



BHARAT HEAVY ELECTRICAL LIMITED

UNIT'S ADDRESS

UNIT'S PHONE NOS.

Enquiry No. : _____

Due Date : _____

Supplier Qtn.

No.: _____

Date : _____

CONTACT PERSON'S NAME/DESIGN./PHONE

SPECIFICATION CUM COMPLIANCE CERTIFICATION FOR

TWIST DRILL GRINDING MACHINE

NOTE:-

1. Vendor must submit complete information against clause no. 20.0 The offer meeting this clause would only be processed.
2. The "Offered" Column and where applicable, the "Deviations" & "Remarks" Column of this format 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.
3. The offer and all documents enclosed with offer should be in English language only.

ADDRESS OF THE SUPPLIER :	ADDRESS OF THE INDIAN AGENTS :
TELEPHONE NOS.:	TELEPHONE NOS.:
FAX NOS.:	FAX NOS.:
E-MAIL ADDRESS :	E-MAIL ADDRESS :
SCOPE: SUPPLY, ERECTION & COMMISSIONING OF " TWIST DRILL GRINDING MACHINE" COMPLYING WITH SPECIFICATION AS BELOW	

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
1.0 PURPOSE & WORKPIECE MATERIAL					
1.1	Purpose: Twist drill grinding machine is required for sharpening all sizes of drills 4 mm to 80 mm dia. With 1,2,3,4,5,6 cutting tips on fluted drills at angle between 40 to 180 degree.	Vendor to conform			
1.2	Work Piece Material:	Vendor to conform			
	All type of HSS Drills from 4 mm to 80 mm dia.				
2.0	SPECIFICATION:				
2.1	MACHINE CONFIGURATION: The machine should be of latest design, robust construction and free of all vibration and comprising all the features which guarantee reliable service, most convenient and safe operating conditions and best quality production.	Vendor to conform			
2.2	The machine is to be provided with adequate coolant supply with deep trough to prevent splashing. All slides and moving parts are to be adequately protected against ingress of grinding dust and coolant etc. The machine should provide a high degree of accuracy in drill grinding independent of the skill of the operator. A motor driven point thinning device is to be incorporated.	Vendor to conform			
2.3	CAPACITY :				
2.3.1	Grinding of all types of Drills	04 mm to 80 mm Dia.			

2.3.2	Main Grinding wheel	180X50X31.75 mm			
2.3.3	Point angle	40 to 180 degree			
2.3.4	Point thinning wheel	102 mm dia. Cup(4")			
2.3.5	Swiing arm speeds	32 to 40 oscillations per minute.			
3.0	CONSTRUCTION:				
3.1	Details of material, hardness & construction, including explanatory drawings of various component / assemblies like column, bed, spindle unit, etc. should be given . Levers and other operator controls are to be clearly indicated in the offer	Vendor to specify			
4.0	MANUAL CONTROL :				
4.1	Complete manual control of machine with required switches / keys should be provided on operator's panel for selection of spindle rpm, feed, direction of spindle Rotation,i.e. CW/CCW, cutting feed and spindle rpm on/off etc.	Vendor to specify			
5.0	COOLANT SYSTEM :				
5.1	Coolant System with all accessories should be provided	Vendor to conform			
5.2	Pressure & rate of flow of coolant should be furnish in the offer.	Vendor to conform			
5.3	Coolant Tank capacity	Vendor to specify			
5.4	Coolant pump & motor details	Vendor to specify			
6.0	ELECTRICAL :				

6.1	415V(fluctuation + 10% / -10%), 50HZ (fluctuation +/-3 Hz), 3 Phase AC (3 wire system with out neutral) Power Supply will be provided by BHEL	Vendor to conform			
6.2	Tropicalisation: All electrical / electronic equipment shall be tropicalized	Vendor to conform			
6.3	All electrical & electronic control cabinets & panels should be dust and vermin proof	Vendor to conform			
6.4	Motors shall conform to IEC or Indian Standards	Vendor to conform			
7.0	SAFETY ARRANGEMENTS:				
7.1	Following safety features in addition to other standard safety features should be provided on the machine:	Vendor to conform			
7.2	Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, workpiece and the operator due to the malfunctioning or mistakes.	Vendor to conform			
7.3	All the pipes, cables etc. on the machine should be well supported and protected.	Vendor to conform			
7.4	All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations.	Vendor to conform			
7.5	Emergency switches at suitable locations are to be provided.	Vendor to conform			
8.0	ENVIRONMENTAL PERFORMANCE OF THE				
8.1	The Machine should conform to following factors related to environment :	Vendor to conform			

8.2	Maximum noise level shall be 85 dB(A) at normal load condition, 1 meter 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 asked for.	Vendor to conform			
8.3	If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	Vendor to conform			
8.4	Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.	Vendor to conform			
9.0	SPARES:				
9.1	Itemwise breakup of mechanical, electrical spares used on the machine in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation on three shifts continuous running basis should be offered by vendor. The list to include following, in addition to other recommended spares: (Unit Price of each item of spare should be offered) See Annexure 1 for list of Spares.	Vendor to specify			
9.2	Vendor to confirm that complete list of spares for machine and accessories, along with specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine	Vendor to conform			
10.0	DOCUMENTATION :				
10.1	Operating manuals of Machine .	Vendor to conform			

10.2	Detailed Maintenance manual of machine with all drawings of machine assemblies/sub-assemblies/parts including Electrical / Pneumatic/ Coolant / Hydraulic circuit diagrams. All Assembly/ Sub Assembly Drawings shall be supplied with the part list also.	Vendor to conform			
10.3	Catalogues, O&M Manuals of all bought out items including drawings, wherever applicable.	Vendor to conform			
10.4	Detailed specification of all rubber items and hydraulic/lube fittings	Vendor to conform			
10.5	Operating Manuals, Maintenance Manuals & Catalogues for supplied Automatic Tool Offset & Job Measuring Systems, Voltage Stabilizer, Isolation Transformer, Air-Compressor and all supplied Accessories.	Vendor to conform			
10.6	Complete Master List of parts used in the machine shall be submitted by the vendor.	Vendor to conform			
10.7	One additional set of all the above documentation on CD ROM, wherever possible.	Vendor to conform			
11.0	TRAINING				
11.1	Vendor to impart training to BHEL personnel in operation & maintenance at BHEL works for a period of days after commissioning and proving of jobs.	Vendor to conform			

12.0	ERECTION & COMMISSIONING					
12.1	Supplier to take full responsibility for carrying out the erection, start up, testing of machine, it's 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 to be indicated by supplier in their foundation/layout drawings. Other requirements like crane and helping personnel shall also be provided by BHEL. Details of these requirements should be informed by vendor in advance.	Vendor to conform				
12.2	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All tests, as mentioned at clause 16 (Machine Acceptance) shall form part of the commissioning activity.	Vendor to conform				
12.3	Tools, Tackels, Test Mandrels, instruments and other necessary equipment including Laser equipment required to carry out all above activities should be brought by the supplier.	Vendor to conform				
12.4	Commissioning spares, required for commissioning of the machine within stipulated time, shall be brought by the supplier on returnable basis.	Vendor to conform				
12.5	Portion, if any, of the machine, accessories and other supplied items where paint has rubbed off or peeled 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 paint used.	Vendor to conform				

12.6	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to conform			
12.7	Charges, duration, terms & conditions for E&C should be furnished in detail separately by vendor along with offer.	Vendor to conform			
13.0	ACCURACY TESTS:				
13.1	GEOMETRICAL ACCURACIES :				
13.2	Geometrical Accuracy Tests shall be in accordance with relevant ISO/DIN standard or equivalent applicable standard. Relevant standards and 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 conform			
13.3	All the above accuracies should be demonstrated to BHEL engineers during pre-acceptance test at vendor's works and during Erection & Commissioning at BHEL Works.	Vendor to conform			
14.0	AMBIENT CONDITIONS & THERMAL STABILITY				
14.1	Total machine and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Power Supply: Voltage: 415 V - 10%, +10% Frequency: 50 Hz +1.5%, - 3% No. of phases = 3 (3 wire no neutral) Ambient Conditions: Temperature = ± 5 to 50 degree celsius Relative Humidity = 95% max.	Vendor to conform			

14.2	Weather conditions are tropical, Atmosphere may be dust laden during some part of the year. Machine shall be kept in the normal shop floor condition. Max. temperature variation is up to 25 deg Celsius in 24 hours.	Vendor to conform			
14.3	Thermal Stability of the complete machine keeping in view specified Ambient Conditions and accuracy requirements of BHEL components and trouble free operation of the machine should be ensured by vendor.	Vendor to conform			
14.4	The machine, including attachments and accessories, should be suitable for 24 hrs. continuous operation to its full capacity for 24 hour a day and 7 days a week throughout. Vendor to ensure and confirm the same.	Vendor to conform			
	15.0 PROVEOUT OF BHEL COMPONENTS :				
15.1	Vendor shall carryout drilling & tapping in one component to prove the performance to full satisfaction of	Vendor to conform			
	16.0 MACHINE ACCEPTANCE: (Tests/Activities to be Performed by Vendor)				
16.1	Tests/Activities to be carried out at supplier's works on the machine before dispatch :				
61.1.1	Geometrical accuracies as per test chart of relevant DIN/ISO standards .	Vendor to conform			
61.1.2	Demonstration of all features of the machine, control system & accessories	Vendor to conform			

61.1.3	Drilling and tapping on a mock job (to be arranged by vendor at their works) to demonstrate the capacity. Required drills and taps also to be arranged by the vendor .	Vendor to conform			
16.2	Tests/Activities to be carried out at BHEL works while commissioning the machine :	Vendor to conform			
16.2.1	Geometrical Accuracy Tests shall be in accordance with relevant ISO/DIN standard	Vendor to conform			
16.2.2	Full load test to demonstrate the maximum power & cutting capacity of the machine.	Vendor to conform			
16.2.3	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 conform			
16.2.4	Grinding of Drills and end mill on BHEL actual jobs.	Vendor to conform			
16.2.5	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 conform			
17.0	PACKING:				
22.1	Rigid packing for all items of complete machine, and all accessories and other supplied items to be provided to provided to avoid any damage/loss in transit. When machines is despatched in containers,all small loose items shall be suitably packed in boxes.	Vendor to conform			
18.0	GUARANTEE :				
18.1	24 months from the date of acceptance of the machine.	Vendor to conform			

19.0	GENERAL :					
19.1	Machine Model No.			Vendor to specify		
19.2	Total connected load (KVA):			Vendor to specify		
19.3	Overall size of the machine (Length, Width, Height)			Vendor to specify		
19.4	Painting of Machine / Electrical Panels : RAL 6011 Apple Green (Polyurethane Paint)			Vendor to specify		
19.5	Total weight of the machine			Vendor to specify		
19.6	Vendor to submit , along with offer, reference list of customers where similar machines have been supplied mentioning the customer machine model, major specifications of the supplied machine, year of supply etc.			Vendor to specify		
19.7	Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer.			Vendor to conform		
19.8	Hydraulic, Pneumatic & oil pipings should be preferably metallic except places where flexible pipings are essential.All the pipes required for the same shall be included in the standard scope of the machine.			Vendor to conform		
20.0	QUALIFYING CONDITIONS :					
20.1	Machine is presently working satisfactorily for more than one year after commissioning(on the date of opening of Tender) , should quote. The following information should be submitted by the vendor about the companies where similar machines have been supplied. This is required from all the vendors for qualification of their offer.			Vendor to conform		
20.2	Name of the customer / company where similar machine is installed.			Vendor to conform		

20.3	Complete postal address of the customer.	Vendor to specify			
20.4	Month & Year of commissioning .	Vendor to specify			
20.5	Application for which the machine is supplied with details of accuracies achieved on the job.	Vendor to specify			
20.6	Name and designation of the contact person of the customer.	Vendor to specify			
20.7	Phone, FAX no. and email address of the contact person of the customer.	Vendor to specify			
20.8	Performance certificate from the customers regarding satisfactory performance of machine supplied to them	Vendor to specify			

Standard Accessories for Twist Drill Grinding Machine

Sl.No.	Description	Qty. in Nos.	Remarks
1	6-Jaw Self Centering Chuck	2	
2	Grinding Wheel (recessed one side)	2	
3	Dish Type Grinding Wheel for point thinnir	1	
4	Grinding Wheel flange & balancing weight	1	
5	Grinding wheel diamond dressers (angle ε	2	
6	Morse taper sleeve No. 1,2,6,4,5 & 6	1 each	
7	Tools for general use.		
8	Service/Instruction Manual		