



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 7421

Email : vkaruna@bhel.in

Web : www.bhel.com

TWO PART BID

Tender to be submitted in two Parts

Enquiry
Number:

2631900044

Enquiry
Date:

14.10.2019

Due date for submission
of quotation:

08.11.2019

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	(Indigenous Vendors) Matl. will be Delivered to
10	Automatic Grinding and Polishing machine for metallographic sample preparation as per the technical specification & commercial conditions applicable (to be downloaded from web site (http://www.bhel.com) http://www.bhel.com/tender/tender_home.php or https://eprocure.gov.in/epublish/app)	1.00 No.	FOR, BHEL Stores, High Pressure Boiler Plant, Tiruchirappalli - 620014

Important points to be taken care during submission of offer

1. Material shall be delivered to: Indigenous Vendors: As stated above.
Foreign Vendors: CFR Chennai Seaport / CPT Chennai Airport
2. Delivery required 3 Months including PDI from the date of purchase order.
3. Erection & Commissioning period required 5 Week from the date of intimation by BHEL to vendor for deputation of their Engineers for E&C.
4. EMD for this Tender will be (not less than): INR 1,00,000/-
5. Compliance Form Nos.: TRY/IND/06 to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
6. 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>) http://www.bhel.com/tender/tender_home.php or from the Government tender website <https://eprocure.gov.in/epublish/app> under above Enquiry reference.

(This is not an E-tender, please submit your offer in hard copies)

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

V. Karunakaran 14/10/19.
DGM / Capital Equipment / MM

Automatic Grinding and Polishing machine for metallographic sample preparation, Qty. 1 no. Part A - Qualifying Criteria evaluation		Bidder's response
S.No	Requirements	
1	QUALIFYING CRITERIA	
1.1	Bidder/ OEM must have manufactured, supplied and commissioned at least ONE Automatic grinding and polishing machine are eligible to quote.	
1.2	Bidder has to submit at least ONE Performance certificate from their customer (end user), for satisfactory performance of the Automatic Grinding and Polishing machine, the model quoted for this tender, meeting the following conditions: a. The Equipment must have been supplied within the last five years as on the first date of tender opening. b. The Equipment must have performed satisfactorily for at least one year during this period. For obtaining the performance certificate, a suggestive format is provided at the end of part-A.	
1.3	PO document for the above mentioned supplied equipment to be enclosed.	
1.4	BHEL reserves the right to verify the information provided by the Bidder. In case the information provided to found to be false/ incorrect, the offer is liable for rejection.	
2	INFORMATION TO BE PROVIDED BY BIDDER	
2.1	Bidder shall provide contact detail(phone no &email id including the address of his Agents/ Service Center in India	
2.2	Details of Automatic Grinding and Polishing machine supplied to other BHEL units if any	
2.3	The BIDDER to furnish Reference List Customer (max 10 customers) including Contact details (phone no & email id)	
SECTION 3		
The BIDDER to note:		
S.No	PARTICULARS	
3.1	The BIDDER shall submit the offer in Two Parts- 1. Technical [with PART A & PART B] & 2. Commercial and Price bid	
3.2	The BIDDER's offer against each clause in PART A & PART B of the offer should be filled by the BIDDER compulsorily with complete detail.	
3.3	The BIDDER shall assure a continuous support for spares and Service for Five years, from the date of commissioning of the equipment at BHEL Works	
3.4	The technical offers offer shall be supported by product Catalogue and Data sheets in original and complete technical details/ literature on the quoted model of equipment.	
3.5	The commercial offer (given with Technical offer) shall contain the scope of supply and the Un-Priced of the Price-Bid, for confirmation.	

Automatic Grinding and Polishing machine for metallographic sample preparation, Qty . 1 no.				Bidder's offer with technical details
Part B - Technical specification				
SI No.	BHEL requirements			
1	Description/ Scope		Automatic Grinder-Polishing machine for metallographic sample preparation of ferrous and non ferrous materials. The machine must be durable, sturdy and programmable to produce consistent and reproducible results.	
2	Scope of supply		1. Automatic Grinder-Polishing machine as per specifications described in subsequent clauses	
			2. Essential accessories & spares as per specifications	
			3. Consumables as listed below	
			4. Documents as specified	
3	Operation mode	The machine shall have the following features	Fully automatic and Programmable with single and central pressure application for sample preparation	
			Provisions to use in manual mode	
			Programmed material height removal	
			Automatic dosing unit	
			Disc cooling function to prepare samples at lower temperatures	
			Built-in memory storage to create and store up to 10 programs	
			Design should be sturdy and durable to prepare wide variety of mounted and unmounted ferrous and non-ferrous samples	
			Must have safety features	
			Auto cleaning function after completion of sample preparation	
4	Preparation Disc	Disc type	Detachable; Shall be able to accommodate mounted samples of diameters 1.25", 1.5", 2" and unmounted flat specimens of irregular shape. Provisions to attach magnetic foil/ disc must be available	
5		Diameter	250mm (min.)	
6		Variable speed	50-400 RPM	
7		Rotational direction	Clockwise or Counter-clockwise	
8		Motor	750W (min.)	
9		Torque	To be specified	
10	Head	Variable speed	50-100 RPM; variable in steps of 10rpm	
11		Rotational direction	Clockwise and counter-clockwise	
12		Sample down force	Central pressure: 40-300N (min.); Single individual specimen: 5-50N (min.)	
13		Motor	150W (min.)	
14		Movement	Up and down movement to locate precisely on to the preparation disc. Specimen planeness must be ensured before start of the process. Mode of ensuring specimen planeness to be specified. Mode of up/down movement of head like motorised/ pneumatic/ manual to be specified.	

Automatic Grinding and Polishing machine for metallographic sample preparation, Qty . 1 no.				Bidder's offer with technical details
Part B - Technical specification				
SI No.	BHEL requirements			
15		Torque	To be specified	
16	Software and electronics	Controls	Touch pad/ button controls to feed parameters for programming; Must have built-in memory function to create and store up to 10 programs	
17		Display	LCD/ LED display for live display of parameters	
18	Safety & emergency stop		Must have safety provisions like lid covers/emergency stop etc.	
19	Dosing unit		Automatic and programmable. Dosing must be programmable and automatic. Controlled amount of fluids must be applied everytime during operation It must be operated in sync. with polishing and grinding cycle; Must have provisions to control the rate of flow of fluids and avoid overapplication during operation Must have provisions to clean tubes after polishing cycle to avoid clogging of suspensions/ fluids inside tubes Must have provisions for autodosing in manual polishing	
20	Specimen holder/ mover plate		Must be provided with an option to polish single specimen and/or multiple specimens clamped in holder; Must have provisions for easy mounting and removal of specimens. Mounted specimens include diameter of 1.25", 1.5" and 2". Appropriate holders are to be provided to polish irregular flat samples.	
21	Material height removal		Controlled material removal during grinding cycle to the desired height. Provisions to set desired height removal must be provided during programming cycle. Range of height removal: 1-3mm and accuracy required: 100 microns;	
22	Material height removal measurement		Details of material height removal measurement/ sensor to be provided like resolution/accuracy etc.	
23	Bowl flush/ rinse feature		Must have provisions to rinse/ flush the polishing disc and tubes to prevent contamination between polishing/ grinding cycles and clogging inside tubes.	
24	Illumination system		Adequate illumination system to be provided in the polishing tray for the operator to ensure the process is in order. Details of illumination to be provided.	
25	Tap water pressure req.		Details to be specified	
26	Air pressure req.		Details to be specified	
27			Accessories for all functions under SI No. 1 - Description shall be quoted for. Bidder to attach un-priced list (priced list with Unit Rate shall be attached in the commercial offer) of various essential accessories to be procured with the equipment to enhance the operating efficiency and features of the offered equipment, over and above those mentioned in the specifications. Essential accessories must include the following	

Automatic Grinding and Polishing machine for metallographic sample preparation, Qty . 1 no.				Bidder's offer with technical details
Part B - Technical specification				
SI No.	BHEL requirements			
28	Essential Accessories	Holding disc with attachments like holding band	1 no.	
29		Splash guard	2 no.	
30		Lid cover	1 no.	
31		Disc for use with waterproof self-adhesive abrasive sheets	1 no.	
32		Ultrasonic cleaner 200x200mm to clean samples	1 no.	
33		Individual force/ Single force specimen holder to hold 6 no.(min.) of 1.25" circular mounted samples with essential tools like allen key set and other associated accessories	1 no.	
34		Individual force/ Single force specimen holder to hold 3 no. (min.) of 2" circular mounted samples with essential associated accessories	1 no.	
35		Central Force specimen holder to hold 6 no. (min.) of 1.5" circular mounted samples with essential associated accessories.	1 no.	
36		Central Force specimen holder to hold 3 no. (min.) of 2" circular mounted samples with essential associated accessories.	1 no.	
37		Central force specimen holder to hold irregular/ unshaped sample with essential associated accessories	1 no.	
38		Automatic Dosing module with bottle tray, bottles and min. 5 no. of pumps for application of suspensions, lubricants and water	1 no.	
39		Specimen levelling device for levelling central force specimen holder	1 no.	
40		Air drier	2 no.	
41		Silent air compressor/ Pneumatic pumps with hoses compatible with the quoted model	1 no.	
42		Magnetic substrate disc to hold iron base abrasive sheet/ polishing cloth	2 no.	

Automatic Grinding and Polishing machine for metallographic sample preparation, Qty . 1 no.				Bidder's offer with technical details
Part B - Technical specification				
SI No.	BHEL requirements			
43		Connection set that includes drain tube, pressure tube, hoses, couplers etc.	Each 2 no.	
44		Equipment table & drawers for storage of consumables	1 no.	
45		Operator height adjustment chair	1 no.	
46		Belt grinding machine for rough grinding of samples; Size: 200x100mm (min.)	1 no.	
47	Consumables	Waterproof self-adhesive abrasive sheets/ SiC sheets of 60/80 grit or similar other sheets for rough grinding	30 no.	
48		Waterproof self-adhesive abrasive sheets/ SiC sheets of 120 grit or similar other sheets for rough grinding	30 no.	
49		Waterproof self-adhesive abrasive sheets/ SiC sheets of 220/240 grit or similar other sheets for intermediate grinding	50 no.	
50		Waterproof self-adhesive abrasive sheets/ SiC sheets or similar other sheets of 400/600 grit for intermediate grinding	50 no.	
51		Waterproof self-adhesive abrasive sheets/ SiC sheets or similar other sheets of 800 grit for fine grinding	50 no.	
52		Waterproof self-adhesive abrasive sheets/ SiC sheets or similar other sheets of 1200 grit for fine grinding	30 no.	
53		Diamond suspension 3 microns or of comparable size for polishing	30 litres	
54		Diamond suspension 1 microns or of comparable size for polishing	30 litres	
55		Lubricant for cooling/ mixup with diamond suspensions for polishing	50 litres	
56		Wet polishing cloth for intermediate surface finish	50 no.	
57		Wet polishing cloth for final surface finish	50 no.	

Automatic Grinding and Polishing machine for metallographic sample preparation, Qty . 1 no. Part B - Technical specification				Bidder's offer with technical details
SI No.	BHEL requirements			
58		Disposable bowl liner	10 no.	
59		If any other assortment of polishing or grinding sheets required other than above listed items, Kindly quote for a total of 240 no. of grinding sheets and 100 no. of polishing cloth to obtain the required surface finish		
60	Spares	Disc for use with waterproof self-adhesive abrasive sheets	2 no.	
61		Holding disc of diameter 250mm (min.)	1 no.	
62		Bearings for motors	5 no.	
63		Fuse	10 no.	
64		Tool set for specimen mount and removal	1 no.	
65		Driver board	1 no.	
66		Connection set that includes drain tube, pressure tube, hoses, couplers etc.	1 no.	
67		Washers/ O ring/ seals/ gaskets	10 no.	
68		Belt	5 no.	
69		Individual force/ Single force specimen holder to hold 6 no.(min.) of 1.25" circular mounted samples with essential tools like allen key set and other associated accessories	1 no.	
70		Individual force/ Single force specimen holder to hold 3 no. (min.) of 2" circular mounted samples with essential associated accessories	1 no.	
71		Central Force specimen holder to hold 6 no. (min.) of 2" circular mounted samples with essential associated accessories.	1 no.	
72	Central force specimen holder to hold irregular/ unshaped sample with essential associated accessories	1 no.		

Automatic Grinding and Polishing machine for metallographic sample preparation, Qty . 1 no.				Bidder's offer with technical details
Part B - Technical specification				
SI No.	BHEL requirements			
73		Central force specimen holder to hold min. 3 no. of rectangular samples with essential associated accessories	1 no.	
74		If any other spares are mandatorily needed for smoother operation of the machine kindly quote		
75	Optional accessories	Optional Accessories: Bidder to attach un-priced list (priced list with Unit Rate shall be attached in the commercial offer) of various Optional accessories like mould assembly other than specified above, controller etc. to be procured with the equipment to enhance the operating efficiency and features of the offered equipment, over and above those mentioned in the specifications. Details of the accessories to be specified.		
76	Power source	1.Single Phase, 230 V ± 10%, 50 Hz ± 3 Hz to suit Indian conditions.		
		2. Power Supply Source will be provided by BHEL near the equipment.		
		3. All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to the equipment, shall be the responsibility of Bidder.		
		4. Bidder should ensure the proper earth connection for the machine and its peripherals before commissioning		
		5. All electrical & electronic control cabinets & panels should be dust and vermin proof and shall have IP 54 protection		
77	Spares	Spares shall be quoted for 5 years trouble free operation.		
		All types of spares for the equipment and its accessories should be available for minimum ten years, after supply of the equipment. If any spares or controls are likely to become obsolete within this period, the Bidder should inform BHEL and provide details of its suppliers to enable BHEL to procure them in advance		
78	Pre-dispatch Inspection	The equipment, its accessories, etc. shall be offered for inspection and performance prove-out to BHEL Engineers, prior to dispatch.		
		Supplier shall contact BHEL for pre-despatch inspection.		
		Travel Expenses and lodging expenses towards this for BHEL persons will be borne by BHEL.		

Automatic Grinding and Polishing machine for metallographic sample preparation, Qty . 1 no. Part B - Technical specification			Bidder's offer with technical details
SI No.	BHEL requirements		
79	Commissioning	The equipment shall be commissioned along with all supplied accessories at BHEL works. Demonstration of stated accuracy and repeatability shall be done. Specific requirements like quality of water for water recirculation system, air pressure for pneumatic system etc. other than line power shall be communicated in advance.	
80	Training	The Service Engineer has to impart training to a minimum of 2 BHEL Engineers on the Operation, Maintenance, troubleshooting of the equipment and accessories at BHEL works.	
81	Response time	The bidder has to furnish / indicate the response time for the service engineer to be at BHEL works from the time of reporting the breakdown through e-mail or tele-fax. Not more than a week is preferred	
82	Manuals	2 hard copies of manual and soft copy in English shall be provided.	
		Catalogues of the Equipment & Accessories.	
		Details of bought out items with their specifications / catalogues.	
		O&M manuals containing electric schematics, circuit diagrams, PCB drawings, Troubleshooting charts, mechanical sub-assemblies etc.	
83	Warranty & performance Guarantee	The equipment and its accessories (including bought-out Items) are to be guaranteed for its performance for a minimum period of 12 months from the date of performance acceptance at BHEL works.	
		Annual Maintenance Contract for the equipment for 24 months after completion of warranty period shall be quoted separately by the bidder. BHEL reserves the right to place/Not to place annual Maintenance contract.	
84	Details of the Equipment offered:	Make	
		Model	
		Dimensions	
		Weight in Kg	
		Total connected load in KW	
		Working operational temperature	
		Noise level at idle running stage	
		Noise level at grinding process	
		Noise level at polishing process	
		Humidity range	