

**SCHEDULE – I****SPECIFICATION No.: Sr.DME/GNT/EOT-15/5T/Pendent/Remote/2023 Rev-0****LEADING PARAMETERS for E.O.T. Crane 15/5 Ton Capacity**

NO.	ITEM	DETAILS						
1.	Consignee	: SSE/C&W/NLPD ( Sick Wagon shed/Nallapadu) GUNTUR/S.C.Railway						
2.	(a) No. of Cranes required	: 02Nos (Two Numbers)						
	(b) Additional/Replacement account : ( '√' one option)	<table border="1"> <thead> <tr> <th>Addition al Account</th> <th>Replacement Account</th> </tr> </thead> <tbody> <tr> <td>✓</td> <td></td> </tr> </tbody> </table>	Addition al Account	Replacement Account	✓			
Addition al Account	Replacement Account							
✓								
	(c) If on Replacement account. whether : replacement crane asked of lower, same or higher capacity vis-a-vis existing crane ('√' one option)	<table border="1"> <thead> <tr> <th>Lower</th> <th>Same</th> <th>Higher</th> </tr> </thead> <tbody> <tr> <td>---</td> <td>---</td> <td>---</td> </tr> </tbody> </table>	Lower	Same	Higher	---	---	---
Lower	Same	Higher						
---	---	---						
	(d) If answer to 2(c) is 'Higher' than existing: crane, please enclose certificate that existing structure shall be able to take higher load (due to higher capacity crane) ('√' one option)	<table border="1"> <thead> <tr> <th colspan="2">Certificate of ability of existing structure to bear higher load enclosed</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td colspan="2">NA</td> </tr> </tbody> </table>	Certificate of ability of existing structure to bear higher load enclosed		Yes	No	NA	
Certificate of ability of existing structure to bear higher load enclosed								
Yes	No							
NA								
	(e) If answer to 2 (d) above is 'No', crane procurement cannot be processed : NA further							
	(f) If on Additional account, gantry : columns erected or not ( '√' one option)	<table border="1"> <thead> <tr> <th colspan="2">Gantry columns erected</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td>✓</td> <td>--</td> </tr> </tbody> </table>	Gantry columns erected		Yes	No	✓	--
Gantry columns erected								
Yes	No							
✓	--							
	(g) If answer to 2(f) is 'Yes', then : gantry rails laid or not ( '√' one option)	<table border="1"> <thead> <tr> <th colspan="2">Gantry Rails laid down</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td>---</td> <td>✓</td> </tr> </tbody> </table>	Gantry Rails laid down		Yes	No	---	✓
Gantry Rails laid down								
Yes	No							
---	✓							
	(h) If answer to 2(g) is 'No', then :							
	(i) Likely date of laying of	: Advised construction dept to Laying of gantry rails						
	(ii) How has 'Span' in S.No.10.3 below been arrived at as gantry rails have not been laid down(please explain)	: As per approved drawing						
3.	Crane Nos.	: ---						
4.	Location(Sub Shop name with bay no.)	: Sick Shed/Nallapadu						

5. Type :  
(‘√’ one option)

Conventional Double Girder	Single Girder	Under slung Single Girder
✓		

6. Capacity

6.1 Main Hoist(Tons) : 15 T

6.2 Auxiliary Hoist(Tons) : 5 T

7. Class of Duty :  
(‘√’ one option)

I (M1/M2/M3)	II (M4/M5)	III (M6)	IV (M7/M8)
-	-	-	✓ (M8)

(Ref appended notes item iii)

8. Crane controls from :  
(‘√’ one option)

Cabin	Pendent	Remote	Cabin & Pendent	Cabin & Remote	Pendent & Remote	Cabin. Pendent & Remote
						✓

9. Speeds(metres/minute) (‘√’ one option each for MF, AH, LT & CT)

9.1	Main Hoist (MH)	2.0 ✓	3.15	4.0	5.0	6.3	Any other speed requirement may be indicated as per R 10 series.  1.0, 1.25, 1.6, 2.0, 3.15, 4.0, 5.0, 6.3, 8.0 and 10.0 for Main Hoist & Auxiliary Hoist (for MH, normally limited to 6.3 m/min & for AH, normally limited to 8m/min  10, 12.5, 16, 31.5, 40, 50, 63, 80, 100 for Long Travel Cross Travel (for LT, normally limited to 63 m/min & for CT normally limited to 31.5 m/min)
9.2	Auxiliary Hoist (AH)	4.0 ✓	6.3	8.0			
9.3	Long Travel (LT)	31.5 ✓	50.0	63.0			
9.4	Cross Travel (CT)	16.0 ✓	20.0	31.5			

9.5	<b>VVVF drive (step less speed for all motions)</b> (‘√’ oneoption) <b>Advantages of VVVF drive v/s Non VVVF drive</b>	YES  ✓	NO
1.	Energy efficient	If VVVF Drive is specified, then creep speed not be required in 9.6 below.	Please give detailed justification for Non-VVVF drive despite clear-cut advantages of VVVF drive especially being energy efficient.
2.	Improved load control i.e. no shock loading and load swing, no jerking load		
3.	Multiple speed arrangements for all movements i.e., stepless speeds ( <b>creep speed control is not required</b> )		
4.	Smooth start and stop		
5.	Enhanced motor life		
6.	Less electrical maintenance		

9.6	<b>If answer to 9.5 is No</b>	0.20	0.315	0.40	0.50	0.63	Normally 8.0 & 10.0 meters/ minute speed are not desirable for MH.
	Creep speed of MH (Normally kept as 10% of speed of MH) (‘√’ oneoption)	NA	NA	NA	NA	NA	

(Ref. Item IV of Appended Note for creep speed)

10. Structural details : All dimensions are in mm unless otherwise indicated

10.1. Weight/unit length of Gantry Rails : 52 Kg/m (To be laid)

10.2. Rail head width of Gantry Rails B : 67 mm  
(Ref: Appended Note item v)

10.3 a. Span (Centre to Centre of Gantry Rail) S : 23680 mm

b. Gauge (Inner face to Inner face of Rail) W=(S-B): 23613mm

10.4 Top of Gantry Rail (or bottom flange of I-Beam C : 2872 mm  
(In case of under slung crane) to lowest overhead obstruction

10.5 Top of Gantry Rail (or bottom flange of I Beam D : 10560mm  
(In case of underslung crane) to floor level

10.6. Lift of hook above floor level(MH) H1(MH) : 10000mm

10.7 Drop of hook below floor(MH) H2(MH) : 1000mm

10.8 Lift of hook above floor level(AH) H1(AH) : 10000mm

10.9 Drop of hook below floor(AH)	H2(AH) :1000mm		
10.10 Centre distance between hooks of MH&AH('√' one option)	R :	0.800 M up to 20 T cap.	1.00 M above 20 T cap.
		✓	

10.11 Side clearance from center line of gantry rail/I-beam to nearest side obstruction A1 : 255mm

10.12 Side clearance from centerline of gantry rail/I-beam to nearest side obstruction A2 : 255mm

10.13 Vertical clearance from floor level to lowest structural member of crane (Ref: Appended Note item vii) K : 10560mm

10.14 Vertical clearance from floor level to bottom of cabin (Ref: Appended Note item viii) L : 8660 mm

10.15 Runway I-beam section  
(For Underslung Single Girder crane only)  
(Not required for other types of cranes)

Top Flange (mm): NA  
Bottom Flange (mm): NA  
Web Height (mm): NA

11. Bay length & Down Shop Leads(DSL) : 80 meters :Shrouded type Copper DSL lines

11.1 Length of gantry on which crane is : 80 meters to operate (metres)

11.2 Is DSL required? : 

Yes	No
✓	

 :  
(‘√’one option)

a. If Yes, Type of DSL required : 

MS Angle Type	Shrouded Type
	✓

  
(‘√’oneoption)

11.3 Length of DSL required(meters) : 80 meters

11.4 If No, type of existing DSL to be indicated : NA

11.5 Whether removal of existing DSL is to be :  
Included in scope of supply of firm  
(‘√’one option)

Yes	No
	✓

12. Operator's Cabin :  
(✓one option)

Fixed and open	Fixed and closed (in case of outdoor)
✓	

13. Crane has to work in :  
(✓one option)

Indoor	Outdoor	Both (Indoor as well as outdoor)
✓		

14. 14. Working environment :  
(✓one option)

General Workshop	General Worksh op Dusty	Hot Shop (in case of Hot Shop, please indicate maximum temperature of metal to be handled)
	✓	

15. Requirements of

Lifting tackles/lifting chains/lifting wire ropes (capacity asked for shall not exceed capacity of Main Hoist/ Auxiliary Hoist) (Ref: Appended Note items xi&xii)

15.1

S. No.	Item description	Qty.	Capaci ty In Tons	Length In meters	Drawing No.	Drawing enclosed or not	
a.	Lifting Tackle(Drgs.to be enclosed along with indent)	-	-	-	--	Yes	No
						--	--
b.	Four legged wire rope slings (Drgs. to be enclosed along with indent)	-	-	-	--	Yes	No
						-	--
c.	Two legged wire rope slings (Drgsto be enclosed along with indent)	-	-	-	--	Yes	No
						-	--
d.	Four legged chain with hook (Drgs. to be enclosed along with indent)	4	15T	3.50m	--	Yes	No
						✓	--
e.	Two Legged chain with hook (Drgs. to be enclosed along with indent)	4	7.5 T 15 T	3.50m 3.50 m	--	Yes	No
						✓	--
f.	Any other (please specify)	Nil	--	--	--	Yes	No
						--	--
g.	Any other (please specify)	Nil	--	--	--	Yes	No
						--	--

- 15.2. Type of Hook required (MH):  
(‘√’one option)  
(Ref: Appended Note item xii)

C-Type	Ramshorn Type
✓	

- 15.3. Type of Hook required(AH) :  
(‘√’one option)  
(Ref: Appended Note item xii)

C-Type	Ramshorn Type
✓	

- 15.4. Is lifting tackle/wire rope sling/ chain :  
with hooks asked for above having  
less capacity than maximum capacity  
of MH(‘√’one option)

Yes	No
	✓

- 15.5. If 'Yes', then how will maximum : NA  
Crane capacity of be checked at  
consignee's premises at the time of  
commissioning.  
(Please explain alternatives available for this)

**15.6 Any other specific requirements shall be clearly specified such as:**

- (i) In case, any specific diameter of LT/ CT :  
wheel is required, consignee must clearly  
indicate. However, LT/CT wheel diameter  
is acceptable only as per IS 3177  
(latest), as follows:

Any specific dia. Of LT/CT wheels required	
Yes	No ✓

- (The tread diameter of wheels shall be :  
Standardized to sizes 160 mm, 200 mm,  
250 mm, 315 mm, 400mm, 500 mm,  
630 mm, 710 mm, 800mm, 900 mm,  
1000 mm & 1250 mm.)  
(‘√’one option)

If yes, please specify
NA

- (ii) In case, there is any specific requirement :  
for 'C' Type& 'RAMSHORN' Type hooks,  
chain slings, Wire ropeslings, hook blocks etc., it must  
be clearly indicated.

Any specific requirement of hooks	
Yes	No ✓

- Consignee is advised to submit drawings:  
of such items along with indent.  
(‘√’one option)

Drawings submitted	
Yes	No ✓

- (iii) If indented crane is on Additional :  
Account or under PH-4200/PH-1500  
(other than PH-4100), Consignee is

Is crane on additional account	
Yes ✓	No

advised to submit photographs of  
Shed/Site, where the crane is to be  
installed specifically showing layout  
of crane girder columns and girder rails.  
(‘✓’one option)

Photographs enclosed showing crane girder columns & girder rails	
Yes	No ✓

**(Annexure-1)****Additional spares and tools required**

Sl.	Item Description	Quantity required for 2 cranes	Justification
1	Dead man lever Buttons	10nos of each type (i.e., Total 40 Nos)	These buttons damages frequently and it is difficult to find exact suitable button available in market
2	DSL bars	80 meters Each conductor type (i.e., R: 80m, Y: 80m, B: 80m, G: 80m)	Spare DSL lines are not included in Schedule –IV. Whenever a DSL line is found defective it should be replaced immediately to avoid further damage of nearby DSL lines. Hence, to reduce downtime caused by DSL lines, spare lines are required.
3	Drive unit	Two of each type  (One no. of drive (each capacity) per crane is required i.e., total MH-2 nos., AH-2 nos., LT-2 nos., CT-2 nos.)	Any internal short circuit or PCB failure leads to replacement of entire drive unit. Moreover, In Schedule IV only spares cards are provided. It will take some time to replace spare card in drive unit and to test it. Meanwhile down time of EOT crane increases and leads to loss of outturn. Hence unit replacement of drive is required. Since 2 nos of drives of different capacity are fitted with each crane totaling 4 drives needed replacement of entire drive unit during fault. Hence, one number of each capacity per one crane is required.

**(Annexure-2)****SPECIAL CONDITIONS:**

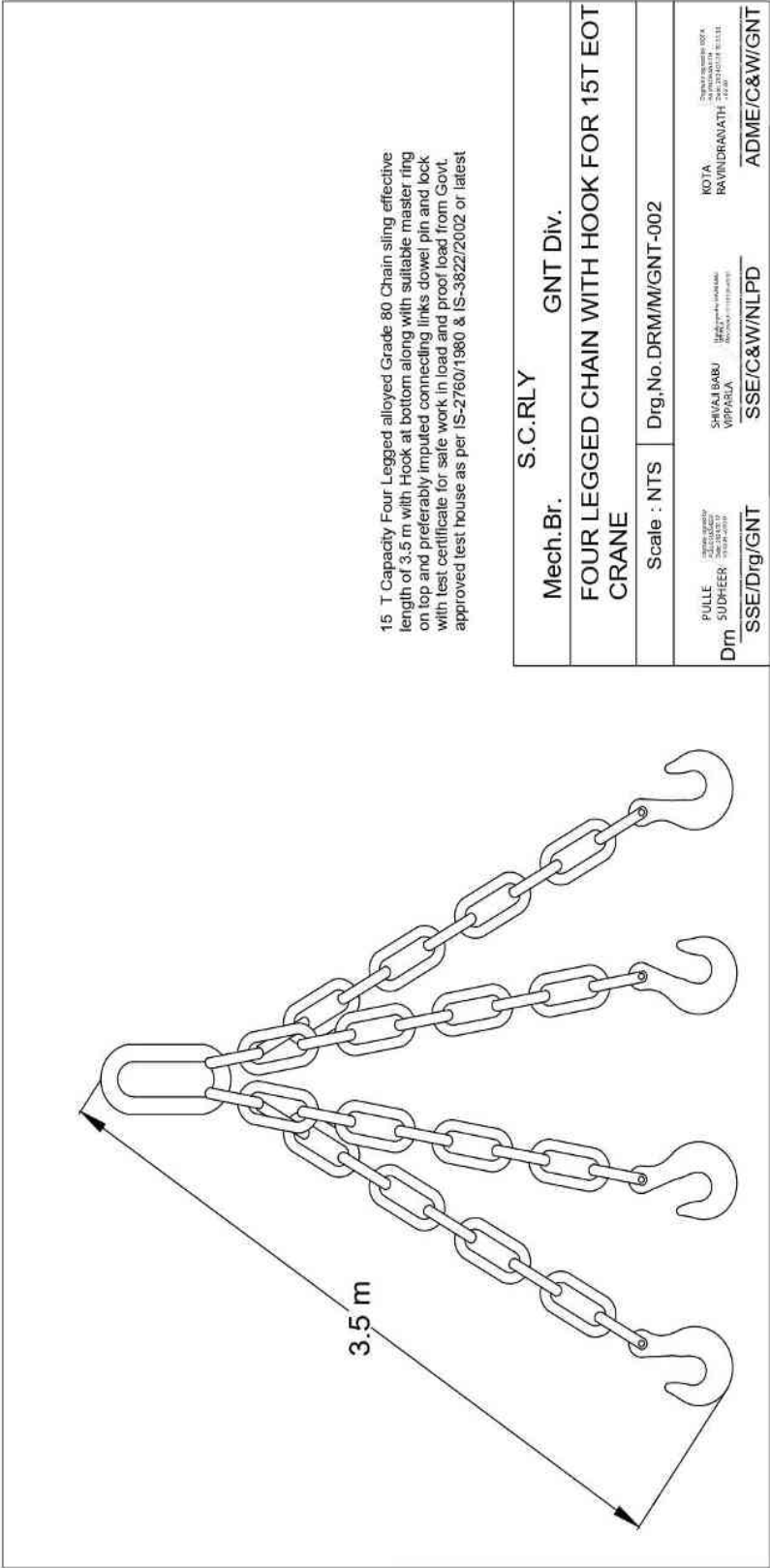
1. Cabin operating control should be of lever type.
2. Operating levers should be provided with dead man switch buttons.
3. Anti-collision switch and proper buffers should be provided to prevent collisions.
4. Wire rope for main hoist should be diameter 22 mm or more

5. Hoist should be provided with **double brake** system. **Double brake** should be provided for Auxiliary hoist also.
6. Platform, railing and cabin should be provided robust and vibration free.
7. Entry into cabin from maintenance platform should be ergonomic and safe; cabin ladder should be stair case type.
8. EOT Crane should be provided with four speed control for each direction i.e., forward and reverse.
9. Cabin should be closed type and should be provided with mesh windows to open whenever required.
10. Shank hook of snatch box in EOT crane should be confirming to IS 15560:2005
11. Insulated Shrouded Bus Bar Conductor material shall be of suitable metal (Galvanized Iron up to 100Amps & copper above 100Amps) and detailed Calculations of current density in DSL and Current collector section selection calculations must be submitted
12. Hook approaches : Cabin end :- MH:1300mm, AH: 2300mm;  
Other end :- MH:2300mm, AH: 1300mm.
13. The Rail wheels shall be of material C55Mn75, and shall be solid forged and heat treated to have minimum hardness of **300 to 350 BHN** on the tread and flanges to minimum depth of 10mm. The method of heat treatment shall be described in the offer.
14. The crane shall be designed, manufactured, erected and tested in accordance with the available **Latest Indian Standards (IS) only**
15. Footwalk should be minimum 600 mm with rigid supports and platform chequered sheet should be minimum 6mm

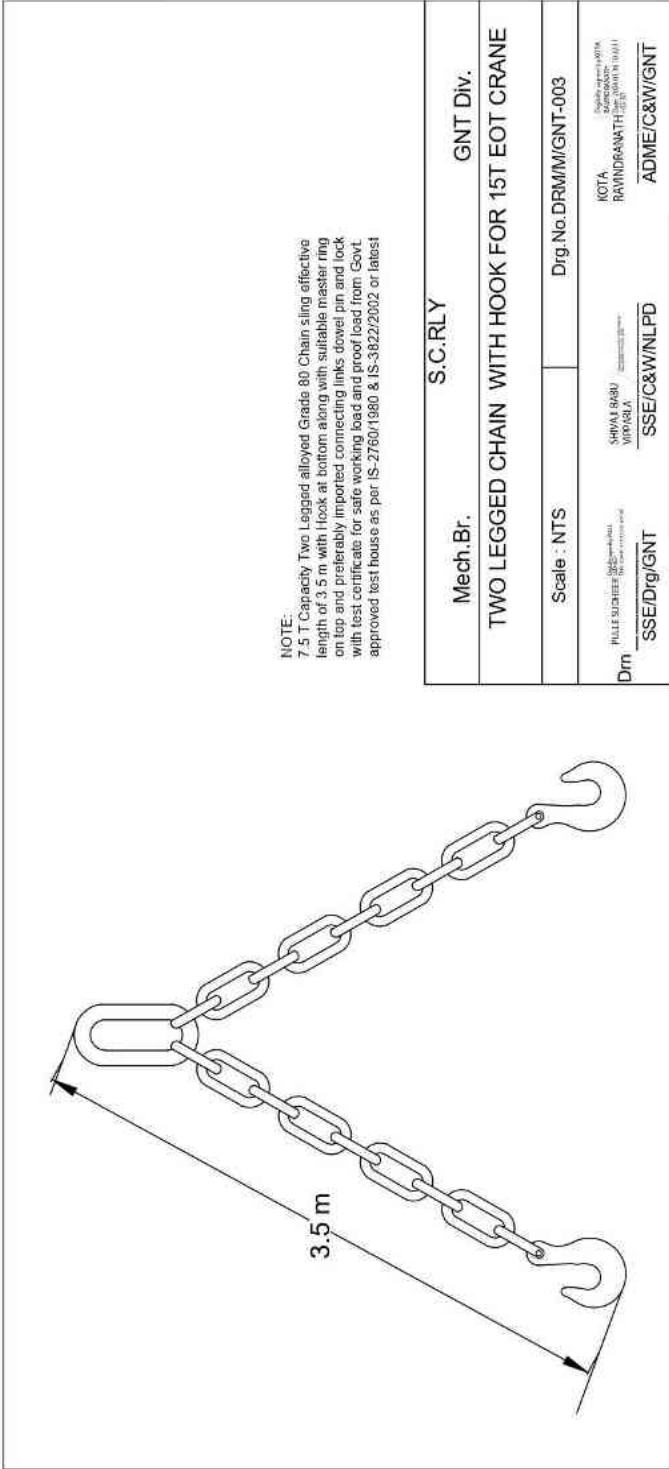




Four Legged chain with hook for 15T EOT Crane



Two Legged chain with hook for 15T EOT Crane



**SCHEDULE - II**  
(See clause 1.1.6 of section-II)

**(In respect of items 10, 14, 20.3, 20.6, 20.9, 21.2 & 21.6 of Schedule-II, non-submission of information / incomplete information / deviation in the offer is not acceptable. No clarifications / correspondence will be sought / entertained in this regard and the offer shall be summarily rejected.)**

_____Tonnes Capacity	_____operated	EOT_____	Crane
S.No.	Description	:	Remarks

1. Specification of the crane offered :  
(class of duty/capacity in tonnes/span in metres)
2. Is it the tenderer's intention if awarded the :  
contract, to comply fully and in all respects  
with purchasers specification covering the  
work ? if not, he shall state exceptions in details
3. Time in which tenderers will agree to deliver :  
or complete all work covered by these specs
4. Break up weights of the crane as mentioned  
below should be furnished :
  - 4.1. Total weight of crane including electrical :  
equipment.
  - 4.2. Total weight of trolley, including electrical :  
equipment.
  - 4.3 Weight of each bridge girder assembled and :  
ready for erection with and without mech.  
and electrical equipment.
  - 4.4 Weight of each end carriage assembled and :  
ready for erection.
  - 4.5 Weight of operator's cabin together with all :  
equipments mounted in it.
5. Type and class of crane and its mechanism :
6. Safe working load in tonnes
  - 6.1 Main hoist :
  - 6.2 Aux. hoist :
7. Maximum speed with max. workload (MPM)
  - 7.1 Main hoist :
  - 7.2 Aux. hoist :
  - 7.3 Creep Speed of main hoist :

- 7.4 Long travel :
- 7.5 Cross traverse :
- 8. Speed steps and speed range in meter/min. at various steps. The remarks offered should be in accordance with single girder or double girder crane.
  - 8.1 Hoist Motion :
  - 8.2 Cross traverse :
  - 8.3 Long Travel :
- 9. Rope size and construction details (MH/AH) :
- 10. Number of rope falls supporting the load (MH/AH):
- 11. Diameter of drum (MH/AH) :
- 12. Material of drum :
- 13. Material of gear box :
- 14. Material and Hardness of gears (Indicate specifications) :
- 15. Material of sheaves :
- 16. Diameter of sheaves (MH/AH) :
- 17. Brakes, type make and size (MH/AH) :
- 18. Make and type of bearings :
- 19. Type of hook and its specification. :
- 20. Trolley
  - 20.1 Wheel span :
  - 20.2 Wheel base :
  - 20.3 C.T. Wheel Diameter, material and hardness:
  - 20.4 Maximum wheel load :
  - 20.5 Material of gear box :
  - 20.6 Material and hardness of gears (indicate specifications) :
  - 20.7 Make, type and size of brake :
  - 20.8 Make and type of bearings :
  - 20.9 Size of trolley runway rail (DG) :
  - 20.10 Bidder shall furnish Current Rating & Material of DSL : being offered. (i.e. M S, G.I. or Copper)
- 21. Bridge
  - 21.1 Wheel base :
  - 21.2 L. T. wheel Diameter, material and hardness:
  - 21.3 No. of wheels on each end of crane :
  - 21.4 Maximum wheel load :
  - 21.5 Material of gear box :
  - 21.6 Material and hardness of gears. :

- (Indicate specifications)
- 21.7 Make, type and size of brakes :
- 21.8 Make and type of bearings.:
- 21.9 Clear width of each foot walk.(DG) :
22. STRUCTURAL Details  
(Refer sketch NO. COFMOW/IR/EOTC/X/Y/Z/86
- 22.1 Centre to center of gantry/track :  
rail span (S) meters
- 22.2 Lift of Hook above floor level :  
(Exclusive of travel required to  
operate limit switch)
- 22.3 Drop of Hook below floor level :
- 22.4 Nearest position of hook to center  
line of gantry rail
- i. Main hoist
- cabin end (E) meters :
- other end (F) meters :
- ii. Auxiliary Hoist
- cabin end (E) meters :
- other end (F) meters :
- 22.5 Type of main girder Design drawings :  
showing overall dimensions, Size of  
each section and location and depth of  
diaphragms should be submitted for the girders.
23. Particulars of safety devices :
24. General arrangement drawing showing  
to scale elevation, cross section and  
plan which shall indicate the following information:
- a) Clearance diagram of crane :
- b) Construction of bridge structure
- c) Hook approaches.
- d) Wheel base
- e) Wheel loads
- f) Wheel diameter
- g) Outer buffer dimension
- Drawing should be offered along with the offer  
Drawing No. should be indicated.
25. Detailed wheel diameter calculation for :  
long travel and cross traverse wheels
26. Other information offered along with the tender.

- Note: 1. If above clauses are found inadequate for furnishing all necessary information of the crane offer, the tenderer may append further information separately.
2. Bidders should furnish information on Schedule-II & Schedule-III. In case of any discrepancy in the information submitted against Schedule-II and III and that furnished in clause wise comments, the information submitted against schedule-II & III shall over-ride that against the clauses.

**SCHEDULE -III**  
**(Refer to Clause 1.1.6 of Section II)**

**ELECTRICAL DETAILS OF CRANES**

The under mentioned electrical details should be furnished for each motor separate along with the offer. The particulars indicated below should be offered for each motor/control separately.

**1. MOTORS :**

- |   |   |
|---|---|
| 1.1 Manufacturer's Name                     | : |
| 1.2 Type and degree of enclosure            | : |
| 1.3 Type of duty                            | : |
| 1.4 Rating-continuous/intermittent          | : |
| 1.5 Output (KW/BHP)                         | : |
| 1.6 AC Voltage across phases & frequency :  |   |
| 1.7 Speeds in RPM                           | : |
| 1.8 Class of Insulation of stator           | : |
| 1.9 Class of Insulation of rotar            | : |
| 1.10 Frame size                             | : |
| 1.11 Normal full load current               | : |
| 1.12 Starting current                       | : |
| 1.13 Motor type                             | : |
| 1.14 Temperature rise of windings & other : |   |
- parts allowed above ambient temp. of 50 deg.C.
- |   |   |
|---|---|
| 1.15 Cyclic duration factor                             | : |
| 1.16 Max. starts per hour for which motor is suitable : |   |
| 1.17 Class of duty (S1,S2,S3,S4 Etc.)                   | : |
| 1.18 Ambient temp. for which motor is suitable          | : |
| 1.19 Voltage range for which motor is suitable          | : |
| 1.20 Motor horse power calculations                     | : |
| 1.21 Efficiency at                                      |   |
| a) full load  | : |
| b) 3/4 load   | : |
| c) 1/2 load   | : |
| 1.22 Power Factor at                                    |   |
| a) full load  | : |
| b) 3/4 load   | : |
| c) 1/2 load   | : |
| 1.23 Type of drive                                      | : |
| (Direct gear etc.)                                      |   |



## 2. CONTROL GEAR

2.1 Rating of AC 4 / AC-3 Contactors suitably derated for AC-4 with minimum 2,00,000 cycles of operation.

2.2 Are the following provided for each motor.

2.2.1 Short circuits protection by HRC fuses.

2.2.2 No volt trip

2.2.3 Overload trip

2.2.4 Instantaneous trip current sensitive single phasing preventor.

3. Standard specifications to which the motor control gear and its ancilliary offered conform to

4. Any other special feature

**SCHEDULE – IV**  
**SPARES FOR CRANE**

S. No	Description of items	Qty for 02 No. of Cranes.	Total quantity to be indicated by the bidder	Remarks																				
1	Fixed & moving contact tips for contactors	<p><b>4 sets</b></p> <table><tr><th>Unit</th><th>No of units</th><th>No of contact tips per each unit</th><th>Total In a set</th></tr><tr><td>Motor electric contactors (MH,AH,CT,LT)</td><td>4</td><td>1</td><td>4 nos.</td></tr><tr><td>Lights set</td><td>1</td><td>1</td><td>1 no.</td></tr><tr><td colspan="3">Total</td><td>5 nos.</td></tr></table> <p>Hence, minimum 20 nos. to be supplied</p>	Unit	No of units	No of contact tips per each unit	Total In a set	Motor electric contactors (MH,AH,CT,LT)	4	1	4 nos.	Lights set	1	1	1 no.	Total			5 nos.						
Unit	No of units	No of contact tips per each unit	Total In a set																					
Motor electric contactors (MH,AH,CT,LT)	4	1	4 nos.																					
Lights set	1	1	1 no.																					
Total			5 nos.																					
2	For Contactors coils	<p><b>2 Sets</b></p> <table><tr><th>Unit</th><th>No of units</th><th>No of contact coil per each unit</th><th>Total in a set</th></tr><tr><td>Motor electric contactors (MH,AH,CT,LT)</td><td>4</td><td>2</td><td>8 nos.</td></tr><tr><td>Lights set</td><td>1</td><td>1</td><td>1 no.</td></tr><tr><td>Main Line contactor</td><td>1</td><td>1</td><td>1 no.</td></tr><tr><td colspan="3">total</td><td>10 nos.</td></tr></table> <p>Hence, minimum 20 nos. to be supplied</p>	Unit	No of units	No of contact coil per each unit	Total in a set	Motor electric contactors (MH,AH,CT,LT)	4	2	8 nos.	Lights set	1	1	1 no.	Main Line contactor	1	1	1 no.	total			10 nos.		
Unit	No of units	No of contact coil per each unit	Total in a set																					
Motor electric contactors (MH,AH,CT,LT)	4	2	8 nos.																					
Lights set	1	1	1 no.																					
Main Line contactor	1	1	1 no.																					
total			10 nos.																					

3	Limit switches	<b>2 sets of MH</b> <b>2 sets of CT</b> <b>2 sets of LT</b> <b>2 sets of AH</b>  For each Hoist two types of Limit switches exist i.e., Rotary & Gravity Limit switches. Also, 02 nos for LT & 02 nos. for CT based on Design  i.e., the firm has to supply MH-2set *2types =4 nos. CT-2set *2types =4 nos. LT-2set *2types =4 nos. AH-2set *2types =4 nos																						
4	Current collectors	<b>2 sets</b> One set consists of 04 nos. (i.e., for R,Y,B,G) i.e., 02 sets implies 08 nos. has to be supplied																						
5	MCB	<b>2 Sets</b> <table border="1"><thead><tr><th>Unit</th><th>No of units</th><th>No of contact coil per each unit</th><th>Total in a set</th></tr></thead><tbody><tr><td>Motor electric contactors (MH,AH,CT,LT)</td><td>4</td><td>1</td><td>4</td></tr><tr><td>Lights set</td><td>1</td><td>1</td><td>1</td></tr><tr><td>Control</td><td>1</td><td>1</td><td>1</td></tr><tr><td colspan="3">total</td><td>6</td></tr></tbody></table> Hence, minimum 12 nos. to be supplied	Unit	No of units	No of contact coil per each unit	Total in a set	Motor electric contactors (MH,AH,CT,LT)	4	1	4	Lights set	1	1	1	Control	1	1	1	total			6		
Unit	No of units	No of contact coil per each unit	Total in a set																					
Motor electric contactors (MH,AH,CT,LT)	4	1	4																					
Lights set	1	1	1																					
Control	1	1	1																					
total			6																					
6	Thrusters	<b>2 sets</b> <table border="1"><thead><tr><th>Unit</th><th>No of units</th><th>No of thrusters each unit</th><th>Total in a set</th></tr></thead><tbody><tr><td>Motor thrusters (MH,AH,CT,LT)</td><td>4</td><td>1</td><td>4</td></tr><tr><td colspan="3">total</td><td>4</td></tr></tbody></table> Hence, minimum 08 nos. to be supplied	Unit	No of units	No of thrusters each unit	Total in a set	Motor thrusters (MH,AH,CT,LT)	4	1	4	total			4										
Unit	No of units	No of thrusters each unit	Total in a set																					
Motor thrusters (MH,AH,CT,LT)	4	1	4																					
total			4																					
7	Brake liners with rivets	<b>2 pairs of each size</b>  i.e., MH-2 pairs, AH-2 pairs, LT-2 pairs CT-2 pairs																						

8	Main spring for thruster brakes used on crane	<b>2 nos of each size</b> i.e., MH-2 nos , AH-2 nos , LT-2 nos, CT-2 nos		
9	Brake shoes complete with lining	<b>2 pairs of each size</b> i.e., MH-2 pairs, AH-2 pairs, LT-2 pairs CT-2 pairs		
10	Oil seals for grease cases	<b>2nos. for each size</b> of oil seal provided in the crane gear box and geared coupling.		
11	Spare cards for VVVF drive for all drives viz. MH, AH, LT & CT	<b>2 no. for each drive</b> i.e.,total 8 nos		
12	A set comprising 2 nos of long travel and 2 nos. of cross travel motion wheel in assembled condition with axle bearing housing	<b>2 sets</b> i.e.,total 1) CT- 04 Nos 2) LT- 04 nos		
13	Master Control switches	20 nos		
14	Control transformers	<b>2 nos. of each size</b> i.e., for Lights -2 nos. & Control circuits- 2 nos.		

**SCHEDULE-V****LIST OF MAINTENANCE TOOLS**

<b>S.NO.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
01.	CANVAS Tool bag (For storage tools from Sr.no.2 to Sr.no.10) or equivalent	1 No.
02.	D/E Spanners (8-32mm) Min. 10 nos	1 Set
03.	Grease gun	1 No.
04.	Oil can	1 No.
05.	Screw Driver of required sizes Min. 08 nos	1 Set
06.	Nose plier	1 No.
07.	Insulated plier	1 No.
08.	Hammer 2 kg	1 No.
09.	Allen Key required sizes Min. 10 nos	1 Set
10.	Hydraulic jack 10T	2 Nos.
11.	Wooden hammer	1 No.
12.	AC/DC Digital clamp meter 1000A	1 No.
13.	Megger 1000 Mega ohms	1 No.
14.	Bearing puller tool for suitable for motor bearings	1 No
15.	Chain Pulley 2T	1 No

## SECTION -III

## ANNEXURE-A

**FORMAT FOR SUBMISSION OF TECHNICAL BID**

1. a) We, M/s. \_\_\_\_\_ offer our \_\_\_\_\_ for crane nos. \_\_\_\_\_ as per the description given in Schedule of Requirements

b) We state that, except for the following, for which clause wise brief description and justification for deviation has been indicated, our machine fully complies with all the clauses as given in technical specification Section-II.

S.No.	Clause/Item	Brief description of Deviation	Justification for deviation

c) We also confirm the schedules given in the Delivery Schedule at para 7 of Section-I

**Note1:** The Bidder shall mention all technical deviation only in the format enclosed above.

**Note-2:** The deviation mentioned elsewhere in the bid shall not be considered and the bid shall be evaluated based on the information provided against Annexure-A of Section-III.

**Note-3:** In case tenderer offers internationally accepted alternative specifications as per clause **1.8 of Instructions to tenderers for filling technical bid**. Complete details of alternative specification apart from filling above deviation statement, may be enclosed.

2. We further certify that we are meeting the reference clause as;

(A) We are the regular manufacturer of this type of machine.

Clause (B)

S. No	Name of purchaser with address	Purchaser's telephone, email Address, Name of contact person	Purchase/ Supply order no. and date (along with a copy of PO)	Quantity Supplied (with proof of supply) @	Date of Supply @	Date of installation and /or Commissioning @	Leading Parameters of machine(s) to be establish similarity as per clause 3 of qualifying Requirements (QR)
1.	2.	3.	4.	5.	6	7	8.

@ (along with copies of relevant documents to establish linkage of documents)