

# RAIL COACH FACTORY, KAPURTHALA

## TECHNICAL SPECIFICATION OF FORK LIFT TRUCK, CAP. 10TON

NO. MECH/M&P/ 2700/13

### 1.0 DESCRIPTION:

Diesel Operated Fork Lift Truck, Capacity 10 Ton.

### 2.0 SCOPE:

The scope of this specification cover Design, Manufacturing, supply and commissioning of Diesel operated fork lift Truck capacity-10Ton to RCF/ Kapurthala as per technical specification given below and also as per Technical parameters given at Schedule-I.

2.1 The tenderer has to provide clause wise comments against each para in the offer, failing which the offer is liable to be rejected.

### 3.0 CAPABILITY:

Diesel Operated Forklift Truck should be capable to lift and move the 10-ton material inside the workshop of Rail Coach Factory, Kapurthala.

### 4.0 TECHNICAL SPECIFICATION :

#### 4.1 ENGINE:

4 Stroke Diesel Engine, Water cooled or any suitable system for regular working FLT in 3 Shift(each shift has 8 hrs.), Direct injection industrial diesel engine with Turbo charger should be fitted, conforming to IS-1000 (1980) rated approx 100 H.P at 2200 to 2300 rpm. Air filtration should be done through a Dry/ Oil bath heavy duty air cleaner. Vertical Exhaust should be so fitted that Exhaust Gases are discharged well clear off the operator after suitable purification through exhaust spark arrester and Oxycatalyst Exhaust Gas Purifier. Cold Starting Device should be provided at suitable place in the engine to avoid starting problem in winter season. Engine should be capable of starting in ambient temperature (range of 0 – 50 deg. C). Fuel injection system of Mico/Bosch to be provided.

#### 4.2 ENGINE IGNITION SYSTEM:

Electrical system of the plant should be connected with 12 Volt,110 AH heavy duty battery ( make Exide/ Mico/ Amco) charged with belt driven Alternator, Axial type starter motor and multiphase panel with heavy duty Starting Switch should be provided with individual circuit protection.

#### 4.3 INSTRUMENTATION:

Instrument Panel should be equipped with Fuel gauge, Engine oil pressure gauge, Ampere meter, engine hour meter, Engine Temperature Gauge, T Q oil temperature gauge, battery charge indication light, brake warning lights,

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reverse operation hooter & light, direction indicators lights and flasher light etc.

#### **4.4 TRANSMISSION:**

Automatic hydrodynamic transmission should be used for frequent stops, starts, and direction reversal. The forward/ reverse direction should be effected by mechanical lever. Separate levers should be provided for direction/speed control. Twin speed, forward/ reverse hydrodynamic transmission should also be equipped with neutral start switch. Lever Rods should be provided for Hi-Low / Fwd-Rev instead of cables. Transmission suction hose should have same size of connectors on both ends.

#### **4.5 HYDRAULIC SYSTEM:**

Gear type hydraulic pump should be provided, which should be driven by engine, for lift, tilt, power steering and other auxiliary system. Proper lock valve assy. should be provided to lock the system in any position during working. Control levers with easy to understand symbols should be mounted ergonomically on cowl. Proper Capacity Hydraulic Tank should be provided with suction strainer and full flow return line filter with suitable hyd. cooling system. Hydraulic system should be provided from reputed source DENTOL/Rexroth/Vickers/Pneucn etc. Oil used in the system should be specified in the offer and first fill of oil should be provided along with supply.

#### **4.6 STEERING SYSTEM:**

Hydrostatic power steering system should be provided for smooth responsive, steering wheel control. Suitable articulated/ fabricated steering axle should be provided to give equal ratio in both directions.

#### **4.7 BRAKES:**

Fail Safe pneumatic/ hydraulic braking system of reputed make should be provided on front wheels of the FLT. Mechanical Parking Brake with micro adjustable lever should be mounted externally near the operator.

#### **4.8 FRAME:**

Frame of the truck should be made of steel, precision aligned construction with detachable fuel and hydraulic tanks fitted with magnetic drain plug and having large inspection & maintenance windows. Operator Overhead Guard should be provided to protect the operator from overhead objects. The suitable elegantly designed canopy, integrated with the frame body should also be provided. Counter balance weight should be provided with profiled exterior for improved rear visibility, suitably casted / fabricated to bear maximum impact. Engine hood cover should be made of steel/FRP and it should be so designed that it takes the load of two persons sitting on the engine hood excluding driver while operating at rated load and at full speed. The proper heat insulating shall be provided on the inner side of the engine hood cover. All Fitting should be maintenance friendly.

#### **4.9 WHEELS:**

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Solid Cushion tyres of reputed make should be provided on the plant.

**5.0 MAST ASSEMBLY:**

Clear view mast assembly with load backrest should be provided for greater comfort and ease to operator. Reinforced Mast, combination roller bearings capable of taking axial load as well as thrust load simultaneously should also be provided. Suitable arrangement should be made to resist deflection due to off center loading.

**5.1 OPERATOR SEAT:**

Comfortable drivers' seat should be provided with spacious leg room. Soft touch accelerator and brake pedal should be so designed for easy approach to operator.

**5.2 SAFETY ATTACHMENT:**

Trucks should conform to all safety requirements as per ISO standards. Helogen Head Lights and Electric Horn should be provided at proper place covered with wire mesh guard. Rear indicator light with buzzer should also be provided, which should work on movement of FLT in reverse direction. [Provision of external lock on fuel tank cap to prevent pilferage of fuel oil should be ensured.](#)

**5.3 COMMISSIONING AND PROVING OUT:**

The contractor shall arrange commissioning and proving out of the equipment at site i.e. Rail Coach Factory, Kapurthala (Punjab), India within 7 days from the receipt of the equipment at site and after successful commissioning, will demonstrate the performance of the equipment to the nominated staff of Rail Coach Factory at consignee's premises.

**5.4 TRAINING:**

Technical experts of the supplier, during commissioning of equipment will fully and adequately train operation/ maintenance staff nominated by the consignee at Rail Coach Factory, Kapurthala (Punjab).

**5.5 SERVICING AND WAREHOUSING FACILITIES:**

The tenderer will clearly spell out in the offer the facilities available with him or his agent for providing adequate after sales service in India during warranty period. The tenderer will also indicate the service organizations located at various places in India and the availability of trained staff, maintenance spares etc. at different centers in India.

**5.6 WARRANTY:**

The equipment should be under warranty for a period of 24 months from date of commissioning of the plant at Rail Coach Factory, Kapurthala.

**5.7 TECHNICAL LITERATURE:**

**5.7.1** One copy of the printed illustrative catalogue showing various features of the

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Equipment and its element must be enclosed with each copy of bid. Also complete hydraulic and electrical circuit diagram should be provided.

**5.7.2** The successful tenderer will also have to furnish 4 copies of spare parts catalogue giving the part list number of each component with exploded views and assembly drawings of major assembly and 4 copies of maintenance manual, trouble shooting guide, operation manual and all electrical circuit diagrams to the consignee. The bidders should provide a list of literature, they will supply along with the equipment. The technical literature shall be provided in English language.

**6.0 EVALUATION CRITERIA:** The total value of the offer will be calculated based on

- i. The cost of the basic machine.
- ii. Cost of the concomitant accessories according to tender specifications.
- iii. Cost of any other accessory which in the opinion of supplier is essentially required for making the machine fully functional.
- iv. Applicable duties and taxes, insurance, freight, installation & commissioning charges, training etc.

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**TECHNICAL SPECIFICATION OF FORK LIFT TRUCK, CAP. 10T**

NO. Mech/M&amp;P/2700/13

#	DESCRIPTION	REQUIRED SPECIFICATION
1.	Engine specification (Diesel) rated H.P. STD. Conditions as per IS-10000- Part-XII & IS 10001.	4 Stroke Diesel Engine TATA 697/Simpsons/Cummins/Kirloskar/ACE/ Ashok Leyland with turbo charger of approx 100 HP at 2200 to 2300 RPM.
2.	Cooling System	Water Cooled or any suitable system for regular working FLT in 3 Shifts (each shift has 8 hrs.)
3.	Method of starting	Electrical starting only (Battery & Alternator fitted).
4.	Capacity (Lifting Load)	10,000 Kgs.
5.	Load Centre	600 MM
6.	Lift Height	3500 - 3700 MM.
7.	Mast Tilt (F/B) in degree	6 deg. Forward/ 12 deg. Backward
8.	Turning Radius	4200 to 4500 MM Approx.
9.	Steering System	Hydrostatic Power steering.
10.	Maximum Speed	15 KM/Hr. Approx
11.	Wheel (F/R)	4 wheels in front 2 wheels in rear
12.	Wheel Base	Approx. 3000 MM.
13.	Tyres	Solid Cushion
14.	Ground Clearance	300 mm approx
15.	Length of Fork	1600 MM approx.
16.	Fork Spread	400 MM to 2150 MM. approx
17.	Transmission	Hydraulic torque converter, constant mesh gears.
18.	Brake System	i) Fail safe pneumatic/ hydraulic braking system of reputed make shall be provided on Front Wheels of FLT. ii) Parking Brake – Spring operated with Pneumatic release, shall be provided on Front wheel.
19.	Intake Air cleaning system	Heavy Duty Air Filter
20.	Colour	Golden Yellow
21.	Counter Weight	Casted/ Fabricated, Profiled Counter Weight for improved rear visibility.
22.	Fork Movement & fixing.	Pipe type sliding arrangement is required for forks and the fixing at any location with pin.

**ACCESSORIES (TO BE SUPPLIED WITH FORK LIFTER)**

1.	Yellow Flasher Light on the top.
2.	For Cold starting one heater to be provided in inlet manifold of engine.
3.	Hour Meter, Temperature Gauge, Ampere meter, Engine oil Pressure gauge, Fuel Gauge to be provided.
4.	Canopy covering for drivers overhead guard to be provided.
5.	Head & Tail Light, Signal Light, Spot light (Reverse).
6.	Oxycatalyst exhaust Gas purifier.
7.	Rear View Mirror.
8.	Tool Kit.
9.	Towing coupler.
10.	Reverse Buzzer/Hooter.

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