



MS10-20

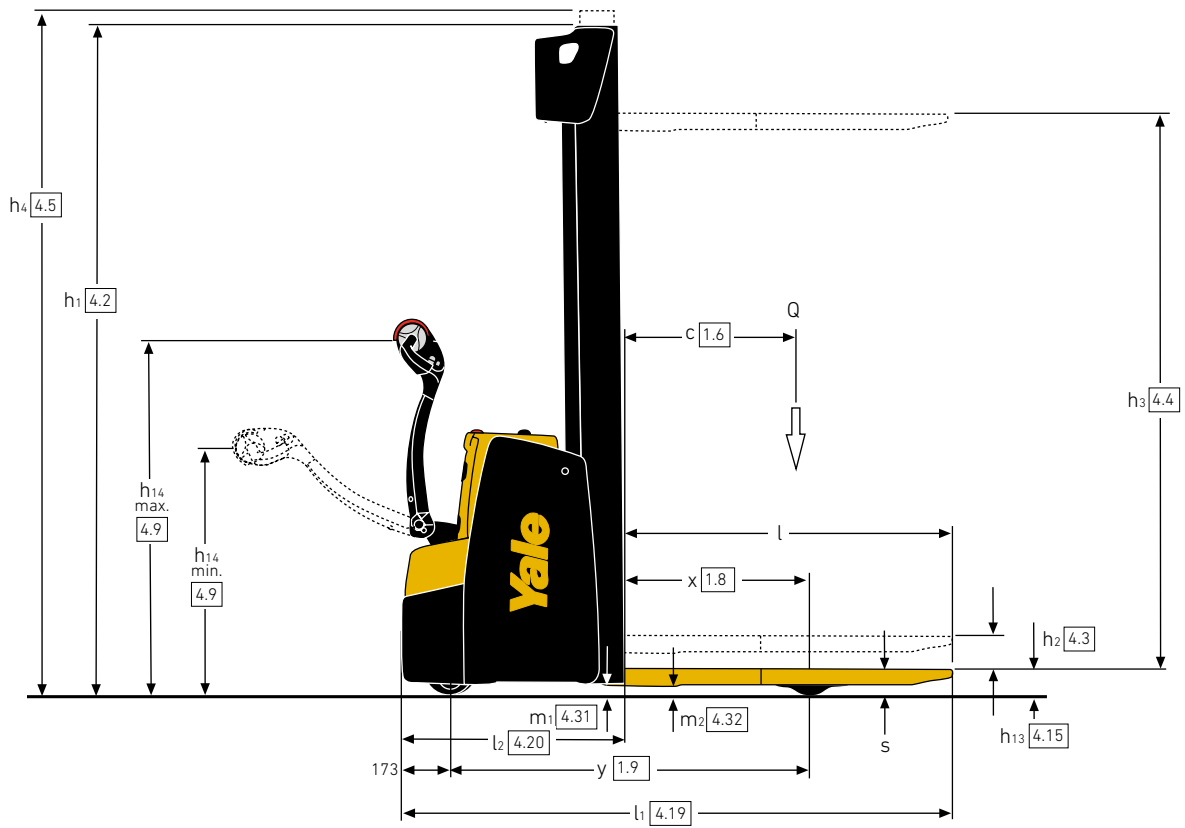
SPEC SHEET

1,000 - 2,000 kg

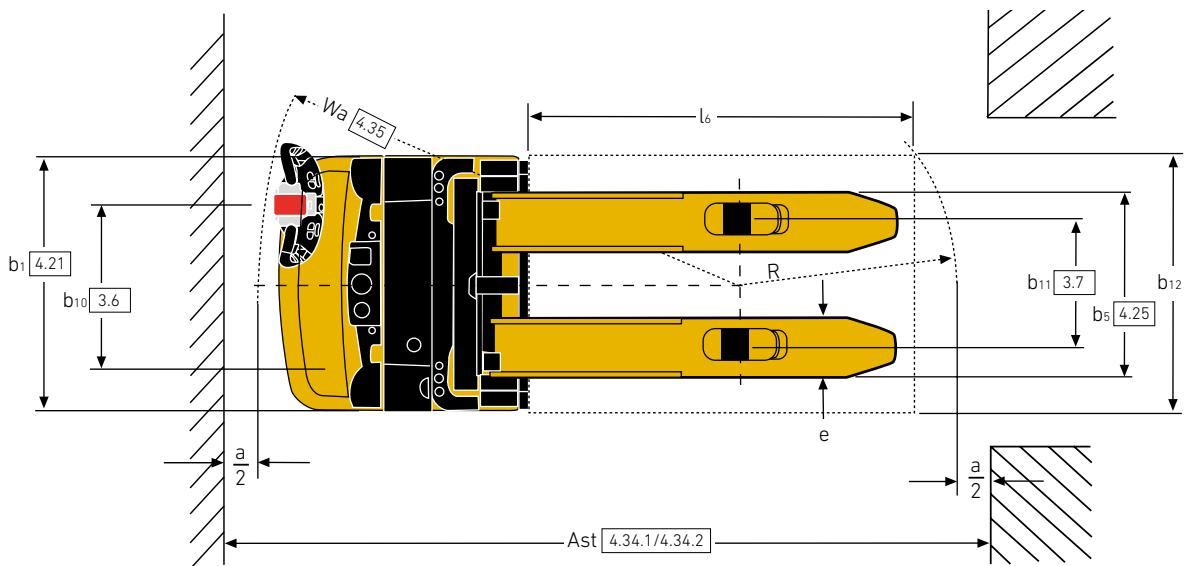
MS Series

Pedestrian High
Lift Stacker

TRUCK DIMENSIONS – MS SERIES



TRUCK DIMENSIONS – MS SERIES



VDI 2198 – GENERAL SPECIFICATIONS – MS SERIES

GENERAL	1.1	Manufacturer	Yale		
	1.2	Model designation	MS10	MS12	MS14
	1.3	Drive	Electric (battery)		
	1.4	Operator type	Pedestrian		
	1.5	Rated capacity/Rated load	Q (t)	1.0	1.2
	1.6	Load centre distance	c (mm)	600	
	1.8	Load distance, centre of drive axle to fork ⁽¹⁾	x (mm)	648	649
	1.9	Wheelbase	y (mm)	1204	1259
	WEIGHT	2.1	Service weight ⁽⁸⁾	kg	956
2.2		Axle loading, laden front/rear	kg	676 / 1280	708 / 1497
2.3		Axle loading, unladen front/rear	kg	642 / 314	663 / 342
TYRES	3.1	Tyres front/rear	Topthane/Polyurethane		
	3.2	Tyre size, front	230 x 70		
	3.3	Tyre size, rear	ø mm x mm	85 x 100	85 x 70
	3.4	Additional wheels (dimensions)	ø mm x mm	150 x 54	
	3.5	Wheels, number front/rear (x = driven wheels)	ø mm x mm	1x + 1/ 2	1x + 1/4
	3.6	Tread, front	b ₁₀ (mm)	510	
	3.7	Tread, rear	b ₁₁ (mm)	400	
DIMENSIONS	4.2	Height, mast lowered	h ₁ (mm)	2100	
	4.3	Free lift	h ₂ (mm)	100	
	4.4	Lift	h ₃ (mm)	3200	
	4.5	Height, mast extended	h ₄ (mm)	3728	
	4.9	Height drawbar in driving position min./max.	h ₁₄ (mm)	867 / 1223	
	4.15	Height, lowered	h ₁₃ (mm)	90	
	4.19	Overall length ⁽²⁾	l ₁ (mm)	1878	1933
	4.20	Length to face of forks ⁽²⁾	l ₂ (mm)	728	783
	4.21	Overall width	b ₁ /b ₂ (mm)	790	
	4.22	Fork dimensions ⁽¹³⁾	s/e/l (mm)	55 / 185 / 1150 ⁽¹³⁾	
	4.24	Fork carriage width	b ₃ (mm)	-	
	4.25	Distance between fork-arms ⁽⁸⁾	b ₅ (mm)	570 ⁽⁹⁾	
	4.26	Distance between wheel arms/loading surfaces	b ₄ (mm)	-	
	4.31	Ground clearance, laden, below mast	m ₁ (mm)	42	
	4.32	Ground clearance, center of wheelbase	m ₂ (mm)	32	
	4.33	Load dimension b ₁₂ × l ₆ crossways	b ₁₂ × l ₆ (mm)	1000 x 1200	
4.34.1	Aisle width for pallets 1200mm x 1000mm crossways	Ast (mm)	2307	2359	
4.34.2	Aisle width for pallets 800mm x 1200mm lengthwise	Ast (mm)	2293	2345	
4.35	Turning radius	Wa (mm)	1411	1464	
PERFORMANCE	5.1	Travel speed, with/without load	km/h	6 / 6	
	5.1.1	Travel speed, laden/unladen, backwards	km/h	6 / 6	
	5.2	Lift speed, laden/unladen	m/s	0.15 / 0.23	0.17 / 0.28
	5.3	Lowering speed, laden/unladen	m/s	0.37 / 0.35	0.4 / 0.35
	5.7	Gradeability, laden/unladen	%	5.1 / 12.4	4.3 / 11.7
	5.8	Max. gradeability, laden/unladen	%	13.2 / 24.6	11.5 / 24.0
5.10	Service brake	Electromagnetic			
ELECTRIC	6.1	Drive motor S2 60 minute rating	kW	1.2	
	6.2	Lift motor S3 15% rating	kW	2.2 ⁽¹¹⁾	3 ⁽¹²⁾
	6.3	Battery according to DIN 43531/35 /36 A,B,C, no	No	B	
	6.4	Battery voltage/nominal capacity K5	(V)/(Ah)	24V / 200Ah ⁽⁴⁾	24V / 250Ah ⁽⁵⁾
	6.5	Battery weight ⁽³⁾	kg	185	212
	6.6	Energy consumption according to VDI cycle	kWh/h @ no. of cycles	0.68 / 0.85	0.78 / 1.0
8.1	Type of drive unit	AC-Controller			
10.7	Sound pressure level at the driver's position	dB(A)	67.6 / 64		

(1) With 3 stage mast -43mm

(2) With 3 stage mast +43mm, with 3 stage mast with load backrest +43mm, with 2 stage mast with load backrest +27mm

(3) These values may vary of +/-5%.

(4) Available batteries 24V / 150Ah (144kg); 24V / 150Ah Polypropylene case version (125kg); 24V / 200Ah Polypropylene case version (160kg); 24V / 100Ah Li-Ion (144kg); 24V / 200Ah Li-Ion (154kg)

(5) Available battery 24V / 210Ah (212kg); 24V / 250Ah Polypropylene case version (180kg + ballast 32kg); 24V / 200Ah Li-Ion (211kg)

(6) Available battery 24V / 210Ah (212kg); 24V / 315Ah (288 kg); 24V / 375Ah (288kg); 24V / 250Ah Polypropylene case version (180kg + ballast 32kg); 24V / 200Ah Li-Ion (211kg); 24V / 300Ah Li-Ion (277kg); with 315/375Ah the wheelbase is increased y=+72mm

(7) Available battery 24V / 315Ah (288 kg); 24V / 300Ah Li-Ion (277kg)

VDI 2198 – GENERAL SPECIFICATIONS – MS SERIES

			Yale			
			MS16	MS16SL	MS20	
GENERAL	1.1	Manufacturer				
	1.2	Model designation				
	1.3	Drive		Electric (battery)		
	1.4	Operator type		Pedestrian		
	1.5	Rated capacity/Rated load	Q (t)	1.6		
	1.6	Load centre distance	c (mm)	600		
	1.8	Load distance, centre of drive axle to fork ⁽¹⁾	x (mm)	649	646	649
	1.9	Wheelbase	y (mm)	1331	1408	1331
	WEIGHT	2.1	Service weight ⁽⁸⁾	kg	1145	1431
2.2		Axle loading, laden front/rear	kg	805 / 1940	950 / 2081	846 / 2305
2.3		Axle loading, unladen front/rear	kg	748 / 397	893/538	771 / 380
TYRES	3.1	Tyres front/rear		Tophane/Polyurethane		
	3.2	Tyre size, front		230 x 70		
	3.3	Tyre size, rear	ø mm x mm	85 x 70		
	3.4	Additional wheels (dimensions)	ø mm x mm	150 x 54	125 x 60	150 x 54
	3.5	Wheels, number front/rear (x = driven wheels)	ø mm x mm	1x + 1/4	1x+1/4	1x + 1/4
	3.6	Tread, front	b ₁₀ (mm)	510	522	510
	3.7	Tread, rear	b ₁₁ (mm)	400	968 / 1168 / 1368	400
DIMENSIONS	4.2	Height, mast lowered	h ₁ (mm)	2100		
	4.3	Free lift	h ₂ (mm)	100		
	4.4	Lift	h ₃ (mm)	3200		
	4.5	Height, mast extended	h ₄ (mm)	3728	3728	3572
	4.9	Height drawbar in driving position min./max.	h ₁₄ (mm)	867 / 1223	867/1223	867 / 1223
	4.15	Height, lowered	h ₁₃ (mm)	90	55	90
	4.19	Overall length ⁽²⁾	l ₁ (mm)	2005	2086	2005
	4.20	Length to face of forks ⁽²⁾	l ₂ (mm)	855	935	855
	4.21	Overall width	b ₁ /b ₂ (mm)	790	794 / 1095-1295-1495	790
	4.22	Fork dimensions ⁽¹³⁾	s/e/l (mm)	55 / 185 / 1150 ⁽¹³⁾	35 / 120 / 1150	65 / 185 / 1150 ⁽¹³⁾
	4.24	Fork carriage width	b ₃ (mm)	-	800 / 1000 / 1200	-
	4.25	Distance between fork-arms ⁽⁸⁾	b ₅ (mm)	570 ⁽⁹⁾	-	570 ⁽⁹⁾
	4.26	Distance between wheel arms/loading surfaces	b ₄ (mm)	-	841-1041-1241	-
	4.31	Ground clearance, laden, below mast	m ₁ (mm)		42	
	4.32	Ground clearance, center of wheelbase	m ₂ (mm)	32	26	32
	4.33	Load dimension b ₁₂ × l ₆ crossways	b ₁₂ × l ₆ (mm)		1000 x 1200	
	4.34.1	Aisle width for pallets 1200mm x 1000mm crossways	Ast (mm)	2428	2504	2428
4.34.2	Aisle width for pallets 800mm x 1200mm lengthwise	Ast (mm)	2414	2490	2414	
4.35	Turning radius	Wa (mm)	1533	1607	1533	
PERFORMANCE	5.1	Travel speed, with/without load	km/h	6 / 6		
	5.1.1	Travel speed, laden/unladen, backwards	km/h	6 / 6		
	5.2	Lift speed, laden/unladen	m/s	0.14 / 0.28		
	5.3	Lowering speed, laden/unladen	m/s	0.4 / 0.35		
	5.7	Gradeability, laden/unladen	%	3.1 / 10.1	3.1 / 8.9	2.5 / 10.3
	5.8	Max. gradeability, laden/unladen	%	8.9 / 23.8	7.4 / 17.8	7.5 / 24.3
5.10	Service brake		Electromagnetic			
ELECTRIC	6.1	Drive motor S2 60 minute rating	kW	1.2		
	6.2	Lift motor S3 15% rating	kW	3 (12)		
	6.3	Battery according to DIN 43531/35 /36 A,B,C, no		B		
	6.4	Battery voltage/nominal capacity K5	(V)/(Ah)	24V / 375Ah ⁽⁷⁾	24V / 375Ah ⁽¹⁵⁾	24V / 375Ah ⁽⁷⁾
	6.5	Battery weight ⁽³⁾	kg	288		
	6.6	Energy consumption according to VDI cycle	kWh/h @ no. of cycles	0.99 / 1.13		
8.1	Type of drive unit		AC-Controller			
10.7	Sound pressure level at the driver's position	dB(A)	67.6 / 64			

(8) With forks 1400/1600mm +14kg

(9) Available bs 680mm: with bs 680mm, x -43 mm, l₁ and l₂ +43mm

(10) Available battery 24V / 210Ah (212 kg); 24V / 315Ah (288 kg); 24V / 375Ah (288 kg);
24V / 200Ah Li-Ion (211 kg); 24V / 300Ah Li-Ion (277kg); with 315 / 375Ah the wheelbase
is increased y=+72mm

(11) Value referred to S3 6%

(12) Value referred to S3 12%

(13) With 2 stage mast and bs = 570mm the s dimension increases 5mm for first 250mm at toe

(14) lL: load section lowered +72mm

(15) Available battery 24V / 315Ah (288kg)

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

MAST DIMENSIONS – MS10, MS12, MS14, MS16, MS16SL

Model		h ₃ (mm)	h ₂ (mm)	h ₁ ⁽¹⁾ (mm)	h ₄ ⁽²⁾ (mm)	Weight ⁽³⁾ (kg)	
2-Stage No Free-Lift (NFL) Mast							
MS12, MS14, MS16	MS10	2800	100	1900 ⁽⁴⁾	3328	329	
		3000	100	2000 ⁽⁴⁾	3528	343	
		3200	100	2100	3728	356	
		3400	100	2200	3928	369	
		3600	100	2300	4128	382	
		3800	100	2400	4328	395	
			4000	100	2500	4528	409
		4200	100	2600	4728	422	
2-Stage Full Free-Lift (FFL) Mast							
MS12, MS14, MS16	MS10	2740	1418	1850 ⁽⁴⁾	3268	341	
		2940	1518	1950 ⁽⁴⁾	3468	354	
		3140	1618	2050	3668	367	
		3340	1718	2150	3868	380	
		3540	1818	2250	4068	393	
		3740	1918	2350	4268	406	
			3940	2018	2450	4468	419
			4140	2118	2550	4668	432
3-Stage Full Free-Lift (FFL) Mast							
MS16	MS14, MS16SL	MS12	4040	1318	1850 ⁽⁴⁾	4606	462
			4340	1418	1950 ⁽⁴⁾	4906	481
			4620	1518	2050	5186	499
		4900	1618	2150	5466	518	
				5180	1718	2250	5746
			5460	1818	2350	6026	556
			5740	1918	2450	6306	575
			6020	2018	2550	6586	594

(1) With free lift of 100 mm for NFL mast

(2) With load backrest (h=1000) for carriage h₄ + 562mm (2 stage mast), + 524mm (3 stage mast), + 518mm (2 ton. mast)

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

(4) Not available with vertical extraction of battery BS200Ah

MAST DIMENSIONS – MS20

h ₃ (mm)	h ₂ (mm)	h ₁ ⁽¹⁾ (mm)	h ₄ ⁽²⁾ (mm)	Weight ⁽³⁾ (kg)
2-Stage Full Free-Lift (FFL) Mast				
2600	100	1900	3172	327
2800	100	2000	3372	340
3000	100	2100	3572	353
3200	100	2200	3772	366
3400	100	2300	3972	379
3600	100	2400	4172	393
3800	100	2500	4372	406
4000	100	2600	4572	419

(1) With free lift of 100 mm for NFL mast

(2) With load backrest (h=1000) for carriage h₄ + 562mm (2 stage mast), + 524mm (3 stage mast), + 518mm (2 ton. mast).

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

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





About Yale®

Yale Materials Handling Corporation is one of the oldest manufacturers of lift trucks in the world. We've been in the business of lifting since 1875 and we apply that experience to help customers solve materials handling challenges. Our full line of lift trucks range in capacity from 1 to 16 tonne and are powered by internal combustion engines or electric options. Yale also offers robotic solutions, telemetry, fleet management, parts, financing and training. From traditional lift truck equipment to emerging technologies, our goal, every day, is to work with our nationwide dealer network to continually improve and provide the solutions you need, when and how you need them.

MATERIALS HANDLING FOR:

- 3PL
- Auto Parts
- Beverage
- Cold & Frozen Foods
- Food Distribution
- Food Processing
- Furniture & Furnishings
- Health & Pharma
- Home Centres
- Retail
- E-Commerce

Yale Lift Truck Technologies


Centennial House
Frimley Business Park
Frimley
Surrey
GU16 7SG
United Kingdom

www.yale.com



Safety: All Yale products sold into EU countries, UK, and Turkey conform to the EU requirements of Machinery Directive 2006/42/EC and contain **CE** marking. Yale trucks sold into other countries may be ordered for production in conformance with Machinery Directive requirements, and when so ordered will contain **CE** marking.

HYSTER-YALE UK LIMITED trading as Yale Lift Truck Technologies. Registered Address: Centennial House, Building 4.5, Frimley Business Park, Frimley, Surrey, GU16 7SG, United Kingdom. Registered in England and Wales. Company Registration Number: 02636775.

©2023 Hyster-Yale Group, Inc., all rights reserved. YALE and YALE  are trademarks of Hyster-Yale Group, Inc. Trucks may be shown with optional equipment and/or features not available in all regions. Truck performance may be affected by the condition of the vehicle, how it is equipped and the application. Specifications are subject to change without notice.

Notice: Care must be exercised when handling elevated loads. Operators must be trained and must read, understand and follow the instructions contained in the Operating Manual. Consult your Yale® Dealer if any of the information shown is critical to your application.

Publication part no. 220991692 Rev.00 (0323DMS) EN