



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

An ISO 9001
Company

ENQUIRY	Phone: +91 431 257 76 83 Fax : +91 431 252 07 19 Email : ramado@bheltry.co.in Web : www.bhel.com
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	Enquiry Number: 2720800013	Enquiry Date: 10.10.2008	Due date for submission of quotation: 18.11.2008
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You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order

Item	Description	Quantity	Delivery (Item required at BHEL on)
10	3 Ton Jib Crane as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	3 Nos.	31.08.2009

Note: Offer should be Foreign Bidders: CFR Mumbai Port

Indigenous Vendors:
FOR, BHEL, Stores
Industrial Valves Plant
433, Industrial Complex
Goindwal – 143 423
District: Tarn Taran (Punjab), India

BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats along with technical specifications can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference “2720800013”.

Tenders should reach us before 14:00 hours on the due date Tenders will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present	Yours faithfully, For BHARAT HEAVY ELECTRICALS LIMITED Sr.Manager / MM / Capital Equipment
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Technical Specification Of Floor Mounted Pillar Jib Crane- 3 Ton

1. Part - A

1. Qualifying criteria:

1. Offers of the parties who have supplied at least one Floor mounted pillar Jib Crane with a hoist capacity of minimum 2 tons in the last 5 years only are eligible to quote for this tender.
2. Such supplied crane should be working satisfactorily for a minimum period of 1 year after it's commissioning (accounted back from the date of opening of this tender).
3. A performance certificate (with current date) from the customer to whom such crane was supplied is to be enclosed with the offer compulsorily. For producing performance certificate a suggestive format is shown at the last page of this specification.
4. The offer will not be processed in case if the performance certificate is not produced and the required details are not furnished with the offer.

2. Part - B

1. Configuration:

The Crane will consist of the following:

1. One Mild steel fabricated Jib arm complete with bearing housings and suitable anti friction bearings with a provision of swivelling.
2. One Mild steel fabricated Independent column suitably stiffened and with suitable base plate.
3. One Electric wire rope hoist running on the bottom flange of Jib arm.
4. One control Pendent

The self standing motorised jib crane should have motorised swivelling, motorised cross travel & motorised hoisting with a self hanging pendent control. To minimise the overall height of jib crane and in order to provide maximum clearance below the hook, a low height hoist is to be provided. The height of structure above the boom should be kept minimum. All structural elements are to be suitably stiffened to minimise deflection, even under extreme loading conditions.

The swivelling motion is to be from 0 to 270° by means of a suitable bull gear, pinion & geared motor. Anti collision limit switches are to be provided for preventing damage to the crane from other jib cranes in its proximity. Suitable heavy-duty limit switches with back up position stopper are to be provided for limit at extreme ends in all the three axes. The system should be self-locking type, so that when not in use it remains locked at one position. Also soft starting should be provided. Hook swivelling should be only on thrust bearing. All the bearings should be SKF / NBC / ZKL / TIMKEN make only.

Easy maintainability of the system should be ensured. Also suitable cable travel arrangement is to be provided at necessary locations.

The space available for the foundation of the crane is 3000 mm X 3000 mm. The supplier has to provide the foundation drawing. Foundation and civil work will be carried out by BHEL.

2. Specification of the desired Jib crane

Number of cranes required = 3 Nos.

Crane 1 --- (2 Nos. with lift 3500 mm)

Crane 2 --- (1 No with lift 4500 mm)

Price for these two varieties are to be quoted separately in the price bid.

SL.No	DESCRIPTION		REQUIREMENT
1.	Type		Floor mounted swivelling type Jib Crane
2.	Jib radius		5000 mm
3.	Angle of rotation		270°
4.	Height of lift	For crane 1(2 Nos)	3500 mm
		For crane 2(1 No)	4500 mm
5.	Hoist head room height	For crane 1	Not to exceed 900 mm (Still lower Ht preferred)
		For crane 2	Not to exceed 900 mm (Still lower Ht preferred)
6.	Over all Height of crane	For crane 1	Not to exceed 4900 mm
		For crane 2	Around 6000 mm
7.	Capacity (SWL)		3000 Kgs
8.	Hoist make (IS: 3938)		Indef / AVON / Swift
9.	Hoisting speed		4 m/min.
10.	Duty		Class II, Indoor
11.	No. Of falls		4
12.	Wire rope diameter		10 mm
13.	Hoisting motor (IS: 325)		3.5 HP (NGEF/CG/Alstom/ABB make)
14.	Hoisting brake		Double shoe single coil DC EM type (BCH /EMCO make only)
15.	Cross traverse motor		1 HP
16.	Cross traverse speed		10 - 12 m/min
17.	Swivel motor		1 HP
18.	Swivel speed		0.1 to 1 rpm
19.	Deflection of boom		Not to exceed the ratio of Boom length / 150.
20.	Operation Control		Pendent type – Push button operated
21.	Power source		AC 415 V, 50 HZ, 3 Phase 3 wire system.

3. Scope Of Supply:

1	A self standing 3Ton motorised jib crane as per above specification	1 No
2	Self Hanging Control pendant	1 No
3	Kit comprising of foundation/levelling bolts, Bracketories, fasteners, Cables, Steel reinforced PVC conduits etc.	1 Lot
4	Spares (as per final scope of supply)	1 Set
5	Operation & Maintenance manual	3 Nos

4. Control panel:

Electrical control panel should be complete with required electrical elements such as contactors, MCB s, fuses, rectifiers, isolators etc. of reputed make.

All necessary cables, lugs, number ferrules for wiring identification on control and power side should be provided. LT switchgears should be of siemens only.

5. Electrical:

1. Use of Solid-state relays would be preferred.
2. Wiring routing in panel/pendent & ferruling to be as per IS Noms.
3. All control elements to be mounted on DIN channels.
4. Nomenclature of each control element to be tagged at appropriate place in panel.
5. Appropriate gasketing of control panel/ pendant to be done so that panel generally conforms to IP54.
6. Proper channelising of the loose wiring inside the panel.
7. Separate colour for each of power phase (R,Y,B) & for control wiring (Phase & neutral)
8. Double earthing of the equipment / panel is to be done. Gourmets to be provided for any loose wire coming out of the panel.
9. All wiring outside the panel/pendant to be routed through steel reinforced PVC conduits properly glanded at both the ends.
10. ICTP/ MCB Box on side of panel.
11. Control Panel is to be mounted on the Column.
12. Appropriate labels are to be provided for each indication/switch/push button/ MCB's.
13. Proper guide, cables, cable routeing for CT festoon cable to be provided.

6. Details to be furnished:

1. Full technical details / specifications, general arrangement drawing, electrical schematics,, control diagrams illustrating construction of the system/ equipment.
2. Specification of Materials used in manufacturing the equipment.
3. Schematic diagram of the foundation required for the equipment.

7. Material & Heat treatment:

All wear components (in motion) shall be properly heat treated and have min 300 to 350 BHN. All cast and fabricated items are to be stress relieved.

8. Design approval:

After LOI or P.O, the manufacturer has to get the approval of the design prior to manufacturing.

9. Spares:

Spares for successful running of the crane for two years shall be quoted as optional. A list of spares shall be enclosed with the offer.

10. Erection and commissioning:

1. Erection and commissioning of the crane and system is in the scope of the vendor.
2. Drawings related to civil work have to be submitted to BHEL in advance (6 weeks before) to enable BHEL to make the foundation ready before receipt of the equipment.

First fill of hydraulic oil in the gearbox and greasing is in the scope of vendor.

11. Safety:

1. The equipment should confirm to relevant standards like IS 3938, IS 325, IS 800 & 807 .The structure should be stable and should not fall / collapse / bulge causing any harm to the surroundings. Where ever desirable edges should be strengthened and rounded to remove sharpness.
2. Buzzer should be working properly while the Crane is working.
3. Proper interlocks are to be incorporated and their working to be fully functional at the time of trials.

12. Environment:

There should be no unwanted noise coming from the system.

13. Ambient condition:

All electrical and electronic components should be tropicalised to withstand ambient conditions of temperature max 50 degree C and Relative humidity up to 85%. Both do not occur simultaneously.

14. Inspection at vendor works:

Inspection of the jib crane will be carried out at manufacturer's works before Despatch. Parameter and performance of the crane and system will be checked.

15. Performance Testing at BHEL after commissioning:

1. The Jib Crane would be tested at 125% rated load & the deflection of the Jib arm should not be more than $L/150$, where L is Boom length. Other tests would be carried out in conformance with IS 807 & IS 14474.
2. With load, the system will be checked for vertical travel, cross travel & swivelling motion. All motions in the three directions are to be smooth & jerk free.
3. There should be immediate stopping of the jib crane (of all the three motions) in case of a sudden power failure.

16. Painting:

The Jib Crane is to be painted with deep orange colour, after one coat of red oxide primer.

17. Documentation:

3 copies of operation and maintenance manual, GA drawing, civil drawings, lubrication chart, test charts, spare parts manual are to be supplied with the equipment.

18. Training:

Training is to be imparted to the operators and maintenance crew for 2 days at Goindwal, Punjab (a valves manufacturing unit of BHEL, Trichy) in the operation and maintenance of the equipment and system.

19. Guarantee:

The jib crane with its system should be guaranteed for 12 months from the date of commissioning and approval.

PERFORMANCE CERTIFICATE

The Performance certificate should be produced on Customers Letter head.

1	Supplier of the Equipment	
2	Make & Model of the Equipment	
3	Month & Year of Commissioning	
4	Area of usage (INDOOR / OUT DOOR)	
5	a. Hoist capacity (Tons)	
	b. Height of lift (Meters)	
	c. Boom length (Meters)	
	d. Duty class	
6	Performance of the Equipment (Tick whichever is applicable)	Best in the market
		Satisfactory
		Good
		Average
		Not Satisfactory
7	Any other remarks	
Signature with date & Seal of the Authority Issuing Performance Certificate		