



MR016-20

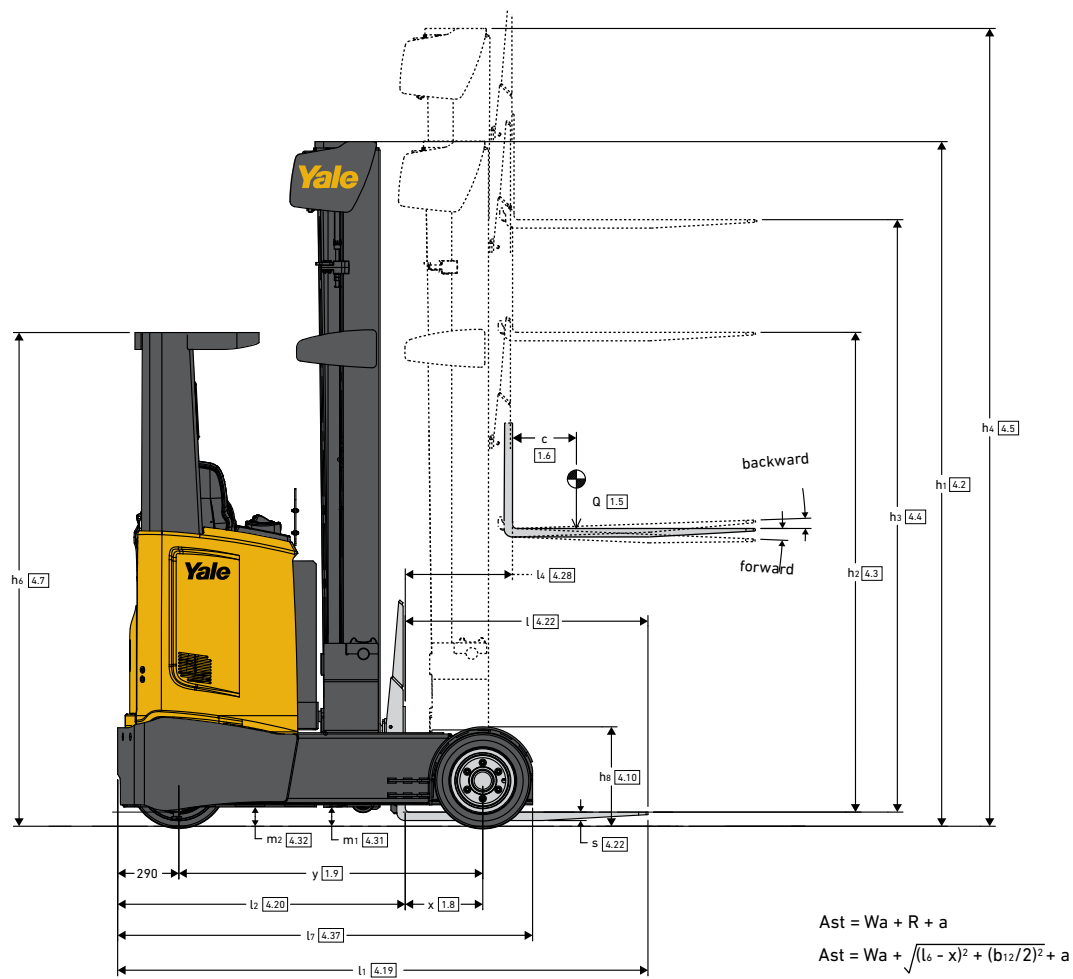
SPEC SHEET

1,600 - 2,000 kg.

MR0 Series

Outdoor Reach Truck

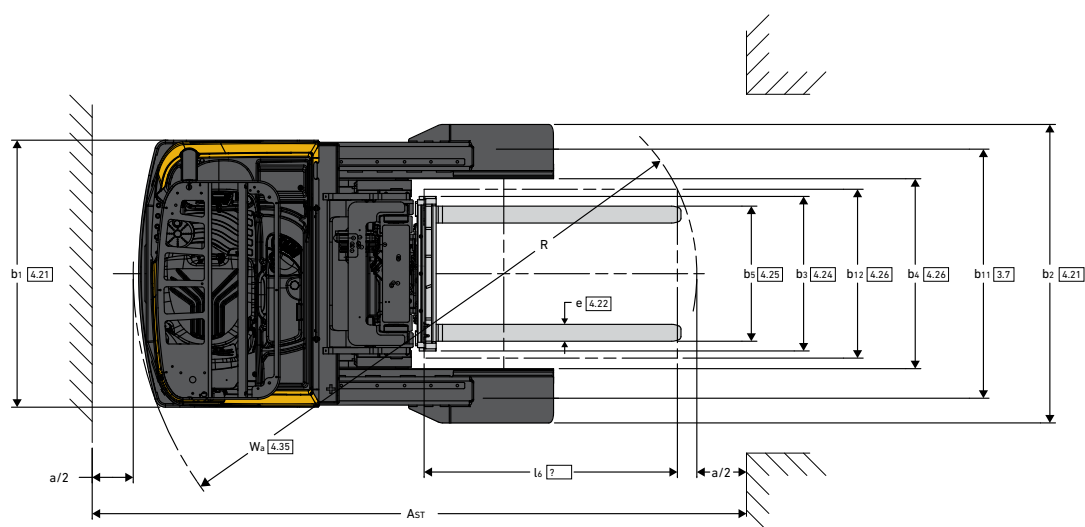
TRUCK DIMENSIONS - MR016, MR020



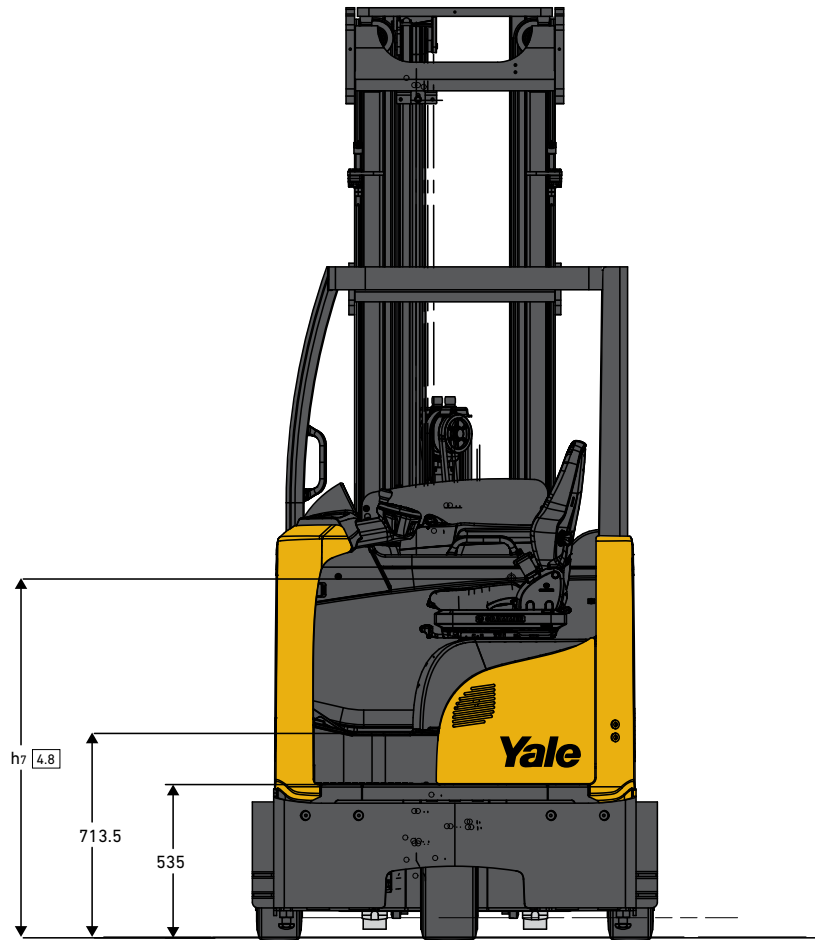
$$A_{st} = Wa + R + a$$

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

a = 200mm



TRUCK DIMENSIONS - MR016, MR020



GENERAL SPECIFICATIONS - MRO16, MRO16 W/FULL CAB, MRO20, MRO20 W/FULL CAB,

GENERAL	1-1	Manufacturer	Yale					
	1-2	Manufacturer's type designation	MRO16	MRO16 w/ fullcab	MRO20	MRO20 w/ fullcab		
GENERAL	1-3	Drive	Electric (battery)					
	1-4	Operator type	Seated					
	1-5	Rated capacity/Rated load	Q (kg)	1.6		2.0		
	1-6	Load centre distance	c (mm)	600				
	1-8	Load distance, centre of drive axle to fork	x (mm)	364	307	414	357	
	1-9	Wheelbase	y (mm)	1440		1490		
	WEIGHT	2-1	Service weight	kg	3827	3971	4123	4266
2-3		Axle loading, unladen front/rear ⁽⁵⁾	kg	2221/1606	2288/1683	2381/1742	2439/1827	
2-4		Axle loading fork advanced, laden front/rear	kg	683/4744	805/4766	603/5520	617/5649	
2-5		Axle loading fork retracted, laden front/rear	kg	1965/3462	1968/3603	2139/3984	2120/4146	
TYRES, CHASSIS		3-1	Tyres front/rear	Pneumatic-shaped solid				
	3-2	Tyre size, front	200/50-10					
	3-3	Tyre size, rear	180/60-10					
	3-5	Wheels, number front/rear (x = driven wheels)	1x/2					
	3-7	Tread, rear	b11 (mm)	1225.5				
	4-1	Tilt of mast/fork carriage forward/backward	α / β (°)	2 / 4				
	4-2	Height of mast, lowered	h1 (mm)	2212				
DIMENSIONS	4-3	Free lift	h2 (mm)	1648			1582	
	4-4	Lift	h3 (mm)	5000		4650		
	4-5	Height, mast extended ⁽¹⁾	h4 (mm)	5580		5280		
	4-7	Height of overhead guard (cabin) ⁽²⁻¹²⁻¹⁵⁾	h6 (mm)	2339	2414	2339	2414	
	4-8	Seat height relating to SIP	h7 (mm)	1294				
	4-10	Height of wheel arms	h8 (mm)	471				
	4-19	Overall length ⁽³⁾	l1 (mm)	2516	2628	2516	2628	
	4-20	Length to face of forks ⁽⁹⁾	l2 (mm)	1366	1478	1366	1478	
	4-21	Overall width	b1 / b2 (mm)	1265/1414				
	4-22	Fork dimensions DIN ISO 2331	s/e/l (mm)	40/120/1150				
	4-23	Fork carriage ISO 2328, class/type A, B						2A
	4-24	Fork-carriage width	b3 (mm)	700				
	4-25	Forks spread MIN/MAX ⁽⁶⁾	b5 (mm)	260/680				
	4-26	Distance between wheel arms/loading surfaces	b4 (mm)	900				
	4-28	Reach distance	l4 (mm)	610	553	660	603	
	4-31	Ground clearance, laden, below mast	m1 (mm)	91.5				
	4-32	Ground clearance, centre of wheelbase	m2 (mm)	91.5				
	4-34-1	Aisle width for pallets 1000mm x 1200mm crossways ⁽¹¹⁾	Ast (mm)	2830	2931	2841	2941	
	4-34-2	Aisle width for pallets 800mm x 1200mm lengthwise ⁽¹³⁾	Ast (mm)	2882	2993	2884	2997	
	4-35	Turning radius ⁽¹⁴⁾	Wa (mm)	1755.5	1815	1802.5	1864	
4-37	Length across wheel arms ⁽¹⁰⁾	l7 (mm)	1966	2021	2016	2071		
4-42	Step height (from ground to running board)	mm	714					
4-43	Step height (between intermediate steps and floor)	mm	535					
PERFORMANCE DATA	5-1	Travel speed, laden/unladen	km/h	11,5 / 12,5		11,2 / 12,5	11,3 / 12,5	
	5-1-1	Travel speed, laden/unladen, backwards	km/h	11,5 / 12,5		11,2 / 12,5	11,3 / 12,5	
	5-2	Lift speed, laden/unladen ⁽⁷⁾	m/s	0,32 / 0,63 (0,42 / 0,73)		0,37 / 0,64	0,37 / 0,64	
	5-3	Lowering speed, laden/unladen	m/s	0,55		0,55 / 0,50		
	5-4	Reaching speed, laden/unladen	m/s	0,17 / 0,17				
	5-7	Gradeability, laden/unladen ⁽¹⁷⁾	%	7,9 / 12,4	7,4 / 11,4	6,9 / 11,8	6,7 / 11,4	
	5-8	Max. gradeability laden/unladen ⁽¹⁷⁾	%	10,3 / 15,7	9,7 / 14,5	9,1 / 15	8,8 / 14,4	
	5-9	Acceleration time laden/unladen	s	5,1 / 4,6		5,3 / 4,6	5,1 / 4,6	
	5-10	Service brake	Electric					
	ELECTRIC - ENGINE	6-1	Drive motor S2 60 minute rating	kW	9,6			
6-2		Lift motor, S3 15% rating ⁽⁷⁾	kW	9,9 ⁽¹⁴⁾				
6-3		Battery according to DIN 43531/35/36 A,B,C, no						C
6-4		Battery voltage/nominal capacity K5 ⁽⁷⁾	(V) / (Ah)	48/560 ⁽⁶⁾				
6-5		Battery weight ^{(4) (7)}	kg	939				
6-6		Energy consumption according to DIN EN 16796	kWh/h	4,0		4,59		
6-7		Turnover output according to VDI 2198	t/h	63		76		
6-8		Turnover efficiency according to VDI 2198	t/kWh	15		17		
OTHER	8-1	Type of drive unit	AC-Controller					
	10-1	Operating pressure for attachments	dB (A)	180				
	10-2	Oil volume for attachment						20
	10-7	Sound pressure level at the driver's seat		<68,6	<68,6 ⁽¹⁶⁾	<68,6	<68,6 ⁽¹⁶⁾	

⁽¹⁾ With load backrest h 4 + 508 mm (MRO16/MRO16), + 443 mm (MRO20/MRO20)

⁽²⁾ With beacon and OHG h 6 + 120 mm.; otherwise With beacon h6 +95 mm

⁽³⁾ 2625 mm is 2570 mm for other CAB configuration,

⁽⁴⁾ These values may vary of +/- 5%.

⁽⁵⁾ Forks retracted.

⁽⁶⁾ Available battery 48V / 620Ah (950 kg); Li-ion battery 48V / 432Ah (939 kg); Li-ion battery 48V / 540Ah (936 kg)

⁽⁷⁾ Values in brackets are Optional.

⁽⁸⁾ Side shift stroke is +/-75mm on all trucks.

⁽⁹⁾ 1475 is 1420 mm for other CAB configuration

⁽¹⁰⁾ 2021 mm is 1966 mm for other CAB configuration

⁽¹¹⁾ 2929 is 2870 and 2941 is 2880 mm for other CAB configuration

⁽¹²⁾ With OHG Grid Protector h6 + 30 mm; With OHG Screen Protector h6 + 45 mm

⁽¹³⁾ 2991 is 2931 and 2994 is 2933 mm for other CAB configuration

⁽¹⁴⁾ 1815 is 1755,5 and 1864 is 1802,5 mm for other CAB configuration

⁽¹⁵⁾ With OHG and PAL side line h6 + 135mm, With OHG and Double Work Light to Front h6 + 220 mm.

Otherwise with PAL side line h6 + xxx mm, with Double Light front h6 + 110 mm

⁽¹⁶⁾ With heater SWITCHED ON = 73,8

⁽¹⁷⁾ Gradeability grades based on motor thermal capacity, torque available and brake requirements

MAST DIMENSIONS - MR016

Lift	Free lift	Height of mast, lowered	Height, mast extended	Weight ^{(2) (3)}
h3 mm	h2 mm	h1 mm	h4 ⁽¹⁾ mm	kg
5000	1648	2212	5579.5	911
5250	1734	2298	5829.5	936
5500	1820	2384	6079.5	961
5750	1906	2470	6329.5	986
6000	1992	2556	6579.5	1010
6250	2078	2642	6829.5	1035
6500	2164	2728	7079.5	1060
6750	2250	2814	7329.5	1090
7000	2336	2900	7579.5	1115
7250	2422	2986	7829.5	1140
7500	2508	3072	8079.5	1164

MAST DIMENSIONS - MR020

Lift	Free lift	Height of mast, lowered	Height, mast extended	Weight ^{(2) (3)}
h3 mm	h2 mm	h1 mm	h4 ⁽⁴⁾ mm	kg
4650	1582	2212	5279.5	958
4900	1668	2298	5529.5	985
5150	1754	2384	5779.5	1012
5400	1840	2470	6029.5	1038
5650	1926	2556	6279.5	1065
5900	2012	2642	6529.5	1092
6150	2098	2728	6779.5	1118
6400	2184	2814	7029.5	1150
6650	2270	2900	7279.5	1177
6900	2356	2986	7529.5	1204
7150	2442	3072	7779.5	1230
7400	2528	3158	8029.5	1288

⁽¹⁾ Mast 3 stage full free lift (1600kg): With load backrest 1000 mm height, h4 + 508 mm; with load backrest 1500 mm height, h4 + 1008 mm.

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

⁽³⁾ With load backrest 700 mm width, 1000 mm height, weight + 13 kg; with load backrest 700 mm width, 1500 mm height, weight + 21 kg.

⁽⁴⁾ Mast 3 stage full free lift (2000kg): With load backrest 1000 mm height, h4 + 443 mm; with load backrest 1500 mm height, h4 + 943 mm. Carriage set at 480 mm from the ground.

FEATURES LIST - MR016

	STD	OPT		STD	OPT
200/50-10 Super Elastic Drive Tyres	•		1200 x 130 x 57mm - 850mm/250mm Telescopic Type Forks		•
200/50-10 Non-Marking Super Elastic Drive Tyres		•	1400 x 130 x 57mm - 1050mm/250mm Telescopic Type Forks		•
180/60-10 Super Elastic Load Wheel	•		1200 x 140 x 62mm - 850mm/250mm Telescopic Type Forks		•
180/60-10 Non-Marking Super Elastic Load Wheel		•	1400 x 140 x 62mm - 1050mm/250mm Telescopic Type Forks		•
Free Lift Dampening by Sensor	•		800mm Bolzoni Hang on Fork Positioner (315-755mm opening range)		•
Free Lift Dampening by Sensor with Junction Box		•	1000mm High Load Backrest		•
Lift Comfort		•	Single Height Lift Interrupt with Override		•
12.5km/h Maximum Drive Speed	•		Double Height Lift Interrupt with Override		•
Key Switch Start	•		Height Selector		•
Operator Password Start		•	Height Selector with Pallet Presence		•
Standard Construction	•		Fork Lower Interlock		•
High Temperature Construction (>35° C)		•	Fork Laser Positioning System		•
1223 x 355 x 784mm Battery Compartment (for 560/620 Ah DIN C Battery)	•		Fork Mounted Colour Camera		•
Vertical Battery Extraction	•		Load Backrest Mounted Colour Camera		•
Side Battery Extraction		•	Inner Mast Camera and Monitor		•
Standard Display	•		Work Lights Carriage Mounted		•
Premium Display		•	Full View Overhead Guard		•
180 Degree Steering	•		Rear/Top Screens with Rear/Top Wipers		•
360 Degree Steering		•	Rear/Top/Side Screens with Rear/Top Wipers		•
180/360 Degree Steering		•	Full Steel Cab with Front Washer/Wiper and Rear/Top Wiper		•
4 function hydraulics	•		Lexan Overhead Guard Cover		•
5 function hydraulics		•	Metal Grid Overhead Guard Cover		•
4 Lever Hydraulic Controls	•		Load Weight Display		•
Joystick Hydraulic Control		•	Universal Support Bracket		•
Simultaneous Hydraulic Operation for Lift and Reach	•		Clip Board		•
Simultaneous Hydraulic Operation for all Hydraulics		•	Document and Beverage Holders		•
Autocentre Sideshift		•	Stretch Film Roll Holder		•
Autolevel Tilt		•	Panoramic Mirror		•
Full Suspension MSG20 Cloth Seat	•		RF Terminal Bracket		•
Full Suspension MSG20 SKAI Seat		•	12 Volt DC/DC Converter		•
Full Suspension MSG65 Cloth Seat		•	24V DC/DC Converter		•
Full Suspension MSG65 SKAI Seat		•	24-12V DC Converter		•
Full Suspension MSG75 Cloth Seat		•	One Front LED Work Light		•
Full Suspension MSG75 SKAI Seat		•	2 Rear LED Work Lights		•
Seat Belt		•	One Front and Two Rear LED Work Lights		•
Hi-Vis Orange 2 Point Seat Belt		•	Two Front LED Worklights		•
Heated Seat		•	2 Front and 2 Rear Halogen Work Lights		•
Anti-Static Seat		•	Amber Strobe Light - Ignition and Switch Activated		•
Head Rest		•	sAudible Forward Alarm (Forks Trailing)		•
Traction Block on Seat and Belt		•	Audible Reverse Alarm (Forks Leading)		•
700mm Integral Sideshift Tilting Carriage	•		Red Line (Side) Pedestrian Awareness Lights (P.A.L.)		•
800 x 120 x 35mm Forks		•	Blue LED Spotlight - Rear - Reverse Direction Activation		•
1000 x 120 x 35mm Forks		•	Red Pedestrian Awareness Light (P.A.L.) - Reverse Activation (Forks Trailing)		•
1150 x 120 x 35mm Forks		•	Blue Pedestrian Awareness Light (P.A.L.) - Forward Activation (Forks Trailing)		•
1200 x 120 x 35mm Forks		•	Blue LED Spotlight - Front and Rear Mounted - Forward and Reverse Direction Activation		•
800 x 120 x 40mm Forks		•	Front Spotlight - Blue LED / Rear Spotlight - Red LED		•
1000 x 120 x 40mm Forks		•	Red Pedestrian Awareness Light (P.A.L.) - Forward Activation (Forks Leading)		•
1150 x 120 x 40mm Forks		•	Front Spotlight - Red LED / Rear Spotlight - Blue LED		•
1200 x 120 x 40mm Forks		•	Front Spotlight - Red LED / Rear Spotlight - Red LED		•
1500 X 120 X 40MM Forks		•			
1800 X 120 X 40MM Forks		•			

FEATURES LIST - MRO20

	STD	OPT		STD	OPT
200/50-10 Super Elastic Drive Tyres	•		1200 x 130 x 57mm - 850mm/250mm Telescopic Type Forks		•
200/50-10 Non-Marking Super Elastic Drive Tyres		•	1400 x 130 x 57mm - 1050mm/250mm Telescopic Type Forks		•
180/60-10 Super Elastic Load Wheel		•	1200 x 140 x 62mm - 850mm/250mm Telescopic Type Forks		•
180/60-10 Non-Marking Super Elastic Load Wheel		•	1400 x 140 x 62mm - 1050mm/250mm Telescopic Type Forks		•
Free Lift Dampening by Sensor	•		800mm Bolzoni Hang on Fork Positioner (315-755mm opening range)		•
Free Lift Dampening by Sensor with Junction Box		•	1000mm High Load Backrest		•
Lift Comfort		•	Single Height Lift Interrupt with Override		•
12.5km/h Maximum Drive Speed		•	Double Height Lift Interrupt with Override		•
Key Switch Start	•		Height Selector		•
Operator Password Start		•	Height Selector with Pallet Presence		•
Standard Construction	•		Fork Lower Interlock		•
High Temperature Construction (>35° C)		•	Fork Laser Positioning System		•
1223 x 355 x 784mm Battery Compartment (for 560/620 Ah DIN C Battery)	•		Fork Mounted Colour Camera		•
Vertical Battery Extraction	•		Load Backrest Mounted Colour Camera		•
Side Battery Extraction		•	Inner Mast Camera and Monitor		•
Standard Display	•		Work Lights Carriage Mounted		•
Premium Display		•	Full View Overhead Guard		•
180 Degree Steering	•		Rear/Top Screens with Rear/Top Wipers		•
360 Degree Steering		•	Rear/Top/Side Screens with Rear/Top Wipers		•
180/360 Degree Steering		•	Full Steel Cab with Front Washer/Wiper, Rear/Top Wiper		•
4 function hydraulics	•		Lexan Overhead Guard Cover		•
5 function hydraulics		•	Metal Grid Overhead Guard Cover		•
4 Lever Hydraulic Controls	•		Load Weight Display		•
Joystick Hydraulic Control		•	Universal Support Bracket		•
Simultaneous Hydraulic Operation for Lift and Reach	•		Clip Board		•
Simultaneous Hydraulic Operation for all Hydraulics		•	Document and Beverage Holders		•
Autocentre Sideshift		•	Stretch Film Roll Holder		•
Autolevel Tilt		•	Panoramic Mirror		•
Full Suspension MSG20 Cloth Seat	•		RF Terminal Bracket		•
Full Suspension MSG20 SKAI Seat		•	12 Volt DC/DC Converter		•
Full Suspension MSG65 Cloth Seat		•	24V DC/DC Converter		•
Full Suspension MSG65 SKAI Seat		•	24-12V DC Converter		•
Full Suspension MSG75 Cloth Seat		•	One Front LED Work Light		•
Full Suspension MSG75 SKAI Seat		•	2 Rear LED Work Lights		•
Seat Belt		•	One Front and Two Rear LED Work Lights		•
Hi-Vis Orange 2 Point Seat Belt		•	Two Front LED Worklights		•
Heated Seat		•	2 Front and 2 Rear Halogen Work Lights		•
Anti-Static Seat		•	Amber Strobe Light - Ignition and Switch Activated		•
Head Rest		•	Audible Forward Alarm (Forks Trailing)		•
Traction Block on Seat and Belt		•	Audible Reverse Alarm (Forks Leading)		•
700mm Integral Sideshift Tilting Carriage	•		Red Line (Side) Pedestrian Awareness Lights (P.A.L.)		•
800 x 120 x 35mm Forks	-	-	Blue LED Spotlight - Rear - Reverse Direction Activation		•
1000 x 120 x 35mm Forks	-	-	Red Pedestrian Awareness Light (P.A.L.) - Reverse Activation (Forks Trailing)		•
1150 x 120 x 35mm Forks	-	-	Blue Pedestrian Awareness Light (P.A.L.) - Forward Activation (Forks Trailing)		•
1200 x 120 x 35mm Forks	-	-	Blue LED Spotlight - Front and Rear Mounted - Forward and Reverse Direction Activation		•
800 x 120 x 40mm Forks		•	Front Spotlight - Blue LED / Rear Spotlight - Red LED		•
1000 x 120 x 40mm Forks		•	Red Pedestrian Awareness Light (P.A.L.) - Forward Activation (Forks Leading)		•
1150 x 120 x 40mm Forks		•	Front Spotlight - Red LED / Rear Spotlight - Blue LED		•
1200 x 120 x 40mm Forks		•	Front Spotlight - Red LED / Rear Spotlight - Red LED		•
1500 X 120 X 40MM Forks		•			
1800 X 120 X 40MM Forks		•			



About Yale®

Yale Lift Truck Technologies leverages over a century of material handling experience and substantial investment in innovation to bring the most advanced technology-driven lift truck solutions to market. The company offers a full line of award-winning lift trucks, including reach trucks, order pickers, turret trucks, pallet jacks and trucks, pallet stackers, tow tractors and counterbalanced forklifts, as well as powerful operator assist solutions, proven robotics and a wide range of power sources to help customers adapt to today's demanding supply chain. Yale and its independent dealer network support these solutions with comprehensive after-sales service, parts, financing and training.

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MATERIALS HANDLING FOR:

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Beverage

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Food distribution

Food processing

Furniture & furnishings

Government

Health & pharma


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Retail & e-commerce

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