MOVING YOU FURTHER

16·18 20B-9F



Some of the photos may include optional equipment

HYUNDAI
MATERIAL HANDLING

Your satisfaction is our priority.

Robust AC technology!
Hyundai's 9-series small battery forklift

Hyundai introduces a new line of 9-series battery forklifts.
The newly designed four-wheel counterbalance forklift maximizes productivity by enabling comfortable driving and easy maintenance.

Work efficiency & productivity
- Prolonged Battery use : Regenerative braking
- Powerful and precise driving performance of a dual drive motor
- Optimized performance mode setting (H,N,E)
- Curve control

Durability & reliability
- AC motor exclusive - IP65 ZAPI controller
- Semi-permanent wet disc brake
- IP43 AC motor

Safety
- Anti-roll back (ABS) system
- Turtle mode & maximum speed control
- Operator Presence Sensing Syste (Optional)
- Panoramic rear view mirror

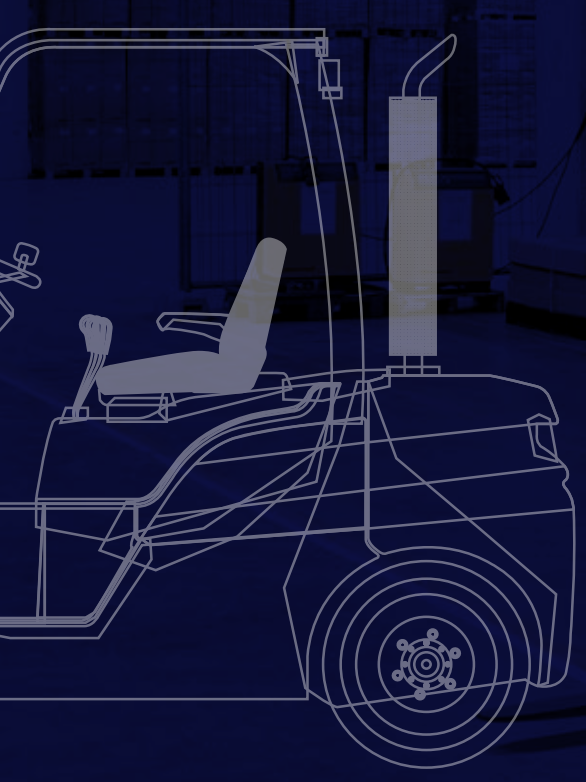
Maintenance
- Self diagnostics function
- Password starting system
- Brake oil level sensing system

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Power & Performance

High Efficiency & Optimal Performance

An efficient, smooth running and compact design provides enhanced performance and outstanding productivity.





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Strong driving power – Dual drive motor system

The dual drive motor system consists of two separately controlled drive motors. Unlike the single drive motor system, it prevents the wheels from spinning even when the grip force of the left and right wheels is different. In addition, it enables strong drive performance even on a dirty road. As the pivot point is the axle of the wheels, the dual system enables relatively small turning radius compared to the single system, thus improving efficiency in small worksites.



Some of the photos may include optional equipment



Robust and economical AC motor

Drive and pump motors using our AC technology provide great controllability and durability, compared to DC motors. Also, AC motors without the commutator and brushes cost less to maintain. In addition, it has been tested and passed for IP43 protection rating.



New ZAPI controller

The almost noiseless 8 khz (high frequency) ZAPI controller enables high efficiency control and protects the system from low and high voltages and overheating.



Wet disc brake

The semi-permanent wet disc brake provides constant braking force without overheating even when used for long hours of repetitive work, thus improving work efficiency. Without requiring brake linings, which needs regular replacement, maintenance costs are relatively low.



Optimized operation mode setting

Through the cluster and the performance selection function of ZAPI controller, the operator can select an optimal performance mode depending on working conditions, worksite size and operator proficiency.
H (High), **N** (Normal), **E** (Economic)



Curve control

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

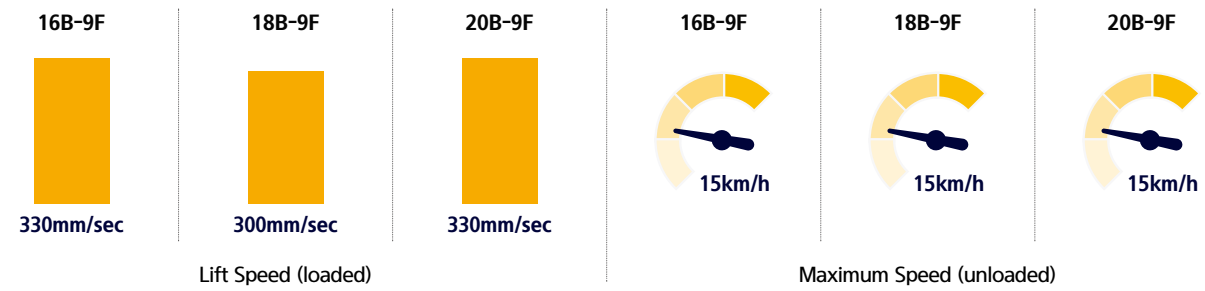


Prolonged Battery use

When the operator's foot is lifted from the accelerator, the kinetic energy is converted to electrical energy and stored in batteries. The operator can stop the vehicle with the energy generated form the energy conversion.

Excellent driving & work performance

The combination of best-in-class drive and pump motors and the latest ZAPI AC controller allow for quick and agile driving and ideal operation speed, optimizing efficiency of loading/unloading.



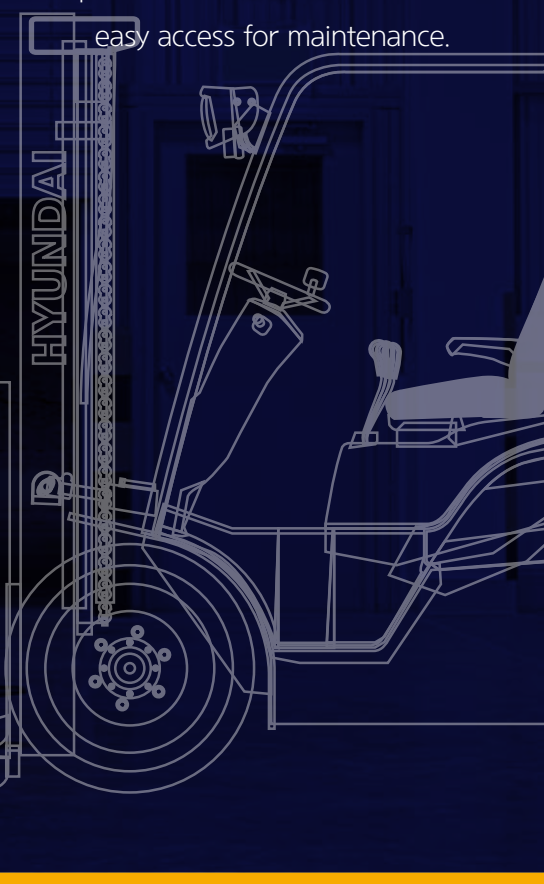


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Easy & Comfort

Optimized Ergonomics & Fast and Easy Maintenance

An ergonomically designed workspace for operator provides the best comfort and easy access for maintenance.



Ergonomically designed workspace

Ergonomic design focusing on operator convenience and maneuverability further enhances work efficiency. Easily operable levers and pedals, adjustable handle, suspension seat and a large multi-functional cluster dashboard allow comfortable and efficient driving.



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Steering wheel position

A steering sensor is applied to the king pin of the rear axle, communicates to the LCD color monitor to show the direction of the vehicle as it relates to the angle of the steer wheel.



Adjustable tilting handle

The handle angle can be adjusted with the lever on the right side of the steering wheel to suit the operator's physique and driving habit.



Grammer seat

An adjustable ergonomic seat provides unmatched comfort. The adjustable armrest further reduces operator fatigue.

- ELR(Emergency Locking Retractable) type seat belt
- Seat heater (STD) & headrest (OPT)

3.5 inch LCD color monitor

The 3.5 inch TFT LCD color monitor indicates speed, steering angle & driving direction, battery charge level and hour meter & working mode, thus allowing easy and efficient control for the operator. In addition, diagnostic error codes allow easy fault diagnosis.



Main functions

- Steering wheel position & driving direction
- Turtle mode
- Driving speed (Digital)
- Battery discharge indicator
- High temp warning lamp
- Wrench warning light
- Roll up
- ESC
- Menu / Scroll left
- Performance / Scroll right
- Enter
- Turtle / Scroll down



Easy maintenance of battery

The battery cover opens fully with the assistance of a gas strut that locks when fully opened to give easy access to battery and prevent the hood from dropping.



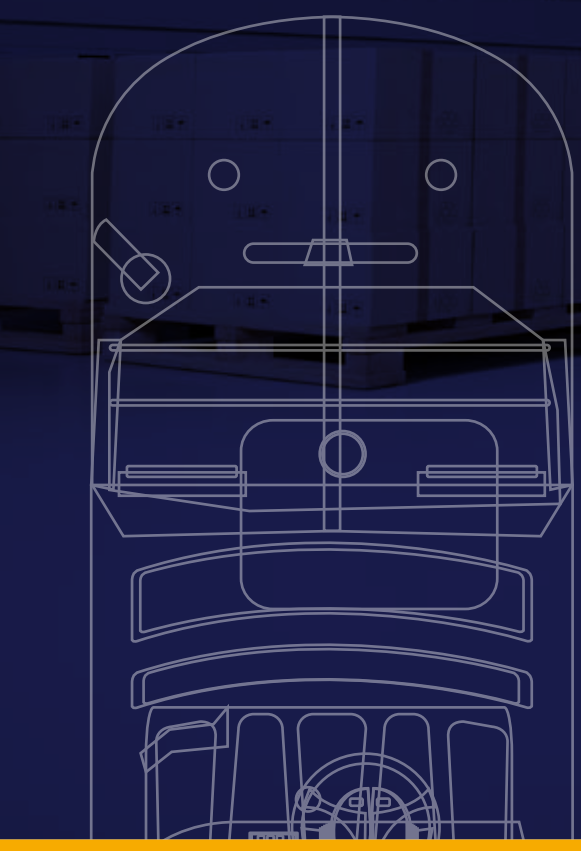
Brake oil reservoir with level sensor

The enhanced brake oil reservoir, located in the upper left dash is equipped with an electronic level sensor that shows the level in the LCD color monitor.

Secure & Safety

Advanced Safety

The safely designed driver's space makes your operating more comfortable.

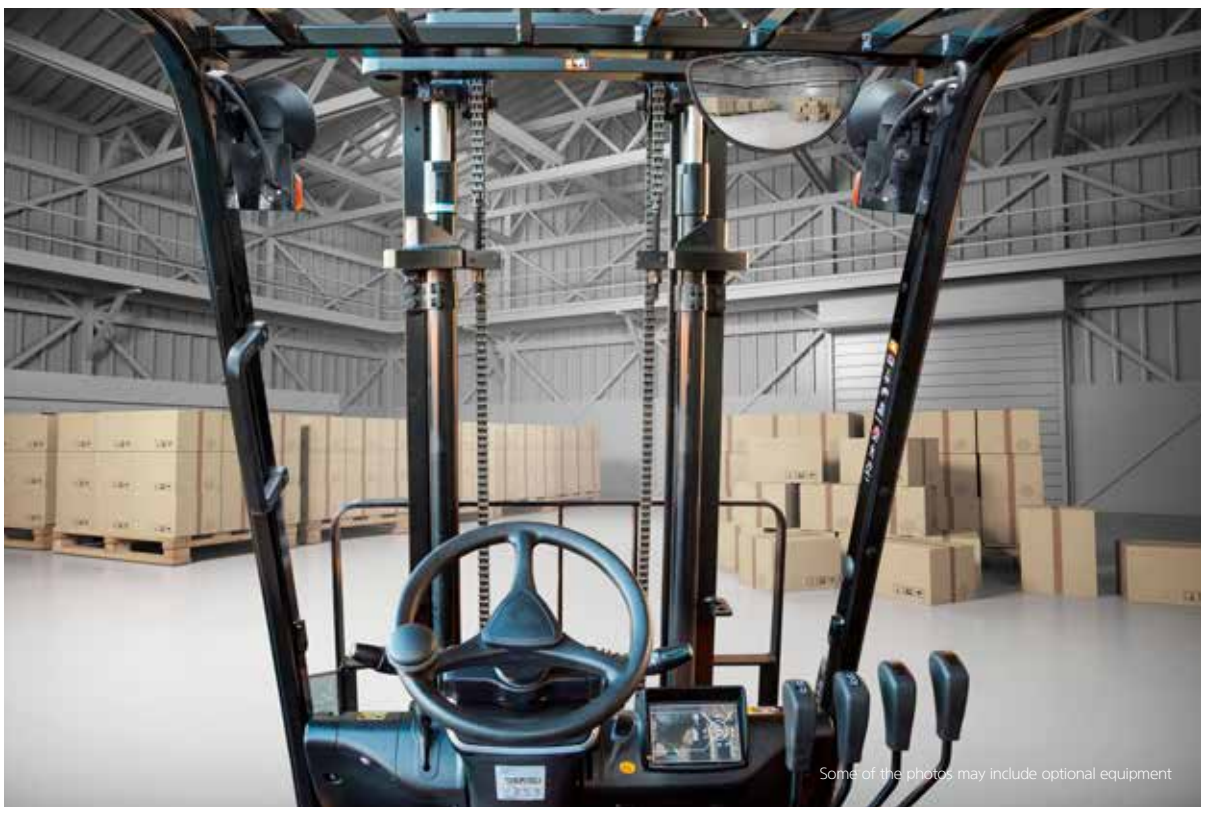




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Great visibility for safe operation

The optimized lift cylinder array design provides a clear, wide field of vision for the operator. A rear camera(OPT) and panoramic mirror expands the driver's view when backing up.



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Strong overhead guard

Exceeding ISO6055 regulations, the overhead guard offers great protection combined with excellent all around visibility.



Panoramic mirror

The panoramic mirror expands the driver's view when backing up.

Speed limit setting

The operator can set and limit the maximum speed given the curve & congestion of an aisle and the shape of the load.

Password starting system

The operator can set a password to prevent vehicle theft and possible safety accidents in case the vehicle is used by an unauthorized person.

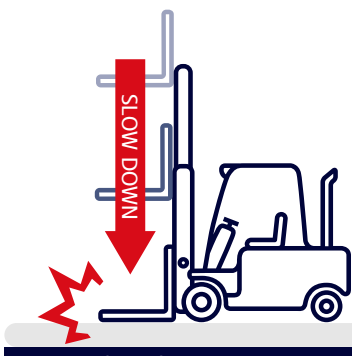
Safety features

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



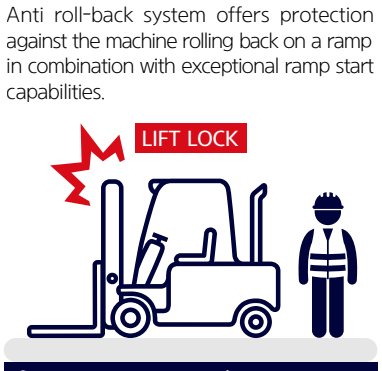
Anti-Roll Back system

Anti roll-back system offers protection against the machine rolling back on a ramp in combination with exceptional ramp start capabilities.



Fork safety features

As the forks are being lowered, a down-control valve maintains a controlled descent speed. The down-safety valve prevents forks from dropping down in case of sudden damage of hydraulic line.



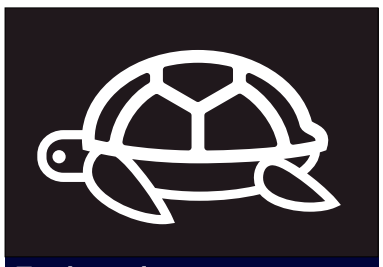
Operator presence sensing system (OPSS)

When operator is not in seat, the mast cylinder does not function even if the action lever is operated.



Strengthened work safety

Rear LED lights and halogen lights offer excellent visibility even during night operations. Safety has been increased by installing an additional reflector on the counterweight.



Turtle mode

When selecting the turtle mode while working in narrow and congested workplace, the travel speed is reduced at a preset speed.

New 9 Series Mast Specification

16B-9F

Mast Type		Maximum Fork Height	Overall Height (Lowered)	Free lift height			Tilt Angle		Load capacity Without side shift	Load capacity With side shift	Truck Weight (Unloaded)
				With Load Backrest	Without Load Backrest	Without Load Backrest (3/4-SP00L)	Fwd	Bwd	500mm LC	500mm LC	
		mm	mm	mm	mm	mm	deg	deg	kg	kg	kg
2-STAGE LIMITED FREE LIFT	V250	2,525	1,720	35	35	35	5	7	1,600	1,530	3,033
	V270	2,725	1,820				5	7	1,600	1,530	3,045
	V300	3,025	1,970				5	7	1,600	1,530	3,065
	*V330	3,325	2,120				5	7	1,600	1,530	3,085
	V350	3,525	2,220				5	7	1,600	1,530	3,098
	V370	3,725	2,320				5	7	1,600	1,530	3,111
	V400	4,025	2,470				5	7	1,550	1,490	3,136
	V450	4,525	2,820				5	5	1,500	1,440	3,203
2-STAGE FULL FREE LIFT	VF350	3,525	2,220	1,222	1,729	1,589	5	5	1,600	1,530	3,140
3-STAGE FULL FREE LIFT	TF370	3,735	1,770	772	1,205	1,065	5	5	1,550	1,490	3,181
	TF400	4,035	1,870	872	1,305	1,165	5	5	1,500	1,440	3,201
	TF430	4,335	1,970	972	1,405	1,265	5	5	1,475	1,420	3,220
	TF450	4,535	2,070	1,072	1,555	1,415	5	5	1,450	1,390	3,240
	TF470	4,735	2,120	1,122	1,555	1,415	5	5	1,425	1,370	3,250
	TF500	5,035	2,220	1,222	1,655	1,515	5	5	1,400	1,340	3,270
	TF550	5,535	2,420	1,422	1,905	1,765	5	5	1,325	1,300	3,310
	TF600	6,035	2,620	1,622	2,105	1,965	5	5	1,250	1,200	3,373
	TF650	6,535	2,820	1,822	2,285	2,145	3	3	1,050	1,000	3,418
	TF700	7,035	3,020	2,022	2,465	2,325	3	3	900	860	3,457

※ : Standard

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Mast Type		Maximum Fork Height	Overall Height (Lowered)	Free lift height			Tilt Angle		Load capacity Without side shift	Load capacity With side shift	Truck Weight (Unloaded)
				With Load Backrest	Without Load Backrest	Without Load Backrest (3/4-SP00L)	Fwd	Bwd	500mm LC	500mm LC	
		mm	mm	mm	mm	mm	deg	deg	kg	kg	kg
2-STAGE LIMITED FREE LIFT	V250	2,525	1,729	35	35	35	5	7	1,800	1,730	3,160
	V270	2,725	1,829				5	7	1,800	1,730	3,172
	V300	3,025	1,979				5	7	1,800	1,730	3,192
	*V330	3,325	2,129				5	7	1,800	1,730	3,212
	V350	3,525	2,229				5	7	1,800	1,730	3,225
	V370	3,725	2,329				5	7	1,800	1,730	3,238
	V400	4,025	2,479				5	7	1,800	1,730	3,262
	V450	4,525	2,829				5	5	1,750	1,680	3,330
	V500	5,025	3,079				5	5	1,650	1,590	3,363
	V550	5,525	3,329				5	5	1,600	1,540	3,383
2-STAGE FULL FREE LIFT	VF/VS300	3,025	1,979	981	1,479	1,339	5	5	1,800	1,730	3,230
	VF/VS330	3,325	2,129	1,131	1,629	1,489	5	5	1,800	1,730	3,252
	VF350	3,525	2,229	1,231	1,729	1,589	5	5	1,800	1,730	3,267
3-STAGE FULL FREE LIFT	TF370	3,735	1,779	781	1,205	1,065	5	5	1,800	1,730	3,307
	TF400	4,035	1,879	881	1,305	1,165	5	5	1,750	1,690	3,327
	TF430	4,335	1,979	981	1,405	1,265	5	5	1,725	1,660	3,347
	TF450	4,535	2,079	1,081	1,555	1,415	5	5	1,700	1,640	3,366
	TF470	4,735	2,129	1,131	1,555	1,415	5	5	1,650	1,590	3,377
	TF500	5,035	2,229	1,231	1,655	1,515	5	5	1,600	1,540	3,397
	TF550	5,535	2,429	1,431	1,905	1,765	5	5	1,500	1,450	3,436
	TF600	6,035	2,629	1,631	2,105	1,965	5	5	1,350	1,300	3,500
	TF650	6,535	2,829	1,831	2,285	2,145	3	3	1,300	1,250	3,545
	TF700	7,035	3,029	2,031	2,499	2,359	3	3	1,050	1,010	3,583
	TS430	4,335	1,979	981	1,307	1,137	5	5	1,725	1,660	3,347
	TS450	4,535	2,079	1,081	1,457	1,287	5	5	1,700	1,640	3,366
	TS470	4,735	2,129	1,131	1,457	1,287	5	5	1,650	1,590	3,377
	TS500	5,035	2,229	1,231	1,557	1,387	5	5	1,600	1,540	3,397
	TS550	5,535	2,429	1,431	1,807	1,637	5	5	1,500	1,450	3,436
	TS600	6,035	2,629	1,631	2,007	1,837	5	5	1,350	1,300	3,500
	TS650	6,535	2,829	1,831	2,187	2,017	3	3	1,300	1,250	3,545
	TS700	7,035	3,029	2,031	2,367	2,197	3	3	1,050	1,010	3,583

※ : Standard

New 9 Series Mast Specification

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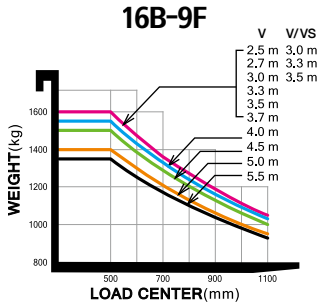
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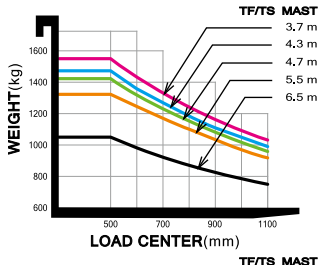
Mast Type		Maximum Fork Height	Overall Height (Lowered)	Free lift height			Tilt Angle		Load capacity Without side shift	Load capacity With side shift	Truck Weight (Unloaded)
				With Load Backrest	Without Load Backrest	Without Load Backrest (3/4-SP00L)	Fwd	Bwd	500mm LC	500mm LC	
		mm	mm	mm	mm	mm	deg	deg	kg	kg	kg
2-STAGE LIMITED FREE LIFT	V250	2,530	1,729	40	40	40	5	7	2,000	1,930	3,362
	V270	2,730	1,829				5	7	2,000	1,930	3,375
	V300	3,030	1,979				5	7	2,000	1,930	3,394
	*V330	3,330	2,129				5	7	2,000	1,930	3,415
	V350	3,530	2,229				5	7	2,000	1,930	3,428
	V370	3,730	2,329				5	7	2,000	1,920	3,440
	V400	4,030	2,479				5	7	2,000	1,920	3,465
	V450	4,530	2,829				5	5	1,925	1,860	3,532
2-STAGE FULL FREE LIFT	VF350	3,530	2,229	1,236	1,734	1,530	5	5	2,000	1,930	3,470
3-STAGE FULL FREE LIFT	TF370	3,740	1,779	786	1,210	1,006	5	5	2,000	1,930	3,510
	TF400	4,040	1,879	886	1,310	1,106	5	5	1,950	1,880	3,530
	TF430	4,340	1,979	986	1,410	1,206	5	5	1,925	1,860	3,550
	TF450	4,540	2,079	1,086	1,560	1,406	5	5	1,900	1,840	3,569
	TF470	4,740	2,129	1,136	1,560	1,356	5	5	1,850	1,790	3,580
	TF500	5,040	2,229	1,236	1,660	1,456	5	5	1,800	1,750	3,600
	TF550	5,540	2,429	1,436	1,910	1,756	5	5	1,700	1,640	3,639
	TF600	6,040	2,629	1,636	2,110	1,956	5	5	1,600	1,540	3,703
	TF650	6,540	2,829	1,836	2,290	2,116	3	3	1,300	1,250	3,747
	TF700	7,040	3,029	2,036	2,504	2,344	3	3	1,150	1,100	3,786

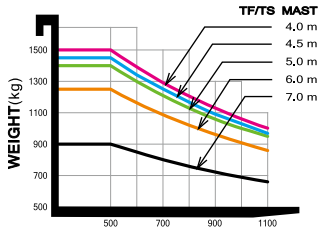
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Load Capacity

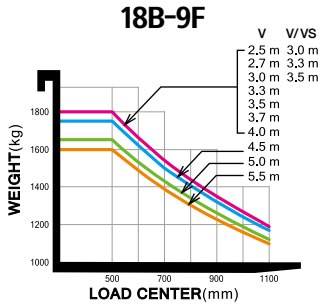
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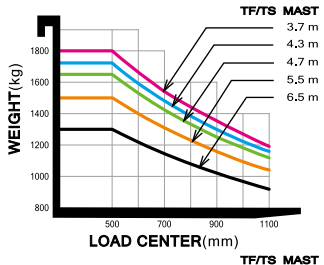


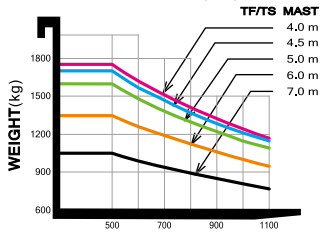




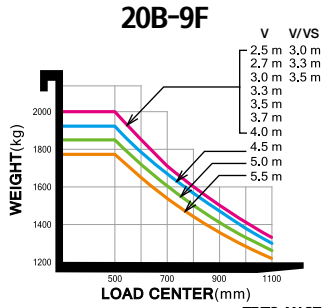
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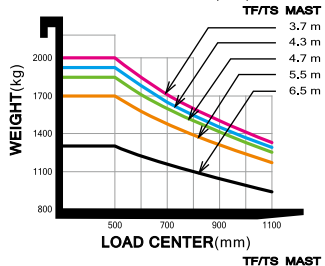


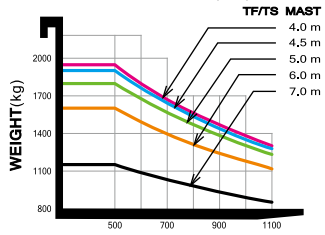




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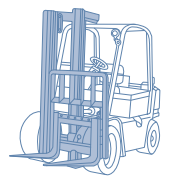
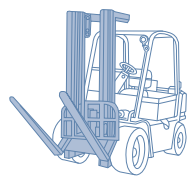
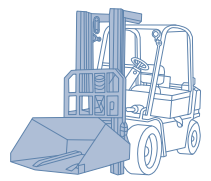
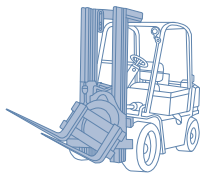
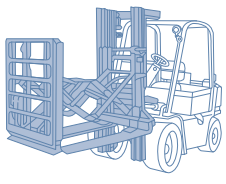
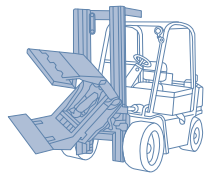
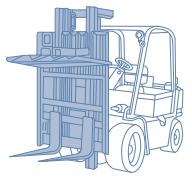
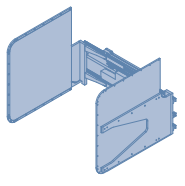
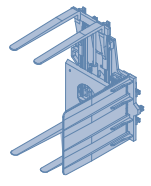
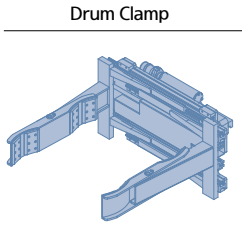
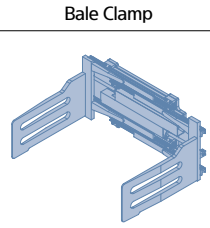
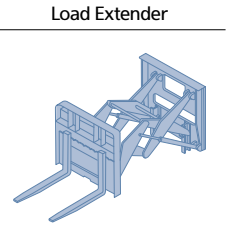




Optional Items

- Fork (mm)
  16 / 18B-9F : 35X100X750/850/900(STD)/1,050/1,200/1,350/1,500
  20B-9F : 40X100X900(STD)/950/1,000/1,050/1,150/1,200/1,350/1,500/1,600
- **Integral Sideshift / Sideshift**
- **Tire :** SOLID(STD) / Non-marking / Wide tire [16B-9F : Front tire (200 / 50-10)]
- **Seat :** semi suspension seat (STD)
  Full suspension seat (Armrest, Backrest extension, Heating, Buckle S/W)
- **M.C.V :** 2-Spool (STD), 3-Spool, 4-Spool
- Beacon Lamp
- Work Lamp and rear combination lamp
- Side Mirror
- OPSS : Mast
- Cold Storage (for -30° c cold working environments)
- Load Backrest (LBR)

Various Attachments

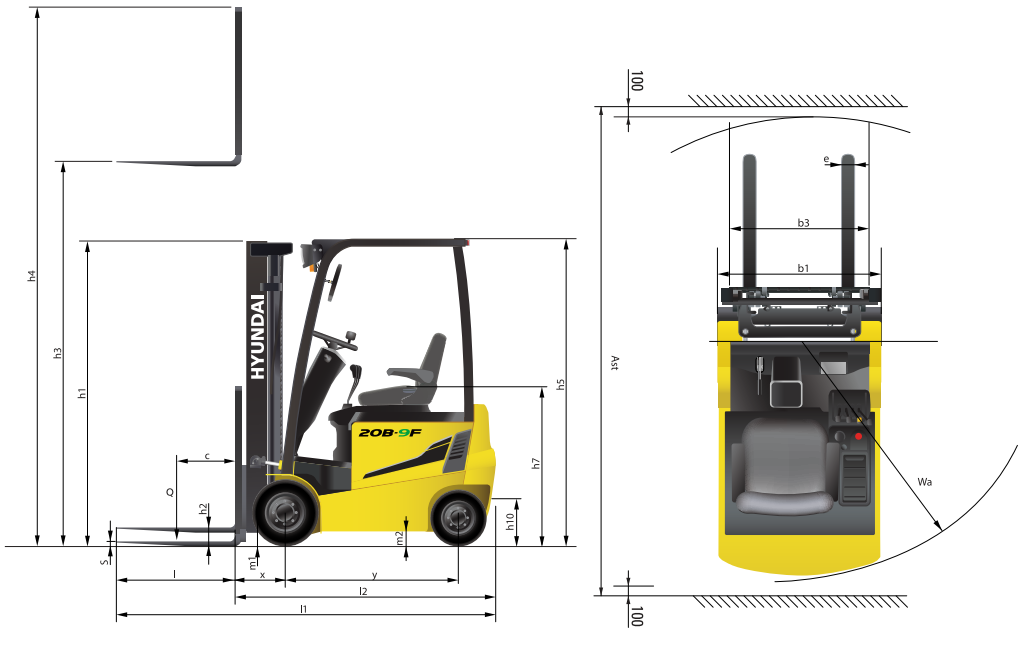
Side Shift	Hinged Fork	Hinged Bucket
		
Rotating Fork	**Push Pull**	**Rotating Roll Clamp**
		
Load Stabilizer	**Carton Clamp**	**Pallet Invert**
		
Drum Clamp	**Bale Clamp**	**Load Extender**
		
Fork Positioner		
		

Specification

Identification					
1.1	Manufacturer		Hyundai		
1.2	Model		16B-9F	18B-9F	20B-9F
1.3	Power type		Electric	Electric	Electric
1.4	Type of operation		Seated	Seated	Seated
1.5	Load capacity	Q kg	1,600	1,800	2,000
1.6	Load center distance	c mm	500	500	500
1.8	Load distance, center of front axle to fork	x mm	360	360	365
1.9	Wheelbase	y mm	1,355	1,440	1,440
Weights					
2.1	Service weight (including battery)	kg	3,085	3,214	3,394
2.2	Axle loading, loaded front / rear	kg	4,106 / 578	4,437 / 577	4,770 / 624
2.3	Axle loading, unloaded front / rear	kg	1,491 / 1,594	1,562 / 1,652	1,569 / 1,825
Tires					
3. 1	Tires : solid rubber(V), superelastic(SE), pneumatic(P), polyurethane(PE)		SE	SE	SE
3. 2	Front Tire size (∅×width)		18×7-8	200 / 50-10	200 / 50-10
3. 3	Rear tire size (∅×width)		16×6-8	16×6-8	16×6-8
3. 5	Wheels, number front rear (x = driven wheels)		2× / 2	2× / 2	2× / 2
3. 6	Track width, front	mm	895	905	905
3. 7	Track width, rear	mm	880	880	880
Dimensions					
4.1	Mast / fork carriage tilt forward / backward	degrees(°)	5 / 7	5 / 7	5 / 7
4.2	Lowered mast height	h1 (mm)	1,970	1,979	1,979
4.3	Free lift height	h2 (mm)	35	35	40
4.4	Lift height	h3 (mm)	3,025	3,025	3,030
4.5	Extended mast height	h4 (mm)	4,020	4,020	4,020
4.7	Overhead guard (cab) height	h5 (mm)	2,065	2,065	2,065
4.8	Seat height / Standing height	h7 (mm)	1,090	1,090	1,090
4.12	Coupling height	h10 (mm)	250	250	250
4.19	Overall length	l1 (mm)	2,935	3,020	3,030
4.20	Length to face of forks	l2 (mm)	2,035	2,120	2,130
4.21	Overall width	b1 (mm)	1,074	1,105	1,105
4.22	Fork dimensions	s / e / ℓ (mm)	35×10×900	35×100×900	40×100×900
4.23	Fork carriage ISO 2328, class / type A, B		II/A	II/A	II/A
4.24	Fork-carriage width	b3 (mm)	1,006	1,006	1,006
4.31	Ground clearance, loaded, under mast	m1 (mm)	85	94	94
4.32	Ground clearance, centre of wheelbase	m2 (mm)	90	90	100
4.34.1	Aisle width for pallets 1,000×1,200 crossways (L×W)	Ast (mm)	3,345	3,428	3,443
4.34.2	Aisle width of pallets 800×1200 crossways (W×L)	Ast (mm)	3,503	3,583	3,597
4.35	Turning radius	Wa (mm)	1,710	3,583	1,819

Performance Data					
5.1	Travel speed, loaded / unloaded	km/h	14 / 15	14 / 15	14 / 15
5.2	Lift speed, loaded / unloaded	mm/s	330 / 500	330 / 500	330 / 500
5.3	Lowering speed, loaded / unloaded	mm/s	500 / 450	500 / 450	500 / 450
5.6	Max. drawbar pull, loaded / unloaded S2 5min	N	11,550 / 11,345	12,035 / 10,835	12,020 / 10,805
5.8	Max. gradeability, loaded / unloaded	% (°)	22 (12.4)	21 (11.9)	18 (10.2)
5.10	Service brake		Hydraulic	Hydraulic	Hydraulic
Motor					
6.1	Drive motor rating S2 60 min	kW	4.0×2	4.0×2	4.0×2
6.2	Pump motor rating at S3 - 15 %	kW	12.0	12.0	12.0
6.4	Battery voltage, nominal capacity K5	V/Ah	48 / 440	48 / 440	48 / 440
6.5	Battery weight	kg	820	1,000	1,000
6.7	Battery department demensions (LxWxH)	mm	983 / 552 / 650	983 / 638 / 650	983 / 638 / 650
Other Details					
8.1	Type of drive control		AC	AC	AC

Dimensions



* Specifications in this catalog may vary depending on the options.

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