

SNO	DESCRIPTION FOR BHEL REQUIREMENT		SPECIFIED / TO BE CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
1.0 PURPOSE						
1.1	Purpose: In house material handling , movement & transportation .					
2.1 SPECIFICATION:						
2.1.1	Model		Vendor to specify			
2.1.2	Capacity (At load centre in Kg): 3000		Vendor to confirm			
2.1.3	Load centre (Distance in mm)		Vendor to specify			
2.1.4	Power : Diesel		Vendor to confirm			
2.1.5	Nos of wheel (Dual): Front : 4 & Rear : 2		Vendor to confirm			
2.1.6	Fork (Length x Width x Thickness):Size shall not be less than 1000 mm x 100mm x 40mm		Vendor to specify			
2.1.7	Mast: 2 stage mast suitable & MFH Not less than 5500 mm		Vendor to specify			
2.1.8	Dual Drive : (Solid four front wheel)		Vendor to confirm			
2.1.9	Neutral safety switch		Vendor to confirm			
2.1.10	Load sensing valve		Vendor to confirm			
2.1.11	Hydrostatic Power Steering		Vendor to confirm			

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2.2	SPECIFICATIN OF ENGINE				
2.2.1	Nos. of speed Forward /Reverse	Vendor to specify			
2.2.2	Fuel Tank capacity (Litre)	Vendor to specify			
2.2.3	Hydraulic Oil Capacity (Litre)	Vendor to specify			
2.2.4	Engine sump oil capacity (Litre)	Vendor to specify			
2.2.5	Transmission Oil (Litre)	Vendor to specify			
2.2.6	Front axle load(KG) :Laden (Not less than 6000)	Vendor to specify			
	Un Laden (Not less than 1500)	Vendor to specify			
2.2.7	Rear axle load(KG) : :Laden (Not less than 6500)	Vendor to specify			
	:Un Laden (Not less than 2550)	Vendor to specify			
2.3	ENGINE :				
2.3.1	Engine shall be of 4 stroke, 4 cylinder water cooled diesel engine with heavy duty dry type air cleaner.It should also have dual fuel filter , lubrication oil filter and pretecto fuel filter cap.	Vendor to confirm			
2.3.2	Make	Vendor to specify			
2.3.3	Model	Vendor to specify			
2.3.4	Rated output@rpm(HP/RPM): Not less than 55@2300	Vendor to specify			
2.3.5	Cycle/cylinder/displacement:	Vendor to specify			
2.3.6	Torque @ rpm(Nim@rpm): Not less than 220 @ 1400	Vendor to specify			

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2.4	WHEEL BASE:				
2.4.1	Centre distance between front & Rear wheel : Should not less than 1600 mm	Vendor to specify			
2.5	Tread :				
	Front : Dual(mm) Should not be less than 1400	Vendor to specify			
	Rear (mm) :Should not be less than 900	Vendor to specify			
2.6	Brake:				
	Service Brake : Foot operated Hydraulic service brake	Vendor to confirm			
	Parking Brake :Hand operated Mechanical parking brake	Vendor to confirm			
2.7	TYRE:				
2.7.1	FRONT: Solid cushion(ID x Width) : Not less than 650mm x 175 mm	Vendor to specify			
2.7.2	REAR: Solid cushion(ID x Width) : Not less than 580 mmx160 mm	Vendor to specify			
2.7.3	Travel speed (Km/Hr): Laden/ Unladen , Not less than 15	Vendor to specify			
2.7.4	Lift Speed(m/s): Laden/ Unladen , Not less than 0.5	Vendor to specify			
2.8.5	Lower Speed(m/s): Laden/ Unladen , Not less than 0.5	Vendor to specify			

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2.8	MAST TILT				
2.8.1	FORWARD/BACKWARD(Deg) upto 3650mm Fork lift height: Not less than 5/ 10	Vendor to specify			
2.8.2	FORWARD/BACKWARD(Deg) beyond 3650mm & atleast upto 5500 mm Fork lift height: Not less than 4/ 6	Vendor to specify			
2.8.3	Gradability(%): Laden / Unladen:Suitable & Not less than 28 %	Vendor to specify			
2.8.4	Total weight : Unladen condition(Kg)	Vendor to specify			
2.8.5	Drawbar pull(Kg.): Laden condition	Vendor to specify			
2.8	DIMENSIONS:	Vendor to specify			
2.8.1	Overall length with forks(mm)	Vendor to specify			
2.8.2	Overall width with dual drive(mm)	Vendor to specify			
2.8.3	Overhead Guard height(mm)	Vendor to specify			
2.8.4	Driver seat height(mm)	Vendor to specify			
2.8.5	Ground clearance at centre of wheel base (mm): 200 mm Min.	Vendor to confirm			
2.8.6	Ground clearance under mast (mm)	Vendor to specify			
2.8.7	Turning radius:In Dual Drive(mm)	Vendor to specify			
2.8.8	Fork spread (Dual drive):Adjustable upto 1450 mm Min.	Vendor to confirm			

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2.9	FRAME:					
2.9.1	Precision aligned rugged, compact , monocoque construction with integral fuel & hydraulic tanks, confirm to IS : Section 4 of ANSI/AWS D 1.1 (94) structural welding code.		Vendor to confirm			
2.9	TRANSMISSION:					
2.9.1	Transmission shall be automatic under variable speed & variable load application.		Vendor to confirm			
3.00	MAST					
3.0.1	Mast- Unit shall be constructed from high tensile rolled steel nesting section with lateral cross-ties, position to ensure correct strength .		Vendor to confirm			
3.0.2	High visibility in forward direction for driver shall be ensured.		Vendor to confirm			
3.0.3	It shall have clear view Mast, for greater safety & ease for operator. Reinforced mast with variable retainment mast roller. Mast rollers & carriage rollers shall be adjustable & resist deflection due to off- centre loading. Hook mounted should forged, heat treated & tested as per latest IS Standard 6876		Vendor to confirm			
3.1	OVERHEAD GUARD:					
3.1.1	An sturdy overhead guard shall be provided for the safety of driver . It shall also be ensured to protect the driver from falling object & provided clear upward visibility.		Vendor to confirm			

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3.2	HYDRAULIC SYSTEM				
3.2.1	Gear type(or latest design) , hydraulic pump shall be provided driven by engine for lift,tilt,& for power steering & auxiliary function. Integral sump tank of adequate capacity with no air space. Adequate hydraulic strainer, filters and relief valaves where ever required shall be provided to protect and increase life of critical hydraulic component.	Vendor to confirm			
3.2.2	Hydraulic break shall confirm to as per latest IS:9701	Vendor to confirm			
3.3	SAFETY				
3.3.1	Neutral start only	Vendor to confirm			
3.3.2	High coolant temperature & low engine oil pressure indicator shall be provided.	Vendor to specify			
3.3.3	Flow regulating valve shall be provide to automatic regulating & lowering speed with heavier load.	Vendor to confirm			
3.3.4	Hose burst valve also provided,It require during hydraulic hose failure.	Vendor to confirm			
3.3.5	A counterbalanced valve shall be provided into the main hydraulic valve to control the tilting of mast.	Vendor to confirm			
3.4	NOISE LEVEL				
	Noise level as per standard (85 dB) at a specific condition . Supplier to specify.	Vendor to confirm			

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3.5	OPERATOR COMFORT:				
3.5.1	Operator cell shall be spacious & have executive class leg room	vendor to confirm			
3.5.2	Adjustable & comfortable cushion driver seat shall be provided	Vendor to confirm			
3.5.3	For easy, safe entry & exit of driver a low step height shall be provided.Entry & exit of driver from either side .	vendor to confirm			
3.5.4	Accelerator & brake pedal shall be soft touch for fatigue free operation.	vendor to confirm			
3.5.5	Cowl shall be in low level position & ergonomically placed to feel pleasant & comfortable driving experience.	vendor to confirm			
3.6	INSTRUMENT				
3.6.1	Dashboard display panel mounted on the cowl shall be very easy to use .	vendor to confirm			
3.6.2	Following display shall be provided on the dashboard.	vendor to confirm			
3.6.3	Fuel gauge , Hours Meter, Battery charging Indicator, High water/Coolant Temperature Indicator, Low engine oil pressure indicator,High Transmission oil Temperature indicator, Parking Break'ON' Indicator, Direction Indicator.	vendor to confirm			

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3.7	ACCESSORIES :					
3.7.1	Floor mat :Require		vendor to confirm			
3.7.2	Electric Horn: Require		vendor to confirm			
3.7.3	Maintenance Tool Kit: Require		vendor to confirm			
3.7.4	Inching facility:Require		vendor to confirm			
3.7.5	Head & Tail light		vendor to confirm			
3.7.6	Rear view Mirror		vendor to confirm			
3.7.7	Spark Arrestor		vendor to confirm			
3.7.8	Water Muffer		vendor to confirm			
3.8	LUBRICATION SYSTEM:					
3.8.1	All gears should run in oil bath.All steering connection shall equipped with high pressure lubrication fittings.		vendor to confirm			
3.8.2	First filling of lubrication such as oil ,grease etc. is to be given by the supplier. The supplier shall be sole responsibility that equipment shall ready to use condition at BHEL Bhopal work .		vendor to confirm			

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3.9 SPARES:					
3.9.1	Itemised breakup of mechanical, hydraulic, electrical and pneumatic spares used on the Fork lifter in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation should be offered by vendor. The list to include following, in addition to other recommended spares: (Unit Price of each item of spare should be offered)	vendor to confirm			
3.9.2	a) Mechanical & Hydraulic , Spares: All , Filters, Seals, O-rings, Hydraulic Hoses etc.	vendor to confirm			
3.9.3	All types of spares for total fork lifter & accessories should be available for atleast ten years after supply of the machine. If machine or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & suppliers to enable BHEL to procure them in advance, if required	vendor to confirm			
3.9.4	Recommended set of spares for all attachments are to be offered with details.	vendor to confirm			
3.9.5	Vendor to confirm that complete list of spares for machine and accessories, along with specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine	vendor to confirm			

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4.0	DOCUMENTATION : Five sets of following documents (Hard copies) in English language should be supplied along with the machine	vendor to confirm			
4.0.1	Operating manuals of Fork lifter	vendor to confirm			
4.0.2	Detailed Maintenance manual of machine with all drawings of machine assemblies/sub-assemblies/parts including Electrical / Pneumatic/ Coolant / Hydraulic circuit diagrams. All Assembly/Sub Assembly Drawings shall be supplied with the part list also.	vendor to confirm			
4.0.3	Detailed specification of all rubber items and hydraulic/lube fittings	vendor to confirm			
4.0.4	Complete Master List of parts used in the Fork lift truck shall be submitted by the vendor.	vendor to confirm			
4.0.6	One additional set of all the above documentation on CD ROM, wherever possible.	vendor to confirm			
4.1	INSTALLATION & COMMISSIONING				
4.1.1	Supplier to take full responsibility for carrying out the installation, start up, testing of lifter, it's control & all types of other supplied accessories equipment , Details of these requirements should be informed by vendor in advance.	vendor to confirm			
4.1.2	Successful proving of full load carrying capacity & testing at BHEL bhopal by the supplier shall be considered as part of commissioning.	vendor to confirm			
4.1.3	Demonstration of all features of the machine, control system & accessories	vendor to confirm			

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4.1.4	Tests/Activities should be carried out at BHEL works while commissioning the Fork lift truck :	vendor to confirm			
4.1.5	Demonstration of all features of the machine, control system & accessories to the satisfaction of BHEL for efficient and effective use of the machine	vendor to confirm			
4.1.6	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	vendor to confirm			
4.2	PACKING:				
4.2.1	Sea worthy & rigid packing for all items of complete Item & all Accessories and other supplied items to avoid any damage/loss in transit. When Item is despatched in containers, all small loose items shall be suitably packed in boxes	vendor to confirm			
4.3	GUARANTEE :				
4.3.1	24 months from the date of acceptance of the machine.	vendor to confirm			
4.4	INSPECTION				
4.4.1	Fork lift truck shall be inspected & tested completely at the manufacturer work's prior to despatch & in presence of the BHEL representative.	vendor to confirm			
4.4.2	Four copies of inspection test report/ chart should be furnished along with equipment.	vendor to confirm			

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4.5	GENERAL :				
4.5.1	Model	vendor to confirm			
4.5.2	Colour of Fork lifter :Fork lifter should have nice appealing appearance with rust proof varnish and attractive colour finish	vendor to specify & confirm			
4.5.3	Vendor to submit, along with offer, reference list of customers where similar or higher capacity lifter have been supplied mentioning broad Model No. capacity , Diesel / Battery operated etc.	vendor to confirm			
4.5.4	Detailed catalogues , sketch/ photographs of the fork lifter and accessories/ attachments should be submitted with the offer.	Vendor to specify			
4.5.5	Hydraulic, Pneumatic & oil pipings should be preferably metallic except places where flexible pipings are essential.All the pipes required for the same shall be included in the standard scope of the machine.	Vendor to specify			
4.6	REFERENCE LIST / QUALIFYING CONDITIONS :				
4.6.1	Only those vendors(OEM), who have supplied and commissioned Fork lift truck of same(3.0 Ton Capacity) or higher capacity for similar applications in the past five years (on the date of opening of tender) and such Fork lift truck is presently working satisfactorily for more than one year after commissioning (on the date of opening of tender) should quote. The following information should be submitted by the vendor about the companies where similar machines have been supplied. This is required from all the vendors for qualification of their offer.	vendor to confirm			

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4.6.2	1. Name of the customer / company where similar fork lift truck is supplied.	Vendor to specify			
	2. Complete postal address of the customer.				
	3. Month & Year of commissioning.				
	4. Name and designation of the contact person of the customer.				
	5. Phone, FAX no. and email address of the contact person of the customer.				
	6. Performance certificate from any one customers regarding satisfactory performance of trucke supplied to them . The performance certificate should be issued within one year of tendor opening.				
4.7	SCOPE OF SUPPLY				
4.7.1	Complete Fork Lift truck - 1 No as per above specification	vendor to confirm			
4.7.2	Free after sales service is to be provided during commissioning & guarantee period .	vendor to confirm			
4.7.3	Installation, Commissioning , training & proving of equipment at BHEL Bhopal work.	vendor to confirm			