

2.5T - 3.0T Battery Operated Forklift Truck

Capacity : 2500 / 3000 kg
at 500 mm LC



**INDIA'S MOST
COMPACT & ENERGY
EFFICIENT FORKLIFT**

- ✓ Ergonomical and Modern looking Forklift
- ✓ Reduced Energy Consumption
- ✓ Longer Hours of Forklift Operation
- ✓ Variable Lifting speeds Adaptable to varying Customer Applications
- ✓ Clear Visibility Mast

Now with option of
Easy Side Extraction
of Battery

MAX

**Reliability
Performance
Productivity**

19+ Safety Features



Drive Comfort Drive Productivity ...

Do You Know

- You can increase productivity by manifold by using right material handling equipment.
- Labor dependency can be reduced to a great extent by using MH equipments.
- Annual World wide material handling equipment volume is more than 1 million.
- Annual Indian market is approximate 10,000 units and is less than 1% of global volume.
- KION group is worldwide leader in Material Handling equipment.
- KION India is pioneer in Indian MH market for more than 50 year through VOLTAS brand of equipments.
- More than 11,000 Voltas fork lifts are working in Indian market.
- KION India is having leadership position in IC truck in India.
- KION India makes Battery operated Fork Lifts with latest design and world class technology which ensures maximum energy saving and maximum productivity.



High Powered
75V drive

Split rim design



Single Motor for
Haul & Steer
Operations

Dual Control
System

DRIVE MOTOR

Drive motor is AC. Single motor both drive & haul motor is designed to provide high starting torque and withstand high temperatures in the most demanding applications. High energy output in the entire working range combined to absolutely maximum life.

HAUL MOTOR

The haul motor is supported on roller guide for reduced vibration and wheel erosion. The motor is better suited with class F insulation and integral cooling for DC alternative AC Motor for maximum life operation. Pump motor is managed by dedicated pump control system optimizing the motor performance in accordance with demand thus giving high operating efficiency & more life and also eliminating the separate electric motor.

DRIVE CONTROL

A "State of the art" high power solid state microprocessor based traction control - feeder controlled AC motor controller. This will provide more & better control with Regenerative braking.

A self diagnostic with on board display system is able to detect the controller when correctly records the electrical control system and reliable diagnostic codes. The control system provide smooth stepless acceleration, variable speed control and precise locking and expansion for modified uses.

The regenerative braking feature is effective and it greatly eliminates the loss of fuel/energy thus saving energy and reducing operator fatigue. The Battery-Charger is standard equipment in the Operator air lock before job commencement.

TRANSMISSION

A three stage reduction drive train feature helical gear reduction specially designed for smooth & quiet operation. Torque motor can be installed or removed without affecting the gear mesh. An efficient air drag airway that's built into the axle housing and holds the drive shaft.

BRAKES

Heavy duty brake rings are coated to steel shoes and operate independently in each brake drum. Shoes are self-adjusting. The service brake is operated by an ergonomically located pedal. The mechanical parking brake is released by remote control on the mast.

MAST, LAMPS & FORKS

An excellent design supported by a water welding process is used to highly durable and indestructible high velocity mast. High velocity impact means standard. Optional LIFT SWLP. Traction motor variants are available for a variety of applications including container stacking & lifting. High velocity carriage with improved visibility is standard. Forks are of work-resistant.

STEERING

The axle is fabricated from steel plate for durability and strength. The axle is supported in the frame by using hardened steel bushing to provide the required articulation. The tapered tapered cone spindle is set progressively on the axle body. The axle assembly uses steel pin joints for ease of maintenance. It includes precise steering geometry, torsion bar rear end along with angle steering to greater maneuverability.

HYDRASTATIC POWER STEERING

The Load sensing hydrostatic power steering provides a single touch effortless smooth steering, ensuring operator comfort. To conserve battery energy, the power motor operates to minimal required speed in the unlikely event of pump pressure failure. The truck can be electrically controlled.

FRAME, BATTERY COMPARTMENT AND CAPACITY

The frame is designed using computer aided modelling and optimized by finite element analysis techniques. It is fabricated from heavy steel plates using laser cutting systems, ensuring excellent rigidity and strength.

Located inside within the chassis the battery is contained in protective cage. Good security is supported by gas springs for ease of opening & accessibility.

An elegant battery integrated with the frame body provides a safe enclosure for operator conforming to S. 7621-2000.

HYDRAULIC SYSTEM

Hydraulic system consists of standard pump, directional control valve, solenoid and full flow filteration system with bypass protection, pressure relief and 32 micron replaceable return line filter. Pressure relief 210 bar and flow regulation are provided for safety. The lift lock feature would valve provide against unbalanced forward 30 wheel pivoting (pre-lift lock condition). Performance performance is increased with hydraulic flow elements thus ensuring power saving with enhanced operator safety.

INSTRUMENTATION AND CONTROLS

Details are provided for acceleration and braking. These are located ergonomically with simple key code for the operator. Charge indicator level is automatic type installed as the standard solution for easy operation. Hydraulic control valve levers are ergonomically positioned for fatigue free operation.

Haul motor and battery status of charge gauge located in an elegantly designed IP67 housing are available as standard. An enhanced dash display provides battery state of charge display. Controller diagnostic. Substrate features are designed to maximize lifetime.

OPTIONAL

1. 30AC drive
2. Non-mechanical traction/steering control system (steer by light)
3. Higher Battery systems upto 100Ah
4. Proximity tyres

SALIENT FEATURES



Powerful, energy efficient drive motor



Heavy-duty shock axle for rugged operations



Easy-mounted controls for easy maintenance



Easy 20L removable lead-acid battery for easy maintenance



22V battery & AC charger for longer hours of operation



Stainless steel wheeling for less bearing rotation



Large tread tires for enhanced road grip and stability



Digital Instrument Panel with on-board diagnostics



Angle leg room for operator comfort



Large operator hand wheel around steering grip



Easy removal of battery (upward)



Easy 20L removal of battery (upward)



Wide view mast for clear 360° speedx velocity



Wide Operator foot rest for safer 360° and 45°



High load-bearing combination mast bottom legs



Easy access combination mast

KEY CONFIGURATIONS

TYPE OF MAST	MAST MODEL	SAW h1 (mm)	FFA h2 (mm)	MFH h3 (mm)	SAW @ MFH with LHM (kg)	TILT ANGLE (°)	CAPACITY (kg @ 50% @ 50% @ 100% @ 150% @ 200% @ 250% @ 300% @ 350% @ 400% @ 450% @ 500% @ 550% @ 600% @ 650% @ 700% @ 750% @ 800% @ 850% @ 900% @ 950% @ 1000%)
2-Stage	1140	230	91	300	410	4.5	100
2-Stage	1440	230	100	300	460	3.5	200
3-Stage	1672.50	230	100	400	530	4.5	250
3-Stage	1872.50	230	100	500	680	3.5	260
3-Stage	1872.50	230	210	600	750	3.5	100

350 = Good; 500 = High; 750 = Low; 1000 = High; 1500 = Low; 2000 = High; 2500 = Low; 3000 = High; 3500 = Low; 4000 = High; 4500 = Low; 5000 = High; 5500 = Low; 6000 = High; 6500 = Low; 7000 = High; 7500 = Low; 8000 = High; 8500 = Low; 9000 = High; 9500 = Low; 10000 = High

Safety Features Offering in EVX Max Series Fork Lifts

No.	Safety Feature	Advantage	Remarks
1	Flow Burst valve in hydraulic cylinders	In case of rupture of hoses/accident controlled lowering possible	Standard
2	Consolidated working/hydraulic system hoses	Safe for operator/Minimizing chances of external damage	Standard
3	Seat belt	Operator safety	Standard
4	Beacon light/flashing light	Safe working	Standard
5	Lift lock	In case of battery charging going down, allow to drive it in charging station by locking lifting system	Standard
6	Tilt lock valve	Load will not fall if truck is in tilted off condition	Standard
7	Neutral interlock	Truck will not move unless it is in neutral position. Moving will again	Standard
8	Intelligent drive control	Right sequence of gear shifting and acceleration	Standard
9	Regenerative braking	In case of touch brake failure, machine will stop in deceleration	Standard
10	Anti roll back	At slope machine will not be reversing even if operator not pressing the accelerator	Standard
11	Heavy duty box type overhead guard	Operator safety from falling object	Standard
12	Intelligent pump controller	Jerk free hydraulic operation	Standard
13	Independent parking brake	In case of hydraulic failure, brake will function normally	Standard
14	Fork Lock	Fork will not come out from insert slot	Standard
15	Heavy duty box type Rear axle	For rugged operation	Standard
16	OPC*	No function of truck happens unless operator sits properly	Optional
17	Bornier†	Truck will be operated by authorized operator only	Optional
18	Automatic speed reduction of forking *	Safe at forking	Optional
19	Side removal of battery *	Easy/Convenient and no OH crane required	Optional

*Optional safety features

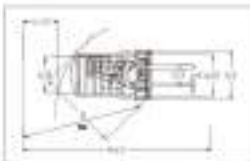
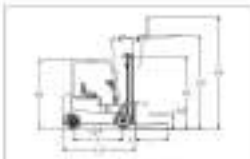
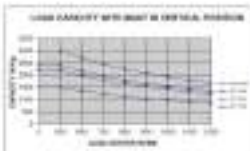
Running Cost Calculation of 3 yrs for Electric & Diesel counterbalance Truck

No.	Item	Quantity	Unit	Expenses				
				HPF	Electric Truck	HPF	Diesel Truck	
1	Motor Oil	1	lit	17500	0750	17500	0750	0.7%
2	Steer Axle Oil	1	lit	20000	10750	20000	10750	0.7%
3	Gear Oil	15	lit	3000	2250	3000	2250	0.7%
4	Hydraulic Oil	120	lit	34000	18000	34000	18000	0.7%
5	Diary Oil	4	lit	20000	10000	20000	10000	0.7%
6	Electric Charges	18750	kWh	60000	180000	0	0	0.7%
7	Diesel Charges	12000	lit	0	0	752000	752000	0.7%
8	Engine Oil	1	lit	0	0	60000	60000	0.7%
9	Tyre	4	lit	22000	24000	42000	33750	0.7%
10	Engine Oil	120	lit	0	0	34000	34000	0.7%
11	Filter	3	lit	9000	8100	45000	33750	0.7%
12	Minor Servicing	2	lit	10000	7000	0	0	0.7%
13	Clutch Maintenance	1	lit	0	0	20000	16750	0.7%
	TOTAL				280000		840000	0.7%
	Running Cost per day				950		2760	0.7%

*Above costs are on estimation basis

SPECIFICATIONS - 3T AC ELECTRIC FORKLIFT

GENERAL SPECIFICATIONS		KION INDEX
1.1	RAISE/LOWER	180
1.2	RAISE SPECIFICATION	180
1.3	MODEL DESIGNATION	F13 3T BAK
1.4	POWER USE	BATTERY
1.5	OPERATION	SEATED
1.6	LOAD CAPACITY	3000
1.7	LOAD CENTRE	500
1.8	AXLE CENTRE TO FORK FACE	480
1.9	WHEEL BASE	1800
2.1	SERVICE WEIGHT	Kg 4950
2.2	AXLE LOAD (ADED FRONT REAR)	Kg 2150/2800
2.3	AXLE LOAD (UNLOADED FRONT REAR)	Kg 1750/2200
3.1	TYRE	SOLID
3.2	TYRE SIZE FRONT	210/50R
3.3	TYRE SIZE REAR	18x7.4-14 PR
3.4	WHEELS - RUBBER FRONT/REAR (mm)	35
3.5	TRACK WIDTH FRONT	810 mm
3.6	TRACK WIDTH REAR	810 mm
4.1	MAST HEIGHT LOWERED	2140 mm
4.2	MAST HEIGHT EXTENDED	3140 mm
4.3	FREE LIFT	1900 mm
4.4	SWAYLIFT	3000 mm
4.5	MAST HEIGHT - EXTENDED	3140 mm
4.6	HEIGHT OF OVERHEAD GUARD	2140 mm
4.7	WIDTH TO FORK FACE	2000 mm
4.8	OVERALL WIDTH	1200 mm
4.9	FORK (L&R) (mm)	451 (21 x 11)
5.1	FORK CAPACITY - 90 CLASSE	3A
4.11	FORK SPREAD	830 mm
4.12	OVERALL CLEARANCE AT REAR	620 mm
4.13	TURNING RADIUS	2300 mm
5.1	TRUCK SPEED, WITH/WITHOUT LOAD	km/h 12/12
5.2	LIFTING SPEED, WITH/WITHOUT LOAD	m/s 0.25/0.28
5.3	LOADING SPEED, WITH/WITHOUT LOAD	m/s 0.25/0.28
5.4	CRAVABILITY WITH LOAD	% 17
6.1	DRIVE SHAFT	HYDRAULIC
6.2	DRIVE TYPE	AC MOTOR
6.3	DRIVE MOTOR	30V 12.000.00 MW
6.4	LIFT MOTOR (LIFTING)	30V 6.5.000.10 MW
6.5	DRIVE CONTROL	AC MOTOR
6.6	BATTERY VOLTAGE RATED CAPACITY	Volt/250/30Ah



**100+
CUSTOMER
TOUCH POINTS**

OM VOLTAS

DESIGNED TO WORK

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DRIVE COMFORT DRIVE PRODUCTIVITY