

MSX series

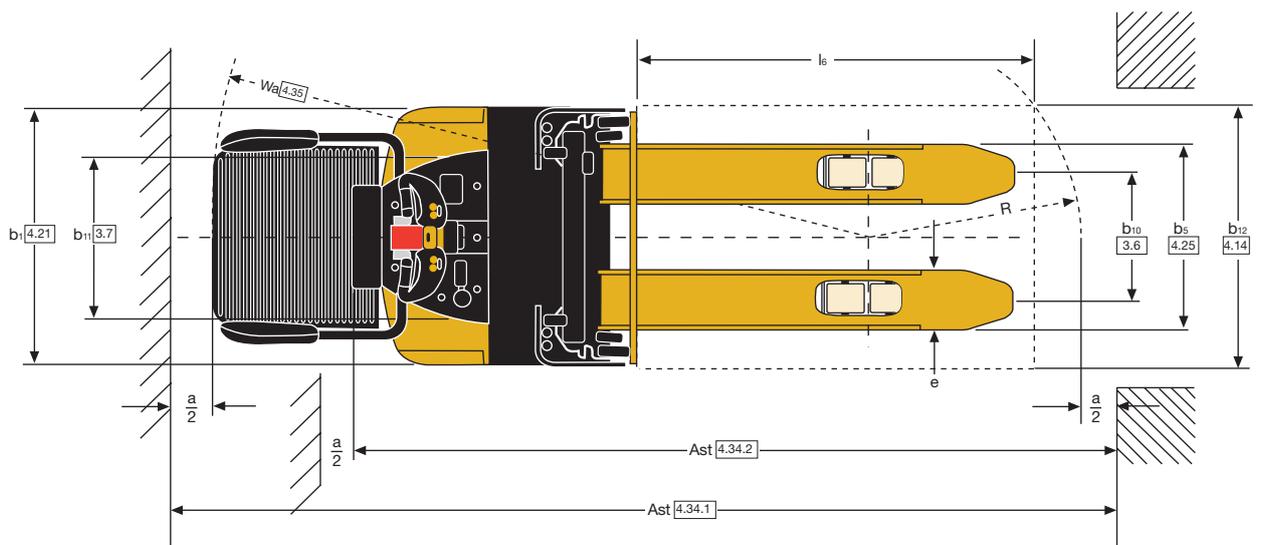
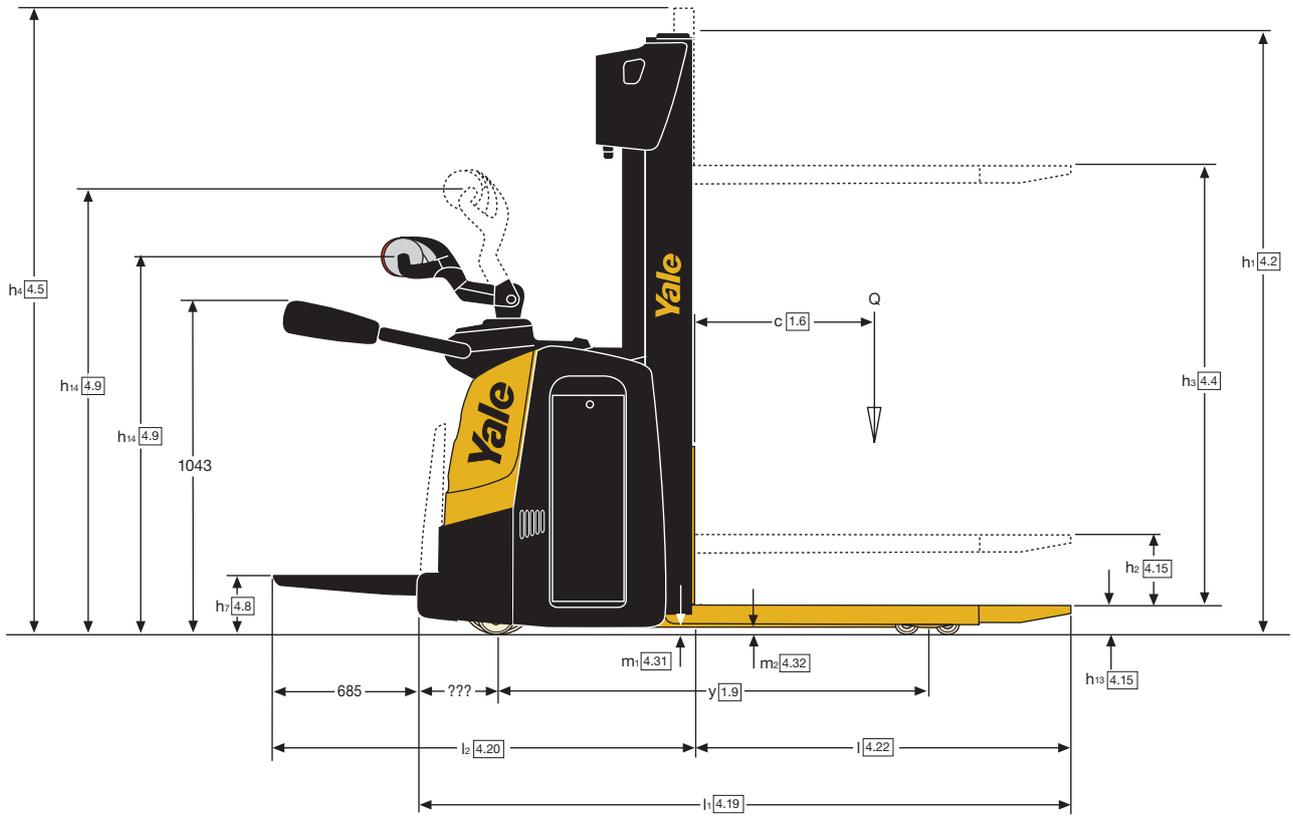
1,200kg / 1,400kg / 1,600kg / 2,000kg

Pedestrian high lift stacker with operator platform



- Large operator platform
- COMBI Controller
- Yale AC Technology
- Brushless power steering motor
- High manoeuvrability
- Dual purpose machine for pedestrian or ride on operation
- Initial lift option

Truck Dimensions



MS12X, MS14X, MS16X - Mast details, 2 stage NFL

Model	h ₃ (mm)	h ₂ (mm)	h ₁ ⁽¹⁾ (mm)	h ₄ ⁽²⁾ (mm)	Weight ⁽³⁾ (kg)
MS12X MS14X MS16X	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

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

⁽²⁾ With load backrest (h=1000) for carriage h₄ + 562 mm (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

MS12X, MS14X, MS16X - Mast details, 2 stage FFL

Model	h ₃ (mm)	h ₂ (mm)	h ₁ ⁽¹⁾ (mm)	h ₄ ⁽²⁾ (mm)	Weight ⁽³⁾ (kg)
MS12X MS14X MS16X	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

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

⁽²⁾ With load backrest (h=1000) for carriage h₄ + 562 mm (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

MS12X, MS14X, MS16X, MS16X SL - Mast details, 3 stage FFL

Model	h ₃ (mm)	h ₂ (mm)	h ₁ ⁽¹⁾ (mm)	h ₄ ⁽²⁾ (mm)	Weight ⁽³⁾ (kg)			
MS16X	MS14X MS16X SL	MS12X	4040	1318	1850 ⁽⁴⁾	462		
			4340	1418	1950 ⁽⁴⁾	481		
			4620	1518	2050	5186	499	
			4900	1618	2150	5466	518	
				5180	1718	2250	5746	537
				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 + 562 mm (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

MS20X - Mast details, B583-20, 2 stage NFL 2 ton.

Model	h ₃ (mm)	h ₂ (mm)	h ₁ ⁽¹⁾ (mm)	h ₄ ⁽²⁾ (mm)	Weight ⁽³⁾ (kg)
MS20X	2600	100	1900 ⁽⁴⁾	3172	327
	2800	100	2000 ⁽⁴⁾	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 + 562 mm (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

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.

VDI 2198 General Specifications

			Yale				
			MS12X	MS14X	MS16X	MS20X	
Distinguishing mark	1.1	Manufacturer (abbreviation)		Yale	Yale	Yale	Yale
	1.2	Manufacturer's type designation		MS12X	MS14X	MS16X	MS20X
	1.3	Drive: electric (battery or mains), diesel, petrol, fuel gas		Electric (battery)	Electric (battery)	Electric (battery)	Electric (battery)
	1.4	Operator type: hand, pedestrian, standing, seated, order-picker		Pedestrian / Standing	Pedestrian / Standing	Pedestrian / Standing	Pedestrian / Standing
	1.5	Rated capacity/Rated load	Q (t)	1.2	1.4	1.6	2.0
	1.6	Load centre distance	c (mm)	600	600	600	600
	1.8	Load distance, centre of drive axle to fork ⁽¹⁾	x (mm)	709	709	709	709
	1.9	Wheelbase	y (mm)	1319	1319	1391	1391
	Weights	2.1	Service weight	kg	1100	1130	1240
2.2		Axle loading with load, front/rear ⁽²¹⁾	kg	797 / 1503	830 / 1700	897 / 1943	938 / 2305
2.3		Axle loading without load, front/rear ⁽²¹⁾	kg	749 / 351	774 / 356	837 / 403	836 / 407
Tyres/chassis	3.1	Tyres: polyurethane, tophane, vulkollan, front/rear		NDIIThane / NDIIThane	NDIIThane / NDIIThane	NDIIThane / NDIIThane	NDIIThane / NDIIThane
	3.2	Tyre size, front ⁽²¹⁾	ø (mm)	230 x 80	230 x 80	230 x 80	230 x 80
	3.3	Tyre size, rear ⁽²¹⁾	ø (mm)	85 x 70	85 x 70	85 x 70	85 x 70
	3.4	Additional wheels (dimensions)	ø (mm)	150 x 54	150 x 54	150 x 54	150 x 54
	3.5	Wheels, number front/rear (x = driven wheels) ⁽²¹⁾		1x + 1 / 2	1x + 1 / 4	1x + 1 / 4	1x + 1 / 4
	3.6	Tread, front ⁽²¹⁾	b ₁₀ (mm)	510	510	510	510
	3.7	Tread, rear ⁽²¹⁾	b ₁₁ (mm)	396	396	396	396
Dimensions	4.2	Height, mast lowered	h ₁ (mm)	2100	2100	2100	2100
	4.3	Free lift	h ₂ (mm)	100	100	100	100
	4.4	Lift	h ₃ (mm)	3200	3200	3200	3000
	4.5	Height, mast extended	h ₄ (mm)	3728	3728	3728	3572
	4.6	Initial lift	h ₅ (mm)	-	-	-	-
	4.8	Seat height/stand height	h ₇ (mm)	185	185	185	185
	4.9	Height drawbar in driving position min./max.	h ₁₄ (mm)	1147 / 1382	1147 / 1382	1147 / 1382	1147 / 1382
	4.15	Height, lowered	h ₁₃ (mm)	90	90	90	90
	4.19.1	Overall length (pedestrian) ⁽³⁾	l ₁ (mm)	2009	2009	2081	2081
	4.19.2	Overall length (standing) ⁽³⁾	l ₁ (mm)	2445	2445	2517	2517
	4.20.1	Length to face of forks (pedestrian) ⁽³⁾	l ₂ (mm)	859	859	931	931
	4.20.2	Length to face of forks (standing) ⁽³⁾	l ₂ (mm)	1295	1295	1367	1367
	4.21	Overall width	b ₁ / b ₂ (mm)	790	790	790	790
	4.22	Fork dimensions	s/e/l (mm)	55 / 185 / 1150	55 / 185 / 1150	55 / 185 / 1150	65 / 185 / 1150
	4.24	Fork-carriage width	b ₃ (mm)	-	-	-	-
	4.25	Distance between fork-arms	b ₅ (mm)	570 ⁽²²⁾	570 ⁽²²⁾	570 ⁽²²⁾	570 ⁽²²⁾
	4.26	Width between load arms	b ₄ (mm)	-	-	-	-
	4.31	Ground clearance, laden, below mast	m ₁ (mm)	42	42	42	42
	4.32	Ground clearance, center of wheelbase	m ₂ (mm)	32	32	32	32
	4.33	Load dimension b ₁₂ x l crossways	b ₁₂ x l ₆ (mm)	1000 x 1200	1000 x 1200	1000 x 1200	1000 x 1200
	4.34.1	Aisle width for pallets 1200mm x 1000mm crossways (pedestrian)	Ast ₂ (mm)	2463	2463	2534	2534
4.34.1	Aisle width for pallets 1000mm x 1200mm crossways (standing)	Ast ₁ (mm)	2870	2870	2942	2942	
4.34.2	Aisle width for pallets 800mm x 1200mm lengthwise (pedestrian)	Ast ₂ (mm)	2429	2429	2500	2500	
4.34.2	Aisle width for pallets 800mm x 1200mm lengthwise (standing)	Ast ₁ (mm)	2836	2836	2908	2908	
4.35.2	Turning radius (pedestrian) ⁽²⁾	Wa ₂ (mm)	1596	1596	1667	1667	
4.35.1	Turning radius (standing) ⁽²⁾	Wa ₁ (mm)	2003	2003	2075	2075	
Performance data	5.1	Travel speed, laden/unladen (pedestrian)	km/h	6	6	6	6
	5.1	Travel speed, laden/unladen (standing) ^{(23) (24)}	km/h	7.5 ⁽¹⁰⁾	7.5 ⁽¹⁰⁾	8.5	7
	5.1.1	Travel speed, laden/unladen, backwards (pedestrian)	km/h	6	6	6	6
	5.1.1	Travel speed, laden/unladen, backwards (standing) ^{(23) (24)}	km/h	7.5 ⁽¹⁰⁾	7.5 ⁽¹⁰⁾	8.5	7
	5.2	Lift speed, laden/unladen	m/s	0.15 / 0.26	0.15 / 0.26	0.13 / 0.26	0.10 / 0.19
	5.3	Lowering speed, laden/unladen	m/s	0.4 / 0.3	0.4 / 0.3	0.4 / 0.3	0.24 / 0.17
	5.7	Gradeability, laden/unladen	%	- ⁽¹⁶⁾	- ⁽¹⁷⁾	1.1 / 5.0	0.7 / 5.0
	5.8	Max. gradeability, laden/unladen	%	7.0 / 16.8 ⁽¹²⁾	6.9 / 16.3 ⁽¹³⁾	8.1 / 20.0	6.8 / 20
	5.10	Service brake		Electromagnetic	Electromagnetic	Electromagnetic	Electromagnetic
	Electric-engine	6.1	Drive motor, S2 60 min rating	kW	1.8 ⁽¹¹⁾	1.8 ⁽¹¹⁾	2.5
6.2		Lift motor S3 15% rating	kW	3 ⁽²⁰⁾	3 ⁽²⁰⁾	3 ⁽²⁰⁾	3 ⁽²⁰⁾
6.3		Battery according to DIN 43531 / 35 / 36 A,B,C, no		B	B	B	B
6.4		Battery voltage/nominal capacity K5	V/Ah	24V / 250Ah ⁽⁵⁾	24V / 250Ah ⁽⁶⁾	24V / 375Ah ⁽⁷⁾	24V / 375Ah ⁽⁷⁾
6.5		Battery weight ⁽⁴⁾	kg	212	212	288	288
6.6		Energy consumption acc. to VDI cycle	kWh/h	0.97	1.09	1.25	1.28
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)	65.4	65.4	65.4	65.4	

⁽¹⁾ With 3 stage mast - 43mm

⁽²⁾ IL: load section lowered +72mm

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

⁽⁴⁾ These values may vary of +/-5%.

⁽⁵⁾ Available battery 24V / 210Ah (212kg) ; 24V /

250Ah Polypropylene case version (180kg + ballast 32kg)

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

⁽⁷⁾ Available battery 24V / 315Ah (288kg)

⁽⁸⁾ Available battery 24V / 210Ah (212kg)

⁽⁹⁾ Available battery 24V / 210Ah (212kg) ; 24V / 315Ah (288kg) ; 24V / 375Ah (288kg); with 315 / 375Ah the wheelbase is increased y = +72mm

⁽¹⁰⁾ Available 8.5km/h with 2.5kW S2 = 60min motor

⁽¹¹⁾ Available 2.5kW S2 = 60min motor

⁽¹²⁾ Available 10.4 / 20.0 with 2.5kW S2 = 60min motor

⁽¹³⁾ Available 9.0 / 20.0 with 2.5kW S2 = 60min motor

⁽¹⁴⁾ Available 10.0 / 20.0 with 2.5kW S2 = 60min motor

Yale	Yale	Yale	Yale		Manufacturer (abbreviation)	1.1	Distinguishing mark
MS12X with option Initial Lift	MS14X with option Initial Lift	MS16X with option Initial Lift	MS16X with option Straddle Legs		Manufacturer's type designation	1.2	
Electric (battery)	Electric (battery)	Electric (battery)	Electric (battery)		Drive: electric (battery or mains), diesel, petrol, fuel gas	1.3	
Pedestrian / Standing	Pedestrian / Standing	Pedestrian / Standing	Pedestrian / Standing		Operator type: hand, pedestrian, standing, seated, order-picker	1.4	
1.2	1.4	1.6	1.6	Q (t)	Rated capacity/Rated load	1.5	
600	600	600	600	c (mm)	Load centre distance	1.6	
644	644	644	646	x (mm)	Load distance, centre of drive axle to fork ⁽¹⁾	1.8	
1350	1350	1422	1408	y (mm)	Wheelbase	1.9	
1191	1191	1267	1523	kg	Service weight	2.1	
912 / 1479	840 / 1751	1000 / 1867	1042 / 2081	kg	Axle loading with load, front/rear ⁽²¹⁾	2.2	
815 / 376	795 / 396	870 / 397	985 / 538	kg	Axle loading without load, front/rear ⁽²¹⁾	2.3	
NDIIThane / NDIIThane	NDIIThane / NDIIThane	NDIIThane / NDIIThane	NDIIThane / NDIIThane		Tyres: polyurethane, tophane, vulkollan, front/rear	3.1	
230 x 80	230 x 80	230 x 80	230 x 80	ø (mm)	Tyre size, front ⁽²¹⁾	3.2	
85 x 70	85 x 70	85 x 70	85 x 70	ø (mm)	Tyre size, rear ⁽²¹⁾	3.3	
150 x 54	150 x 54	150 x 54	125 x 60	ø (mm)	Additional wheels (dimensions)	3.4	
1x + 1 / 4		Wheels, number front/rear (x = driven wheels) ⁽²¹⁾	3.5				
510	510	510	522	b ₁₀ (mm)	Tread, front ⁽²¹⁾	3.6	
385	385	385	968 / 1168 / 1368	b ₁₁ (mm)	Tread, rear ⁽²¹⁾	3.7	
1900	1900	1900	2100	h ₁ (mm)	Height, mast lowered	4.2	
100	100	100	100	h ₂ (mm)	Free lift	4.3	
2800	2800	2800	3200	h ₃ (mm)	Lift	4.4	
3328	3328	3328	3728	h ₄ (mm)	Height, mast extended	4.5	
120	120	120	-	h ₅ (mm)	Initial lift	4.6	
185	185	185	185	h ₇ (mm)	Seat height/stand height	4.8	
1147 / 1382	1147 / 1382	1147 / 1382	1147 / 1382	h ₁₄ (mm)	Height drawbar in driving position min./max.	4.9	
90	90	90	55	h ₁₃ (mm)	Height, lowered	4.15	
2105	2105	2177	2161	l ₁ (mm)	Overall length (pedestrian) ⁽³⁾	4.19.1	
2540	2540	2612	2597	l ₁ (mm)	Overall length (standing) ⁽³⁾	4.19.2	
955	955	1027	1011	l ₂ (mm)	Length to face of forks (pedestrian) ⁽³⁾	4.20.1	
1390	1390	1462	1447	l ₂ (mm)	Length to face of forks (standing) ⁽³⁾	4.20.2	
790	790	790	794 / 1095 - 1295 - 1495	b ₁ / b ₂ (mm)	Overall width	4.21	
55 / 185 / 1150	55 / 185 / 1150	55 / 185 / 1150	35 / 120 / 1150	s/e/l (mm)	Fork dimensions	4.22	
-	-	-	800 / 1000 / 1200	b ₃ (mm)	Fork-carriage width	4.24	
570 ⁽²²⁾	570 ⁽²²⁾	570 ⁽²²⁾	max. 716 / 944 / 1096 ⁽²⁵⁾	b ₅ (mm)	Distance between fork-arms	4.25	
-	-	-	841 / 1041 / 1241	b ₄ (mm)	Width between load arms	4.26	
44	44	44	42	m ₁ (mm)	Ground clearance, laden, below mast	4.31	
20	20	20	26	m ₂ (mm)	Ground clearance, center of wheelbase	4.32	
1000 x 1200	1000 x 1200	1000 x 1200	1000 x 1200	b ₁₂ x l ₆ (mm)	Load dimension b ₁₂ x l ₆ crossways	4.33	
2524	2524	2595	2619	Ast ₂ (mm)	Aisle width for pallets 1200mm x 1000mm crossways (pedestrian)	4.34.1	
2932	2932	3002	3034	Ast ₁ (mm)	Aisle width for pallets 1000mm x 1200mm crossways (standing)	4.34.1	
2511	2511	2582	2605	Ast ₂ (mm)	Aisle width for pallets 800mm x 1200mm lengthwise (pedestrian)	4.34.2	
2919	2919	2990	3020	Ast ₁ (mm)	Aisle width for pallets 800mm x 1200mm lengthwise (standing)	4.34.2	
1626	1626	1697	1722	Wa ₂ (mm)	Turning radius (pedestrian) ⁽²⁾	4.35.2	
2034	2034	2105	2137	Wa ₁ (mm)	Turning radius (standing) ⁽²⁾	4.35.1	
6	6	6	6	km/h	Travel speed, laden/unladen (pedestrian)	5.1	
7.5 ⁽¹⁰⁾	7.5 ⁽¹⁰⁾	8.5	7	km/h	Travel speed, laden/unladen (standing)	5.1	
6	6	6	6	km/h	Travel speed, laden/unladen, backwards (pedestrian)	5.1.1	
7.5 ⁽¹⁰⁾	7.5 ⁽¹⁰⁾	8.5	7	km/h	Travel speed, laden/unladen, backwards (standing)	5.1.1	
0.15 / 0.26	0.15 / 0.26	0.13 / 0.26	0.13 / 0.26	m/s	Lift speed, laden/unladen	5.2	
0.4 / 0.3	0.4 / 0.3	0.4 / 0.3	0.4 / 0.3	m/s	Lowering speed, laden/unladen	5.3	
- ⁽¹⁸⁾	- ⁽¹⁹⁾	1.0 / 4.8	0.8 / 3.7	%	Gradeability, laden/unladen	5.7	
7.2 / 16.6 ⁽¹⁴⁾	16.6 / 6.5 ⁽¹⁵⁾	8.0 / 20.0	7.2 / 16.8	%	Max. gradeability, laden/unladen	5.8	
Electromagnetic	Electromagnetic	Electromagnetic	Electromagnetic		Service brake	5.10	
1.8 ⁽¹¹⁾	1.8 ⁽¹¹⁾	2.5	2.5	kW	Drive motor, S2 60 min rating	6.1	
3 ⁽²⁰⁾	3 ⁽²⁰⁾	3 ⁽²⁰⁾	3 ⁽²⁰⁾	kW	Lift motor S3 15% rating	6.2	
B	B	B	B		Battery according to DIN 43531 / 35 / 36 A,B,C, no	6.3	
24V / 250Ah ⁽⁸⁾	24V / 250Ah ⁽⁹⁾	24V / 375Ah ⁽⁷⁾	24V / 375Ah ⁽⁷⁾	V/Ah	Battery voltage/nominal capacity K5	6.4	
212	212	288	288	kg	Battery weight ⁽⁴⁾	6.5	
0.97	1.09	1.25	1.3	kWh/h	Energy consumption acc. to VDI cycle	6.6	
AC-Controller	AC-Controller	AC-Controller	AC-Controller		Type of drive unit	8.1	
65.4	65.4	65.4	65.4	dB (A)	Sound pressure level at the driver's seat	10.7	

Distinguishing mark

Weights

Tyres/chassis

Dimensions

Performance data

Electric-engine

⁽¹⁵⁾ Available 9.0 / 20.0 with 2.5kW S2 = 60min motor
⁽¹⁶⁾ Available 1.8 / 5.8 with 2.5kW S2 = 60min motor
⁽¹⁷⁾ Available 1.4 / 5.7 with 2.5kW S2 = 60min motor
⁽¹⁸⁾ Available 1.6 / 5.3 with 2.5kW S2 = 60min motor
⁽¹⁹⁾ Available 1.3 / 5.3 with 2.5kW S2 = 60min motor
⁽²⁰⁾ Value referred to S3 12%

⁽²¹⁾ Pedestrian version. For Standing version, front / rear are inverted.
⁽²²⁾ Available b₅ 680mm; with b₅ 680mm and 2 stage mast, x -43mm, l₁ and l₂ +43mm
⁽²³⁾ With lateral protections not in guarding position: 6km/h
⁽²⁴⁾ Without lateral protections (optional): 6km/h

⁽²⁵⁾ Available battery 24V / 315Ah (288kg)
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MSX series

Models: MS12X, MS14X, MS16X, MS20X

Tiller head and controls

The tiller head is designed for operator comfort featuring an ergonomic shaped handle with angled grips and integral hand guard. A height-adjustable tiller head is an option.

Large butterfly switches control direction of travel and speed and dual lift and lower buttons are located on the tiller head. 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 the creep speed control allows the truck to be operated with the tiller arm in the vertical position at reduced speed.

Instrumentation

The truck's dashboard features a multi-function indicator displaying information on the status of the truck and alarm conditions should they occur. The most important operational information includes the battery discharge indicator, odometer and performance level.

Operator Platform

The large operator platform allows the operator to find their own comfortable driving position. Foldable side arms are high relative to the level of the platform, providing the operator with maximum comfort and stability when manoeuvring. The 'man-on' platform sensors sensor prevents truck operating with no operator present.

The top casing has compartments for stationary and other small objects and an optional A4 reading stand can be mounted on the mast.

Power-assisted steering

The electric motor completely eliminates steering effort, making the truck light and easy to steer in all working situations.

Frame and forks

The overall chassis width of 790mm makes the truck suitable for manoeuvring in narrow aisles.

Initial Lift (option) and lift

The initial lift increases the distance from the ground, allowing transfer on irregular surfaces, loading levels and ramps. The lift/lower control is provided by two push buttons located to the left of the tiller.



The adjustable pull rods give uniform lifting and lowering movement of the forks. The loading rollers are tandem with lubrication points and sealed bearings. Speed is automatically reduced with load arms raised.

Battery

The battery compartment takes a battery of up to 24V - 375Ah capacity, which, together with the characteristics of the traction motor, allows considerable flexibility in operation. A lateral battery extraction option is available.

Rollers and wheels

Both single and tandem load wheels are available, depending on model.

Electric motors

The drive motor gives instant response to forward and reverse traction inputs, providing considerable torque. The maintenance free motor (inspection intervals required every 1000 operating hours) provides low cost long operative life. The servo-steering with brushless type DC motor with permanent magnets is maintenance free and incorporates the electronic control system. The DC compound 3kw lifting motor provides power in excess of the truck's operative requirements.

Traction – steering unit

The steering reduction is calculated to provide maximum performance in every working situation. The motor is mounted vertically for efficient ventilation.



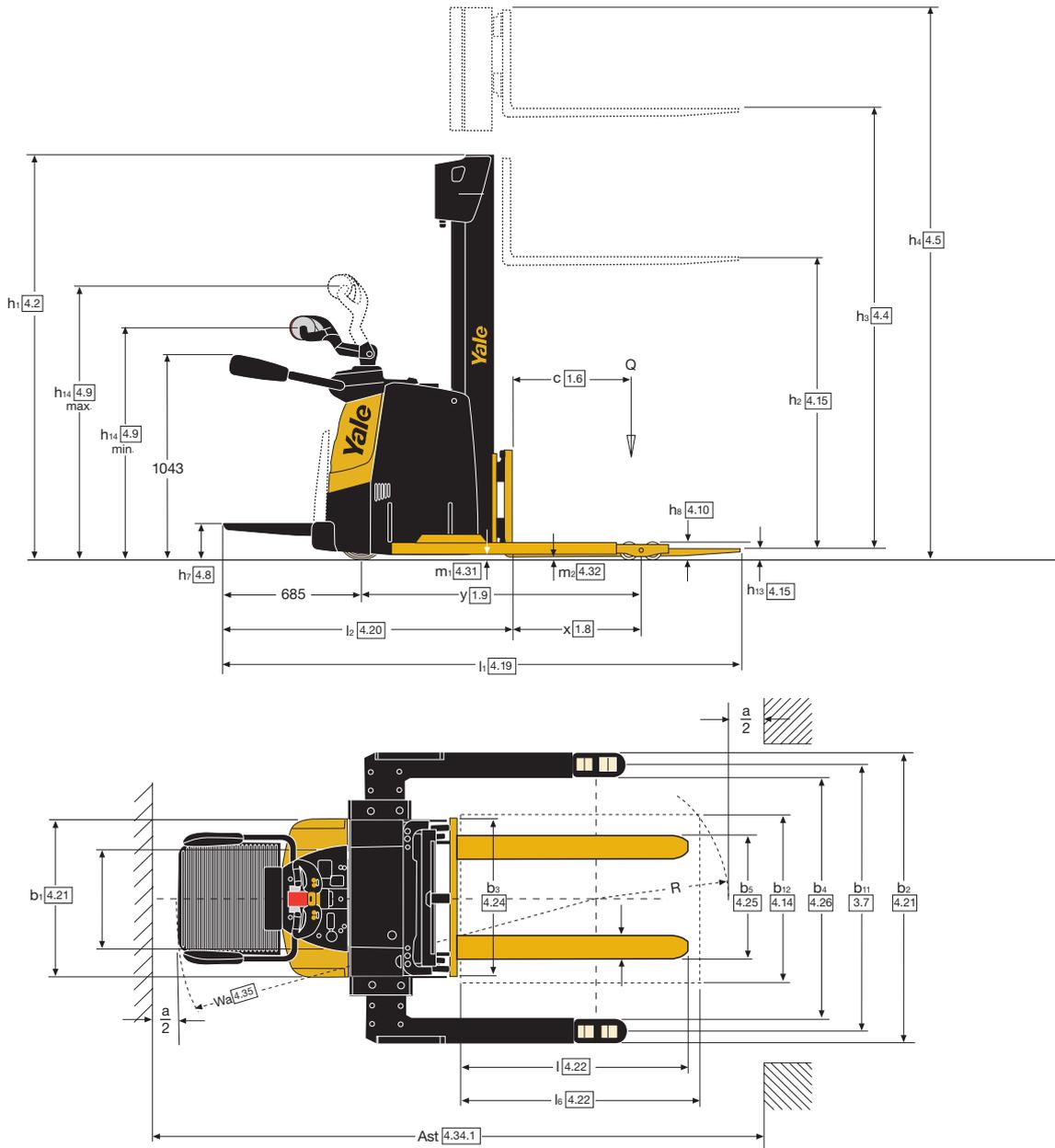
Hydraulic unit

The powerful hydraulic pump, activated by the electric motor, is of double gear type. The transparent tank facilitates checking of the hydraulic oil level. Lowering is controlled by a solenoid valve activated directly by the tiller pushbuttons.

Electronic controls

The combined characteristics of the traction motor and the control panel enhance efficiency of release and inversion braking, without reduction of

Truck Dimensions - Straddle Option



autonomy, leaving the electromagnetic brake for parking and emergencies only. Electronic parameters are easily customised by a service technician.

Options

Various options are available, including;

- Cold store to -30°C
- Wide range of masts
- Twin-bed trolley for battery change
- Lateral battery extraction
- Load backrest
- Reverse alarm
- Adjustable height tiller
- Yale Vision telematics
- Pedestrian awareness light
- Li-Ion battery
- Wire mesh mast guard
- Multi-purpose bar
- Roll holder
- Bottle holder
- Straddle leg
- Optional double deck (compatible with initial lift option only).

MSX series

Models: MS12X, MS14X, MS16X, MS20X



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Safety: This truck conforms to the current EU requirements.

Specification is subject to change without notice.

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