

	<u>BHARAT HEAVY ELECTRICAL LIMITED</u>		Enquiry No. :		
	<u>UNIT'S ADDRESS:</u>		Due Date :		
	<u>CONTACT PERSON'S NAME/DESIGN./PHONE NO./</u>		Supplier Qtn. No.:		
	<u>E-MAIL (FROM PURCHASE DEPT.)</u>				
			Date :		
<b>SPECIFICATION CUM COMPLIANCE CERTIFICATE OF CNC SIX-AXIS INSULATION TAPING MACHINE</b>					
	NOTE:-				
	1. Vendor must submit complete information against clause no. 26. 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 clause 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.				
NAME & ADDRESS OF THE SUPPLIER :			NAME & ADDRESS OF THE INDIAN AGENT :		
TELEPHONE NOS.:			TELEPHONE NOS.:		
FAX NOS.:			FAX NOS.:		
E-MAIL ADDRESS :			E-MAIL ADDRESS :		
<b>SCOPE: SUPPLY, ERECTION &amp; COMMISSIONING OF CNC SIX AXIS TAPING MACHINE COMPLYING WITH SPECIFICATIONS AS BELOW.</b>					
Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
1.0	PURPOSE AND WORK PIECE DETAILS:				
1.1	CNC insulation taping machine will be used for insulation of stator winding bars of higher capacity turbo generators.	Vendor			
2.0	SCOPE OF SUPPLY				
2.1	The scope of supply includes design, manufacturing, supply, erection, commissioning and job proving of the performance of the CNC insulation taping machine at BHEL Hyderabad works.	Vendor			
3.0	WORK PIECE DETAILS:				
3.1	Component : Stator winding bars of generator	Vendor			
3.2	Weight of winding bar : Minimum 30 kg : Maximum: 175 kg	Vendor			

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3.3	Type of winding : Lap winding	Vendor			
3.4	Insulated cross section of winding bar : Maximum: 60x140 mm Minimum: 15x40 mm	Vendor			
3.5	Straight taping length of winding bar: 1600 mm minimum / 8700 mm maximum	Vendor			
3.6	Total taping length of winding bar tip to tip: 3000 mm minimum / 11000 mm maximum	Vendor			
3.7	Involute Angle : Maximum: 20 degree / Minimum:11 Degree	Vendor			
4	DETAILS OF INSULATION SYSTEM:				
4.1	Resin poor mica insulation tape : Thickness of tape 0.1 to 0.3 mm Width of tape 20, 25, 30 & 35mm.	Vendor			
4.2	Scheme of taping of insulating tape : i) Overlapping 30% - 60% ii) Butt taping	Vendor			
5.0	APPLICATION OF TAPE:				
	The CNC insulation taping machine shall be capable of taping stator winding bars with different overlaps in straight, bend and overhang portion with uniform tension to have uniform and tight taping of insulation on bars. Typical example of resin poor tape of size 0.15x35mm to be used for taping of bars with different over lapping and constant tension is given below to understand the application.	Vendor			
	Area                      %over lapping of tape                      Tension				
	Straight portion                      49                      1.7 N/mm				
	Bend portion                      60                      1.7 N/mm				
	Overhang portion                      49                      1.7 N/mm				
6.0	SPECIFICATION:				
6.1	TECHNICAL PARAMETERS:				
6.1.1	BASIC MACHINE				

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
	The basic machine shall have following broad technical capabilities :				
6.1.1.1	Length X-axis travel :	11,000mm			
6.1.1.2	Width Y-axis travel :	1,600mm			
6.1.1.3	Height Z-axis travel :	600mm			
6.1.1.4	Taping head rotation A-axis :	360 degree			
6.1.1.5	Taping head tilting B-axis :	± 75 degree			
6.1.1.6	Taping head Swivel C-axis :	360 deg. (software up to ± 85 deg.)			
	The basic machine shall consists of the following assemblies/items.				
6.1.2	CONSTRUCTION: The programmable automatic Insulation taping machine with multiple axes (6 or above), meeting the technical parameters specified at sl. No. 6.1.1(sl. No. 6.1.1.1 to 6.1.1.6) and the purpose specified at sl.no. 1.1 above.	Vendor			
6.1.3	CLOSED TAPING RING : Taping ring in which two electronically constant tension controlled tape rolls rotate in A-axis (Sl.No.6.1.1.4), shall have suspended cross carriage with Z-axis movement and be able to tilt in B-axis (Sl.No.6.1.1.5) and C-axis (Sl.No.6.1.1.6). The closed taping ring shall be complete with tape break/tape end control device and automatic device to change the tape angle. The taping ring shall have magnetic power brakes or electronically controlled mechanical clutch. The taping ring shall have the following specifications.	Vendor			
	Tape rolls diameter outer :	220 mm			
	Tape rolls diameter inner :	55 mm			
	Max bar cross section :	60x140 mm			

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	Min bar cross section :	15x40 mm			
	Width of tape :	20/25/30/35 mm			
	Tape tension :	20-90 N			
	Tape head rotation : 0-300 rpm (The actual speed depend on cross section of bar, characteristics, quality and width of insulation tape and inside diameter of tape reel core).				
	Tape angle :	± 15 degree			
	Qty : 01 No	Vendor			
6.1.4	BAR SUPPORT AT STRAIGHT PORTION : Pneumatically operated, automatically controlled in vertical direction for clamping the bar straight portion. These supports are manually movable along guided rail and detachable. Bar supports not required should be placed in a depot. Qty: 09 No's	Vendor			
6.1.5	FIXED END SUPPORTS : The fixed end support fixed along x-axis at one end and maneuverable in y-axis and z-axis. Bar is clamped on fixed support manually. Qty : 01 No.	Vendor			
6.1.6	MOVABLE END SUPPORT : The manually movable end support maneuverable in x,y and z-axis. One end of bar is clamped on moveable end support manually. Qty: 01 No.	Vendor			
	NOTE: All pneumatic control shall be through air compressor. The Air compressor is in the scope of the vendor.				
6.1.7	CNC CONTROL & CONTROL PANEL: The operating panel shall be mounted on gantry crane and shall be complete with following major items.	Vendor			

<b>Sl.No.</b>	<b>Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012</b>	<b>Specified/To be confirmed by</b>	<b>Offered</b>	<b>Deviations</b>	<b>Remarks</b>
6.1.7.1	Make : Fanuc/Siemens	Vendor			
6.1.7.2	Type : PC based latest version	Vendor			
6.1.7.3	Model: (Latest version as available at the time of ordering should be supplied)	Vendor			
6.1.7.4	Details of std features: List to be submitted	Vendor			
6.1.7.5	Details of optional features, recommended by vendor to be submitted.	Vendor			
6.1.7.6	All controls shall be PC based.	Vendor			
6.1.7.7	One number industrial PC with internal hard disc and USB port with memory stick.	Vendor			
6.1.7.8	Industrial PC is capable of storing not less than 100 No's profiles of stator winding bars.	Vendor			
6.1.7.9	Screen station for "Touch screen" operation, axis regulator, prints, digital I/O, Prints for the drive, drive transformer fuse etc.	Vendor			
6.1.7.10	The machine software shall be preferably in programming language C and the MMI (Man Machine Interface) via a visualizing tool.	Vendor			
6.1.7.11	Software package for the angle correction B & C axes	Vendor			
6.1.7.12	Software package for the correction of bar points.	Vendor			
6.1.7.13	Quantity: 01 No.	Vendor			
6.1.8	FEED AND DRIVE SYSTEM:				
6.1.8.1	Feed drives/ motors for X,Y,Z , A,B & C axes [AC servo motors] shall be digital type of Siemens/ Fanuc/Bummuller make (Details of model, make, type etc. to be submitted)	Vendor			
6.1.8.2	Type of power transmission: Backlash free movement for all the axes to be ensured. Furnish details.	Vendor			

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
6.1.9	TEACH-IN DEVICE: For teaching the machine for the profile of bar, complete with setting probe/ (s). Quantity : 01 set.	Vendor			
6.1.9.1	RECORDING OF THE BAR GEOMETRY:				
	The recording of the bar geometry shall be done by means of a teach-in-procedure. The bar shall be placed on the preadjusted bar supports with the help of a crane and clamped in position. The end supports shall also be accordingly positioned and clamped (manually).	Vendor			
	The taping ring shall be taken to the end of the bar in manual mode drive and switched on to setup mode. The teach-in-feelers then will be mounted and the automatic scanning should start.	Vendor			
	With actuation of button SCANNING the taping ring shall automatically record the bar geometry and stores the data. By deactivating the push-button the process can be interrupted and stopped, if required. When the taping ring has reached the other end of the bar, the scanning process is assumed to be completed and terminated. Then a trial run without tape should be started.	Vendor			
	The number of layers/over lapping/mode of the winding as well as the various rotating speeds are to be fed in via the touch-screen monitor/key board and saved on the hard disk and USB port under respective names or drawing numbers. The machine is now ready to insulate the bars.	Vendor			
6.1.10	AIR CONDITIONING UNIT : Air conditioning unit for control cabinets and operator's panel suitable for machine to operate in environment conditions mentioned in Sl.No.18.0 of this specification. Furnish details. Quantity : 01 No.	Vendor			

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
6.1.11	SAFETY LIGHT BARRIER: Safety light barrier to cover the entire length of the machine. Qty : 01 No.	Vendor			
6.1.12	ELECTRICAL SYSTEM :				
6.1.12.1	415V + 10% / -15%, 50HZ +/-3 HZ, 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, auxiliaries 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 same could be incorporated during construction of foundation.	Vendor			
6.1.12.2	Tropicalisation: All electrical / electronic equipment shall be tropicalized	Vendor			
6.1.12.3	All electrical & electronic control cabinets & panels should be dust and vermin proof	Vendor			
6.1.12.4	All electrical components in the cabinets should be mounted on DIN Rail	Vendor			
6.1.12.5	All electrical and electronic panels including operator's panel should be provided with fluorescent lamps for sufficient illumination and power receptacles of 220Volts, 5/15 Amp AC. All adapters/receptacles should have compatibility with Indian equivalents.	Vendor			
6.1.12.6	Motors shall conform to IEC or Indian Standards	Vendor			
6.1.12.7	All cables moving with traversing axes should be installed in Caterpillar/ Drag chain. Additionally, all the cable trays required for laying of cables should be included in the offer.	Vendor			

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6.1.12.8	Vendor should ensure the proper earthing for the machine and its peripherals.	Vendor			
6.1.13	SAFETY ARRANGEMENTS:				
	Following safety features in addition to other standard safety features should be provided on the machine:				
	1.Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistakes. Machine functions should be continuously monitored and alarm / warning indications through lights/ alarm number with messages (on CNC display and panels) should be available.	Vendor			
	2. A detailed list of all alarms / indications provided on machine should be submitted by the supplier.	Vendor			
	3. All the pipes, cables etc. on the machine should be well supported and protected.	Vendor			
	4. All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations.	Vendor			
	5. Emergency Switches at suitable locations as per International Norms are to be provided.	Vendor			
	6. Oil & water pipe lines should not run with electrical cable in the same tray / trench.	Vendor			
	7. Safety Lights at both ends of moving column (preferably Flashing during X-travel).	Vendor			
6.1.14	ENVIRONMENTAL PERFORMANCE OF THE MACHINE :				
	The Machine shall conform to following factors related to environment :				



Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
	(a) Maximum noise level shall be 85 dB(A) at normal load condition, 1 M 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 so required.	Vendor			
	(b) There shall not be any emissions from the machine.	Vendor			
	( c) 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			
	(d) No hazardous chemicals shall be required to be used in the machine.	Vendor			
	(e) If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	Vendor			
	(f) Paint of the machine should be oil resistant and should not peel off.	Vendor			
7.0	SERVO VOLTAGE STABILIZER:				
7.1	Indian make Oil / Air Cooled servo Controlled Voltage Stabilizer suitable for complete machine, its drives, controls, PLC etc. with no undesirable Harmonics in the stabilizer output.	Vendor			
7.2	Make:	Vendor			
7.3	Model & Rating	Vendor			
7.4	Spares Package for the Voltage Stabilizer for 2 years working should also be offered with item wise list.	Vendor			
7.5	Catalogue of the Voltage Stabilizer shall be submitted with the offer.	Vendor			
8.0	ULTRA ISOLATION TRANSFORMER				
8.1	Indian make Ultra Isolation Transformer suitable for complete machine , its drives, controls, PLC etc. shall be supplied.	Vendor			

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
8.2	Make	Vendor			
8.3	Model and Rating	Vendor			
8.4	Catalogue of the Ultra Isolation Transformer shall be submitted with the offer.	Vendor			
9.0	PNEUMATIC SYSTEM:				
9.0	AIR COMPRESSOR:				
9.1	Reputed and Indian make suitable capacity dedicated and effective air compressor unit should be supplied for the supply of dry and oil free compressed air for the function and control of the tapping machine. Make and technical specification of air compressor is to be furnished in the offer.	Vendor			
9.2	The maximum noise level of air compressor should be below 85db (A), 1 meter away from the compressor.	Vendor			
10.0	DIAGNOSTIC SYSTEM:				
10.1	TELE-DIAGNOSTIC SERVICE :				
	Tele-diagnostic service should be provided through International telephone lines along with required Hardware / Software package for the supplied CNC system for remote diagnosis and correction of the problems in both CNC System and PLC of the machine. This should be provided free of charge for the guarantee period. Terms and conditions for the service after guarantee period should be informed by vendor. Subsequently, it should be possible to use other platforms, such as Internet or ISDN, subject to their availability in future.	Vendor			
10.2	FAULT DIAGNOSTIC SYSTEM:				

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
	Supplier's own diagnostic system with required hardware and software should be supplied and installed on the CNC system. This should include customized auto-diagnostic system with supporting hardware and software which shows detailed cause and remedy for the fault on the display with full diagnostic help for faults related to mechanical, electrical and electronic maintenance	Vendor			
10.3	Help guide should be provided to use both diagnostic systems	Vendor			
11.0	LEVELING & ANCHORING SYSTEM				
11.1	Complete anchoring system including foundation bolts, anchoring materials, fixators, leveling shoes etc. shall be supplied for the Machine.	Vendor			
12.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE :				
	Special tools and equipment required for erection of the machine shall be brought by the vendor. 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 with offer	Vendor			
13.0	OTHER ESSENTIAL ITEMS:				
	Full description along with quantity of the items not covered in the specification, but are essential for operation and control, installation, commissioning of CNC insulation taping machine shall be offered.	Vendor			

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14.0	SPARES:				
14.1	Itemized breakup of following categories of spares, used on the machine in sufficient quantity as per recommendation of vendor for 2 years of trouble free operation on three shift continuous running basis should be offered by vendor. (Unit price of each item of spare should be offered). *Mechanical * Wear parts for tapping head * Electrical * Electronics (CNC system, motors, drives) * Hydraulic * Pneumatic	Vendor			
14.2	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			
15.0	DOCUMENTATION: 5 sets of following documents (Hard copies) in English language should be supplied along with the machine.	Vendor			
15.1	Machine operation manual.	Vendor			
15.2	Service manual for machine	Vendor			
15.3	Operation and maintenance manual of CNC system	Vendor			
15.4	Electrical and pneumatic circuit diagram.	Vendor			
15.5	Commissioning and interface manual of CNC system	Vendor			
15.6	Assembly drawings of tapping ring, bar supports at straight portion, fixed end supports, movable end support, cross carriage and gantry crane etc. and for all bought out items wherever applicable.	Vendor			
15.7	Drive controller manual	Vendor			

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
15.8	Installation and start up manual and programming manual of drive controller.	Vendor			
15.9	Wiring diagram, connector/plug, junction box and terminal board description.	Vendor			
15.10	Process details for recording the bar geometry/profile and manual for teach in device.	Vendor			
15.11	Spare parts list along with the specifications and address of the manufacturer	Vendor			
15.12	Alarm list and fault diagnostic manual	Vendor			
15.13	Detail technical specification of motor and built in encoder.	Vendor			
15.14	Input output list.	Vendor			
15.15	Foundation and layout drg	Vendor			
15.16	PLC program print-outs with comments in English.	Vendor			
15.17	PLC program on CD, NC data & PLC data on CD.	Vendor			
15.18	Complete back-up of hard disk on GHOST CD and clear written Instructions (3 copies) to take back-up and reloading of a new hard disk.	Vendor			
15.19	Complete back-up in a hard disk.	Vendor			
15.20	Complete Master List of parts used in the machine shall be submitted by the vendor.	Vendor			
15.21	One additional set of all the above documentation on CD ROM, wherever possible.	Vendor			
16.0	FOUNDATION:				

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
16.1	Vendor shall submit the preliminary layout drawing for getting BHEL's approval within one month from the date of Letter of Intent (LOI)/ P.O. , whichever is earlier. Soil condition data will be furnished by BHEL along with the approval. Complete Foundation Design including details, like Static/ Dynamic load details etc. and final Layout Drawings shall be submitted by the supplier within three months after getting BHEL's approval. The Layout should consist of all requirements pertaining to complete machine and all accessories, including space requirement for Voltage Stabilizer, Isolation Transformer, Air Compressor & any other accessory. BHEL shall construct complete foundation for the machine under supervision of supplier and at supplier's responsibility. Vendor should arrange equipment required for the testing of foundation, if required by the vendor. The vendor shall also indicate detailed specifications of grouting compound and grouting procedure etc. for foundation bolts of the machine.	Vendor			
17.0	ERECTION & COMMISSIONING				
17.1	Supplier to take full responsibility for carrying out the erection, start up, testing of machine, it's control system & all types of other supplied equipment. 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			
17.2	Erection & Commissioning of Voltage stabilizer, Isolation Transformer & Air Compressor shall also be responsibility of the vendor.	Vendor			

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17.3	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All tests, as mentioned at sl. No.20.2, shall form part of the commissioning activity.	Vendor			
17.4	Tools, Tackles, Test instruments and other necessary equipment required to carry out all above activities should be brought by the supplier.	Vendor			
17.5	Commissioning spares, required for commissioning of the machine within stipulated time, shall be brought by the supplier on returnable basis.	Vendor			
17.6	All Cover Plates required for the machine and its peripherals including pits, if any, shall be supplied and installed by the vendor. The plates should be sourced from India	Vendor			
17.7	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 colors of paint used.	Vendor			
17.8	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor			
17.9	Charges, duration, terms & conditions for E&C should be furnished in detail.	Vendor			
18.0	AMBIENT CONDITIONS & THERMAL STABILITY :				

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
18.1	Total machine including CNC system and all supplied items should work trouble free under following operating conditions. Power Supply: Voltage: 415 V + 10%, -15% Frequency: 50 Hz +3%, - 3% No. of phases = 3 Ambient Conditions: Temperature = 5 to 45 degree Celsius Relative Humidity = 95% max.	Vendor			
19.0	PROVEOUT OF BHEL COMPONENTS : (AT BHEL WORKS)				
19.1	Drawings of prove out components are enclosed at Annexure-I,II & III. For details of materials, length, number of layers refer the respective drawings. Vendor to submit preliminary process, time study recommended by them along with the offer. Change in process may be mutually discussed and agreed. Complete prove out of components shall be done by Vendor at BHEL works to the specified design accuracy. CNC programs to be provided by the vendor to prove the machine after complete erection, & commission. Material for the prove out components shall be provided by BHEL. Vendor should submit the CNC programs, setting schemes, process sheets, time studies etc. in advance for the prove out components. Vendor shall be fully responsible for prove out of components as per drawing and other requirements specified by BHEL to the full satisfaction of BHEL. Clarifications, if any required by vendor regarding the prove out components whether specified or not, should be discussed and cleared by vendor during initial technical discussions.	Vendor			



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19.2	CNC tapping machine will be proved at BHEL works by tapping six Numbers stator winding bars. These bars are to be insulated by the expert of the supplier using CNC programmed supplied along with the machine. Any special instruments/tools/equipment's etc. required for proving the machine, the same shall be brought by the supplier.	Vendor			
20.0	MACHINE ACCEPTANCE: (Tests/Activities TO be Performed by Vendor)	Vendor			
20.1	Test/Activities to be carried out at suppliers works on the machine before dispatch.	Vendor			
20.1.1	BHEL personnel shall witness pre-acceptance test run of tapping machine including teaching of the machine for bar profile with teach in device, functions of main machine along with accessories on sample bar. The sample bar and insulation tapes have to be arranged by the vendor.	Vendor			
20.1.2	Demonstration of all features of the machine, CNC system.	Vendor			
20.2	Test/Activities to be carried out at BHEL works while commissioning the machine.	Vendor			
20.2.1	Demonstration of all features of the machine, CNC system.	Vendor			
20.2.2	Job prove out.	Vendor			
20.2.3	Two weeks supervision of independent operation of machine by BHEL after job prove out.	Vendor			
20.2.4	Training of BHEL machine operators in operation of complete machine including teaching of the machine for bar profile with teach in device by the supplier's experts / engineers during their stay at BHEL works	Vendor			
21.0	PACKING:				

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
	Sea worthy & rigid packing for all items of complete machine, CNC System, 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			
22.0	GUARANTEE :				
22.1	24 months from the date of acceptance of the machine at BHEL works.	Vendor			
23.0	GENERAL : The vendor should submit the following information:				
23.1	Machine Model	Vendor			
23.2	Total connected load (KVA):	Vendor			
23.3	General arrangement drawing of the offered CNC insulation taping machine.	Vendor			
23.4	Floor area required (Length, Width, Height) for complete machine & accessories	Vendor			
23.5	Painting of Machine/ Electrical Panels: RAL 6011 Apple Green (Polyurethane Paint)	Vendor			
23.6	Total weight of the machine	Vendor			
23.7	Weight of heaviest part of machine	Vendor			
23.8	Weight of the heaviest assembly/ subassembly of the Machine	Vendor			
23.9	Dimensions of largest part/ subassembly/ assembly of the machine	Vendor			
23.10	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, CNC System, Year of Supply etc.	Vendor			
23.11	Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer.	Vendor			

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23.12	Hydraulic, Pneumatic & oil piping's should be preferably metallic except places where flexible piping's are essential. All the pipes required for the same shall be included in the standard scope of the machine.	Vendor			
24.0	ADDITIONAL FEATURES AND REQUIREMENTS:	Vendor			
24.1	The clamps for clamping the bar in straight portion, overhang and at the ends shall be of universal type and clamping material in straight portion clamps shall be polyamide.	Vendor			
24.2	Tension of the tape can be adjusted to any required setting value within the specified range.	Vendor			
24.3	In case the touch screen fails, the system shall work with normal PC monitor mouse/track ball system. Touch screen will have extended guarantee for another two years in case it fails with in guarantee period, touch screen will be replaced free of cost and guarantee will be extended for next two years. In case the tough screen fails twice, the touch screen will be replaced by an alternative input media. The working of control with external PC Monitor, key board, mouse/trackball is to be demonstrated at vendor works and also at BHEL works during commissioning and proving.	Vendor			
24.4	All necessary interlock description needed for maintenance of machine will be supplied.	Vendor			
24.5	Details of the self diagnostic facilities available on the machine using full keyboard shall be supplied.	Vendor			
24.6	Quality plan of machine will be submitted for BHEL's approval.	Vendor			
25.0	OPTIONALS: Quote for the optional available, with details.	Vendor			
26.0	QUALIFYING CONDITIONS :				

Sl.No.	Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012	Specified/To be confirmed by	Offered	Deviations	Remarks
	Only those vendors, who have supplied and commissioned at least one SIX AXES INSULATION TAPING MACHINE for the purpose of insulation of Turbo Generator Bars of minimum straight part length of 5.0Meter or higher sizes for similar applications in the past ten years (On the Date of opening of tender) and such machine is presently working satisfactorily for more than one year after commissioning (On the Date of opening of tender) , should quote.However,if such machine(s) has/had been supplied to BHEL, then such machine should be presently working satisfactorily for more than six months after its commissioning and acceptance (On the Date of opening of tender) in BHEL, should quote. The following information is to 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			
	1. Name of the customer / company where similar machine is installed.	Vendor			
	2. Complete postal address of the customer.	Vendor			
	3. Month & Year of commissioning.	Vendor			
	4. Application for which the machine is supplied.	Vendor			
	5. Name and designation of the contact person of the customer.	Vendor			
	6. Phone, FAX no. and email address of the contact person of the customer.	Vendor			

<b>Sl.No.</b>	<b>Description for BHEL Requirement Specification No.S-EMT-229/00 Dt.05.09.2012</b>	<b>Specified/To be confirmed by</b>	<b>Offered</b>	<b>Deviations</b>	<b>Remarks</b>
	7. Performance certificate from the customers regarding satisfactory performance of machine supplied to them	Vendor			
	8. BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/incorrect, the offer shall be rejected.	Vendor			