

BHARAT HEAVY ELECTRICALS LIMITED
RAMACHANDRAPURAM :: HYDERABAD - 502 032
SPECIFICATIONS FOR 4T MONO RAIL HOIST

	DESCRIPTION	BHEL SPECIFICATION	SUPPLIER OFFER	DEVIATIONS/COMMENTS
A	MAIN PARAMETERS			
1	Type of Crane	Monorail Electric wire rope hoist as per IS 3938 for indoor operation. Note: The hoist should be mounted on the existing I-Section		
2	Class & duty	Class IV as per IS 3938 : 1983		
3	Hoist capacity	4 Tonnes		
4	Type of suspension	Motor driven trolley		
5	Details of existing I-Section	ISMB 330. Note: The supplier may come and take the actual measurement of I- Section before manufacture.		
6	Maximum travelling distnace	14 metres		
7	Height of lift	6.5 metres		
8	Hoisting speed	4 mtrs / min		
9	Creep speed for hoist	0.8 mtrs / min		
10	Trolley travel speed (along I-Beam)	Motor driven with max speed of 10 mtrs / min		
11	Type of brakes	Fail safe DC EM brakes for all motions. One No. each type of brake used shall be supplied as spare		
12	Method of operation	Pendant pushbutton station moving along with the trolley		
13	Wire rope	The wire rope should be as per IS 2266 with a factor of safety not less than 6 with fibre core		
14	No. of falls	2 or 4		
15	Rope guide	The rope guide shall be of ease in maintenance and should prevent overlapping of rope during winding and un-winding on the drum. One spare rope guide to be provided		
16	Rope Drum	Seamless steel pipe (as per ASTM 106 GR B). Rope drum to be machine grooved in hoisting direction. Dia of drum/rope ratio to be as per relevant IS standard. The spiral grooves should accomodate rope in 1 - layer allowing two full turns of rope on the drum when the hook is at the lowest position		
17	Hook	C' type swivelling hook mounted on thrust bearings		
18	Hook latch	Required		
19	Safety anti fall feature	All the items of the hoist should be protected in such a way that in no case they should fall i.e the hoist should be adequately protected from the bottom. Even the hoist should not fall down if one of its wheels or bearings are damaged		
20	Measurements	All components including fasteners should be in metric system only		

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21	Locking of Parts	Bolts and screws in rotating parts shall be locked.		
22	Incoming power Supply	415 volts \pm 5 %, 3 phase, 50 \pm 2 Hz, 4 wires, one conductor earthed		
23	Control voltage	The control circuit shall operate at 110 V AC		
24	Electrical Motors	Crane duty, one hour rated, class B or F insulation, IP54 protection, 40 % CDF, 150 starts/hour squirrel cage motors for all motions/traverses		
25	Contactors	Siemens make contactor 3 TA 22-30 Amps or equivalent rating to be provided as minimum size contactor in the power circuit.		
26	Overload relays	To be provided for all the motors.		
27	Cables	P.V.C un-armoured, copper multistrand conductors, minimum size 2.5 mm sq. in power circuit and 1.5 mm sq in control circuit		
28	Limit Switches for traverses	Limit switches to be provided for all the motions		
29	Limit Switches for hoist	One series limit switch with counter weight type and one rotary shunt limit switches to be provided		
30	Earthing	Earthing to be provided for all the electrical equipment		
B	MATERIALS			
1	Gears	EN 9		
2	Hardness of Gears	225 to 280 BHN		
3	Pinions	EN 19 / EN 24		
4	Hardness of Pinion	250 to 300 BHN		
5	Heat treatment of gears/pinions	Hardened, tempered		
6	Pulleys	Cast Steel IS: 1030 grade 4		
7	Gear Box	IS: 226/IS: 2062 fabricated casing duly stress relieved		
8	Wheels	C 55 Mn 75 / forged steel with hardness of 300-350 BHN		
9	Hooks	Made of mild steel/EN3A or wrought iron/20Mn2 to IS:6294/1971 with a hardness of 150-180 BHN and Nut to be forged from C45 material		
10	Makes of other bought out components	To be as per annexure M&S/Cranes/Makes/01, Rev 00, dated 21/03/2009 (enclosed)		

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C	GENERAL			
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 %.		
2	Guarantee	Supplier shall guarantee all equipment for a period of 18 months from the date of commissioning at BHEL works		
3	Oils & grease	First filling of oils and grease are in supplier's scope		
4	Manufacturer's reference list	The manufacturer should have manufactured, at least two electrically operated hoists of 4 tons or higher capacity, of Class M5 or higher as per IS 3938 or equivalent, in the last 10 years as on date of enquiry.		
5	Erection and commissioning	Erection and commissioning of the equipment is in the supplier's scope		
6	List of documents	Two sets of instruction manuals, dimensional drawings, electrical circuit drawing, parts list to be provided (after getting the order). General arrangement drawing should be provided along with the offer		
D	TESTING/INSPECTION			
1	After manufacture	The hoist shall be tested for SWL and overload capacity as per the standard, cross travel motion before dispatch to BHEL		
2	Load test	To be done as per relevant IS standards. Load will be provided by BHEL		
3	Test certificates	Test certificates shall be provided for hook, wire rope and other bought-out items		
4	Test certificate for hoist	Part of supplier's scope. To be inspected and certified by "Competent Person" as per AP Factories Rules/Acts/Laws before use.		
5	Terms and Conditions during installation	During installation, the terms and conditions to be followed by the contractor are as per document M&S/Cranes/Terms/E&C enclosed.		