

RAIL COACH FACTORY, KAPURTHALA

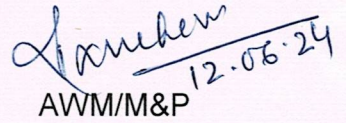
No. Mech/M&P/Umbrella/Project/438/09

Date 12.06.2024

Sub:- Draft Specification of Fork Lift Truck Cap-16 T.

Please find the attached draft speciation of Fork Lift Truck Cap-16 T and offer your comments latest by 17.06.2024 so that the specification can be finalized accordingly.

Treat it most urgent please.


AWM/M&P 12.06.24

AWM/TPT

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CPM

Dy.CPE-II

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Specification No.	Description	Page No.	Date
Mech/M&P/Umbrella/Project/438/9	Fork Lift Truck Cap-16 Ton	1 of 8	12.06.2024

Specification of 16 T Diesel Operated fork Lift Truck.

#	Description	Value
1.	Engine specification (Diesel) rated H.P. STD. Conditions as per IS-10000- Part-XII & IS 10001.	4 Stroke Diesel Engine TATA /Simpsons/Cummins/Kirloskar/ACE/ Ashok Leyland/Volvo with turbo charger of approx 158 HP at 2200 to 2300 RPM.
2.	Operating Mode	Diesel Engine Operated
3.	Rated Capacity at Standard Lift Height and Load Centre (Kg)	16,000 Kgs
4.	Standard Load Centre Distance	1200 mm
5.	Transmission	Automatic
6.	Type of Drive	Double(four tyres in the front & two tyre in the rear)
7.	Tyre Type	Solid Cushion
8.	Engine Cooling System	Liquid Cooled /Water Cooled or any suitable system for regular working FLT in 3 Shifts (each shift has 8 hrs.)
9.	Number of Forward Speed Gears	2
10.	Number of Reverse Speed Gears	2
11.	Forklift Gradeability, Laden/Un laden (%)	20-25%
12.	Brake System	Hydraulic Wet Disc Brakes
13.	Minimum Ground Clearance (mm)	260-300
14.	Lifting Stages	2
15.	Lift Height (mm)	40000 mm.
16.	Max Fork Spread (mm)	Max-2300 Min-905 mm

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17.	Fork Size (mm)	2400
18.	Fork Movement & fixing	Pipe type Sliding arrangement is required for the forks and fixing at any location with pin.
19.	Wheel Base (mm)	3500-3800
20.	Outer Turning Radius (mm)	5200-5400 mm approx
21.	Mast Tilt Forward (in degrees)	5 TO 6
22.	Mast Tilt Backward (in degrees)	10 TO 12
23.	Maximum Speed	16 KM/Hr. Approx
24.	Instrument Panel for Diesel Operated Forklift	Fitted with Engine oil pressure gauge, Coolant temperature gauge, Engine hour-meter & fuel level gauge and switch key for starting
25.	Standard Accessories	Head Light two numbers, Rear Light one number and Signal Lights, Light Reflectors, Electric Horn, Parking Brake, Rear View Mirror, Rear Towing Hook/Towing Arrangement, Adjustable cushioned driver seat and driver overhead guard with steel reinforcement at the top for Safety of driver, Standard Tool Kit
26.	Seat Belt with Interlocking	Yes
27.	Operators Presence Switch (OPS)	Yes
28.	Type Approval Certificate	ARAI / ICAT
29.	Certificate Number of ARAI / ICAT	TO BE PROVIDED BY THE BIDDER ALONG WITH DATE
30.	Conformity to Stability Testing	As per IS 4357 (latest)
31.	Conformity to Acceptance Criteria	As per IS 10517 (latest)
32.	Conformity to Indian Standard	IS: 6765 (latest)

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33.	Conformity to Fork Arm for Fork Lift Truck	IS 6876 (latest)
34.	Conformity to Mounting Dimensions for Attachment	IS 7525 (latest)
35.	Diesel Engine shall conforming to IS 10000 (1 to 12) latest and IS 10002 latest	Yes
36.	Supply of spares by manufacturer at least for a period of 10 years	Yes
37.	Standard tool kit	Yes
38.	Light reflectors	Yes
39.	Rear view mirror	Yes
40.	Load Back Rest	Yes
41.	Alternator shall be provided for charging the battery in case of diesel engine operated fork lift	Yes
42.	Head light two numbers, rear light one number and signal lights.	Yes
43.	Electric Horn., parking brake, rear towing hook/towing arrangement, adjustable cushioned driver seat and driver overhead guard with steel reinforcement at the top for	Yes
44.	Consumables: Spare filter kit for engine oil, transmission, hydraulic oil suitable for 4 services shall be provided	Yes
45.	The Hydraulic Cylinders of any one of given Indian make may be used in the FLT. i) Dantal, ii) Wipro, iii) Fasto, iv) TAFE, v) Precission & vi) Canara or equivalent.	Yes
46.	Conformity to Indian Standard	IS: 6765-2003 latest
47.	Operating Mode	Diesel Engine Operated
48.	Method of starting	Electric starting (Battery & Alternator Fitted).
49.	Colour	Golden Yellow / Traffic Yellow

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50.	Inspection and Testing	RITES at Firm's premises as per Annexure-A.
51.	The forklift to be supplied with canopy and all other standard accessories needed for successful operation.	Vendor to confirm
52.	Notwithstanding anything, the details in this specification, if anything else is required for its functioning, the same shall be specifically brought out and indicated.	Vendor to confirm
53.	Stability testing	As per IS 4357 latest
54.	Acceptance criteria	As per IS 10517 latest
55.	Type approval certificate and conformity of Production certificate from ARAI or other agency as approved by Government of India for latest smoke emission norms	yes
56.	Availability of complete & satisfactory test Report from Central govt/ NABL/ ILAC accredited laboratory, to IS 10000 (1 to 12) latest and IS 10002 latest for Diesel Engines whichever applicable.	Yes
57.	Diesel Engine shall conforming to IS 10000 (1 to 12) latest and IS 10002 latest.	Yes
58.	Vertical Exhaust should be so fitted that Exhaust Gases are discharged well clear off the operator after suitable purification & through exhaust spark arrester.	
59.	Oil check mechanism should be easily accessible for checkup/top-up during maintenance.	

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58.	Acceptance Criteria:
58.1	<p>The fork lift truck shall be tested by third party inspection agency (i.e RITES) as specified at Annexure-A.</p> <p><u>Note: Consignee Responsibility:</u></p> <ul style="list-style-type: none"> i) To check before signing of the CRN that the inspection certificate issued by Third Party Inspection agency and ensure that the inspection has been done as per the specification available in purchased order. ii) To check before signing of the CRN and certify that all the accessories supplied with the machine are as per the specification available in purchased order. <p><u>Note: - 2. Supplier responsibility</u></p> <ul style="list-style-type: none"> i) The supplier will demonstrate the performance of the equipment for one week to the user department of Rail Coach Factory at consignee's premises. At the end of demonstration the FLT will be considered as commissioned.
59	Warranty
59.1	Warranty of the equipment should be 2 years from the date of commissioning.
60	ANNUAL MAINTENANCE CONTRACT (OPTIONAL)
60.1	Tenderers are required to quote for a Comprehensive Annual Maintenance Contract for the machine supplied against this specification for a period of five years on yearly basis giving the rates for each year i.e. first year, second year so on., which will be inclusive of all spares, material and labour costs. The duties and taxes as applicable should be indicated separately. All consumables spares and materials shall form a part of the scope of comprehensive AMC. Periodic safety and legal clearance will also be obtained by the contractor at its own cost.

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ANNEXURE-A

QUALITY ASSURANCE PLAN FOR DIESEL OPERATED FORK LIFT TRUCK (AS PER IS-10517 LATEST)

1. **Guidelines on the basis of which forklift truck should be tested.**
2. **TESTING:-**
 - 2.1 **Visual Examination**
 - 2.1.1 Each forklift shall be checked for its general workmanship.
 - 2.1.2 It shall be seen that operator's seat is adjustable forward and backward to ensure ease of operation of various controls.
 - 2.1.3 It shall be checked that the control symbols are properly shown in accordance with IS: 7553-1975.
 - 2.1.4 It shall be checked that the capacity chart is displayed in such a way that it is visible to the operator.
 - 2.2 **Dimensional Checks** - The following dimensions shall be checked as specified by the manufacturer:
 - a) Fork length,
 - b) Min & Maximum forks spread,
 - c) Overall length,
 - d) Overall width,
 - e) Overall height raised,
 - f) Collapsed height,
 - g) Free lift,
 - h) Maximum fork height,
 - i) Minimum clearance from ground,
 - j) Wheel base,
 - k) Tyre size,
 - l) Mass of the truck, and
 - m) Mast tilt forward and backward.
 - n) Load center
 - 2.3 **Test Certificate** - The following shall be accepted on test certificate:
 - a) *IC Engine* - As per manufacturer's test certificate in accordance with IS: 10000 (Part XII)-1980. (Make of engine should be as mentioned in the specification)
 - c) *Battery* - As per manufacturer's test certificate in accordance with IS: 5154-1980. (*First revision*).
 - d) *Battery Charger* - As per manufacturer's test certificate.
 - 2.4 **Performance Test of Forklift Truck** -- Each truck shall be tested as follows to ensure satisfactory performance:
 - a. *Capacity Test* - The truck shall be driven with rated pay load at the speed specified by the manufacturer.
 - b. *Speed Test* - The truck shall be run with/without load at the corresponding speed specified by the manufacturer. The
 - c. Admissible variation in speed shall be within 10 percent.
 - d. *Turning Radius* - The truck shall be checked-for turning radius Turning circle radius on both directions shall be checked and it shall be within 5 percent.
 - e. *Lifting and Lowering Speed* - Lifting and lowering speed with/without rated load on the trucks shall be checked against the values specified by the manufacturer and shall be within 12 percent.
 - f. *Gradient Test* - The gradablity of the truck shall be such that it can stop and start on specified gradient.
 - g. *Brake Test* - The service brake performance shall be checked as below:-

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TRUCK SPEED WITH RATED LOAD	REQUIRED DRAWBAR DRAG AS A PERCENT OF GROSS VEHICLE WEIGHT (WITH RATED LOAD)	APPROX THEORETICAL WEIGHT (WITH RATED LOAD) DISTANCE AFTER BRAKE STOP FROM FULL SPEED
km/h	Percent	m
2	3.72	0.43
3	5.58	0.64
4	7.44	0.85
5	9.3	1.06
6	11.16	1.27
8	14.88	1.70
10	18.60	2.12
12	22.32	2.54
14	25	3.09
16	25	4.03

h. *Parking* brake shall be checked as below:- (in accordance with 4 of IS: 9701-1980.”)

1 PARKING BRAKES

1.1 Performance

1.1.1 The parking brake, without the assistance of the operator, shall be capable of holding the truck on a gradient as specified by the manufacturer,

1.2 Test Conditions

When conducting the test, the following conditions shall apply:

- The test road surface shall be dry, clean, smooth and level (± 0.5 percent maximum gradient), made of concrete, asphalt or equivalent to permit the development of the drawbar drag.

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- b) The industrial truck shall be laden to its rated capacity with the load in the lowered (travelling) position and the mast or forks shall be tilted fully rearward and retracted, if this is provided by the design of the truck.
- c) Travel controls shall be in neutral and the service brakes fully disengaged.
- d) Burnishing of brakes is optional prior to test.

NOTE - Maximum pedal effort shall be as prescribed in 2.1.1.1 of IS: 9701-1980

2.5 Stability and Overhead Guard Test:-

2.5.1 One truck out of twenty trucks supplied by the firm against various orders shall be tested subject to no change in design. The Stability tests No. 1, 2, 3 and 4 of IS: 4357-1974 shall be carried out in accordance with conditions laid down in IS: 4357-1974.

2.5.2 Whenever the overhead guard is introduced or a design change is carried out in the existing of the overhead guard the manufacturer shall test the overhead guard as per IS: 7621-1974.

2.6 Name Plate Details:-

- a) *Forklift Truck* - The name plate shall be checked to see that it is fitted at suitable place on the truck showing the following details:
 - i) Manufacturer's name and registered trade-mark, if any;
 - ii) Model;
 - iii) Serial number;
 - iv) Nomenclature;
 - v) Load capacity;
 - vi) Year of manufacture;
 - vii) Maximum capacity with attachments, if any; and
 - viii) Maximum fork height.
- b) *Prime Mover(IC ENGINE)* - Details of the prime mover shall be shown as specified below:
 - Manufacturer's name Manufacturer's name
 - Model
 - Serial number
 - Horse power
 - RPM
- c) *Instruction Plate* - A suitable instruction plate, indicating precautions during operation and special important procedures to be observed in operating the truck shall be provided in a prominent place on the truck.

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