

# MP, MPL, MPHD Series

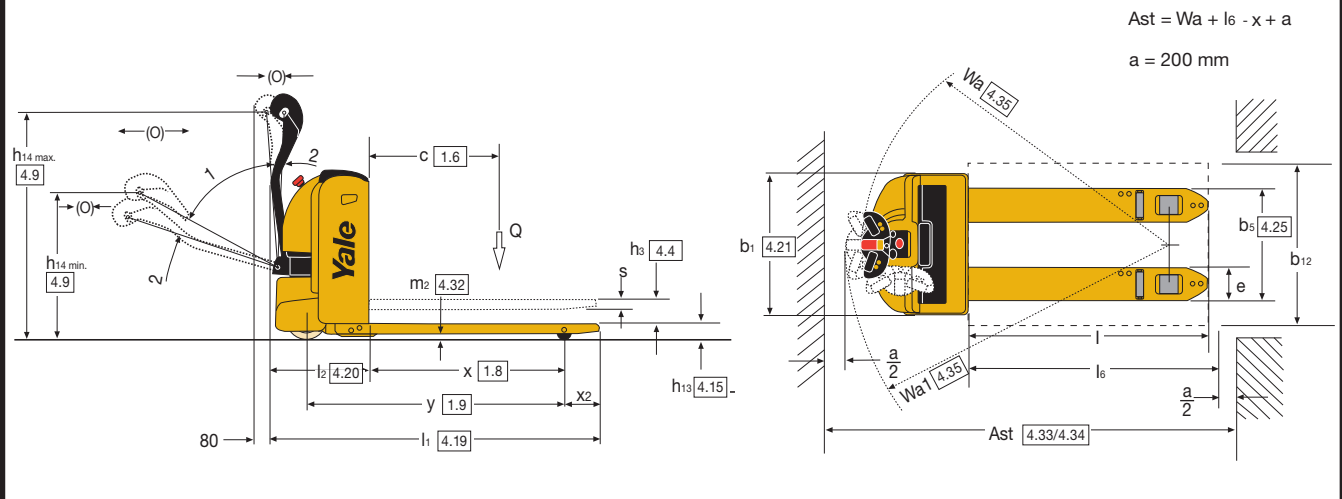
## Powered Pallet Truck

1,300kg, 1,600kg, 1,800kg, 2,000kg, 2,200kg, 2,500kg and 3,000kg



- Ergonomic tiller head and low mounted tiller arm offer excellent operator comfort
- Compact powerhead length and creep speed for excellent manoeuvrability
- 3 preset performance settings to suit driver preferences (MP13/16/25/30)
- AC (MP18/20/20L/22) or SEM (MP13/16/25/30) drive motor and MOSFET transistor control
- On-board charger option (standard on MP16)

## Truck Dimensions



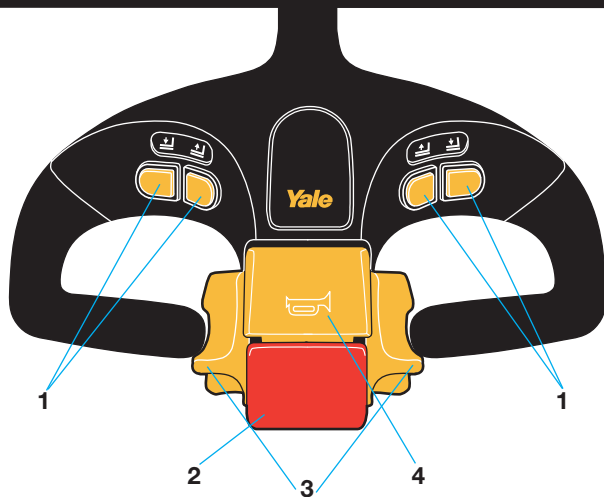
## MP13, MP16, MP25HD, MP30HD - VDI 2198 General Specifications

Characteristics	1.1	Manufacturer		Yale	Yale	Yale	Yale
	1.2	Manufacturer's type designation		<b>MP13</b>	<b>MP16</b>	<b>MP25HD</b>	<b>MP30HD</b>
	1.3	Drive		Battery	Battery	Battery	Battery
	1.4	Operator type		Pedestrian	Pedestrian	Pedestrian	Pedestrian
	1.5	Load capacity	Q (kg)	1,300	1,600	2,500	3,000
	1.6	Load centre distance	c (mm)	600	600	600	600
	1.8	Load distance, centre of drive axle to fork	x (mm)	1001	1001	965	965
	1.9	Wheelbase	y (mm)	1331	1331	1530	1530
	2.1	Service weight (with battery)	kg	292	396	760	780
Weights	2.2	Axle loading laden, front/rear	kg	452 / 1140	699 / 1297	1075 / 2185	1196 / 2584
	2.3	Axle loading unladen, front/rear	kg	229 / 63	307 / 89	570 / 190	590 / 190
Wheels and Tyres	3.1	Tyres: rubber, polyurethane, vulkollan		Poly / Vulkollan	Poly / Vulkollan	Poly / Vulkollan	Poly / Vulkollan
	3.2	Tyre size, front		Ø230 x 75	Ø230 x 75	Ø260 x 95	Ø260 x 95
	3.3	Tyre size, rear		Ø85 x 114	Ø85 x 114	Ø85 x 70	Ø85 x 70
	3.4	Additional wheels (dimensions)		Ø100 x 40	Ø100 x 40	Ø100 x 40	Ø100 x 40
	3.5	Wheels, number front/rear (x = driven wheels)		1x + 2/2	1x + 2/2	1x + 2/4	1x + 2/4
	3.6	Track width, front	b10 (mm)	470	470	485	485
	3.7	Track width, rear	b11 (mm)	395	395	380	380
Dimensions	4.4	Lift	h3 (mm)	130	130	120	120
	4.9	Height of tiller in drive position min./max.	h14 (mm)	735 / 1200	735 / 1200	650 / 1325	650 / 1325
	4.15	Height, Lowered	h13 (mm)	85	85	85	85
	4.19	Overall length	l1 (mm)	1683	1683	1888	1888
	4.20	Length to face of forks	l2 (mm)	500**	500**	732**	732**
	4.21	Overall width	b1/b2 (mm)	700	700	735	735
	4.22	Fork dimensions	s/e/l	55 / 170 / 1180	55 / 170 / 1180	55 / 180 / 1156	55 / 180 / 1156
	4.25	Distance between fork-arms	b5 (mm)	560	560	560	560
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	20	20	30	30
	4.33	Aisle width for pallets 1000 x 1200 wide	Ast (mm)	1711**	1711**	1887**	1887**
Performance	4.34	Aisle width with pallets 800 x 1200 long	Ast (mm)	1911**	1911**	2087**	2087**
	4.35	Turning radius	Wa (mm)	1512**	1512**	1652**	1652**
	5.1	Travel speed laden/unladen	kph	5.5 / 5.5	5.5 / 6	5.7 / 6	5.5 / 6
	5.2	Lift speed laden/unladen	m/s	0.030 / 0.044	0.032 / 0.046	0.029 / 0.037	0.029 / 0.037
	5.3	Lowering speed laden/unladen	m/s	0.08 / 0.08	0.08/0.08	0.048 / 0.044	0.048 / 0.044
	5.8	Max. gradeability, laden/unladen	%	5 / 20	10 / 20	8 / 20	5 / 20
Motors	5.10	Service brake		Electromagnetic	Electromagnetic	Electromagnetic	Electromagnetic
	6.1	Drive motor (S2 60min)	kW	0.8	0.8	2.6	2.6
	6.2	Lifting motor	kW	1,0 <sup>(2)</sup>	1,0 <sup>(2)</sup>	1,4 <sup>(1)</sup>	1,4 <sup>(1)</sup>
	6.3	Battery DIN 43531/35/36 A,B,C, no		NO	NO	NO	NO
	6.4	Battery voltage/capacity (5 hours rate)	V/Ah	24 / 55***	24 / 150	24 / 300*	24 / 300*
	6.5	Battery weight +/- 5%	kg	40	144	233	233
	6.6	Energy consumption acc. To VDI cycle	kWh/h	0.38	0.41	0.47	0.50
Other	8.1	Drive control		MOSFET	MOSFET	MOSFET	MOSFET
	8.4	Sound level at the driver's ear according to DIN 12 053	dB(A)	<70	<70	<70	<70

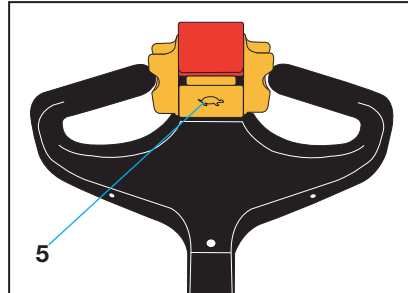
\* Battery DIN 43535 B 210-250Ah available  
 \*\* Tiller arm in vertical working position (creep speed)  
 \*\*\* 2 hours rate

<sup>(1)</sup> S3 6% rating  
<sup>(2)</sup> S3 9% rating

## Tiller Head



- 1 lift / lower buttons
- 2 travel direction inverter button
- 3 butterfly control buttons for direction and speed
- 4 horn
- 5 creep speed control



## MP18 AC, MP20 AC, MP20L AC, MP22 AC - VDI 2198 General Specifications

Characteristics	1.1	Manufacturer		Yale	Yale	Yale	Yale
	1.2	Manufacturer's type designation		<b>MP18 AC</b>	<b>MP20 AC</b>	<b>MP20L AC</b>	<b>MP22 AC</b>
	1.3	Drive		Battery	Battery	Battery	Battery
	1.4	Operator type		Pedestrian	Pedestrian	Pedestrian	Pedestrian
	1.5	Load capacity	Q (kg)	1,800	2,000	2,000	2,200
	1.6	Load centre distance	c (mm)	600	600	600	600
	1.8	Load distance, centre of drive axle to fork	x (mm)	1001	1001	1001	1001
	1.9	Wheelbase	y (mm)	1331	1331	1403	1403
	2.1	Service weight (with battery)	kg	503	503	523	530
Weights	2.2	Axle loading laden, front/rear	kg	806 / 1497	876 / 1627	883 / 1640	955 / 1775
	2.3	Axle loading unladen, front/rear	kg	399 / 104	399 / 104	415 / 108	422 / 108
	3.1	Tyres: rubber, polyurethane, vulkollan		Poly / Vulkollan	Poly / Vulkollan	Poly / Vulkollan	Poly / Vulkollan
Wheels and Tyres	3.2	Tyre size, front		230 x 75	230 x 75	230 x 75	230 x 75
	3.3	Tyre size, rear		85 x 94	85 x 94	85 x 94	85 x 94
	3.4	Additional wheels (dimensions)		100 x 40	100 x 40	100 x 40	100 x 40
	3.5	Wheels, number front/rear ( x = driven wheels)		1x + 2/4	1x + 2/4	1x + 2/4	1x + 2/4
	3.6	Track width, front	b10 (mm)	470	470	470	470
	3.7	Track width, rear	b11 (mm)	395	395	395	395
Dimensions	4.4	Lift	h3 (mm)	130	130	130	130
	4.9	Height of tiller in drive position min./max.	h14 (mm)	735 / 1200	735 / 1200	735 / 1200	735 / 1200
	4.15	Height, Lowered	h13 (mm)	85	85	85	85
	4.19	Overall length	l1 (mm)	1683	1683	1755	1755
	4.20	Length to face of forks	l2 (mm)	500**	500**	572**	572**
	4.21	Overall width	b1/b2 (mm)	700	700	700	700
	4.22	Fork dimensions	s/e/l	55 / 170 / 1180	55 / 170 / 1180	55 / 170 / 1180	55 / 170 / 1180
	4.25	Distance between fork-arms	b5 (mm)	560	560	560	560
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	20	20	20	20
	4.33	Aisle width for pallets 1000 x 1200 wide	Ast (mm)	1711**	1711**	1783**	1783**
Performance	4.34	Aisle width with pallets 800 x 1200 long	Ast (mm)	1911**	1911**	1983**	1983**
	4.35	Turning radius	Wa (mm)	1512**	1512**	1584**	1584**
	5.1	Travel speed laden/unladen	kph	6 / 6	6 / 6	6 / 6	6 / 6
	5.2	Lift speed laden/unladen	m/s	0.032 / 0.046	0.034 / 0.046	0.034 / 0.046	0.032 / 0.046
	5.3	Lowering speed laden/unladen	m/s	0.08 / 0.08	0.08 / 0.08	0.08 / 0.08	0.08 / 0.08
	5.8	Max. gradeability, laden/unladen	%	10 / 20	10 / 20	10 / 20	10 / 20
Motors	5.10	Service brake		Electromagnetic	Electromagnetic	Electromagnetic	Electromagnetic
	6.1	Drive motor (S2 60min)	kW	1.2	1.2	1.2	1.2
	6.2	Lifting motor	kW	1 <sup>(2)</sup>	1 <sup>(2)</sup>	1,4 <sup>(1)</sup>	1,4 <sup>(1)</sup>
	6.3	Battery DIN 43531/35/36 A,B,C, no		no	no	DIN 43535 B	DIN 43535 B
	6.4	Battery voltage/capacity (5 hours rate)	V/Ah	24 / 150-200	24 / 150-200	24 / 220 (210 250) *	24 / 220 (210 250) *
	6.5	Battery weight +/- 5%	kg	144-185	144-185	222 (212)	222 (212)
	6.6	Energy consumption acc. To VDI cycle	kWh/h	0.40	0.41	0.43	0.45
Other	8.1	Drive control		MOSFET	MOSFET	MOSFET	MOSFET
	8.4	Sound level at the driver's ear according to DIN 12 053	dB(A)	<70	<70	<70	<70

\* Max battery capacity = 24/300 V/Ah with "non Din" battery (no lateral extraction option available with this battery size).

\*\* Tiller arm in vertical working position (creep speed).

<sup>(1)</sup> S3 6% rating

<sup>(2)</sup> S3 9% rating

## MP, MPL, MPHD Series

Models: MP13, MP16, MP18, MP20, MP20L, MP22, MP25, MP30

### Tiller head and controls

The tiller head is designed for operator comfort and features an ergonomic shaped handle with angled grips and integral hand guard. Large dimensioned, low effort butterfly buttons control direction of travel and speed as well as the electromagnetic brake. All controls are accessible without having to lift the hand from the handle. Dual lift and lower buttons are conveniently located on the tiller head and can be readily accessed for left or right hand use.

The travel direction inverter button is designed for maximum angle of contact with the operator's body. When activated, the direction of travel is automatically reversed and the truck comes to a stop. The horn is located on top of the tiller head and conveniently actuated by thumb or forefinger.

The creep speed control allows the truck to be operated with the tiller arm in the vertical position at reduced speed for manoeuvring in tight confines. 3 preset (MP13/16/25/30) performance settings (soft, standard and hard) provide different performance levels for forward and reverse travel speeds, reverse current braking, release braking and acceleration. The settings are easily selectable to suit driver preference.

### Tiller arm

The low anchor point requires minimum steering effort and the long tiller arm enhances the operating clearance when walking inside the truck envelope. The tiller arm is spring assisted and returns automatically to the vertical position when released.

### Chassis

The chassis design provides fully enclosed protection for the battery, drive train and main components. Compact powerhead dimensions make the machines highly manoeuvrable in tight confines without sacrificing battery capacity. The MP20L, MP22, 25HD and 30HD feature a side battery removal option. An on-board charger is standard on the MP13 and MP16 and an optional extra on all other models.

### Forks

Single load wheels are standard on the MP13, 16, 18, 20, 20L and 22 models,

with tandem load wheels optionally available. Heavy-duty tandem load wheels are standard on the MP25HD and 30HD models. Skid plates on the MP16, 18, 20, 20L and 22 models facilitate handling of bottom-boarded pallets.

### Traction and pump control

A MOSFET high frequency controller is used to regulate traction and pump (MP13/16/25/30) operation. Energy efficient, smooth progressive control is available at all times. The controller features automatic braking (reverse current braking) and regenerative braking on release of the butterfly buttons as well as anti-rollback start-up on an incline. 3 pre-set (MP13/16/25/30) performance settings are available to the operator. Additionally, the controller can be adjusted for forward and reverse travel speeds, reverse current braking, release braking, lift speed (MP13/16/25/30) and acceleration using a plug-in console. The controller features an in-built diagnostic system and alarm history as well as thermal protection.

### Drive unit

AC drive motors (on MP18-20-20L-22) or SEM (on MP13-16-25-30) are used to deliver fast travel speeds in the laden/unladen condition, high start-up torque and acceleration as well as efficient running. The use of both motor technology eliminates forward and reverse contactors. The motors are mounted vertically for easy brush (on SEM) access, improved ventilation and minimum contamination from floor conditions. Motors on the MP13, 16, 18, 20, 20L and 22 models are fixed to eliminate flexing stresses to the power cable.

### Hydraulics

The hydraulic pump is controlled directly by the controller. Lift and lower functions are actuated directly from the tiller head controls. The lift interrupt is feature is standard on all models. A transparent oil reservoir facilitates checking of the oil level.

### Brake

The electromagnetic brake is electrically released and spring applied. The brake is opened and closed by activation of the butterfly buttons with

the tiller arm in the working position. The brake is closed by bringing the tiller arm to the vertical or horizontal position. Reverse current braking is applied by inverting the direction of travel. Releasing the butterfly buttons induces both reverse current braking (adjustable) and regenerative braking.

### Instrumentation

A quick disconnect power cut-out button is positioned on the dashboard as well as a combined hour-meter and battery discharge indicator (optional on the MP13-16).

### Options

A comprehensive range of options including fork widths and lengths, rubber, non-marking and wet grip tyres, cold store protection, load backrest, on-board charger (standard on MP13 and MP16 models), and side battery removal is available.



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

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Truck shown with optional equipment