

# MC series

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

## Counterbalanced Stacker



- Servo power steering
- Dual-Combi MOSFET
- Yale AC Technology
- AC drive motor
- 24V/300 - 400 Ah battery
- Rider or pedestrian operation



## VDI 2198 – General Specifications

|                     |   |   | Yale                                  | Yale                      | Yale                 | Yale                      | Yale                    |
|---------------------|---|---|---------------------------------------|---------------------------|----------------------|---------------------------|-------------------------|
| Distinguishing mark | 1.1   | Manufacturer (abbreviation)                                     |                                       | Yale                      | Yale                 | Yale                      | Yale                    |
|                     | 1.2   | Manufacturer's type designation                                 |                                       | <b>MC10</b>               | <b>MC12</b>          | <b>MC15</b>               | <b>MC10</b>             |
|                     | 1.3   | Drive: electric (battery or mains), diesel, petrol, fuel gas    |                                       | Battery                   | Battery              | Battery                   | Battery                 |
|                     | 1.4   | Operator type: hand, pedestrian, standing, seated, order-picker |                                       | Pedestrian                | Pedestrian           | Pedestrian                | Stand on                |
|                     | 1.5   | Rated capacity/Rated load                                       | Q (t)                                 | 1.0                       | 1.2                  | 1.5                       | 1.0                     |
|                     | 1.6   | Load centre distance  | c (mm)                                | 500                       | 500                  | 500                       | 500                     |
|                     | 1.8   | Load distance, centre of drive axle to fork                     | x (mm)                                | 211                       | 211                  | 211                       | 211                     |
|                     | 1.9   | Wheelbase   | y (mm)                                | 1300                      | 1450                 | 1600                      | 1300                    |
|                     | 1.9   | Wheelbase   | y (mm)                                | 1300                      | 1450                 | 1600                      | 1300                    |
| Weights             | 2.1   | Service weight <sup>(3)</sup>                                   | kg                                    | 2180 <sup>(5)</sup>       | 2280                 | 2360                      | 2210 <sup>(5)</sup>     |
|                     | 2.2   | Axle loading, laden front/rear                                  | kg                                    | 520 / 2660                | 545 / 2935           | 515 / 3345                | 530 / 2680              |
|                     | 2.3   | Axle loading, unladen front/rear                                | kg                                    | 1175 / 1005               | 1290 / 990           | 1420 / 940                | 1195 / 1015             |
| Tyres/chassis       | 3.1   | Tyres: polyurethane, tophane, vulkollan, front/rear             |                                       | Vulkollan /Vulkollan      | Vulkollan /Vulkollan | Vulkollan /Vulkollan      | Vulkollan /Vulkollan    |
|                     | 3.2   | Tyre size, front  | ø (mm x mm)                           | 254 x 125                 | 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                 | 200 x 100               |
|                     | 3.5   | Wheels, number front/rear (x = driven wheels)                   |                                       | 1x/2                      | 1x/2                 | 1x/2                      | 1x/2                    |
|                     | 3.7   | Tread, rear   | b <sub>11</sub> (mm)                  | 837                       | 837                  | 837                       | 837                     |
|                     | 3.7   | Tread, rear   | b <sub>11</sub> (mm)                  | 837                       | 837                  | 837                       | 837                     |
| Dimensions          | 4.1   | Tilting mast forwards/backwards tilt                            | α / β (°)                             | + 2 / - 4                 | + 2 / - 4            | + 2 / - 4                 | + 2 / - 4               |
|                     | 4.2   | Height of mast, lowered <sup>(6)</sup>                          | h <sub>1</sub> (mm)                   | 2325                      | 2325                 | 2325                      | 2325                    |
|                     | 4.4   | Lift  | h <sub>3</sub> (mm)                   | 3372                      | 3372                 | 3372                      | 3372                    |
|                     | 4.5   | Height of mast, extended <sup>(7)</sup>                         | h <sub>4</sub> (mm)                   | 3961                      | 3961                 | 3961                      | 3961                    |
|                     | 4.7   | Over head guard height  | h <sub>6</sub> (mm)                   | 2312                      | 2312                 | 2312                      | 2312                    |
|                     | 4.9   | Height drawbar in driving position min./max. <sup>(4)</sup>     | h <sub>14</sub> (mm)                  | 1180 / 1485               | 1180 / 1485          | 1180 / 1485               | 1220 / 1525             |
|                     | 4.15  | Height, lowered   | h <sub>13</sub> (mm)                  | 35                        | 35                   | 35                        | 35                      |
|                     | 4.19  | Overall length  | l <sub>1</sub> (mm)                   | 2742                      | 2892                 | 3042                      | 2742                    |
|                     | 4.20  | Length to face of forks   | l <sub>2</sub> (mm)                   | 1742                      | 1892                 | 2042                      | 1742                    |
|                     | 4.21  | Overall width   | b <sub>1</sub> /b <sub>2</sub> (mm)   | 788 / 939                 | 788 / 939            | 788 / 939                 | 788 / 939               |
|                     | 4.22  | Fork dimensions DIN ISO 2331 <sup>(1)</sup>                     | s/e/l (mm)                            | 35 / 100 / 1000           | 35 / 100 / 1000      | 35 / 100 / 1000           | 35 / 100 / 1000         |
|                     | 4.23  | Fork carriage DIN 15173, Class/form A,B                         | II A                                  | 2 / A                     | 2 / A                | 2 / A                     | 2 / A                   |
|                     | 4.24  | Fork carriage width   | b <sub>3</sub> (mm)                   | 700                       | 700                  | 700                       | 700                     |
|                     | 4.25  | Distance between fork-arms                                      | b <sub>5</sub> (mm)                   | 240 / 672                 | 240 / 672            | 240 / 672                 | 240 / 672               |
|                     | 4.31  | Ground clearance under mast, with load                          | m <sub>1</sub> (mm)                   | 59                        | 59                   | 59                        | 59                      |
|                     | 4.32  | Ground clearance, centre of wheelbase                           | m <sub>2</sub> (mm)                   | 76                        | 76                   | 76                        | 76                      |
|                     | 4.33  | Load dimension b <sub>12</sub> × l <sub>6</sub> crossways       | b <sub>12</sub> × l <sub>6</sub> (mm) | 800 x 1200                | 800 x 1200           | 800 x 1200                | 800 x 1200              |
| 4.34.1              | Aisle width for pallets 1000mm x 1200mm crossways | A <sub>st</sub> (mm)  | 3111                                  | 3258                      | 3406                 | 3111                      |                         |
| 4.34.2              | Aisle width for pallets 800mm x 1200mm lengthwise | A <sub>st</sub> (mm)  | 3227                                  | 3374                      | 3522                 | 3227                      |                         |
| 4.35                | Turning radius                                    | W <sub>a</sub> (mm)   | 1560                                  | 1707                      | 1855                 | 1560                      |                         |
| Performance data    | 5.1   | Travel speed, laden/unladen                                     | km/h                                  | 4.8 / 5                   | 4.8 / 5              | 4.8 / 5                   | 5.5 / 6                 |
|                     | 5.2   | Lift speed, laden/unladen                                       | m/s                                   | 0.26 / 0.28               | 0.20 / 0.28          | 0.18 / 0.28               | 0.26 / 0.28             |
|                     | 5.3   | Lowering speed, laden/unladen                                   | m/s                                   | 0.34 / 0.20               | 0.34 / 0.20          | 0.34 / 0.20               | 0.34 / 0.20             |
|                     | 5.8   | Max. gradeability, laden/unladen                                | %                                     | 11 / 11                   | 10 / 10              | 9 / 9                     | 11 / 11                 |
|                     | 5.10  | Service brake   |                                       | Electr. / Electromagnetic |                      | Electr. / Electromagnetic |                         |
| Electric engine     | 6.1   | Drive motor, S2 60 minute rating                                | kW                                    | 4                         | 4                    | 4                         | 4                       |
|                     | 6.2   | Lifting motor, S3 15% rating <sup>(2)</sup>                     | kW                                    | 3                         | 3                    | 3                         | 3                       |
|                     | 6.3   | Battery according to DIN 43531/35/36 A,B,C, no                  |                                       | no                        | no                   | no                        | no                      |
|                     | 6.4   | Battery voltage/nominal capacity K <sub>5</sub>                 | V/Ah                                  | 24 / 300 <sup>(5)</sup>   | 24 / 400             | 24 / 400                  | 24 / 300 <sup>(5)</sup> |
|                     | 6.5   | Battery weight <sup>(3)</sup>                                   | kg                                    | 233                       | 303                  | 303                       | 233                     |
|                     | 6.6   | Energy consumption according to VDI cycle                       | kWh/h at number of cycles             | 1.46                      | 1.88                 | 2.29                      | 2.61                    |
| 8.1                 | Type of drive unit                                |   | AC-Controller                         | AC-Controller             | AC-Controller        | AC-Controller             |                         |
| 10.7                | Sound pressure level at the driver's seat         | dB (A)  | < 70                                  | < 70                      | < 70                 | < 70                      |                         |

<sup>(1)</sup> Option 35/100/1200

<sup>(2)</sup> Value referred to S3 10%

<sup>(3)</sup> These values may vary of +/- 5%

<sup>(4)</sup> Reverse tiller on Stand-on version;  
Long tiller on all versions

<sup>(5)</sup> Available battery 400Ah.  
With battery 400Ah service weight +70kg

<sup>(6)</sup> With free lift of 100mm (2 stage LFL only)

<sup>(7)</sup> With load backrest for carriage h<sub>4</sub> + 461mm

<sup>(8)</sup> Yale Robotics version

**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



## 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

The pallet truck's dash board features a multi-function indicator displaying information on the status of the truck and alarm conditions should they occur. Operational information includes that provided by the battery discharge indicator and odometer. The red mushroom shaped button can be activated to stop the truck immediately in case of an emergency.

## Operator platform (optional use)

The large operator platform allows the operator to determine the most comfortable driving position during long travel distances, providing the operator with maximum comfort. The cushioned platform incorporates an operator presence switch, preventing the truck from operating without a driver present. The dash board has compartments for stationery and other small items with an optional A4 document holder.

## Chassis and forks

The steel welded chassis is surface treated and painted with two-component epoxy paint. The three chassis lengths available and the 939mm 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.

## Masts

A range of masts is available to match all operating needs. The none dampening masts are available in two stage LFL and three stage FFL configuration as standard.

## Battery

A range of power options is available through a choice of vertically extracted batteries:-  
24V - 300 Ah  
24V - 400 Ah

## 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 silent, 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. Lift and lowering are by proportional control.

## 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. The combined characteristics of the traction motor and the operator control panel enhance the efficiency of the release and inversion braking, without reduction of autonomy. This leaves the electromagnetic brake for parking and emergencies. 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

Options available include:-

- Selection of drive wheels
- Selection of fork lengths
- Key Pad
- A4 document holder
- Cold store - 30°C
- Load backrest
- Mast selection
- Side shift

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

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