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HYUNDAI
MATERIAL HANDLING

MOVING YOU FURTHER

10·13BOP-9



Some of the photos may include optional equipment.

HYUNDAI
MATERIAL HANDLING

Hyundai of Technology, Hyundai of Innovation!

Hyundai releases the heavy-duty vehicle order picker BOP-9 with enhanced ergonomic design and safety features

The new order picker BOP-9 series, is coming to you. The BOP series has enhanced ergonomic design features compared to the previous series and provides reliable performance and comfort with new safety features and enhanced lifting strength of the mast.

Ergonomic design

- Multipurpose lever (Mast, Drive, and Horn buttons)
- Height-adjustable operator control panel (75mm)
- Safety bar on top of the dashboard (When operating wire guidance, the driver can maintain the posture)
- Springs applied to improve the lifting strength of the mast and platform stability

Optimal Performance

- Electric Power Steering(EPS) & Auto centering
- Wire guidance (OPT)
- Fork height indicator (OPT)
- Dual micom type ZAPI controller

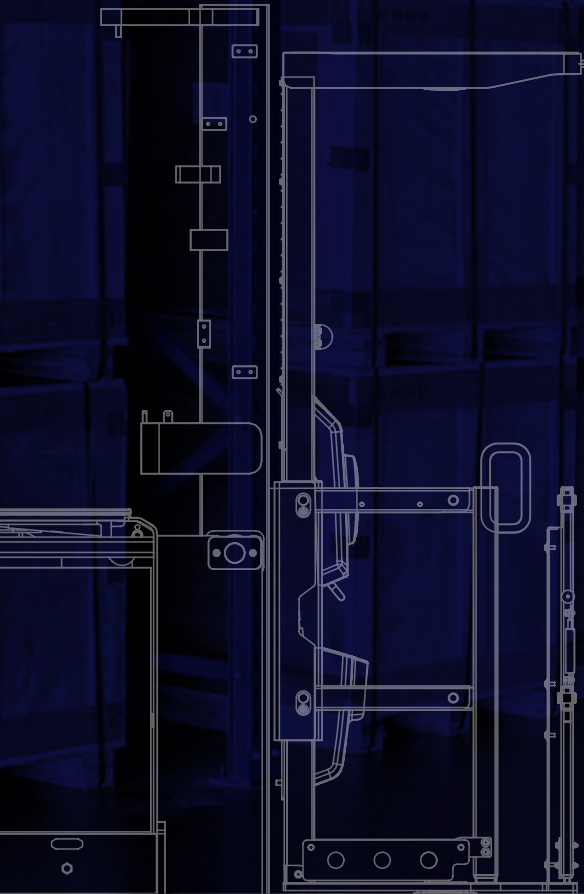
Advanced Safety

- Controls the driving speed according to the height of the platform
- Limited vehicle operation : Password settings
- Lift chain loose detection
- Lift end stroke shock relief : Lifting deceleration system

Power & Performance

Superior Power & Optimal Performance

Efficient, smooth running and powerful performance make your work more productive.



HIGH PERFORMANCE

Some of the photos may include optional equipment.

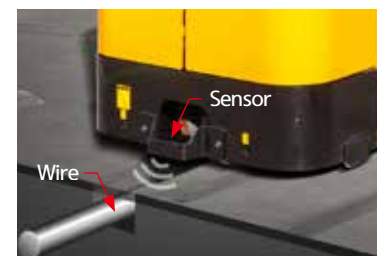
Drive motor & Pump motor, Brake system

Efficient AC motor guarantees reliability and an optimized motor design provides for low noise levels. Temperature sensors ensure long motor life. Electro-magnetic brake applied for parking - On travel, automatically unlocks brake. (Negative type braking system by spring return force)



Electric brake

The electric brake for parking and service on top of the driving motor automatically reduces the speed proportionally to stop the vehicle when the driving motor loses the electric signal (key off, driving lever to neutral).



Wire guidance (OPT)

The driving direction of the vehicle is automatically set according to the electric signal from the wires on the floor for comfortable and safe operation without having to operate the steering wheel. (The driver is only required to drive forward or backward and operate the platform up and down.)



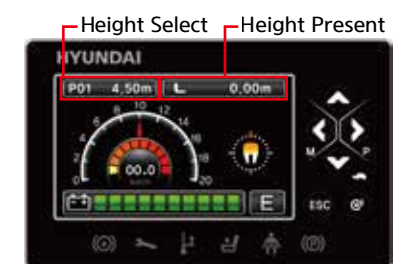
EPS & Auto-centering

The electric power steering system operates smoothly with the operation of the steering wheel, reducing fatigue for the driver and enhancing energy efficiency. Also, this system automatically returns the steering wheel to the forward position with the key on.



Height indicator (OPT)

The height indicator has 50 presets to control the height of the platform up and down. When the driver selects the height on the cluster and operates the lifting / lowering lever, the platform automatically stops at the designated height.



Mast cover : Platform control system protection

An outer mast cover has been added to enhance the durability of the outer mast and to protect the sensor and harnesses exposed on the side. This structure reduces the vibration of the mast for safe operation on high levels.



Additional Lift (10BOP-9 Only)

An additional lift comes as a standard feature for 10BOP-9 in order to lift the fork up to the waist level of the operator (760 mm) for picking up without having to bend forward.



Dual micom controller

The new ZAPI AC controller with dual micom and made by ZAPI monitors the dual signals and detects faults. So it is possible to control and service the forklift quickly and securely.



Guide roller (OPT)

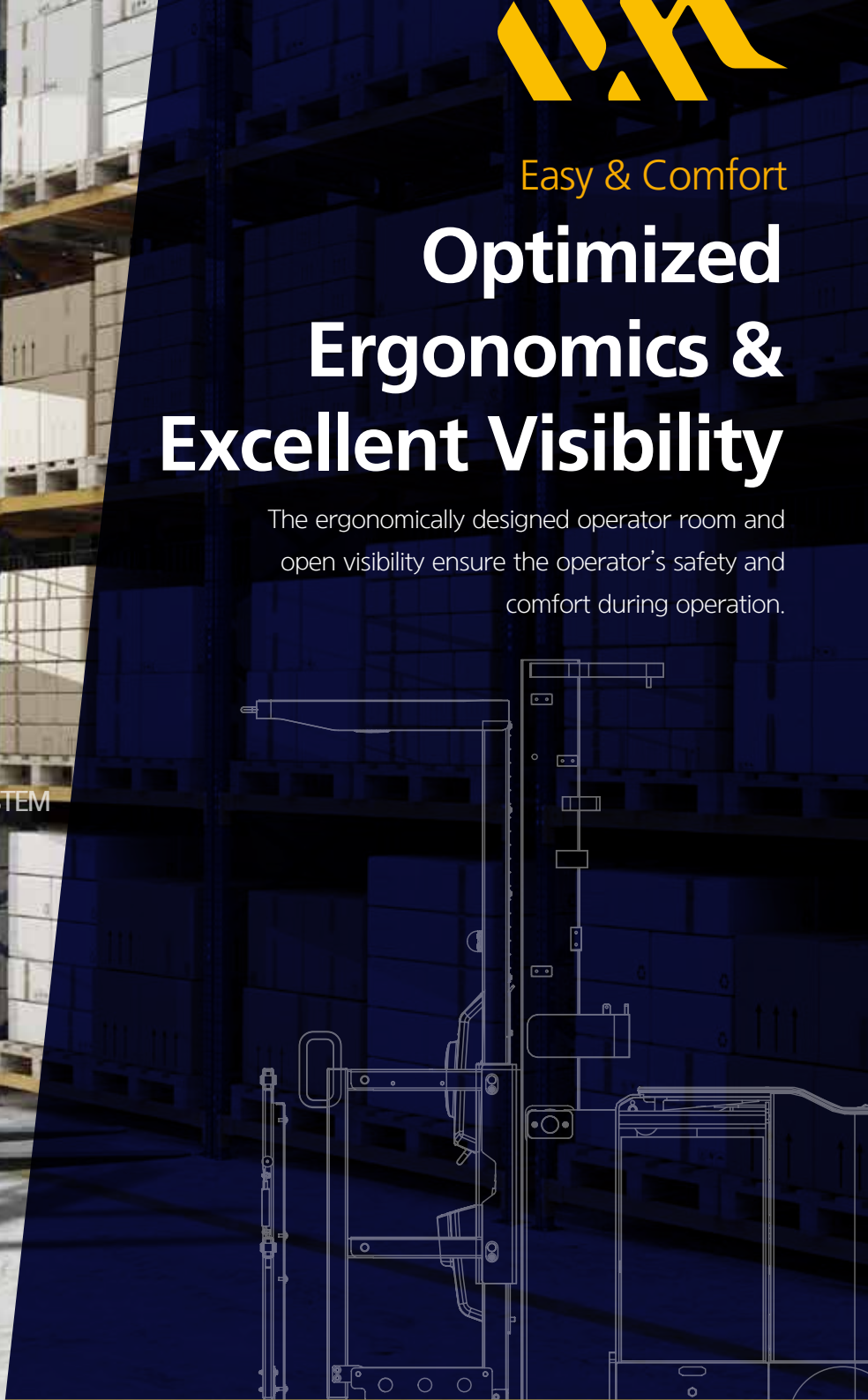
When the truck enters the rack, the drive wheel position is racked at the center, the operator can both focus on picking and driving safely.



Easy & Comfort

Optimized Ergonomics & Excellent Visibility

The ergonomically designed operator room and open visibility ensure the operator's safety and comfort during operation.



Some of the photos may include optional equipment.

Operator panel & Visibility

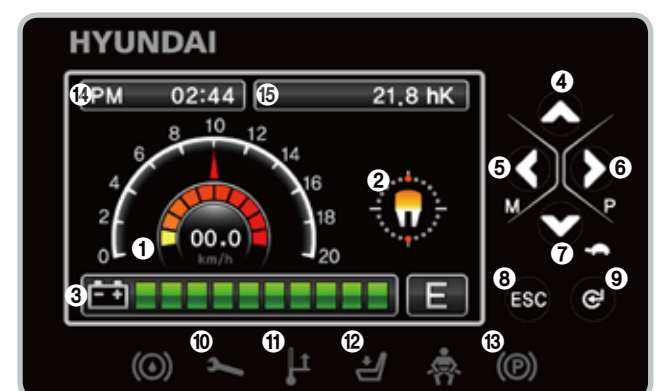
The ergonomically designed operating space with the 75mm height-adjustable operator panel, safety bar, slim steering handle and multifunctional control lever ensures a minimal blind spot providing both safety and improved visibility.



Some of the photos may include optional equipment.

4.3 inch LCD color monitor

The LCD color monitor allows the operator to easily and efficiently control the machine. The monitor provides information about speed & accelerator level, steer angle & travel direction, battery discharge indicator, hour meter & working mode. The monitor also displays information about operation error, system fault, battery level, hour meter plus other various functions. It enables the operator to maintain the forklift in optimum operating condition.



Main functions

- 1 Speed (Digital)
- 2 Steering wheel position and travel direction
- 3 Battery discharge indicator
- 4 Scroll up / Height indicator (OPT)
- 5 Menu / Scroll Left
- 6 Performance / Scroll right
- 7 Turtle / Scroll down
- 8 ESC / Back
- 9 Enter
- 10 Error warning lamp
- 11 High temp warning lamp
- 12 Dead man switch
- 13 Parking brake
- 14 Time / Height select (OPT)
- 15 Hour meter / Height present (OPT)



Multifunctional handle

The multifunctional control handle can control the forward/backward drive with a single handle and operate the platform to move up and down. The horn button on the bottom of the handle also creates a safe workplace.



Operating panel top handle : Safety bar

The wire guidance option does not require operation of the steering handle, but there is a handle on top of the operating panel for the operator to maintain balance while driving. This handle can be used to hold the barcode reader.



Stable platform

The spring on the chain anchor reduces the vibration of the platform caused when the platform moves between the primary cylinder and the secondary cylinder to go up and down.



New floor mat & Dead man switch

To improve durability and comfort, the floor mat material has been switched to EVA sponge. Also, the surface of the mat is dotted to make it convenient to remove impurities. A dead man switch has been added to the center of the platform to prevent any accidents.



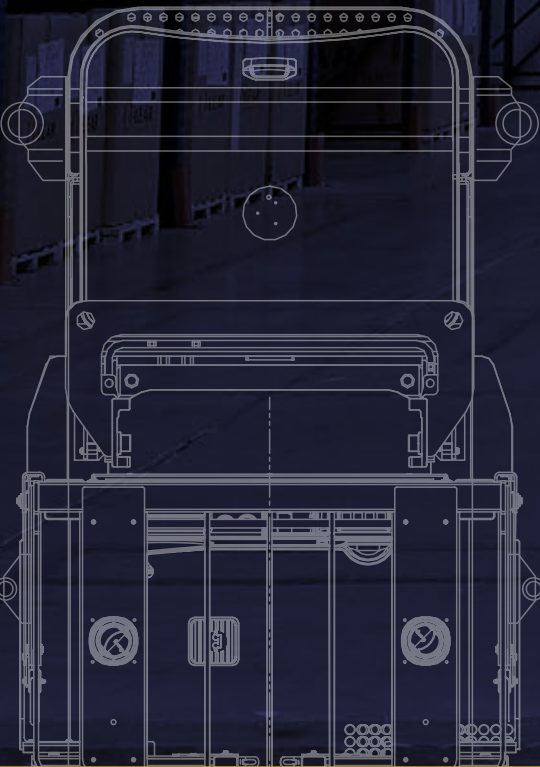
Head guard view & Working lamp

The head guard with exceptional visibility on top allows the operator to visibly see the platform and protect driver from falling objects. Also, there are working lamps and cooling fans installed inside for the convenience of the operator.

Secure & Safety

Advanced Safety & Easy Maintenance

Interior space and strengthened safety device are designed with safety as the priority, thus enable the operator to focus on work safely and conveniently.



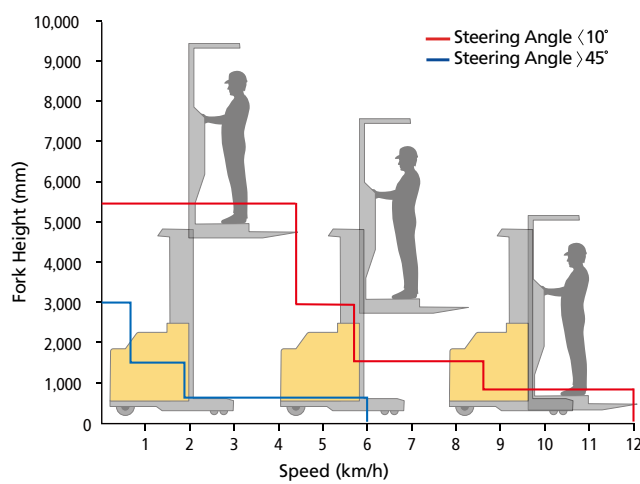
EXCELLENT VISIBILITY

ADVANCED SAFETY

Some of the photos may include optional equipment.

Operating speed controlled by the height of the platform

For the safety of operators working on high levels, the driving and platform lifting speeds gradually decrease according to the height of the platform. Also, the driving speed is linearly limited according to the angle of the steering wheel. The vehicle cannot drive when the platform reaches 5,500mm or higher and the driving speed decreases significantly when the angle of the steering wheel exceeds 45°.

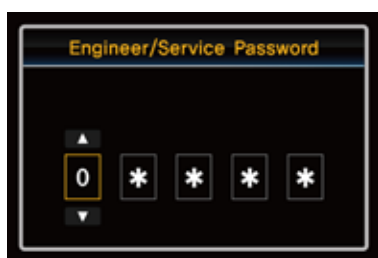


Steering angle	Travel speed by platform height (km/h)				
	~600	~1,500	~3,000	~5,500	~9,200
Angle <math>< 10^\circ</math>	12.0	8.8	5.7	4.4	0
10° <math>< \text{Angle} < 45^\circ</math>	12.0~6.0	8.8~1.9	5.7~0.7	4.4~0	0
Angle >math>> 45^\circ</math>	6.0	1.9	0.7	0	0



Pallet clamp (13BOP-9 Only, STD for N/A Only)

The new pantograph-type pallet clamp has enhanced clamping and can help to prevent accidents caused when the pallet is shifted from the fork while operating.



Password settings

The operator's password setting can be set on the cluster to prevent any accidents that can be caused when the vehicle is operated by an unauthorized operator.

Easy maintenance

All major parts related to the controller, driving and pump motors, EPS system, and electronic and hydraulic systems are exposed for easy maintenance when the rear doors on both sides and the top cover with the gas spring are opened.

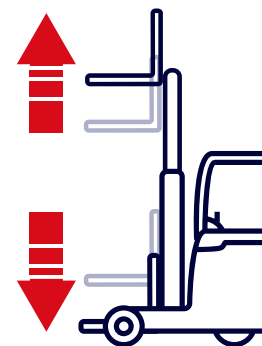
Safety features

The adoption of a high-sensitivity sensor and advanced safety system can help to prevent accidents.



Curve control

Curve control limits travel speed based on turning radius for a smooth, precise turning operation for the driver.



Lift end stroke decelerating system

To reduce the impact from the lift cylinder end stroke when the platform moves up or down, the platform's speed decreases before reaching the ground.



Lift chain loose detection

If the front of the fork is caught on the rack and the chain is loosen, the platform moves rapidly. To protect the operator and the cargo from the impact, the mast stops lowering if the chain drapes more than 3mm.



Toe board

A toe board has been added to the bottom of the safety bar at the driver's side to prevent any accidents that can be caused when the driver's feet are not kept inside while operating the vehicle.



Rear safety lever (13BOP-9 Only)

A rear safety lever has been added to between the platform and the fork to prevent any accidents that can be caused when the driver leans the body beyond the platform while operating the vehicle.

New 9 Series Mast Specification

10/13BOP-9

10BOP-9

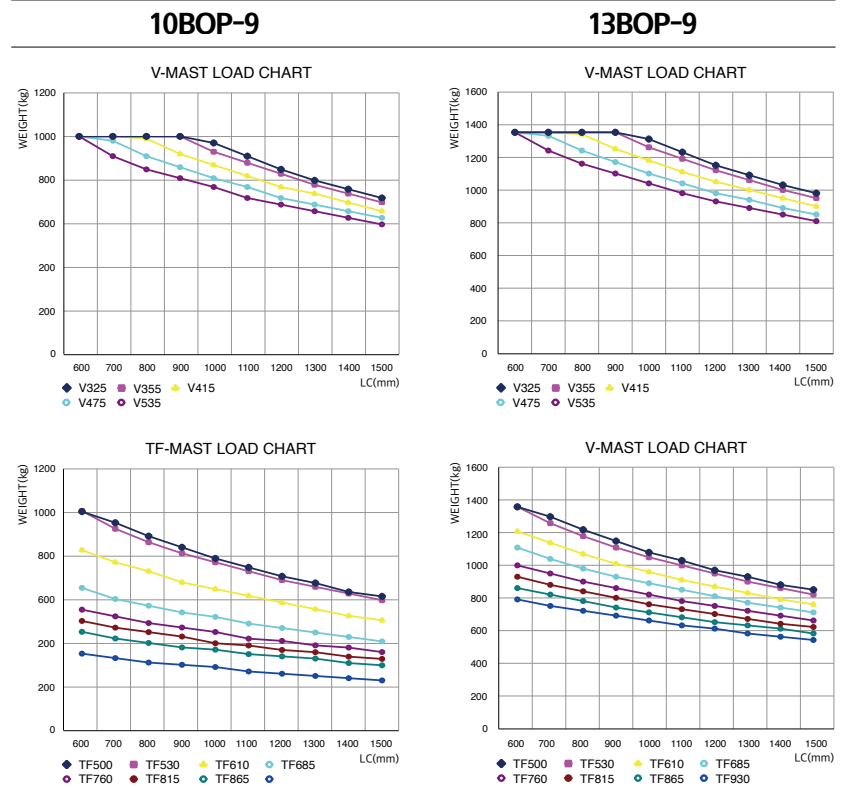
Mast Type	Maximum Fork Height (Additional lift Extended)	Overall Height (Lowered)		Overall Height (Extended)		Free lift height		Additional lift	Load capacity w/o side shift		Truck weight (unloaded)				
		With OHG		With OHG		With OHG			24 in LC	600mm LC	lb	kg			
		in	mm	in	mm	in	mm		in	mm	lb	kg			
2-STAGE LIMITED FREE LIFT	V325	158.9	4035	87.4	2220	215.4	5470	0.0	0	29.9	760	2205	1000	6786	3078
	V355	170.7	4335	93.5	2375	227.2	5770	0.0	0	29.9	760	2205	1000	6841	3103
	V415	194.3	4935	105.5	2680	250.8	6370	0.0	0	29.9	760	2205	1000	6952	3154
	V475	217.9	5535	117.5	2985	274.4	6970	0.0	0	29.9	760	2205	1000	7063	3204
	V535	241.5	6135	129.3	3285	298.0	7570	0.0	0	29.9	760	2205	1000	7282	3303
3-STAGE FULL FREE LIFT	TF500	229.6	5831	87.4	2220	286.1	7266	1.0	25	29.9	760	2205	1000	7317	3319
	TF530	240.7	6115	93.5	2375	297.2	7550	7.1	180	29.9	760	2205	1000	7410	3361
	TF610	270.7	6875	105.5	2680	327.2	8310	19.1	485	29.9	760	1819	825	7592	3444
	TF685	300.7	7639	117.5	2985	357.2	9074	31.1	790	29.9	760	1433	650	7800	3538
	TF760	330.7	8401	129.3	3285	387.2	9836	42.9	1090	29.9	760	1213	550	8101	3675
	TF815	351.8	8935	138.4	3515	408.3	10370	52.0	1320	29.9	760	1102	500	8239	3737
	TF865	371.7	9441	147.4	3745	428.2	10876	61.0	1550	29.9	760	992	450	8384	3803
	TF930	396.9	10081	158.5	4025	453.4	11516	72.0	1830	29.9	760	772	350	8665	3930

13BOP-9

Mast Type	Maximum Fork Height	Overall Height (Lowered)		Overall Height (Extended)		Free lift height		Load capacity w/o side shift		Truck weight (unloaded)			
		With OHG		With OHG		With OHG		24 in LC	600mm LC	lb	kg		
		in	mm	in	mm	in	mm	in	mm	lb	kg		
2-STAGE LIMITED FREE LIFT	V325	128.9	3275	87.4	2220	215.4	5470	0.0	0	3000	1361	6469	2934
	V355	140.7	3575	93.5	2375	227.2	5770	0.0	0	3000	1361	6526	2960
	V415	164.4	4175	105.5	2680	250.8	6370	0.0	0	3000	1361	6636	3010
	V475	188.0	4775	117.5	2985	274.4	6970	0.0	0	3000	1361	6747	3061
	V535	211.6	5375	129.3	3285	298.0	7570	0.0	0	3000	1361	6966	3160
3-STAGE FULL FREE LIFT	TF500	198.1	5031	87.4	2220	286.1	7266	1.0	25	3000	1361	6989	3170
	TF530	210.8	5355	93.5	2375	297.2	7550	7.1	180	3000	1361	7082	3212
	TF610	240.7	6115	105.5	2680	327.2	8310	19.1	485	2668	1210	7264	3295
	TF685	270.8	6879	117.5	2985	357.2	9074	31.1	790	2447	1110	7472	3389
	TF760	300.8	7641	129.3	3285	387.2	9836	42.9	1090	2205	1000	7773	3526
	TF815	321.9	8175	138.4	3515	408.3	10370	52.0	1320	2050	930	7911	3589
	TF865	341.8	8681	147.4	3745	428.2	10876	61.0	1550	1896	860	8056	3654
	TF930	367.0	9321	158.5	4025	453.4	11516	72.0	1830	1742	790	8337	3782

※ TF-Mast: A mast with 1 free lift cylinder in the center
 ※ When TF Mast is applied, the overall width increases.

Load Capacity



Optional Items

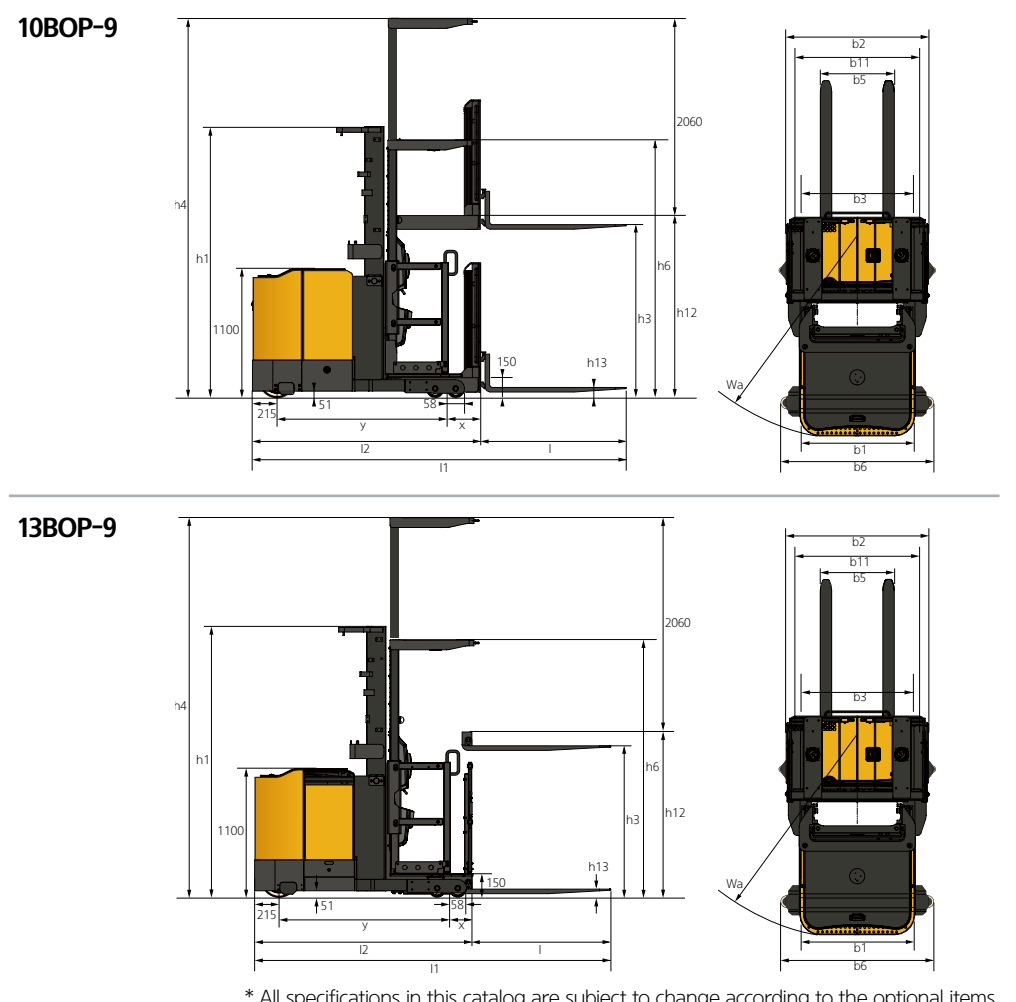
- Fork (mm) : 900 / 1,200 / 1,350 / 1,500 / 1,600 / 1,900
- Guide roller (Wide frame)
1,226mm / 1,256 (1,456)mm / 1,280 (1,480)mm / 1,304 (1,504)mm
- Beacon lamp (Blue, Red)
- Tire : VULKOLLAN
- Wire guidance
- Height indicator

New 9 Series

Specification

Characteristics		HYUNDAI	
1.1	Manufacturer	HYUNDAI	
1.2	Manufacturer's type designation	10BOP-9	13BOP-9
1.3	Drive: Electric (Battery Or Mains), Diesel, Petrol, Fuel Gas	electric	electric
1.4	Type of operation: Hand, Pedestrian, Standing, Seated, Order-Picker	order picker	order picker
1.5	Load capacity / Rated load	Q kg (lb)	1,000 (2,204.6) / 1,360 (2,998.3)
1.6	Load center distance	c mm (in)	600 (23.6) / 600 (23.6)
1.8	Load distance, Center of drive axle to fork	x mm (in)	385 (15.2) / 235 (9.3)
1.9	Wheelbase	y mm (in)	1,480 (58.3) / 1,480 (58.3)
Weights			
2.1	Service weight, inc. battery	kg kg (lb)	3,078 (6,785.8) / 2,934.5 (6,469.5)
2.2	Axle loading, Loaded front / rear	kg kg (lb)	865 (1,970)/3,212 (7,081.2) / 741 (1,633.6)/3,493 (7,700.7)
2.3	Axle loading, Unloaded front / rear	kg kg (lb)	1,539 (3,392.9)/1,539 (3,392.9) / 1,564 (3,448)/1,370 (3,020.3)
Wheels, tyres			
3.1	Tires : Solid rubber, Superelastic, Pneumatic, Polyurethane	Polyurethane / Polyurethane	
3.2	Tire size, Front	mm (in)	305 (12) x 140 (5.5) / 305 (12) x 140 (5.5)
3.3	Tire size, Rear	mm (in)	152 (6) x 100 (3.9) / 152 (6) x 100 (3.9)
3.5	Wheels, number front / rear (X = Driven wheels)	1 x/4 / 1 x/4	
3.7	Tread, Rear	b11 mm (in)	909 (35.8) / 909 (35.8)
	Tread, Rear, Wide frame	b11 mm (in)	1,109 (43.7) / 1,109 (43.7)
Dimensions			
4.2	Height, Mast lowered	h1 mm (in)	2,220 (87.4) / 2,220 (87.4)
4.4	Lift height	h3 mm (in)	3,275 (128.9) / 3,275 (128.9)
4.5	Height, Mast extended	h4 mm (in)	5,470 (215.4) / 5,470 (215.4)
4.7	Height of overhead guard	h6 mm (in)	2,260 (89) / 2,260 (89)
4.8	Platform height (h13+135mm)	h7 mm (in)	200 (7.9) / 200 (7.9)
4.11	Additional Lift	h9 mm (in)	760 / -
4.14	Height, Platform raised (h3 + 135mm)	h12 mm (in)	3,410 (134.3) / 3,410 (134.3)
4.14-1	Picking height (h12+ 1600mm)	h28 mm (in)	5,010 (197.2) / 5,010 (197.2)
4.15	Height lowered (Fork height)	h13 mm (in)	65 (2.6) / 65 (2.6)
4.19	Overall length	l1 mm (in)	3,130 (123.2) / 2,980 (117.3)
4.20	Length to face of forks	l2 mm (in)	2,080 (81.9) / 1,930 (76)
4.21	Overall width	b1/b2 mm (in)	1,020 (40.2)/1,050 (41.3) / 1,020 (40.2) / 1,025 (49.2)
	Overall width, Wide frame	b1/b2 mm (in)	1,250 (49.2) / 1,250 (49.2)
4.22	Fork dimensions	s/e/l mm (in)	40(1.6) x 100(3.9) x 1,050(41.3)
4.25	Overall fork width	b5 mm (in)	840 (33.1) / 650 (25.6)
4.26	Platform width	b3 mm (in)	1,020 (40.2) / 1,020 (40.2)
	Platform width, Wide frame	b3 mm (in)	1,250 (49.2) / 1,250 (49.2)
4.27	Guide roller width	b6 mm (in)	see chart / see chart
4.32	Ground clearance, Center of wheelbase	m2 mm (in)	51 (2) / 51 (2)
4.33	Working aisle width, with 800 x 1200 crosswise	Ast mm (in)	3,346 (131.7) / 3,214 (126.5)
4.34	Working aisle width, with 1200 x 800 lengthwise	Ast mm (in)	3,653 (143.8) / 3,508 (138.1)
4.35	Turning radius	Wa mm (in)	1,818 (71.6) / 1,818 (71.6)
Performance			
5.1	Travel speed, Loaded / Unloaded	km/h (mph)	12 (7.5) / 12 (7.5) / 12 (7.5) / 12 (7.5)
5.2	Lift speed, Loaded / Unloaded	m/s (ft/min)	0.24 (47.2) / 0.37 (72.8) / 0.24 (47.2) / 0.37 (72.8)
5.3	Lowering speed, Loaded / Unloaded	m/s (ft/min)	0.43 (84.6) / 0.40 (78.7) / 0.43 (84.6) / 0.40 (78.7)
5.9	Acceleration time (over 10 m)	s	6.4 / 6.4
5.10	Service brake		electric release / electric release

Dimension



* All specifications in this catalog are subject to change according to the optional items.