vendor to supply test piece and tooling for its machining.	Vendor to Confirm	
24.6	Tests/Activities should be carried out at BHEL works while commissioning the machine:		
24.7	Geometrical accuracies as per test chart of supplier.	Vendor to Confirm	
24.8	Demonstration of all features of the machine, Control system & accessories to the satisfaction of BHEL for efficient and effective use of the machine.	Vendor to Confirm	
24.9	Machining test piece: Test pieces and tooling for its machining shall be arranged by BHEL.	Vendor to Confirm	
25.0	PACKING		
25.1	Rigid packing for all the items of complete Machine, all accessories and other supplied items to avoid any damage/loss in transit. When machine is dispatched in containers, all small loose items shall be suitably packed in boxes.	Vendor to Specify	
Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDER'S OFFER with Technical Details	Clause
26.0	GUARANTEE		

Universal Milling Machine Specification

26.1	Equipment shall be guaranteed for its performance for a minimum period of 12 months from the date of commissioning or 18 months from the date of supply whichever is earlier.		
27.0	GENERAL		
27.1	Machine model :	Vendor to specify	
27.2	Total Connected load (KVA)	Vendor to specify	
27.3	Floor area required (L X W X H) for complete machine & accessories	Vendor to specify	
27.4	Make bought out items to be furnished to BHEL for approval.	Vendor to specify	
27.5	Painting of Machine / Electrical panels : SYNTHETIC ENAMEL GLOSSY FINISH	Vendor to specify / confirm	
27.6	Total Weight of the machine	Vendor to Specify	
27.7	Weight of the Heaviest part of the machine	Vendor to Specify	
27.8	Weight of the heaviest assembly / Sub assembly of the machine	Vendor to Specify	
27.9	Dimensions of largest part / Sub assembly / Assembly of the machine	Vendor to Specify	