



BHARAT HEAVY ELECTRICAL LIMITED

UNIT'S ADDRESS:

CONTACT PERSON'S NAME/DESIGN./PHONE NO./E-MAIL
(FROM PURCHASE DEPTT.)

Enquiry No. : _____

Due Date : _____

Supplier Qtn. No.: _____

Date : _____

SPECIFICATION CUM COMPLIANCE CERTIFICATE OF SCOPE OF SUPPLY FOR SUPPLY, ERECTION & COMMISSIONING OF 3 NO. 2 MT, M-4 CLASS, SINGLE GIRDER EOT CRANE WITH 13500MM SPAN , 7000 MM H.O.L. FOR TGM

NOTE:-

1. Vendor must submit complete information against Qualifying Criteria - 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, 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.

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 :
SCOPE: SUPPLY, ERECTION & COMMISSIONING OF 3 NOS 2 MT SINGLE GIRDER, M-4 CLASS EOT CRANE COMPLYING WITH THE SPECIFICATIONS AS BELOW	

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
1.0	PURPOSE: 3 No 2 MT SINGLE GIRDER EOT CRANE				
1.1	3 No 2 MT EOT CRANE SINGLE GIRDER , M-4 CLASS WITH 13500 mm SPAN , 7000mm H.O.L. are required. Each of the crane would travel for independent Gantry bay length of 48 m Long. Each crane would have pendant Control (Movable throughout its Span) & also Remote controlled. The essential requirement for each of the crane is specified from SNo (Clause) 2.0 onwards as given below:	Vendor to confirm			
2.0	SPECIFICATION:				
2.1	CRANE CONFIGURATION:				
2.1.1	Each of the 3 No SINGLE GIRDER , 2 MT, EOT crane shall be designed for M4 class duty in accordance with IS 3177 (latest revision). These cranes shall be generally of Single Girder, with electric Wire rope hoist as per IS 3938 (latest medium duty class). Longitudinal motion shall be Twin (Both side motor) driven. The DSL shall be like Festoon type of arrangement. The Crane shall have a Pendant Control & also Remote controlled. Pendant should have provision for keeping it secured on platform when not in use.	Vendor to confirm			
2.2	CAPACITY & TECHNICAL PARAMETERS. 2 MT SINGLE GIRDER EOT CRANE				
2.2.1	Safe Working Load (Main Hoist)	2MT			
2.2.2	Span of the crane . However ,actual available span & other dimension are required to be measured by supplier before commencement of the work.	13500 mm			
2.2.3	Gantry rail height above floor level	7000mm			
2.2.4	Height of lift : 7.00 meters (Hook Must travel till 6.0m above floor level & 1m below floor level safely)	Vendor to confirm			
2.2.5	Type of Main Hook : 2MT hook shall be long Shank C type with bearings.	Vendor to confirm			
2.2.6	DETAILS OF RAIL etc:				
2.2.7	Maximum wheel load (4 Nos wheels): Approx tonnes .	Vendor to specify			

2.2.8	Distance between wheel Centers of end carriage: Max.(approx) mm.	Vender to specify			
2.2.9	Main Hook / Approaches :	Vender to specify			
2.2.10	Maximum head room available above rail. (Maximum Distance above gantry Height is 850mm):	Vender to specify			
2.2.11	Minimum side clearance from gantry rail centers (max 300mm from Rail centre)	Vender to specify			
2.2.12	Overall width mm (approx.)	Vender to specify			
2.2.13	Overall width Over Buffers mm (approx.)	Vender to specify			
2.2.14	Operation : Pendant movable along the span of the bay through festoon type of arrangement.	Vender to confirm			
2.2.15	DSL (Festoon type) for LT movemen : Festoon type of DSL is to provided by supplier for each of the Gantry length of 48 m . Whereas Cross bar of 40mm section as LT Rail for LT movement shall be provided by BHEL.	Vender to specify			
2.2.16	Location	Indoor in MS fabricated shed.			
2.2.17	Electric power system : 415 volts $\pm 10\%$, 50 Hz $\pm 3\%$; 3-phase and Ground (No Neutral) Control Supply : 110 volts AC	Vender to confirm			
2.2.18	CT Power Supply System : Through PVC Fr grade Copper conductor system - Trailing Festoon type arrangement. Vendor to supply.	Vender to confirm			

2.2.19)	OPERATING SPEEDS (LOADED): (From Pendant Control Station)	Vender to confirm			
2.2.20)	Main Hoist Speed (Any value in between 3 to 4.5 m/min ($\pm 10\%$)) Vendor to indicate value.	Vender to confirm			
2.2.21)	Main Hoist Creep Speed ((Any value in between 0.3 m/min to 0.45 m/min ($\pm 10\%$)) Vendor to indicate value.	Vender to confirm			
2.2.22)	Cross Traverse ((Any value between 15 to 20 m/min ($\pm 10\%$)) Vendor to indicate value.	Vender to confirm			
2.2.23)	Long. Travel (Any Value in between 15 to 20 m/min ($\pm 10\%$)) Vendor to indicate value.	Vender to confirm			
2.3)	2.3 MAKES OF DIFFERENT COMPONENTS: Bought - Out Materials shall be of best quality, duly tested as per appropriate IS standard and of Preferred makes as below				
2.3.1)	Medium duty low electric operated hoist : INDEF / SWIFT(CHPL)/ MORRIS HOIST				
2.3.2)	Ball & Roller Bearings : SKF/FAG/TATA/TIMKEN/RHP	Vender to specify			
2.3.3)	Contactors : SIEMENS only	Vender to specify			
2.3.4)	HRC fuses: English Electric / Siemens / Busmann, Semiconductor fuses: Siemens / Busmann/ Ferraz.	Vendor to confirm			
2.3.5)	Thrustors: Industry syndicate / Stromkraft/Speed-o- Control/ EMM	Vender to specify			
2.3.6)	Cables : FR type Copper cables with ISI mark only. Asian / Lapp/ Universal/ Finolex / Torrent	Vender to specify			
2.3.7)	Gravity Limit switch / Other Limit Switches : Industry syndicate/ Stromkraft / Stromag / Speed-o- Control / BCH- Heavy duty.	Vender to specify			
2.3.8)	T.B Connectors : Wago/ Elmex	Vender to specify			
2.3.9)	Structural Material (Steel): Of reputed makes like TATA/SAIL/ Jindal/ Essar as per relevant Indian Standards	Vender to specify			
2.3.10)	Gear Boxes: Shanti Gears/ New Allenbery(Elcon) / Bonfiglioli In case Crane manufacturer intends to supply their own make / Specific make of Gear Boxes & Couplings, then performance Guarantee of atleast 5 years shall be provided for those items.	Vender to specify			

2.3.11	Geared/ Semi Geared Couplings : Nutech/ Fenner / Allmex etc.	Vender to specify			
2.3.12	Wire rope : Usha Martin only	Vender to confirm			
2.3.13	Shrouded DSL : Copper material . Make Susheel Engg./ Stromag/ Safetrack only	Vender to specify			
2.3.14	Paint Confirming S 5: 1984;Colour Shade No. 591 of Asian / Appcolite make	Vender to confirm			
2.3.15	Electrical Motor : Inverter grade of either Siemens / Alstom/ ABB/ Kirloskar/ Bharat Bijlee/ Crompton Crane Duty as per relevant IS. 325 etc	Vender to specify			
2.3.16	MCCB /SFU: Siemens/ ABB / L&T make	Vender to specify			
2.3.17	Hooter: Reputed make	Vender to confirm			
2.3.18	Push bottoms (Siemens/ BCH/ Schneider make only)	Vender to confirm			
	2.4 CONSTRUCTION:				
2.4.1	GIRDER				
2.4.2	The crane shall be Single girder made either of I- beam of Channels welded back to back with proper stiffeners/ bottom & top plate & shall be designed for class M4 duty in accordance with IS 3177 (latest revision)	Vender to confirm			
2.4.3	The girder should have proper Camber & fabricated with Channels / I beam reinforced with MS plate & proper diaphragm or stiffening plates and should be robust enough to handle the loads safely as per IS 807 / IS 800. The welded joints shall be Tested . All butt joints shall be 100% X rayed on tension & 25% on compression joints.	Vender to confirm			
2.4.4	Adequate maintenance platform shall be provided to comply with statutory requirement of factory act .	Vender to confirm			
2.4.5	Box Girder & End carriage joints should have fit bolts only.	Vender to confirm			
2.4.6	For all bolted joints the holes are to be drilled and reamed and bolts are to be force fitted.	Vender to confirm			
2.4.7	All Rotating parts & Overhang parts should be suitably guarded.	Vender to confirm			

2.5 End Carriage					
2.5.1	The end carriages shall be of approved design, with L type Brackets of substantial construction and ample stiffness built up of mild steel sections securely riveted or welded together. They shall project over the run way rails and shall be so arranged that in the event of derailment the drop cannot exceed 1 inch.	Vender to confirm			
2.5.2	The end carriages of the crane are to be mounted on double flanged wheels of approved diameter in accordance with IS:3177. Number of wheels on each side of the crane shall be 2 Nos (Total 4 Nos in the Crane for LT motion) The Wheel should be of forged steel having composition as C55 Mn 75 (EN 9) hardened to 250-280 BHN confirming SAE 1055 / IS 1570 & shall be fitted with roller bearings. Greasing nipples should be provided and the grease be retained and dirt excluded by means of suitable seals.	Vender to confirm			
2.5.3	The end carriages of the crane are to be mounted on double flanged wheels of approved diameter in accordance with IS:3177. Number of wheels on each side of the crane shall be 2 Nos (Total 4 Nos in the Crane for LT motion) . LT motion should have either soft start facility with sq cage motor or slip ring induction with resistance control smooth motion.	Vender to confirm			
2.5.4	Traveling Motion Brake: For LT motion Electric Hydraulic thruster brakes shall be provided. .	Vender to confirm			
2.5.5	Limit switches: LT motion should have traverse limit switch for restriction of motion at extreme position.	Vender to confirm			
2.6 Trolley/ Hoist:		Vender to confirm			
2.6.1	Capacity (SWL) : 2 Ton,	Vender to confirm			
2.6.2	Class of duty : II as per IS -3938:1983, ISO 9001 CERTIFIED MFR	Vender to confirm			
2.6.3	Type of Suspension : Motor Driven Trolley	Vender to confirm			
2.6.4	Type of brakes : Fail safe DC EM Disc type brakes (Types of brakes/ make supplied should be specifically mentioned).	Vender to Specify			
2.6.5	Mounting : The cross travel trolley should traverse freely over the I Beam/ fabricated structure.	Vender to confirm			

2.6.6	Pendant Station : The Pendant Control station shall be movable type i.e it should move independantly (not along with the hoist) . It should have Emergency Stop Push button (Mush-room type) along with other usual switches like On, OFF, UP , Down, Left , Right , Forward, reverse etc. required for controlling various motions in a single column. Pendant should be adequately earthed.				Vender to confirm			
2.6.7	The contactor panel shall have overload relay, Single Phase Preventer, isolator and other safety devices required for safe operation of the hoist.				Vender to confirm			
2.6.8	The hoist shall have a separate contactor panel for mounting on factory column for ease in maintenance.				Vender to confirm			
2.6.9	Wire rope : The wire rope should be as per IS 2266, of best Plough steel with tensile strength 180 Kg /mm ² with factor of safety not less than 6. Nos. of falls shall be either 2 or 4 only. The make shall be only Usha-martin only. Preferred size shall be 6mm or 9mm or 13 mm.				Vender to confirm			
2.6.10	Rope guide: The rope guide should be of ease in maintenance & should prevent overlapping of rope on & or loosening off the drum.				Vender to confirm			
2.6.11	HOOK BLOCK : Standard forged trapezoidal section hooks to IS 3815 in steel Cross-head on thrust ball bearing with sheaves supported on ball bearings should be supplied				Vender to confirm			
2.6.12	Limit switches : The hoist should be provided with limit switches for hoisting , lowering loose wire rope emergency and Cross traverse motions (both sides).				Vender to confirm			
2.6.13	Provision of maintenance should be kept while designing the sytem .				Vender to confirm			
	2.7/ Limit Switch Gear :							
2.7.1	There should be two limit switches for restricting hoisting motion (1 gravity & 1 rotary limit switch) and restricting CT/ LT motion limit switch for both side shall be provided. .				Vender to confirm			
2.7.2	All limit switches should be connected only in interlock circuits				Vender to confirm			

2.8 Crane Control Panel.					
2.8.1 The control panel shall be of made of not less than 1.6mm CRCA sheet adequately powder coated conforming to all safety standards and best wiring practices. It shall have SFU/MCCB, Single phase preventer, Overload protection. T.B. with proper identification of components, ferruling & proper lugs .			Vendor to confirm		
2.8.2 The control panel shall be placed where maintenance is easy. It should not be mounted with hoist.			Vendor to confirm		
2.9 Electrical Wiring:			Vendor to confirm		
2.9.1 All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the crane controls / cabinets, shall be the responsibility of vendor.			Vendor to confirm		
2.9.2 All internal wiring inside control panels should be 2.5 sq.mm copper wires having PVC insulation. All copper wire terminals will be lug of either soldered / Crimping type.			Vendor to confirm		
2.9.3 All electrical installation and wiring should strictly conform to IE Act and latest IEE Rules and other standard practice as adopted by the Indian Standard Institution like IS 732:2005.			Vendor to confirm		
2.9.4 Double earthing by bare copper wire (8 SWG) shall be provided throughout the crane.			Vendor to confirm		
2.9.5 All control terminations should be ferruled such that the numbers are clearly visible from outside. Crimped terminations should be provided for all cables . All device reference shall be painted or labelled or engraved for identification.			Vendor to confirm		
2.9.6 The crane shall be supplied complete with all wiring & materials . All internal wiring inside control panels should be copper wires PVC insulated FR grade with ISI mark only.			Vendor to confirm		

2.9.7	All wiring shall be nicely dressed in cable Trays/trunking . Suitable marking should also be made.	Vendor to confirm			
2.9.8	Main power cable from main SFU at floor level to the hoist should also be supplied in sufficient length .	Vendor to confirm			
2.10	Miscellaneous				
2.10.1	The structural steel work in the Girder and crab frame should be given one coat of suitable primer during fabrication. Gear boxes and similar parts to be given coat of oil paint & bright parts be given coats of rust preventive paint. After erection at site the crane should be given two coats of deep orange synthetic enamel conforming to IS 5 Shade 591	Vendor to confirm			
2.10.2	The first fill of oil, grease etc. for the commissioning of the crane shall be provided by the supplier.	Vendor to confirm			
2.10.3	The tool box with standard tools shall be supplied with the crane and suitable heater should be provided inside the cabin.	Vendor to confirm			
2.10.4	A list of bought out items should be furnished with name of makers & BHEL's approval obtained before placing order to ensure that they are of best quality and standard make.	Vendor to confirm			
2.10.5	Indication plates for SWL, Hooks, Sheaves, Pulley etc. panel Identification , Master Controllers position marking should be preferably done wherever possible.	Vendor to confirm			
3.0	ERECTION & COMMISSIONING:	Vendor to confirm			
3.1	The crane is to be Erected at site by the supplier with their own labour, tools and tackles. However, Lifting of crane is possible with the help of crane operating at upper level of existing bay , other equipments like Sheaves/ Sheave Pulley Block etc shall be brought by the supplier on returnable basis.	Vendor to confirm			
3.2	The supplier shall however bring their own instruments to check Gantry level / Water level etc (on returnable basis) for checking of span & of LT Gantry Cross-bar level . The load test shall be performed at BHEL site for proving of the crane w.r.t technical, Safety Parameters etc the Crane shall be commissioned.	Vendor to confirm			

3.3	Various tests like gradual loading , overload at 125%, Deflection test at 100% load, Braking, Operational Speds etc shall be conducted after proving of the crane w.r.t technical , Safety Parameters etc the Crane shall be commissioned.	Vendor to confirm			
3.4	Commissioning-spares, required for commissioning of the crane shall be brought by the supplier on returnable basis.	Vendor to confirm			
3.5	Portion, if any, of the crane / sub- assemblies / panel or other -accessories 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 confirm			
3.6	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to confirm			
3.7	Charges, duration, terms & conditions for E&C should be furnished in detail separately by vendor along with offer.	Vendor to confirm			
	4.0 ELECTRICAL SYSTEM :				
4.1	415V \pm 10% 50Hz \pm 1.5 Hz, 3 Phase AC (3 wire system plus ground) Power Supply Source will be provided by BHEL by means of ICTP switch at one location for erection purpose. However For Crane supply Festoon type cable arrangement is required to be provided by supplier. Control Supply for crane shall be 110V ac . All types of cables, connections, circuit breakers, transformers, current collectors etc. required for connecting the DSL power supply to different parts of the crane / control cabinets, shall be the responsibility of vendor.	Vendor to confirm			
4.2	Tropicalisation: All electrical / electronic equipment shall be tropicalized.	Vendor to confirm			
4.3	All electrical & electronic control cabinets & panels should be dust and vermin proof.	Vendor to confirm			
4.4	All electrical components in the cabinets should be mounted firmly on backelite plate or on DIN Rail so that there is no break in circuitry during traversing & accidental hit by adjoining Cranes or severe jerks at rail Joints.	Vendor to confirm			
4.5	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 to confirm			

4.6	All cables /All connecting Cables should be properly dressed in cable trays/ trunking with appropriate clamps. Cable for Crane lighting shall be in flexible mild steel Conduit pipe.	Vendor to confirm			
4.7	Vendor should ensure the proper earthing for the crane's electrical equipment & its peripherals .	Vendor to confirm			
5.0	SAFETY ARRANGEMENTS: Following safety features in addition to other standard safety features should be provided on the crane .	Vendor to confirm			
5.1	Crane should have adequate and reliable safety interlocks / devices to avoid damage to the crane, workpiece and the operator due to the malfunctioning or mistakes.	Vendor to confirm			
5.2	All the pipes, cables etc. on the crane should be well supported and protected.	Vendor to confirm			
6.0	ENVIRONMENTAL PERFORMANCE OF THE MACHINE :	Vendor to confirm			
6.1	The Crane shall conform to following factors related to environment :	Vendor to confirm			
6.2	Maximum noise level shall be 80 dB(A) at normal load condition, 1 M away from the crane 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 to confirm			
6.3	If any safety / environmental protection enclosure is required it should be built on the Crane by the vendor.	Vendor to confirm			
6.4	Paint of the Crane should be applied only after providing rust-preventor (primer) coat..	Vendor to confirm			
6.5	Oil / Grease should not dip/ fall from the Crane	Vendor to confirm			

7.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE :				
7.1	For Crane Erection purpose Tools & tackles etc shall be brought by the Supplier on returnable basis. Necessary tools like Torque Wrench, Spanners, Keys, grease guns etc.for operation and maintenance of the crane should be supplied. List of such tools should be submitted with offer .	Vendor to confirm			
7.2	All necessary levels / other instruments and devices for testing of the Crane except Load test Blocks should be brought by Vendor on returnable basis.	Vendor to confirm			
7.3	Maintenance: Adequate maintenance facility shall be provided for ease in maintenance for assemblies/sub-assemblies including gear boxes / machinery / Panel / wiring/ etc.	Vendor to confirm			
	8.0 SPARES:				
8.1	Itemised breakup of mechanical, hydraulic, electrical and electronic spares used on the crane in sufficient quantity as per recommendation of Vendor for 2 years for 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)	Vendor to Specify			
8.2	Mechanical & Hydraulic Spares: Thrustor Brake, Gears, Pinions, Shafts, Wheels, Hydraulic Seals for Gear Boxes, Drum etc .	Vendor to Specify			
8.3	Electrical Spares: Detail list of electrical spares etc shall be provided .	Vendor to Specify			
8.4	Vendor to confirm that complete list of spares for the crane and its controls along with specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the Crane	Vendor to confirm			
9.0	DOCUMENTATION : Five sets of following documents (Hard copies) in English language should be supplied along with the machine	Vendor to confirm			

9.1	During participation in technical Bid		Vendor to confirm		
9.1.1	G.A. Drawing		Vendor to confirm		
9.1.2	Wheel Load Diagram (Wheel Distance & Wheel Load)		Vendor to confirm		
9.1.3	Sketches showing full details of cranes with dimensions / end clearances (between centre of LT rails to column face of building), overhead clearance from LT rails, hook approach limits, lift height, Details of Web thickness baffle plates, Stiffeners ,of Girder section , End carriage (Boggies) Trolley Section etc.		Vendor to confirm		
9.1.4	Vendor to submit, along with offer, the reference list of customers where similar cranes have been supplied mentioning the customer, major specifications of the supplied Crane, Control System, Year of Supply etc		Vendor to confirm		
9.1.5	Vendor to submit appropriate Q.A. Plan .		Vendor to confirm		
9.2	After Receipt of Order:		Vendor to confirm		
9.2.1	Calculation for Girder, End Carriage structural plates/ Web / Stiffner plate, Wheel Load calculation & Calculation for selection of Diameter of Wheel, Motor, Gearbox and Brake etc. 5 - sets of followings documents like G. A Drawings, Structural drawings like End- carriage, Box Girder, Assembly Drawings/ Sub- assembly Drawings, Gear Box Drawings (specially of Typical Gears having Helix Angle, Pressure Angles, Modules etc.) , Hook Block, LT & CT wheel, Main Hook & LT machinery, Hoisting machinery, Electrical Drawings comprising Power , Control Circuits , Electronic Circuitry diagram for RRC etc. No fabrication / purchase of BO. items should be taken up before the approval of the drawings.		Vendor to confirm		
9.2.2	Operating manuals of Crane - 5 Sets		Vendor to confirm		
9.2.3	Detailed Maintenance manual of Crane. Spares- part list / concerned drawing of the spares - 5 Sets		Vendor to confirm		
9.2.4	Maintenance, Interface & commissioning manuals for Controller & drives - 2 Sets along with drive parameterisation software.		Vendor to confirm		
9.2.5	Catalogues, O&M Manuals of all bought out items including drawings,wherever applicable.		Vendor to confirm		
9.2.6	Detailed specification of all rubber items like Oil- Seals / O- Rings etc		Vendor to confirm		
9.2.7	One Soft copy for the above requisities shall also be supplied in CD		Vendor to confirm		

10.0 TRAINING:					
10.1	Vendor to impart training to BHEL personnel for operation & for maintenance at BHEL works for a period of 1 day after Erection, Commissioning and handing over of the Crane. Supplier should arrange for training of BHEL personnel free of cost for the offered Crane maintenance.	Vendor to confirm			
11.0 AMBIENT CONDITIONS & THERMAL STABILITY :					
11.1	Total Crane including Controller system and all supplied items should work trouble free and efficiently under following operating conditions: Power Supply Voltage: 415 V \pm 10%, 50 Hz, \pm 1.5Hz No. of phases = 3 (3 Wire plus Ground) Ambient Conditions: Temperature = 5 to 55 degree celsius Relative Humidity = 95% max.	Vendor to confirm			
11.2	Weather conditions are tropical, Atmosphere may be dust laden during some part of the year. Crane shall be in the normal shop floor condition. Max. temperature variation is up to 25 deg Celsius in 24 hours.	Vendor to confirm			
12.0 CRANE ACCEPTANCE: (Tests/Activities to be Performed by Vendor)					
12.1 At Vendor Works: Inspection And Test					
12.1.1	Stage Inspection : BHEL Officials may stage inspect the crane for test-witness/ Physical inspection of Sub-assemblies, Gear Box, Wire Rope, Hooks, Weld test etc before offer for final inspection. And these stage inspection shall be carried out before painting of crane girders/ components. Supplier will furnish test certificates & guarantee for performance of these components / unit.	Vendor to confirm			
12.1.2	Load Test : During Final inspection before dispatch, the supplier shall assemble the complete crane and arrange for its physical inspection & checking of the camber as per IS 3177(2005 or latest) , the same shall be witnessed by BHEL officials. Load test at 125% & deflection at 100% load shall be measured along with running of sub assemblies shall also be witnessed. During this relevant Test certificates by OEM of Hooks, Wire Rope, Thruster Brakes, Limit Switches, Gear Boxes etc shall also be examined.	Vendor to confirm			

12.2 At BHEL Works: Inspection And Test					
12.2.1 Span, Diagonal, & other dimensions shall be examined.				Vendor to confirm	
12.2.2 Load Test :Overload test at 125% shall be conducted . Deflection at 100 % load shall be measured. Operational Speed & braking for all motions shall be tested in line with relevant IS 3177(2005 or latest) . For load test the required load will be provided by BHEL. Interlocking, Performance of motors with current measurement, etc shall be carried out. Test- Reports & other documents shall be examined/ verified. If found satisfactory , the crane shall be accepted and considered as Handed Over.				Vendor to confirm	
12.2.3 Load Test test shall be performed at BHEL site for proving of the crane w.r.t technical, Safety Parameters etc the Crane shall then only be considered commissioned & handed over.				Vendor to confirm	
13.0 PACKING:					
13.1 Rigid packing for all End Carriages, Girders etc . Other parts like sub-assemblies of cranes , Panel , Panel etc shall be suitably packed so that the material reaches BHEL without any damage/loss in transit.				Vendor to confirm	
14.0 GUARANTEE : 24 months from the date of handing over of the Crane.				Vendor to confirm	
15.0 GENERAL : The vendor should submit the following information:				Vendor to confirm	
15.1 Total connected load (KVA):				Vendor to specify	
15.2 Total weight of the Crane				Vendor to specify	
15.3 Weight of heaviest part of Crane				Vendor to specify	
15.4 Weight of the Entire Crab				Vendor to specify	
15.5 Weight of the heaviest assembly/ subassembly of the Crane				Vendor to specify	
15.6 Dimensions of largest part/ subassembly/ assembly of the crane.				Vendor to specify	
15.7 Overall Length, Width, Height for complete Crane with accessories				Vendor to specify	

16.0	QUALIFYING CONDITIONS :				
16.1	Only those vendors, who have supplied and commissioned at least one EOT Crane of capacity 2 Tonnes or higher with span 7 m or higher and the supplied crane is presently working satisfactorily for more than 3 years (more than 1 year if supplied to BHEL) after commissioning , should only quote. The following information is to be submitted by the vendor about the companies where similar Cranes have been supplied. This is required from all the vendors for qualification of their offer.			Vendor to Specify	
16.2	Name of the customer / company where similar Crane or higher capacity crane(s) are installed. (Copy of Purchase Order should be furnished)			Vendor to specify	
16.3	Complete postal address of the customer.			Vendor to specify	
16.4	Year of commissioning. (Copy of Commissioning Report should be furnished)			Vendor to specify	
16.5	Application for which the machine is supplied with details of accuracies achieved on the job.			Vendor to specify	
16.6	Name and designation of the contact person of the customer.			Vendor to specify	
16.7	Phone, FAX no. and email address of the contact person of the customer.			Vendor to specify	
16.8	Performance certificate from the customers, on their letter head, regarding satisfactory performance of machine supplied to them.			Vendor to Confirm	
16.9	BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false / incorrect, the offer shall be rejected.			Vendor to Confirm	