

MRE series

1,000kg / 1,200kg / 1,400kg

Tilting Mast Reach Truck



SPECIFICATION SHEET

Models: MR10E, MR12E, MR14E

VDI 2198 – General Specifications

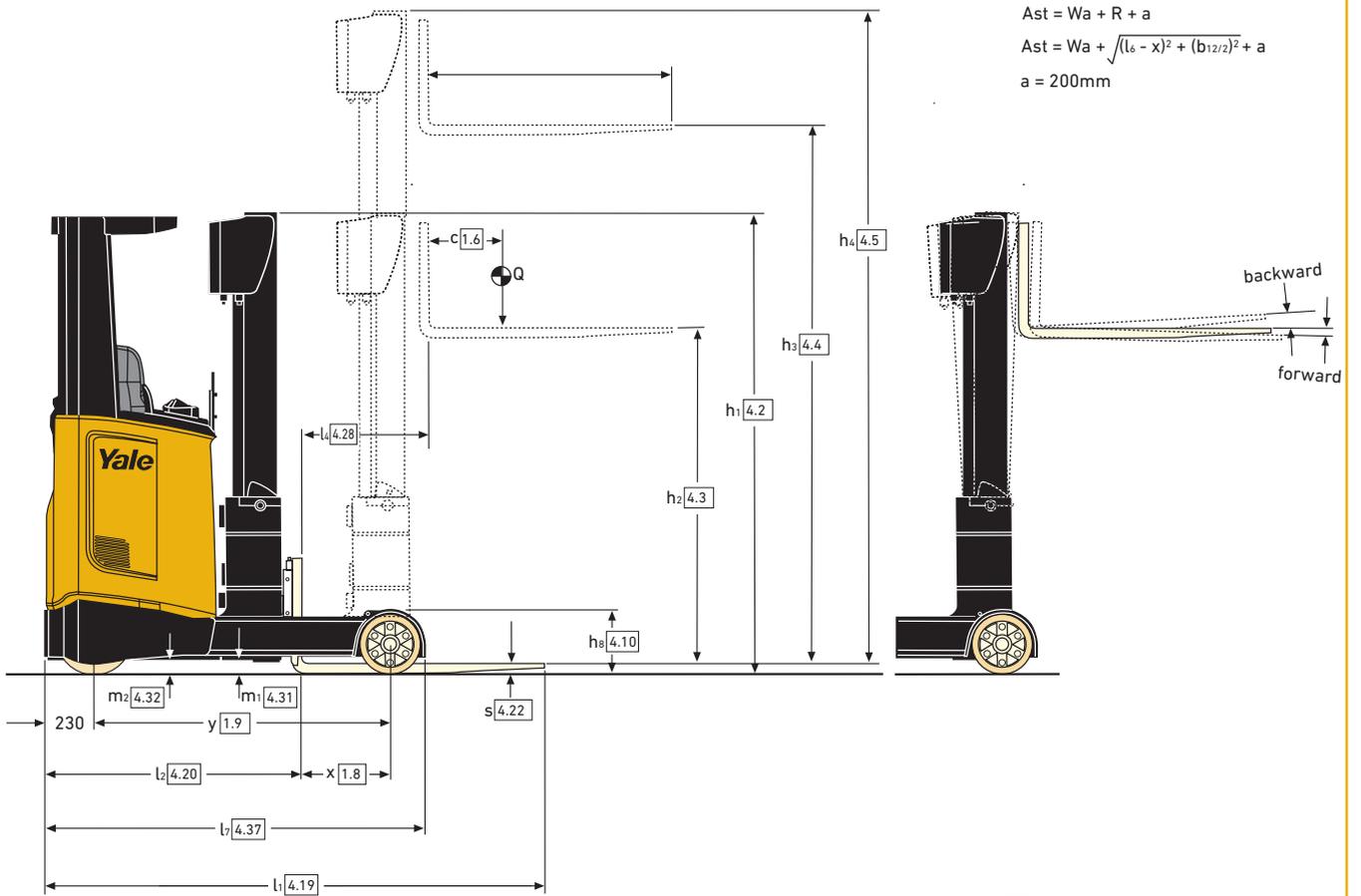
Distinguishing mark	1.1	Manufacturer (abbreviation)		Yale	Yale	Yale	
	1.2	Manufacturer's type designation		MR10E	MR12E	MR14E	
	1.3	Drive: electric (battery or mains), diesel, petrol, fuel gas		Electric (battery)	Electric (battery)	Electric (battery)	
	1.4	Operator type: hand, pedestrian, standing, seated, order-picker		Seated	Seated	Seated	
	1.5	Rated capacity/Rated load	Q (t)	1.0	1.2	1.4	
	1.6	Load centre distance	c (mm)	600	600	600	
	1.8	Load distance, centre of drive axle to fork	x (mm)	181	181	371	
	1.9	Wheelbase	y (mm)	1300	1300	1400	
	Weights	2.1	Service weight	kg	2845	2845	2948
2.3		Axle loading, unladen front/rear ⁽⁵⁾	kg	1622 / 1223	1622 / 1223	1851 / 1097	
2.4		Axle loading fork advanced, laden front/rear	kg	810 / 3035	695 / 3350	694 / 3654	
2.5		Axle loading fork retracted, laden front/rear	kg	1288 / 2557	1222 / 2823	1605 / 2743	
Tyres/chassis		3.1	Tyres: polyurethane, tophane, vulkollan, front/rear		NDIIThane / NDIIThane	NDIIThane / NDIIThane	NDIIThane / NDIIThane
	3.2	Tyre size, front	ø (mm x mm)	305 x 140	305 x 140	305 x 140	
	3.3	Tyre size, rear	ø (mm x mm)	220 x 85	220 x 85	285 x 100	
	3.5	Wheels, number front/rear (x = driven wheels)		1 x / 2	1 x / 2	1 x / 2	
	3.7	Tread, rear	b11 (mm)	990	990	1155	
	Dimensions	4.1	Tilt of mast/fork carriage forward/backward	α / β (°)	1 / 3	1 / 3	1 / 3
		4.2	Height of mast, lowered	h1 (mm)	2191	2191	2191
4.3		Free lift	h2 (mm)	1706	1706	1706	
4.4		Lift	h3 (mm)	5000	5000	5000	
4.5		Height, mast extended ⁽¹⁾	h4 (mm)	5560	5560	5560	
4.7		Height of overhead guard (cabin) ⁽²⁾	h6 (mm)	2175	2175	2175	
4.8		Seat height relating to SIP	h7 (mm)	1082	1082	1082	
4.10		Height of wheel arms	h8 (mm)	235	235	308	
4.19		Overall length	l1 (mm)	2500	2500	2411	
4.20		Length to face of forks	l2 (mm)	1350	1350	1261	
4.21		Overall width ⁽³⁾	b1/b2 (mm)	1125	1125	1265	
4.22		Fork dimensions DIN ISO 2331	s/e/l (mm)	40 / 80 / 1150	40 / 80 / 1150	40 / 80 / 1150	
4.23		Fork carriage ISO 2328, class/type A, B		2A	2A	2A	
4.24		Fork-carriage width	b3 (mm)	700	700	700	
4.25		Distance between fork-arms min./max. ⁽⁷⁾	b5 (mm)	220 / 640	220 / 640	220 / 640	
4.26		Distance between wheel arms/loading surfaces	b4 (mm)	900	900	900	
4.28		Reach distance	l4 (mm)	341	341	560	
4.31		Ground clearance, laden, below mast	m1 (mm)	75	75	75	
4.32		Ground clearance, centre of wheelbase	m2 (mm)	75	75	85	
4.34.1		Aisle width for pallets 1000mm x 1200mm crossways	Ast (mm)	2770	2770	2741	
4.34.2		Aisle width for pallets 800mm x 1200mm lengthwise	Ast (mm)	2850	2850	2792	
4.35		Turning radius	Wa (mm)	1555	1555	1672	
4.37		Length across wheel arms	l7 (mm)	1660	1660	1795	
4.42	Step height (from ground to running board)	mm	550	550	550		
4.43	Step height (between intermediate steps between running board and floor)	mm	371	371	371		
Performance data	5.1	Travel speed, laden/unladen	km/h	11 / 11	11 / 11	11 / 11	
	5.1.1	Travel speed, laden/unladen, backwards	km/h	11 / 11	11 / 11	11 / 11	
	5.2	Lift speed, laden/unladen	m/s	0.45 / 0.70	0.40 / 0.70	0.35 / 0.70	
	5.3	Lowering speed, laden/unladen	m/s	0.55 / 0.45	0.55 / 0.45	0.55 / 0.45	
	5.4	Reaching speed, laden/unladen	m/s	0.15 / 0.15	0.15 / 0.15	0.15 / 0.15	
	5.7	Gradeability, laden/unladen	%	9.0 / 12.7	8.5 / 12.7	7.6 / 11.9	
	5.8	Max. gradeability laden/unladen	%	14.6 / 20.2	13.8 / 20.2	12.5 / 19.0	
	5.9	Acceleration time laden/unladen	s	5.5 / 4.9	5.6 / 4.9	5.7 / 4.8	
	5.10	Service brake		Electric	Electric	Electric	
	Electric engine	6.1	Drive motor S2 60 minute rating	kW	5.4	5.4	5.4
6.2		Lift motor, S3 15% rating	kW	9.9	9.9	9.9	
6.3		Battery according to DIN 43531/35 /36 A,B,C, no		B	B	C	
6.4		Battery voltage/nominal capacity K5	(V)/(Ah)	48 / 560 ⁽⁶⁾	48 / 560 ⁽⁶⁾	48 / 560 ⁽⁶⁾	
6.5		Battery weight ⁽⁴⁾	kg	937	937	939	
6.6		Energy consumption according to VDI cycle	kWh/h @ no. of cycles	2.9	3.4	3.9	
8.1	Type of drive unit		AC-Controller	AC-Controller	AC-Controller		
10.7	Sound pressure level at the driver's seat	dB (A)	69.55	69.55	69.55		

(1) With load backrest 1000mm height, h4 + 508mm; with load backrest 1500mm height, h4 + 1008mm
(2) With beacon h6 + 120mm. ; With OHG Grid Protector h6 + 20mm ; With OHG Screen Protector h6 + 30mm.
(3) With load wheels lateral covers: 1289mm (MR14E).
(4) These values may vary of +/- 5%.
(5) Forks retracted.

(6) See "Batteries table".
(7) Side shift stroke is +/-75mm.

All values are nominal values and they are subject to tolerances. For further information, please contact the manufacturer.
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Lift trucks illustrated may feature optional equipment.
Values may vary with alternative configurations.

Truck Dimensions

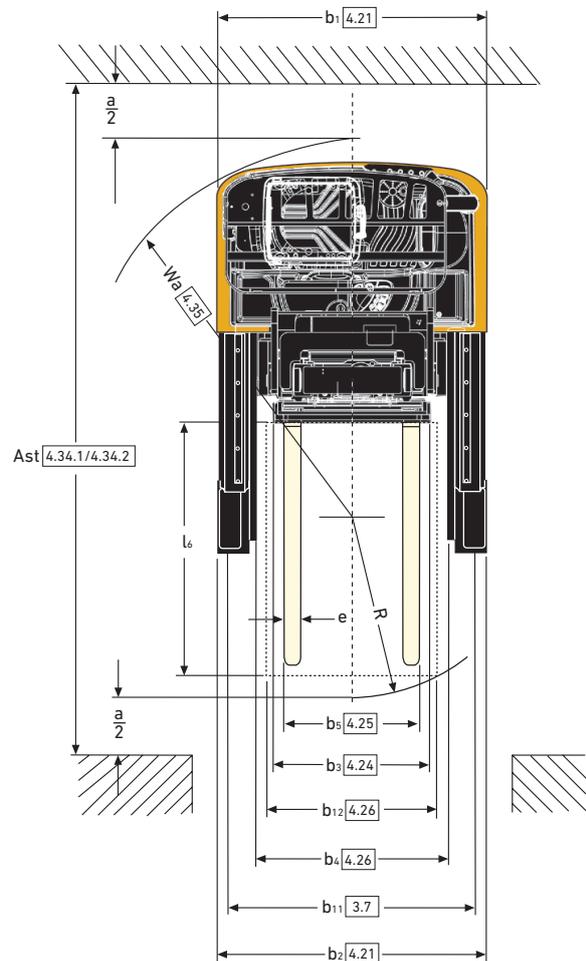
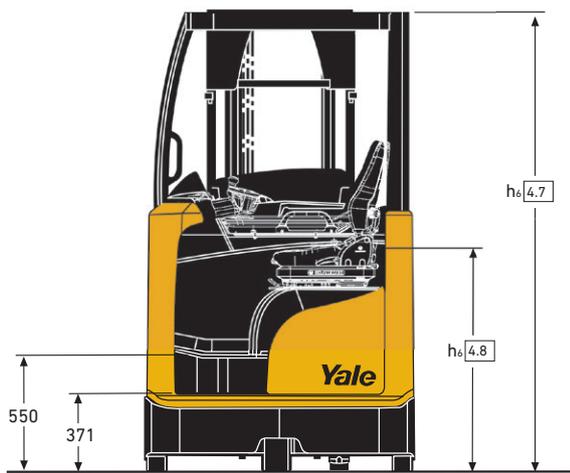


$$Ast = Wa + R + a$$

$$Ast = Wa + \sqrt{(l_6 - x)^2 + (b_{12/2})^2} + a$$

$$a = 200\text{mm}$$

backward
forward



MR10E, MR12E truck dimensions for batteries

Distinguishing mark	Description	Unit	MR10E							
			361	361	361	271	271	181	181	
1.2	Manufacturer's type designation									
1.8	Load distance, centre of drive axle to fork	x (mm)	361	361	361	271	271	181	181	
1.9	Wheelbase	y (mm)	1300	1300	1300	1300	1300	1300	1300	
Weights	2.1	Service weight	kg	2389	2389	2367	2602	2602	2845	2845
	2.3	Axle loading, unladen front/rear ⁽²⁾	kg	1522 / 867	1522 / 867	1533 / 834	1571 / 1031	1571 / 1031	1622 / 1223	1622 / 1223
	2.4	Axle loading fork advanced, laden front/rear (MR10E)	kg	577 / 2812	577 / 2812	603 / 2764	693 / 2909	693 / 2909	810 / 3035	810 / 3035
	2.4	Axle loading fork advanced, laden front/rear (MR12E)	kg	462 / 3127	462 / 3127	502 / 3088	577 / 3225	577 / 3225	695 / 3350	695 / 3350
	2.5	Axle loading fork retracted, laden front/rear (MR10E)	kg	1327 / 2062	1327 / 2062	1337 / 2030	1306 / 2296	1306 / 2296	1288 / 2557	1288 / 2557
	2.5	Axle loading fork retracted, laden front/rear (MR12E)	kg	1288 / 2301	1288 / 2301	1313 / 2277	1254 / 2548	1254 / 2548	1222 / 2823	1222 / 2823
Dimensions	4.19	Overall length	l1 (mm)	2320	2320	2320	2410	2410	2500	2500
	4.20	Length to face of forks	l2 (mm)	1170	1170	1170	1260	1260	1350	1350
	4.28	Reach distance	l4 (mm)	521	521	521	431	431	341	341
	4.34.1	Aisle width for pallets 1000mm x 1200mm crossways	Ast (mm)	2632	2632	2632	2700	2700	2770	2770
	4.34.2	Aisle width for pallets 800mm x 1200mm lengthways	Ast (mm)	2685	2685	2685	2766	2766	2850	2850
	4.35	Turning radius	Wa (mm)	1555	1555	1555	1555	1555	1555	1555
Electric engine	6.3	Battery according to DIN 43531/35 /36 A, B, C, no		B	B	no	B	B	B	B
	6.4	Battery voltage/nominal capacity K5	(V) / (Ah)	48 / 280	48 / 310	48/300 ⁽³⁾	48 / 420	48 / 465	48 / 560	48 / 620
	6.5	Battery weight ⁽¹⁾	kg	541	543	519	746	750	937	945

⁽¹⁾ These values may vary of +/- 5%. ⁽²⁾ Forks retracted. ⁽³⁾ Li-lion battery. All weights (2.1 to 2.5) are with lowest mast and standard forks.

MR14E truck dimensions for batteries

Distinguishing mark	Description	Unit	MR14E					
			427	427	371	371	371	
1.2	Manufacturer's type designation							
1.8	Load distance, centre of drive axle to fork	x (mm)	427	427	371	371	371	
1.9	Wheelbase	y (mm)	1400	1400	1400	1400	1400	
Weights	2.1	Service weight	kg	2716	2716	2948	2948	2903
	2.3	Axle loading, unladen front/rear ⁽²⁾	kg	1758 / 958	1758 / 958	1851 / 1097	1851 / 1097	1849 / 1054
	2.4	Axle loading fork advanced, laden front/rear	kg	562 / 3554	562 / 3554	694 / 3654	694 / 3654	707 / 3596
	2.5	Axle loading fork retracted, laden front/rear	kg	1568 / 2548	1568 / 2548	1605 / 2743	1605 / 2743	1602 / 2701
	4.19	Overall length	l1 (mm)	2351	2351	2423	2423	2411
Dimensions	4.20	Length to face of forks	l2 (mm)	1205	1205	1277	1277	1261
	4.28	Reach distance	l4 (mm)	617	617	545	545	560
	4.34.1	Aisle width for pallets 1000mm x 1200mm crossways	Ast (mm)	2702	2702	2741	2741	2741
	4.34.2	Aisle width for pallets 800mm x 1200mm lengthways	Ast (mm)	2743	2743	2792	2792	2792
	4.35	Turning radius	Wa (mm)	1672	1672	1672	1672	1672
	Electric engine	6.3	Battery according to DIN 43531/35 /36 A, B, C, no		C	C	C	C
6.4		Battery voltage/nominal capacity K5	(V) / (Ah)	48 / 420	48 / 465	48 / 560	48 / 620	48/450 ⁽³⁾
6.5		Battery weight ⁽¹⁾	kg	750	750	939	950	895

⁽¹⁾ These values may vary of +/- 5%.

⁽²⁾ Forks retracted.

⁽³⁾ Li-lion battery

All weights (2.1 to 2.5) are with lowest mast and standard forks.

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Lift trucks illustrated may feature optional equipment.

Values may vary with alternative configurations.

MR10E, MR12E, MR14E - Mast details, 3 stage full free lift (B708)

Model	Tilt α / β °	Lift (h3) mm	Free lift (h2) mm	Height of mast lowered (h1) mm	Height of mast extended (h4) ⁽¹⁾ mm	Weight ^{(2) (3)} kg
MR10E	1 / 3	5000	1706	2191	5560	629
	1 / 3	5250	1792	2277	5810	645
	1 / 3	5500	1878	2363	6060	662
	1 / 3	5750	1964	2449	6310	717
	1 / 3	6000	2050	2535	6560	736
MR12E	1 / 3	6250	2136	2621	6810	754
MR14E	0.5 / 1	6500	2222	2707	7060	772
	0.5 / 1	6750	2308	2793	7310	797
	0.5 / 1	7000	2394	2879	7560	815
	0.5 / 1	7250	2480	2965	7810	834
	0.5 / 1	7500	2566	3051	8060	852

⁽¹⁾ With load backrest 1000mm height, h4 + 508mm; with load backrest 1500mm height, h4 + 1008mm

⁽²⁾ All weights are: mast structures (weldment, cylinders, chain, pulley) + carriage + oil. EXCLUDED: forks, accessories.

⁽³⁾ With load backrest 700mm width, 1000mm height, weight + 18kg; with load backrest 700mm width, 1500mm height, weight + 26kg

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MRE series

Models: MR10E, MR12E, MR14E

Overhead Guard

The one piece welded overhead guard gives a good visibility to all directions. The two different pillar profiles give adequate stiffness strength, with a minimum impact on visibility. As option drive-in overhead guards are available.



Operator compartment

The operator compartment structure is a one piece welded structure developed for long term durability. It is bolted on the frame having boxed bottom part for stiff compartment and reduced vibrations to the operator.

The step with grip profile has a maximum depth of 130mm and low height of 370mm.

Frame

Completely welded base frame is available in 2 basic widths and 2 different lengths.

Seats

Two different full-suspension seats with additional options are available, both of which are adjustable for operator weight, fore/aft position and backrest angle.

Steering console

The steering console is one hand adjustable for length to provide the optimum position for the operator.

To improve operators left arm ergonomics the steering column is slightly 3° angled anti clockwise.

Steering system

The steering system is a fully fly-by-wire system. The steer wheel input and the steer motor output are connected to the controller and managed by the VCM.



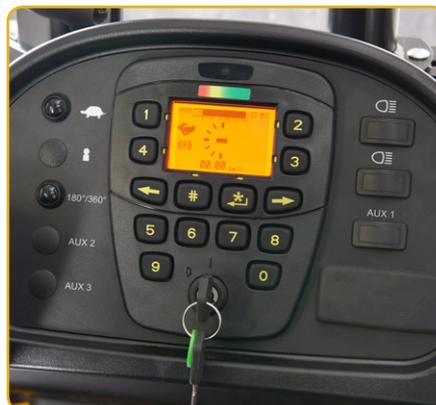
The steer positioning sensors provide feedback of the actual steer position. The standard steering has a 180° steer angle, a 360° option is available and enabled by the VCM software. A third option allows switching from 180° to 360° by pressing a steering mode selection switch on the dashboard. Speed reduction on cornering is automatic and can be adjusted.

Foot pedals

The operator presence switch is slightly rotated to the mid line off the operator seat to improve operator left foot position. The thick one piece floor mat absorbs vibrations and noise out of the motor compartment.

Dash display

The display is integrated in the dashboard in front of the operator. In this location the display is easy to read and to operate.



The standard display utilises the proven display design from Yale ECB trucks.

Vehicle Control Manager

The Vehicle Control Manager (VCM) is the central module of the truck and it is linked to the truck modules via Dual CAN bus system to increase reliability and truck dependability. With this proven technology used in the automobile sector point to point wiring is greatly reduced.

Hydraulic controls

The Hydraulic controls are integrated in an ergonomic sliding armrest under the driver's right hand. The standard controls is proven AccuTouch mini-levers module with separate horn and direction switches. A joystick with integrated mini lever joystick for best ergonomic hydraulic operation is available as option.



Mast

A 3 stage full free lift mast reduces the total mast channel width. The mast tilts forward up to 1° and backward up to 3°, depending on the lift height.

Lift cylinders position optimised to increase operator visibility and cross members are not in direct line of visibility for critical heights.

Motors

The AC drive motor is standard across the model range.

Optimised acceleration and travel speed performance (up to 11km/h) delivers high load handling efficiency productivity. Easy access through swing-open motor compartment door. The steering motor also uses AC technology for precise steering control. On power up the drive wheel is automatically centred.

A removable plate allows access to the drive tyre/gear reducer for servicing. The motor compartment including the hoist motor is ventilated.



About Yale®



Yale is a leading global manufacturer and supplier of high-quality counterbalance forklift trucks, warehouse equipment and fleet solutions. 'People, products and productivity' sums up our approach to the materials handling business. With over 140 years' experience, we are proud of our reputation as an innovative, forward-thinking manufacturer.

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Safety: This truck conforms to the current EU requirements.
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