

Yale Robotics

MC series

1,000kg / 1,250kg / 1,500kg

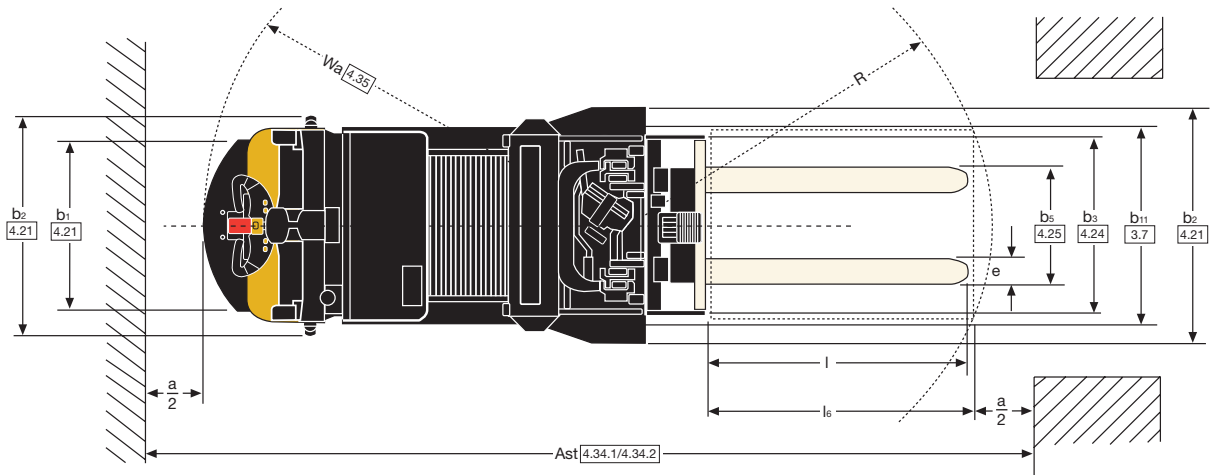
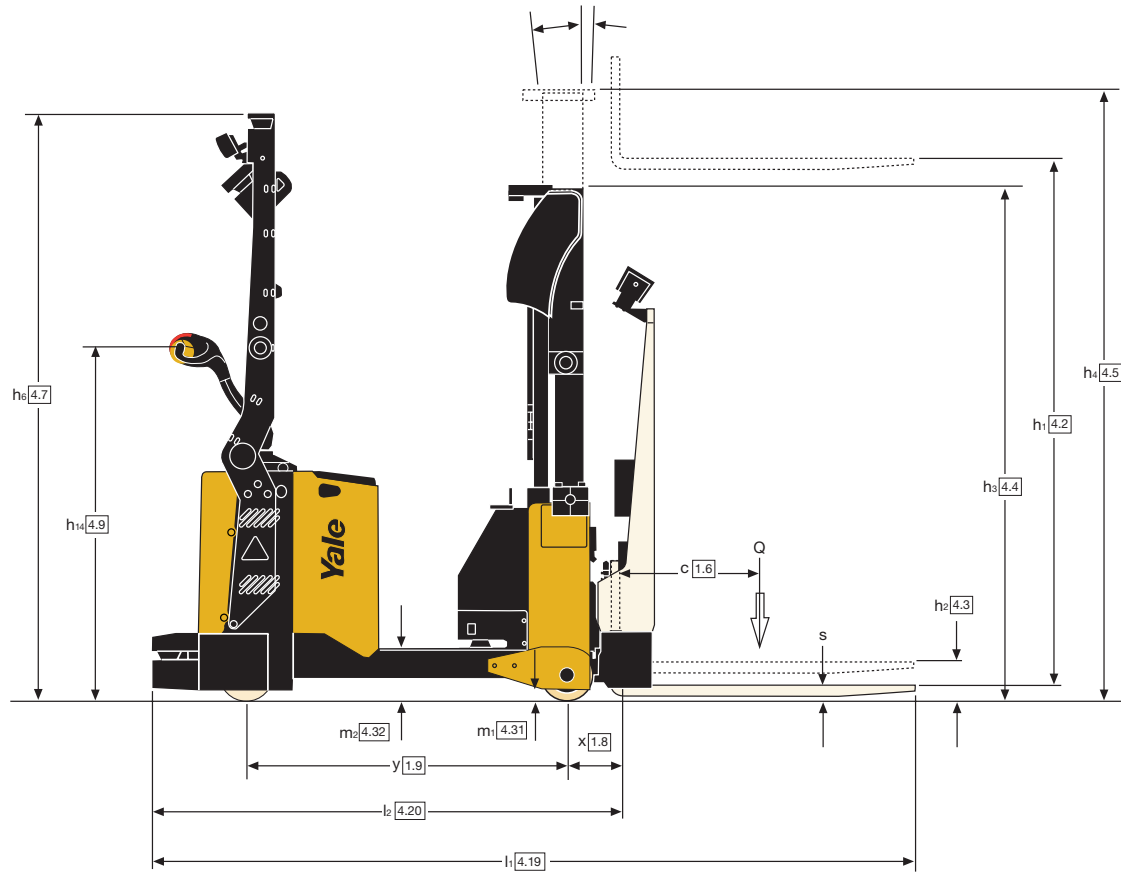
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Counterbalanced Stacker

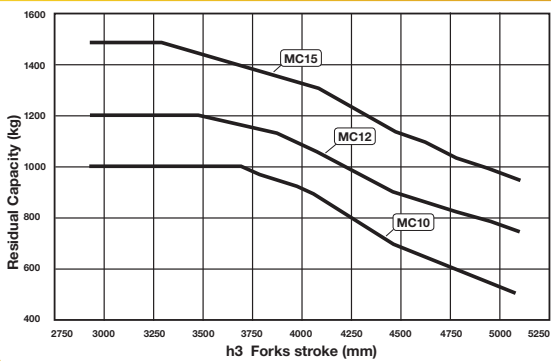


- Robotic and manual dual-mode operation
- CAN bus technology
- Deposit or remove pallets from 2nd level

Truck Dimensions



Capacities graph



VDI 2198 – General Specifications

Distinguishing mark	1.1	Manufacturer (abbreviation)		Yale	Yale	Yale
	1.2	Manufacturer's type designation		MC10	MC12	MC15
	1.3	Drive: electric (battery or mains), diesel, petrol, fuel gas		Electric (battery)	Electric (battery)	Electric (battery)
	1.4	Operator type: hand, pedestrian, standing, seated, order-picker		Dual-mode Automatic/ Pedestrian	Dual-mode Automatic/ Pedestrian	Dual-mode Automatic/ Pedestrian
	1.5	Rated capacity/Rated load	Q (t)	1.0	1.2	1.5
	1.6	Load centre distance	c (mm)	600	600	600
	1.8	Load distance, centre of drive axle to fork	x (mm)	350	350	350
	1.9	Wheelbase	y (mm)	1300	1450	1600
	Weights	2.1	Service weight ⁽³⁾	kg	2180 ⁽⁵⁾	2280
2.2		Axle loading, laden front/rear	kg	520 / 2660	545 / 2935	515 / 3345
2.3		Axle loading, unladen front/rear	kg	1175 / 1005	1290 / 990	1420 / 940
Tyres/chassis	3.1	Tyres: polyurethane, tophane, vulkollan, front/rear		Vulkollan / Vulkollan	Vulkollan / Vulkollan	Vulkollan / Vulkollan
	3.2	Tyre size, front	ø (mm x mm)	254 x 125	254 x 125	254 x 125
	3.3	Tyre size, rear	ø (mm x mm)	200 x 100	200 x 100	200 x 100
	3.5	Wheels, number front/rear (x = driven wheels)		1x/2	1x/2	1x/2
	3.7	Tread, rear	b ₁₁ (mm)	837	837	837
	Dimensions	4.1	Tilting mast forwards/backwards tilt	Degrees	0 / 0	0 / 0
4.2		Height of mast, lowered ⁽⁶⁾	h ₁ (mm)	1975	1975	1975
4.3		Free lift	h ₂ (mm)	1405	1405	1405
4.4		Lift	h ₃ (mm)	4176	4176	4176
4.5		Height of mast, extended ⁽⁷⁾	h ₄ (mm)	4751	4751	4751
4.7		Overall height	h ₆ (mm)	2349	2349	2349
4.9		Height drawbar in driving position min./max. ⁽⁴⁾	h ₁₄ (mm)	1180 / 1485	1180 / 1485	1180 / 1485
4.15		Height, lowered	h ₁₃ (mm)	45	45	45
4.19		Overall length	l ₁ (mm)	3257	3407	3557
4.20		Length to face of forks	l ₂ (mm)	2057	2207	2357
4.21		Overall width	b ₁ /b ₂ (mm)	882 / 952	882 / 952	882 / 952
4.22		Fork dimensions DIN ISO 2331 ⁽¹⁾	s/e/l (mm)	35 / 100 / 1350	35 / 100 / 1350	35 / 100 / 1350
4.23		Fork carriage DIN 15173, Class/form A,B	II A	2 / A	2 / A	2 / A
4.24		Fork carriage width	b ₃ (mm)	700	700	700
4.25		Distance between fork-arms	b ₅ (mm)	240 / 672	240 / 672	240 / 672
4.31		Ground clearance under mast, with load	m ₁ (mm)	59	59	59
4.32		Ground clearance, centre of wheelbase	m ₂ (mm)	76	76	76
4.33		Load dimension b ₁₂ x l ₆ crossways	b ₁₂ x l ₆ (mm)	800 x 1200	800 x 1200	800 x 1200
4.34.1		Aisle width for pallets 1000mm x 1200mm crossways	A _{st} (mm)	4225	4363	4503
4.34.2		Aisle width for pallets 800mm x 1200mm lengthwise	A _{st} (mm)	4211	4350	4491
4.35	Turning radius	W _a (mm)	1675	1875	2075	
Performance data	5.1	Travel speed	km/h	6.48	6.48	6.48
	5.2	Lift speed, laden/unladen	m/s	0.26 / 0.28	0.20 / 0.28	0.18 / 0.28
	5.3	Lowering speed, laden/unladen	m/s	0.34 / 0.20	0.34 / 0.20	0.34 / 0.20
	5.8	Max. gradeability, laden/unladen	%	3	3	3
	5.10	Service brake		Electric / Electromagnetic	Electric / Electromagnetic	Electric / Electromagnetic
Electric engine	6.1	Drive motor, S2 60 minute rating	kW	4	4	4
	6.2	Lifting motor, S3 15% rating ⁽²⁾	kW	3	3	3
	6.3	Battery according to DIN 43531/35/36 A,B,C, DS		DS	DS	DS
	6.4	Battery voltage/nominal capacity K ₅	V/Ah	24 / 300 ⁽⁵⁾	24 / 400	24 / 400
	6.5	Battery weight ⁽³⁾	kg	233	303	303
	6.6	Energy consumption according to VDI cycle	kWh/h at no. of cycles	1.46	1.88	2.29
8.1	Type of drive unit		AC-Controller / Automation driven by Balyo	AC-Controller / Automation driven by Balyo	AC-Controller / Automation driven by Balyo	
10.7	Sound pressure level at the driver's seat	dB (A)	< 70	< 70	< 70	

⁽¹⁾ Option 35/100/1200

⁽²⁾ Value referred to S3 10%

⁽³⁾ These values may vary of +/- 5%

⁽⁴⁾ Reverse tiller on Stand-on version;
Long tiller on all versions

⁽⁵⁾ Available battery 400Ah.
With battery 400Ah service weight +70kg

⁽⁶⁾ With free lift of 100mm (2 stage LFL only)

⁽⁷⁾ With load backrest for carriage h₄ + 461mm

All values are nominal values and they are subject to tolerances.

For further information, please contact the manufacturer.

Yale products might be subject to change without notice.

Lift trucks illustrated may feature optional equipment.

Values may vary with alternative configurations.

MC series

Models: MC10, MC12, MC15



Robotics

This truck has Yale robotics fitted. Our solutions are based on the established Yale manual truck range. This dual-mode design provides both flexibility of operation and simplicity of servicing, with our authorised dealer network already familiar with 90% of the mechanical and electrical systems of each robotic unit. For pre-sales support, warehouse systems specialists are available to visit potential sites to collect data and suggest solutions where required.

Tiller head and controls

The tiller head features an ergonomic shaped handle with angled grips and integral hand guard. Large, low-effort, butterfly buttons control direction of travel, speed and the electromagnetic brake - all without the operator's hand moving from the handle.

Left hand buttons operate slow speeds for fine positioning, right hand ones for proportional lifting and lowering. The horn is on top of the tiller head, actuated by the thumb or fore finger.

When activated, the travel direction inverter button (emergency stop), automatically reverses travel direction, stopping the truck.

The creep speed control allows all functions to be operated with the tiller in the vertical position at reduced speed for manoeuvring in tight confines.

Instrumentation

An intuitive user interface with touch screen, shows ongoing missions, communications and safety modules. It can be used to trigger missions manually by operator, or checkup hardware status. The red mushroom shaped button can be activated to stop the truck immediately in case of an emergency.

Chassis and forks

The steel welded chassis is surface treated and painted with two-component

epoxy paint. The three chassis lengths available and the 953mm maximum width of the truck make it ideal for handling loads in tight spaces for example inside containers or in stocking corridors.

The FEM 2A forks are manufactured from forged steel.

Battery

A range of power options is available through a choice of vertically extracted batteries:-
24V - 300 Ah
24V - 400 Ah
LTO (Lithium Titanate Oxide) rapid auto-charge battery option.

Electric motors

The 4kW AC motor provides instant response to forward and reverse traction inputs, providing considerable torque. The maintenance free motor (inspection intervals required every 1,000 operating hours) provides low cost long operational life. The 3 kW DC lift motor provides power to match the truck's operational requirements.

Traction – steering unit

The cast-iron gear train has helical gears immersed in an oil bath. The motor is mounted vertically for efficient ventilation and to eliminate flexing stresses to the power cables to ensure maximum uptime. The steering is actuated by gear-gear, a maintenance and regulation-free system.

Hydraulic unit

The powerful hydraulic pump, activated by the electric motor, is of double gear type. The transparent tank makes the checking of the hydraulic oil level easy. All hydraulics functions are actuated by solenoid valves activated directly by the tiller push buttons.

Electronic controls

The Combi MOSFET controller manages both the AC traction engine and the DC lift motor eliminating the need for contactors.

High energy efficiency and motor performance increases shift operation time and reduces battery charging. Electronic performance parameters are easily customised by a service technician.

The truck performance output can easily be matched to ensure the maximum application requirements.

Options

- Selection of drive wheels
- Selection of fork lengths
- Load backrest

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Safety: This truck conforms to the current EU requirements. Specification is subject to change without notice.

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