

BHARAT HEAVY ELECTRICALS LIMITED
RAMACHANDRAPURAM :: HYDERABAD - 502 032
SPECIFICATIONS FOR 15 TON EOT CRANE

TECHNICAL SPECIFICATION (PART-B)			
Heavy Power Equipment Plant Bharat Heavy Electricals Limited, Ramachandrapuram - 502032, Andhra Pradesh, INDIA.		Enquiry No. & Dt.:	
		Due Date :	
		Supplier's Ref.:	
		Date :	
Specification cum Compliance Certificate for 15 TON EOT CRANE WITHOUT TROLLEY			
Note:-			
1. The Column " SUPPLIER'S OFFER/COMMENT" 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.			
2. 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 No.		Telephone No.	
Fax No.		Fax No.	
e-mail :		e-mail :	
Scope: Supply of 15 TON EOT CRANE WITHOUT TROLLEY complying with specification as below.			
	DESCRIPTION	BHEL SPECIFICATION	SUPPLIER'S OFFER/COMMENT
A	MAIN PARAMETERS		
1.0	Type of Crane	Double girder EOT as per IS 3177-1999 and IS 807 for Indoor use	
1.1	Class & duty	M5 as per IS 3177-1999	
1.2	Main Hoist capacity (SWL of the Crane)	15 Tonnes	
1.3	Span	21.9 Metres	
1.4	Long travel	30 meters/minute	
1.5	Working clearance distance from centre of gantry rail to nearest obstruction (horizontal)	250 mm	
1.6	Vertical distance from top of gantry rail to lowest overhead obstruction (maximum)	3 Meters	
1.7	Distance from floor to top of gantry rail	10 Meters	
1.8	Size of gantry rail (Long Travel) - Rail is part of BHEL scope	52.1 Kg/mtr	
1.9	Size of CT Rail	40 mm x 70 mm Rectangular Bar	
2.0	LT wheel load in Tonnes	Indicate	
2.1	Number of Trolleys	BHEL scope_One	
2.2	Width of Crane	Supplier to indicate actual value in meters	
B	CONSTRUCTION/STRUCTURAL DETAILS		
3.1	LT Drive	Twin corner drive with horizontal type gear box	
3.2	Number of wheels for LT drive	4	
3.3	Diameter of wheels for LT drive	> = 400 mm	
3.4	Number of driven wheels for LT drive	50% or more	
3.5	Type of bearings for LT wheels	Anti-friction	
3.6	Type of mounting of LT wheels	"L" type brackets	
3.7	Speed control		
3.8	LT Drive	Through slipring induction motor and resistance	

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3.9	Duty cycle	40% CDF all motions	
3.10	Brakes	Electro Hydraulic operated brakes are to be provided for LT motion (Totally enclosed) conforming to IP:54	
3.11	Gear Boxes for LT	Completely enclosed M.S fabricated and stress relieved split type	
3.12	Couplings between motor and gearbox	Geared couplings	
3.13	Mounting	All the gearboxes, motors, brakes, bearing pedestals, etc. shall be mounted on machined surfaces	
3.14	Lubrication of Crane	Grease nipples and hand pump to be provided for LT wheel lubrication	
3.15	Toeguards	Toeguards shall be provided for all openings	
3.16	Railings	Safety hand railings of tubular construction shall be provided across full length of the bridges and in any other places where openings have been provided	
3.17	Jacking pads	Suitable jacking pads should be provided on end carriages for jacking up the crane for changing wheels	
3.18	Safety Pads	Suitable reinforced safety pads should be provided under the end carriages to prevent the crane from falling more than 25mm in the event of breakage of a track wheel/bogie/axle. These safety stops shall not interfere with the removal of wheels	
3.19	End buffers	Spring-loaded buffers are to be provided for long travel	
3.20	Measurements	All components including fasteners should be in metric system only	
3.21	Locking of Parts	Bolts and screws in rotating parts shall be locked.	
3.22	Painting	The cranes should be painted with two coats of deep orange paint confirming to IS 2932 : 2003, ISC No 591 (as per IS 5) after giving primary coat. The paint should withstand high temperatures (upto 60 deg celsius). Girders and trolley frame shall be shot blasted/ Chemically treated before painting.	
3.23	Plates used for fabrication	To be of rolled steel as per IS 2062 plates. Test certificates to be furnished	
3.24	End carriages	As designed by manufacturers	
3.25	Butt joints	All butt joints shall be 100% X rayed both compression and tension and both flanges / Webs	
3.26	Girder	No splice joint - to be of single piece only. No of weldable joints along the total length of the girder should not exceed three	
3.27	Platform	Full length chequered platform shall be provided on both bridges and wherever access is necessary for operation and maintenance. The platforms shall be bolt jointed. Width of the platform shall be >750 mm.	
3.28	Provision for pendant and CT cable trolley movement	Vertical supporting brackets of suitable height along with suitable I-beam and cable trolleys to be provided on the platform for movement of pendant and CT cables	
3.29	DSL	In BHEL scope	
3.30	DSL guard	To be provided	
3.31	DSL maintenance cabin	To be provided at suitable height	
C	ELECTRICAL EQUIPMENT		

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4.1	Power Supply at DSL	415 volts \pm 10 %, 3 phase, 50, \pm 2 Hz, 4 wires, one conductor earthed. Isolator switch should be provided for isolating the total supply to the crane	
4.2	Control voltage	110 Volts AC	
4.3	Auxiliary voltage	230 Volts AC	
4.4	Electrical Motors	Crane duty, one hour rated, class B or F insulation, IP54 protection, 40 % CDF, 150 starts/hour slipring motors for LT motion	
	D	MATERIALS	
5.1	Gears	EN 9 Helical type	
5.2	Hardness of Gears	225 to 280 BHN	
5.3	Pinions	EN 19/EN 24 helical type	
5.4	Hardness of Pinion	250 to 300 BHN	
5.5	Heat treatment of gears/pinions	Hardened, tempered	
5.6	Gear Box	IS: 226/IS: 2062 fabricated casing duly stress relieved	
5.7	Wheels	C 55 Mn 75 / forged steel with hardness of 300-350 BHN	
5.8	Makes of other bought out components	To be as per annexure M&S/Cranes/Makes/01, Rev 02, dated 19/10/2005 (enclosed)	
	E	GENERAL	
6.1	Environment	All equipment shall be tropicalised to operate in normal shop floor conditions of temperature 10 to 40 ° C and maximum relative humidity of 95 %.	
6.2	Guarantee	Supplier shall guarantee all equipment for a period of 18 months from the date of commissioning at BHEL works	
6.3	Oils & grease	First filling of oils and grease are in supplier's scope	
	F	DOCUMENTATION	
7.1		Point-wise clarifications to all points of this specification including deviations, if any	
7.2	List of documents to be submitted with offer (offer will be rejected unless these are submitted)	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	
7.3	Total weight of crane in Tonnes	Indicate	
8.1		General Arrangement (GA) drawing of crane	
8.2	List of drawings/documents for approval before manufacture of crane. Note: It is the responsibility of the supplier to get the drawings/documents approved. No extension of delivery will be accepted in case of any delay in submission/approval of drawings	GA Drawing of LT mechanism	
8.3		Drawings of bridges, end carriage, and their connections	
8.4		Sub-assembly drawings for wheels, gearboxes, shafts	
8.5		Calculation for selection of motor, gearbox and brake	
8.6		Calculation for bridge girder, end carriage and selection of wheels	
8.7		Total weight of structural, mechanical electrical equipments separately	
8.8		Quality Plan	

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9.1	List of drawings/documents to be submitted at the time of inspection of crane at supplier's works and at BHEL	Test certificates of all boughtout items like steel plates and for crane	
9.2		Drawings of all wheels	
6	TESTING/INSPECTION		
10.1	During manufacture	Will be checked/inspected by BHEL/third party appointed by BHEL	
10.2	After manufacture	Will be checked/inspected by BHEL/third party appointed by BHEL. The crane will be checked for all functions and operations.	
10.3	Crane span	Check of Crane span and diagonal - 10Kg pull should be applied while checking	
10.4	Clearance for despatch	The equipment shall be despatched only after testing/inspection at supplier's works and on written clearance from BHEL	
10.5	Load test (To be done at BHEL)	To be done as per relevant IS standards. Load will be provided by BHEL	
10.6	Test certificate for crane	Part of supplier's scope. To be inspected and certified by "Competent Person" as per AP Factories Rules/Acts/Laws before use.	