FOUR-WHEEL ELECTRIC FORK LIFT TRUCKS

E12 | **E16** | E20 | E25

ITM product

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The electric fork lift trucks are materials handling equipment of general used in conveying and stacking palletized loads in warehouses, harbours, ports, airports and for in-shop or in-plant transport.

Those are used on hard and even pavements and the gradients of ramp access are given in the technical characteristics.

The trucks are suitable for operations in temperate climatic zones with temperature intervals of environment from minus 25°C to plus 40°C in explosion-and fire-proof premises.

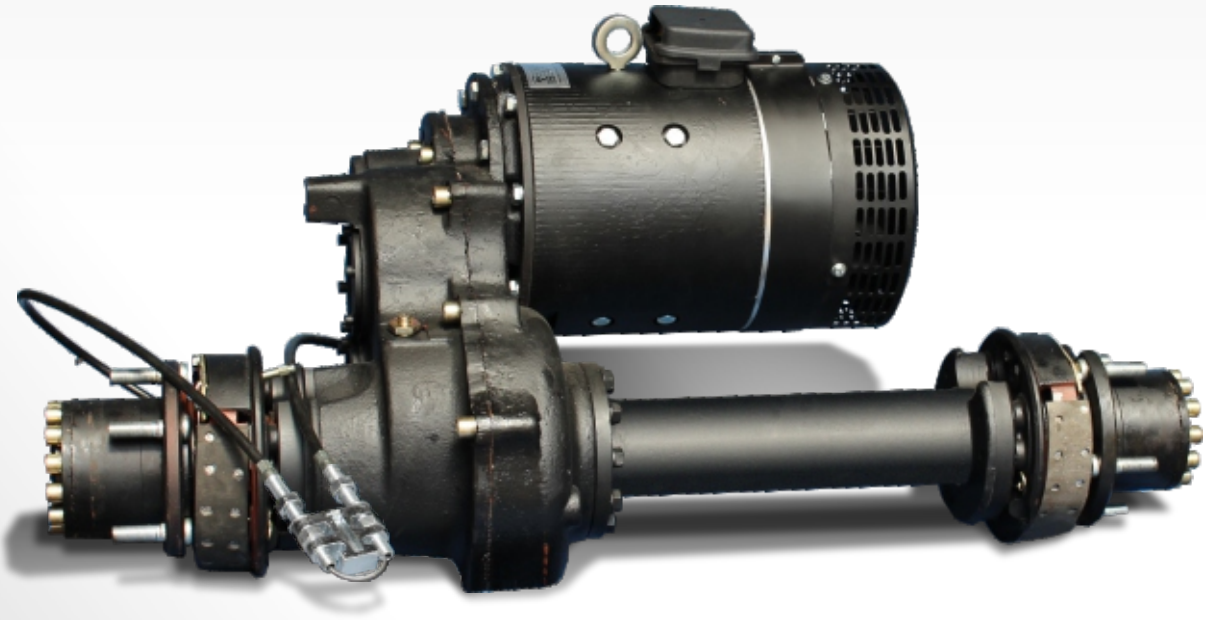
The operator's place of work is comfortable and corresponds to the requirements for ergonomy, and all command levers and buttons are located near the operator on the dashboard. The brake and accelerator pedals are located the way those are with motor cars. The seat is on springs it is adjustable longitudinally depending on the weight of operator.

CHASSIS

It is welded steel structure, maximum closed, providing for good protection, free access and service of the truck's parts and components, as well as for the truck's long life. The chassis design with the central and lower position of the battery provides for optimum layout solution and increased stability.

DRIVE AXLE

The transmission part of the axle is a three-stage reducer with spur gears and a differential. The traction motor is of series excitation and a cooling fen. The traction motor axis is parallel to the drive axle, which is a layout advantage, making easier its maintenance and saving space for the storage battery location between the axles.



STEERING AXLE

It is a solid welded structure with tapered and roller bearings of the kingpins, with hydraulic operating cylinder of double-sided piston rod, short bers with ball bearings.

The fitting of the axle to the chassis is made on metal and rubber bushes, allowing for ita vertical swinging at eight degrees.

STREERING

It is hydraulic power steering. There is no separate unit for power supply, such as motor pump, and the working hydraulics is used. The flowrate required for the servo steering is carried out by a priority valve.

The hydrostatic steering wheel unit has a built-in safely valve, securing the system against overloading, and two anti-shock valves, protecting the system against external impact on the steering wheels.

Upon failure in the power supply, the steering is still actuated, even without servo steering.

A pressure tap is provided for system diagnostics.

The steering column is adjustable according to the operator's height and for convenience during operation.

HYDRAULIC SYSTEM

The main hydraulic working system and the hydraulic power steering system feeding is carried out by one and the same pump unit and the working fluid distribution by a priority valve.

The control valve is of monoblock type, manual operation with 3 or 4 spools. The safety valve built-in the control valve protects the truck against overloading. The flow-limiting valve installed in the hydraulic system provides for smooth lowering of the mast vertical carriage regardless whether laden or unladen.

The emergency valves of the lifting cylinders provide for safety speed of the vertical carriage lowering, respectively the load, in emergency situation.

LIFTING EQUIPMENT

Duplex type lifting devices are used to lift loads at a height:
H = 3300 mm (transport free lift) and
H = 2800 mm (working free lift).

Triplex type lifting devices are used to lift loads at a height:
H = 4500, 5200, 5600, 6000, 6500 mm (working free lift).

The lifting devices allow good visibility. The fork-carriage plates correspond to Class A under ISO 2328-77. The masts are made of high quality section steels and their design provides for high strength. The axial and side loads are undertaken by encapsulated bearings and rollers.

Various types of attachments may be used with the electric trucks, such as side shifters, clamps, etc.

An integrated side-shifter is offered as a standard supply for type and as an option for all other trucks.

BRAKES

The drum shoe servo-brakes installed in the drive wheels automatically adjust the play (for 2 and 2.5t capacities) and guarantee for safety operations. They have two independent drives:

- a working one with hydraulic actuation, connected with the foot brake, and
- a stopping one – mechanical, connected with the hand brake.

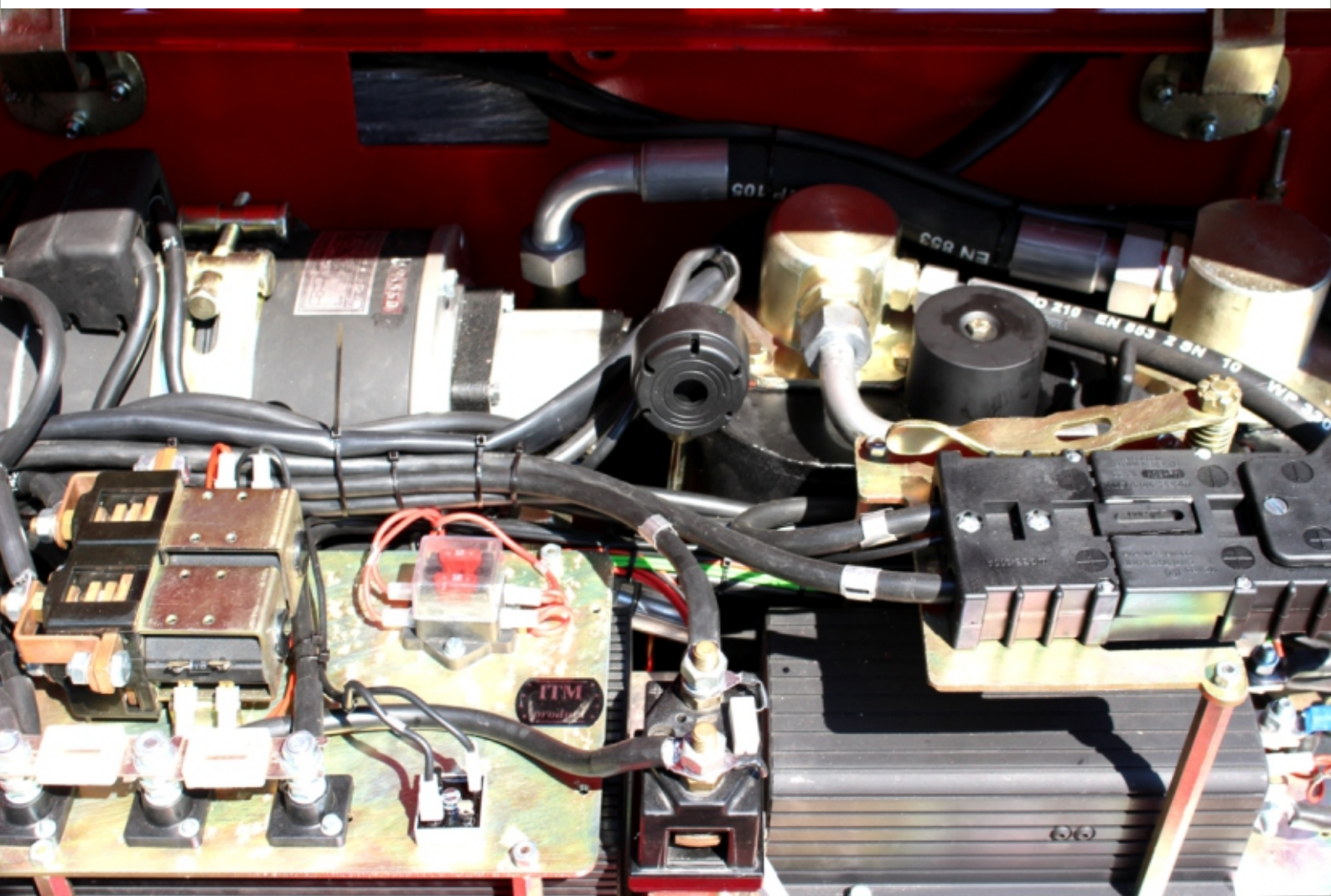
ELECTRIC SYSTEM

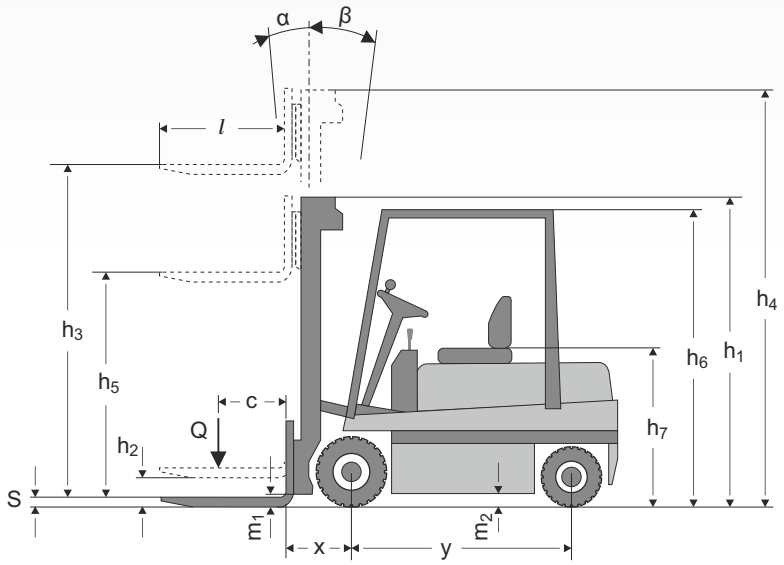
The pulse (electronic) control of the traction and pump motor allows for smooth travel speed control, including inching during stacking, limiting the maximum current of the electric motors, reduced power losses, selection of the pump motor speed of rotation, depending on the various operations.

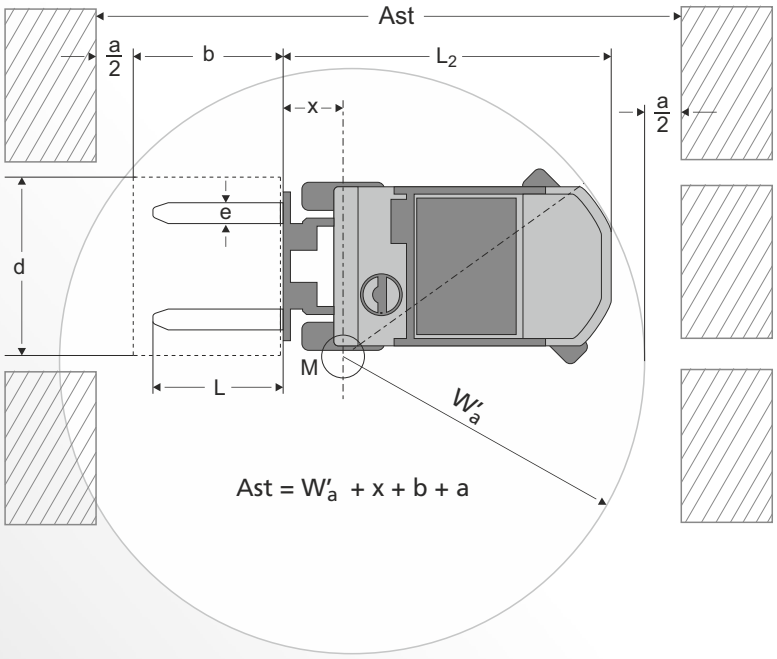
The built-in microprocessor pulsomatic controller CURTISS WRIGHT PGDT ACT465L and the display (clock, capacity indicator and diagnostics information) offer fast and digital adjustment, enhanced reliability, diagnostics (failures inside and outside the controller), service information, possibilities for regenerative and neutral braking, modern communication capabilities.

A potentiometer for smooth adjustment of lifting speed is offered as an option.

The electric trucks are offered with CURTISS pulsomatic controller also as an option.







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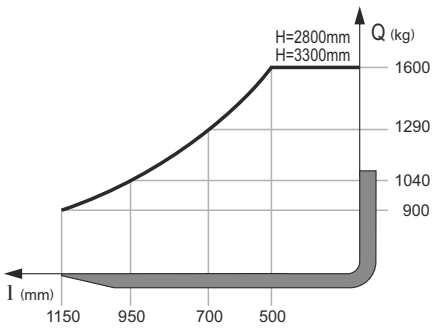

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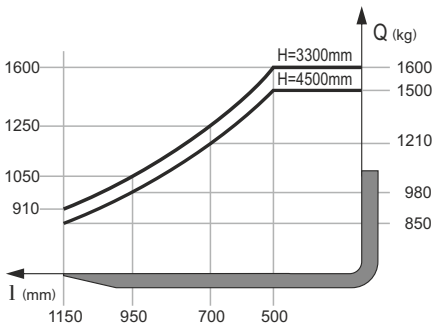

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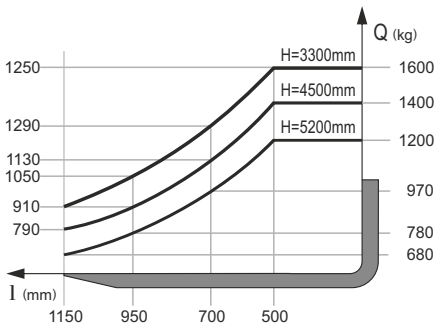

TECHNICAL CHARACTERISTICS

Main characteristics	1	Manufacturer	**„ITM-Product"**			
	2	Type	Manufact. designation		**E 16**	**E 16**
	3	Load capacity	Q - rated load	kg	1600	1600
	4	From the center of the load	C - distance to the back of the fork	mm	500	500
	5	Power unit	Electrical (storage battery); engine (diesel, petrol, gas)		Electrical (battery)	Electrical (battery)
	6	Steering system	Pedestrian, seated, stand-on		seated operator	seated operator
	7	Tyres	V-solid, L - pneumatic, SE - cushion; front / rear		L L	L L
	8	Wheels (x - drive)	number of front / rear	шт.	2x 2	2x 2
	9	Lifting mast	h3 - maximum lifting height	mm	2800	3300
	10		h2 - nominal free lift	mm	-	70
	11		h5 - special free lift	mm	1360	
	12	Carriage	to ISO 2328-93		-	-
	13	Fork arm	s - thickness / b - width / l - length	mm	40x100x1150	40x100x1150
	14	Mast tilt	forward / backward	°	4°30'	4°30'
Dimensions	15	Overall dimensions	L2 - length including fork heel	mm	1950	1950
	16		B - width	mm	995	995
	17		h1 - height, mast lowered	mm	1920	2200
	18		h4 - height, mast raised	mm	3370	3900
	19		h6 - height of overhead guard	mm	2150	2150
	20		h7 - height of seat	mm	1045	1045
	21	Turning radius	Wa - outer turning radius	mm	1750	1750
	22	Forward overhand	x - from front axle axis to fork heel	mm	332	337
	23	Working aisle width	Ast4 - for 800x1000 mm / 1000x1200 mm pallets	mm	3432	3437
Performance	24	Speed	travel laden / unladen	km/h	13 15	13 15
	25		lifting laden / unladen	m/s	0,26 0,32	0,26 0,32
	26		lowering laden / unladen	m/s	0,60 0,32	0,60 0,32
	27	Tractive effort	rated drawbar pull	kN	1,7	1,7
	28		max drawbar pull at mode S2 - 5 min	kN	4	4
	29	Overcoming slope	laden / unladen at mode S2 - 30 min	%	8	8
			laden / unladen at mode S2 - 5 min	%	10 14	10 14
	30	Max slope	laden / unladen at mode S2 - 1 min	max %	20 24	20 24
Weight	32	Dead load	including battery - ISO 5053-87	kg	3050	3050
	33	Axle loading	max laden, front / rear	kg	4150 max 450 min	4150 max 450 min
	34		unladen, front / rear	kg	1450 min 1600 max	1450 min 1600 max
Chassis	35	Tyres	number, front / rear	шт.	2 2	2 2
	36		tyre size, front		18x7-8	18x7-8
	37		tyre size, rear		16x6-8	16x6-8
	38	Wheelbase	y	mm	1400	1400
	39	Track	center of tyre, front / rear	mm	826 780	826 780
	40	Ground clearance	laden, m1 - at lowest point (under mast)	mm	80	80
	41		m2 - at wheelbase center	mm	105	105
	42	Service brakes	foot (mech., hydr., electr., pneum., comb.)		hydraulic	hydraulic
	43	Parking brake	hand, foot (mech., mech. w/electr.)		handbrake / mech.	handbrake / mech.
Drive	44	Storage battery	type		clad plate	clad plate
	45		voltage / capacity (at 5-hour discharge)	V / Ah	48 / 500-600	48 / 480
	46		weight	kg	853 1130	853
	47	Electric motors	traction / capacity at mode S2 = 60 min AC	kW	8	8
	48		auxiliary / capacity at S4 - 25% at 240 switchings/h AC	kW	10	10
	54	Speed control	type - stages		electronic / stepless	electronic / stepless
	55	Transmission	type - speeds forward / reverse		mechanical	mechanical
	57	Rated operating pressure	for hudraulic attachments	MPa	12	12
	58	Noise level	admissible equivalent level	dB	70 72	70 72

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ELECTRIC DUMPERS I PEDESTRIAN OPERATED ELECTRIC TUGS I ELECTRIC TUGS I TRAILERS I SPARE PARTS

ITM Product Ltd | Batak str. 6 | 4400 Pazardzhik | Bulgaria
tel: +359 34 444959 | fax: +359 34 444904 | E-mail: itmproduct@abv.bg

www.itmproduct.com