

	<b><u>BHARAT HEAVY ELECTRICAL LIMITED</u></b>			<b>Enquiry No. :</b>	
<b><u>UNIT'S ADDRESS:</u></b>				<b>Due Date :</b>	
<b><u>CONTACT PERSON'S NAME/DESIGN./PHONE NO./E-MAIL (FROM PURCHASE DEPTT.)</u></b>				<b>Supplier Qtn. No.:</b>	
				<b>Date :</b>	
<b>SPECIFICATION CUM COMPLIANCE CERTIFICATE OF HIGH FREQUENCY GRINDER</b>					
<b>NOTE:-</b>					
1. Vendor must submit complete information against clause no. 16. 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.					
<b>NAME &amp; ADDRESS OF THE SUPPLIER :</b>					
<b>NAME &amp; ADDRESS OF THE INDIAN AGENT</b>					
<b>TELEPHONE NOS.:</b>					
<b>TELEPHONE NOS.</b>					
<b>FAX NOS.:</b>					
<b>FAX NOS.:</b>					
<b>E-MAIL ADDRESS :</b>					
<b>E-MAIL ADDRESS</b>					
<b>SCOPE: SUPPLY &amp; COMMISSIONING OF HIGH FREQUENCY GRINDER COMPLYING WITH SPECIFICATIONS AS BELOW</b>					

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Specified to/be Confirmed By:	OFFERED	DEVIATIONS	REMARKS
1	PURPOSE: High Frequency Grinder is required for dressing, grinding components of Hydro turbine/Generators of material mild steel, alloy steel and stainless steel.	Vendor to confirm			
2	HIGH FREQUENCY CONVERTER				
2.1	Specifications				
2.1.1	Model	Vendor to specify			
2.1.2	Power output shall be suitable for running all tools specified in clause 3.	Vendor to confirm			
2.1.3	Output frequency: 300 Hz	Vendor to confirm			
2.1.4	Output voltage: 72 V	Vendor to confirm			
2.1.5	Output current	Vendor to specify			
2.1.6	Input power	Vendor to specify			
2.1.7	Number of receptacles for tools: 5	Vendor to confirm			
2.1.8	Size: Length x Breadth x Height	Vendor to specify			
2.1.9	Net weight	Vendor to specify			
2.1.10	The KVA rating of machine to be sufficient to run Two tools as specified in clause no. 3.1 and three tools specified in clause no. 3.2 each to be used concurrently and continuously. No factor to be multiplied as the tools are planned to run continuously. Bidder shall give details of calculations for arriving at selected power rating.	Vendor to Specify			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Specified to/be Confirmed By:	OFFERED	DEVIATIONS	REMARKS
<b>2.2</b>	<b>Motor</b>				
2.2.1	Type: Three phase asynchronous motor	Vendor to confirm			
2.2.2	Model	Vendor to specify			
<b>2.3</b>	<b>Control Panel:</b>				
2.3.1	Indication lamps for on/off to be provided	Vendor to confirm			
2.3.2	Controls for On/Off/Trip mechanism.	Vendor to confirm			
2.3.3	Voltmeter for voltage indication	Vendor to confirm			
2.3.4	Ammeter for current indication.	Vendor to confirm			
2.3.5	Frequency meter for frequency indication	Vendor to confirm			
2.3.6	A Star Delta starter with overload relays and single phase preventer for motor to protect against any overloading and single phasing	Vendor to confirm			
2.3.8	Receptable for connecting the power tools shall be heavy duty type and all the points shall have separate overload protection.	Vendor to Specify			
2.3.9	Dust proof safety switches.	Vendor to confirm			
2.3.10	All accessories such as fuse links, MPCB's, overloads, contractors, relays, push buttons, indication lamps shall be of Siemens/Allen Bradley/Schneider /ABB make. Other accessories should be of standard make like Philips, Minillec etc.	Vendor to Specify			
<b>2.4</b>	<b>Mobile Trolley: High Frequency converter should be fitted in a mobile trolley with suitable shock absorbers.</b>	Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Specified to/be Confirmed By:	OFFERED	DEVIATIONS	REMARKS
<b>3</b>	<b>HIGH FREQUENCY POWER TOOLS:</b>				
<b>3.1</b>	<b>Specifications for 230 mm Angle grinders</b>				
3.1.1	Type: Angle Grinder	Vendor to confirm			
3.1.2	Diameter of Grinding wheel: 230 mm	Vendor to confirm			
3.1.3	Input watt	Vendor to specify			
3.1.4	Output watt $\geq 2100$	Vendor to specify			
3.1.5	R.P.M in between: 6000- 6600	Vendor to specify			
3.1.6	Weight: $\leq 7.0$ Kg	Vendor to specify			
3.1.7	Tools should be of High quality material.	Vendor to specify			
3.1.8	Operating life of bearings:	Vendor to Specify			
<b>3.2</b>	<b>No. of tools as per clause 3.1 : Two</b>	<b>Vendor to confirm</b>			
<b>3.3</b>	<b>Specifications for 180 mm Angle grinders</b>				
3.3.1	Type: Angle Grinder	Vendor to confirm			
3.3.2	Diameter of Grinding wheel: 180 mm	Vendor to confirm			
3.3.3	Input watt	Vendor to specify			
3.3.4	Output watt $\geq 1250$	Vendor to specify			
3.3.5	R.P.M in between 8000 - 8500 (approx)	Vendor to specify			
3.3.6	Weight: $\leq 5.6$ Kg	Vendor to specify			
3.3.7	Tools should be of High quality material.	Vendor to specify			
3.3.8	Operating life of bearings:	Vendor to Specify			
<b>3.4</b>	<b>No. of tools as per clause 3.3: Three</b>	<b>Vendor to confirm</b>			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Specified to/be Confirmed By:	OFFERED	DEVIATIONS	REMARKS
<b>3.5</b>	<b>Motor</b>				
3.5.1	The high-frequency tools shall have a three phase squirrel cage motor having high efficiency, constant speed under load (speed drop at load shall be less than 5%) and low maintenance design.	Vendor to confirm			
3.5.2	Type: Totally enclosed and surface cooled	Vendor to confirm			
3.5.3	Model	Vendor to specify			
<b>3.6</b>	<b>Cables</b>				
3.6.1	Cable length with each grinder: 20 m	Vendor to confirm			
3.6.2	Cable diameter and weight	Vendor to specify			
<b>4</b>	<b>ELECTRICAL SYSTEM :</b>				
4.1	415V $\pm$ 10%, 50HZ $\pm$ 3%, 3 Phase AC (3 wire system with out neutral) Power Supply Source will be provided by BHEL at a single point near the machine, as per layout recommended by Vendor. All types of cables, connections, 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.	Vendor to confirm			
4.2	All electrical & electronic control cabinets & panels should be dust and vermin proof	Vendor to confirm			
4.3	Motors shall confirm to IEC/International/Indian Standard	Vendor to specify			
4.4	Vendor should ensure the proper earthing for the machine and its peripherals.	Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Specified to/be Confirmed By:	OFFERED	DEVIATIONS	REMARKS
5	<b>SAFETY ARRANGEMENTS:</b> Following safety features in addition to other standard safety features should be provided on the machine:				
5.1	Emergency Switch at control panel as per International Norms are to be provided.	Vendor to confirm			
5.2	Noise level $\leq 85$ db both for converter and motor.	Vendor to specify			
6	<b>ENVIRONMENTAL PERFORMANCE OF THE MACHINE: Safety / environmental protection enclosure shall be provided.</b>	Vendor to confirm			
7	<b>Optional Accessories. :</b>	Vendor to specify			
8	<b>SPARES:</b>				
8.1	Vendor to offer item wise price of recommended spares for atleast 2 years of trouble free operation considering three shifts continuous running basis.	Vendor to specify			
8.2	All types of spares for total equipment and accessories should be available for at least ten years after supply of the equipment. If equipment 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			
8.3	Recommended set of spares for all attachments are to be offered with details.	Vendor to specify			
8.4	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 confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Specified to/be Confirmed By:	OFFERED	DEVIATIONS	REMARKS
9	<b>DOCUMENTATION</b> : Four sets of following documents (Hard copies) in English language should be supplied along with the machine				
9.1	Operating manuals of Machine.	Vendor to confirm			
9.2	Detailed Maintenance manual of machine which shall contain System Description, Schematic drawings, Detailed Circuit diagrams of control PCB's of frequency converter. Trouble shooting charts, All Assembly/ Sub Assembly Drawings shall be supplied with the part list.	Vendor to Specify			
9.3	Catalogues, O & M Manuals of all bought out items and supplied accessories including drawings, wherever applicable.	Vendor to Specify			
9.4	Complete Master List of parts used in the machine shall be submitted.	Vendor to Confirm			
9.5	One additional set of all the above documentation on CD ROM, wherever possible.	Vendor to Specify			
10	<b>ERECTION &amp; COMMISSIONING</b>				
10.1	Supplier to take full responsibility for carrying out the erection, start up, testing of equipment, it's control system & all types of other supplied equipment.. Service requirement like power, air, 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 confirm			
10.2	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All tests, as mentioned at clause 12 (equipment Acceptance) shall form part of the commissioning activity.	Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Specified to/be Confirmed By:	OFFERED	DEVIATIONS	REMARKS
10.3	Tools, instruments and other necessary equipment required to carry out all above activities should be brought by the supplier.	Vendor to confirm			
10.4	Commissioning spares, required for commissioning of the equipment within stipulated time, shall be brought by the supplier on returnable basis.	Vendor to confirm			
10.5	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to Specify			
10.6	Charges, duration, terms & conditions for E&C should be furnished in detail separately by vendor along with offer.	Vendor to Specify			
11	<b>AMBIENT CONDITIONS &amp; THERMAL STABILITY</b> : Total equipment including all system and all supplied items should continuously work trouble free and efficiently under following operating conditions and should give specified accuracies. Ambient Conditions: Temperature = 5 to 50 degree Celsius Relative Humidity = 95% max. (Vendor to confirm that equipment is suitable for above and details of provisions on the equipment for the same are to be furnished.)	Vendor to confirm			
12	<b>EQUIPMENT ACCEPTANCE: (Tests/Activities To be Performed by Vendor) at BHEL works while commissioning the equipment</b>	Vendor to accept & confirm			
12.1	Demonstration of all features of the equipment & all accessories to the satisfaction of BHEL.	Vendor to confirm			
12.2	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	Vendor to confirm			



<b>SNO</b>	<b>DESCRIPTION FOR BHEL REQUIREMENT</b>	<b>Specified to/be Confirmed By:</b>	<b>OFFERED</b>	<b>DEVIATIONS</b>	<b>REMARKS</b>
12.3	On Job prove out will be done running the equipment on actual job for 8hrs.	Vendor to confirm			
12.4	One week supervision of independent operation of equipment by BHEL after job prove out.	Vendor to confirm			
12.5	Training of BHEL equipment operators / maintenance personnel in operation / maintenance of complete equipment & accessories etc by the supplier's experts / engineers during their stay at BHEL works	Vendor to confirm			
<b>13</b>	<b>PACKING: Sea worthy &amp; rigid packing for all items of complete equipment, all Accessories and other supplied items to avoid any damage/loss in transit.</b>	Vendor to confirm			
<b>14</b>	<b>GENERAL : The vendor should submit the following information:</b>				
14.1	Floor area required (Length, Width, Height) for complete equipment & accessories	Vendor to specify			
14.2	Total weight of the equipment	Vendor to specify			
14.3	Vendor to submit, along with offer, the reference list of customers where similar equipments have been supplied mentioning the customer, equipment Model, major specifications of the supplied equipment, Year of Supply etc	Vendor to specify			
14.4	Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer.	Vendor to specify			
<b>15</b>	<b>GUARANTEE :2 years from the date of acceptance of the machine.</b>	<b>Vendor to confirm</b>			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Specified to/be Confirmed By:	OFFERED	DEVIATIONS	REMARKS
16	<b>QUALIFYING CONDITION:</b> Only those vendors, who have supplied and commissioned at least two High Frequency converter of 72 V and 300 Hz frequency and Grinders of similar type in combination in the past ten years and such machine is presently working satisfactorily for more than one year in INDIA (more than six months if supplied to BHEL) in heavy duty work after commissioning, would be eligible for participating in the tender. The following information is to be submitted by the vendor about the companies where similar machines have been supplied.	Vendor to confirm			
16.1	Name of the customer / company where similar machine is installed.	Vendor to specify			
16.2	Complete postal address of the customer.	Vendor to specify			
16.3	Year of commissioning.	Vendor to specify			
16.4	Application for which the machine is supplied with details of accuracies achieved on the job.	Vendor to specify			
16.5	Name and designation of the contact person of the customer.	Vendor to specify			
16.6	Phone, FAX no. and email address of the contact person of the customer.	Vendor to specify			
16.7	Performance certificate from the customers regarding satisfactory performance of machine supplied to them	Vendor to confirm			
16.8	BHEL reserves the right to verify information provided by vendor. In case the information provided by vendor is found to be false/incorrect, the offer shall be rejected.	Vendor to confirm			