

	<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 CONVERTER &amp; GRINDER</b>					
<b>NOTE:-</b>					
1. Vendor must submit complete information against clause no. 13.0. 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.					
<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	<b>PURPOSE: High Frequency Grinder is required for dressing, grinding components of Hydro turbine/Generators of material mild steel, alloy steel and stainless steel.</b>				
2	<b>HIGH FREQUENCY CONVERTER</b>				
2.1	<b>Specifications</b>				
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	<b>Min. KVA rating = 15 KVA to be sufficient to run Two tools aspecified in clause no. 3.1 and three tools specified in clause no. 3.2 each to be used concurrently and continuously.</b>	<b>Vendor to confirm</b>			
2.2	<b>Motor</b>				
2.2.1	Type: Three phase asynchronous motor	Vendor to confirm			
2.2.2	Model	Vendor to specify			
2.2.3	Power of Motor - 15 KW (min.)	Vendor to specify			
2.2.4	Input at no load - 2.4 KW (max.)	Vendor to specify			

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<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 preventor for motor to protect against any overloading and single phasing	Vendor to confirm			
2.3.7	Control panel should be powder coated and should have good aesthetic look.	Vendor to confirm			
2.3.8	Dust proof safety switches.	Vendor to confirm			
2.3.9	All accessories such as fuse links, indication lamps, electromagnetic contractors, relays push buttons, shall be of Siemens/Allen Bradley/Telemachanique make. Other accessories should be of standard make like Philips, Minillec etc.	Vendor to confirm			
<b>2.3</b>	<b>Gears and Bearings:</b>				
<b>2.3.1</b>	Operating life of roller bearings $\geq$ 20000 Hours	Vendor to confirm			
<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			
<b>3</b>	<b>HIGH FREQUENCY POWER TOOLS:</b>				

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<b>3.1</b>	<b>Specifications for ≤ 6 Kg tools</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:	Vendor to specify			
3.1.5	R.P.M: 6000 - 6500	Vendor to specify			
3.1.6	Weight:	Vendor to specify			
3.1.7	Tools should be of High quality material motor housing.	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 ≤ 5.5 Kg tools</b>				
3.3.1	Type: Angle Grinder	Vendor to confirm			
3.3.2	Diameter of Grinding wheel: 230 mm	Vendor to confirm			
3.3.3	Input watt	Vendor to specify			
3.3.4	Output watt:	Vendor to specify			
3.3.5	R.P.M: 6000 - 6500	Vendor to specify			
3.3.6	Weight:	Vendor to specify			
3.3.7	Tools should be of High quality polymide material motor housing.	Vendor to specify			
<b>3.4</b>	<b>No. of tools as per clause 3.3: Three</b>	<b>Vendor to confirm</b>			
<b>3.5</b>	<b>Motor</b>				
3.5.1	Three phase squirrel cage motor. Rotor should be of indestructible aluminium cage.	Vendor to confirm			
3.5.2	Totally enclosed and surface cooled	Vendor to confirm			
3.5.3	Model	Vendor to specify			

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<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/length	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	All electrical components in the cabinets should be mounted on DIN Rail	Vendor to confirm			
4.4	Vendor should ensure the proper earthing for the machine and its peripherals.	Vendor to confirm			
<b>5</b>	<b>SAFETY ARRANGEMENTS:</b> Following safety features in addition to other standard safety features should be provided on the machine:	<b>Vendor to confirm</b>			
5.1	Machine functions should be continuously monitored and alarm / warning indications through lights/ alarm (on display and panels) should be available.				

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5.2	Emergency Switches at suitable locations as per International Norms are to be provided.				
5.3	Noise level < 90 db both for converter and motor.				
6	<b>ENVIRONMENTAL PERFORMANCE OF THE MACHINE :</b> The Machine shall conform to following factors related to environment :				
6.1	If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.				
6.2	Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.				
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 10 years of trouble free operation considering three shifts continuous running basis.				
8.2	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				
9	<b>DOCUMENTATION :</b>				
9.1	Operating manuals of Machine.				

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9.2	Detailed Maintenance manual of machine which shall contain System Description, Schematic drawings, Circuit digrams & hardware details. Trouble shooting charts, All Assembly/ Sub Assembly Drawings shall be supplied with the part list.	Vendor to confirm			
9.3	Complete Master List of parts used in the machine shall be submitted by the vendor.	Vendor to confirm			
9.4	One additional set of all the above documentation on CD ROM, wherever possible.				
9.5	Vendor to submit, along with offer, the 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				
<b>10</b>	<b>AMBIENT CONDITIONS &amp; THERMAL STABILITY :</b>	Vendor to confirm			
10.1	Total machine and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Ambient Conditions: Temperature = 5 to 50 degree celsius and maximum temperature variation can be 25 deg Celcius. Relative Humidity = 95% max. (Vendor to confirm that machine is suitable for above and details of provisions on the machine for the same are to be furnished by Vendor)				
<b>11</b>	<b>GUARANTEE :2 years from the date of acceptance of the machine and free after sales service for next 5 years after expiry of guarantee period.</b>	Vendor to confirm			

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12.0	<b>COMMISSIONING:</b> Vendor to commission the machine at BHEL				
13.0	<b>QUALIFICATION CRITERION:</b>				
13.1	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) 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.	<b>Vendor to Confirm</b>			
	1. Name of the customer / company where similar machine is installed.				
	2. Complete postal address of the customer.				
	3. Year of commissioning.				
	4. Application for which the machine is supplied with details of accuracies achieved on the job.				
	5. Name and designation of the contact person of the customer.				
	6. Phone, FAX no. and email address of the contact person of the customer.				
	7. Performance certificate from the customers regarding satisfactory performance of machine supplied to them				