



MOVING YOU FURTHER

16·18

20B-9F



Some of the photos may include optional equipment

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 System (Optional)
- Panoramic rear view mirror

Maintenance

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





Power & Performance

High Efficiency & Optimal Performance

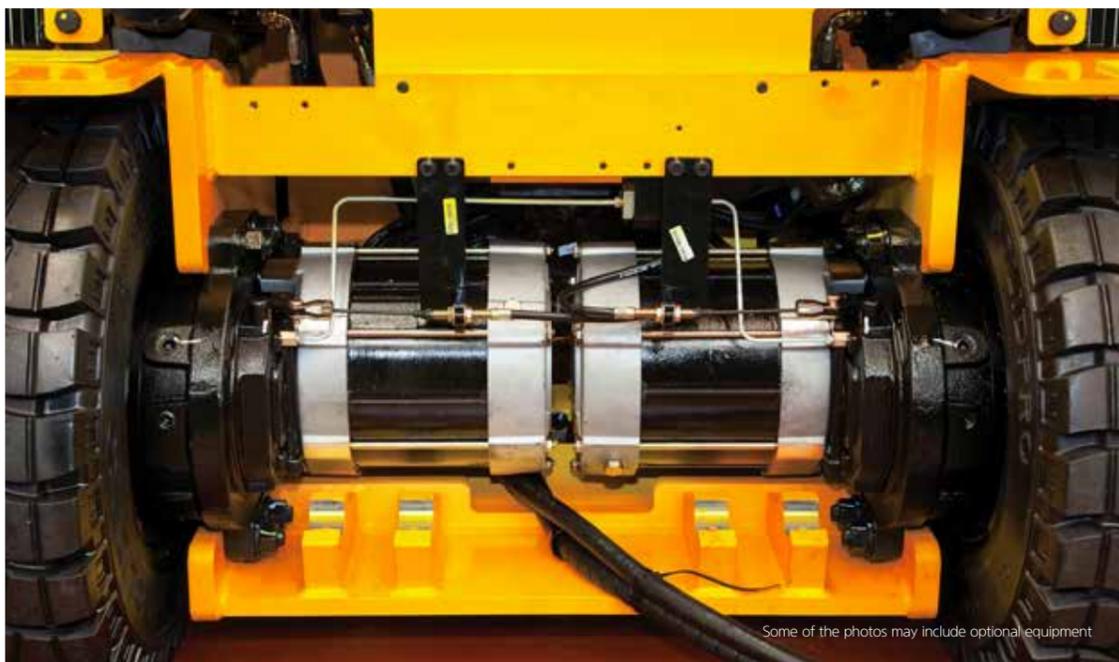
An efficient, smooth running and compact design provides enhanced performance and outstanding productivity.



Some of the photos may include optional equipment

Strong driving power – Dual drive motor system

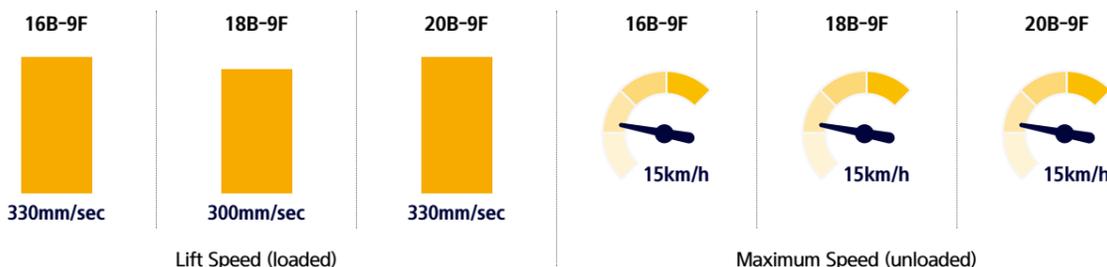
The dual drive motor system consists of two separately controlled drive motors. Unlike the single drive motor system, it prevents the wheels from spinning even when the grip force of the left and right wheels is different. In addition, it enables strong drive performance even on a dirty road. As the 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

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.



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 from the energy conversion.



Easy & Comfort

Optimized Ergonomics & Fast and Easy Maintenance

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



Some of the photos may include optional equipment



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.



Some of the photos may include optional equipment

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



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)



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

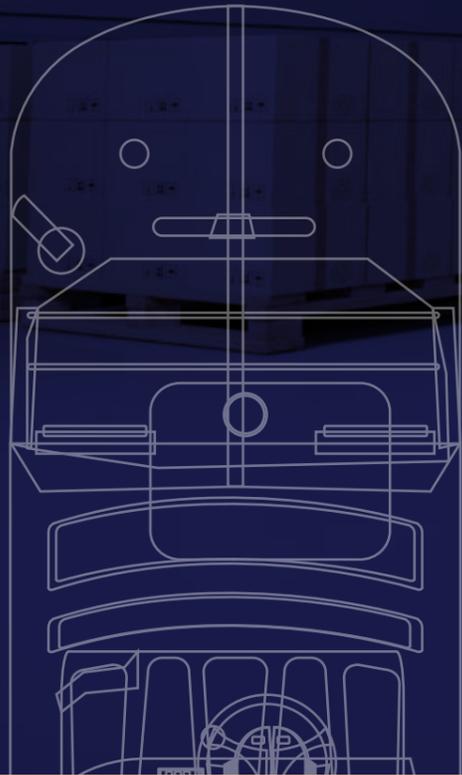
The enhanced brake oil reservoir, located in the upper left dash is equipped with an electronic level sensor that shows the level in the LCD color monitor.



Secure & Safety

Advanced Safety

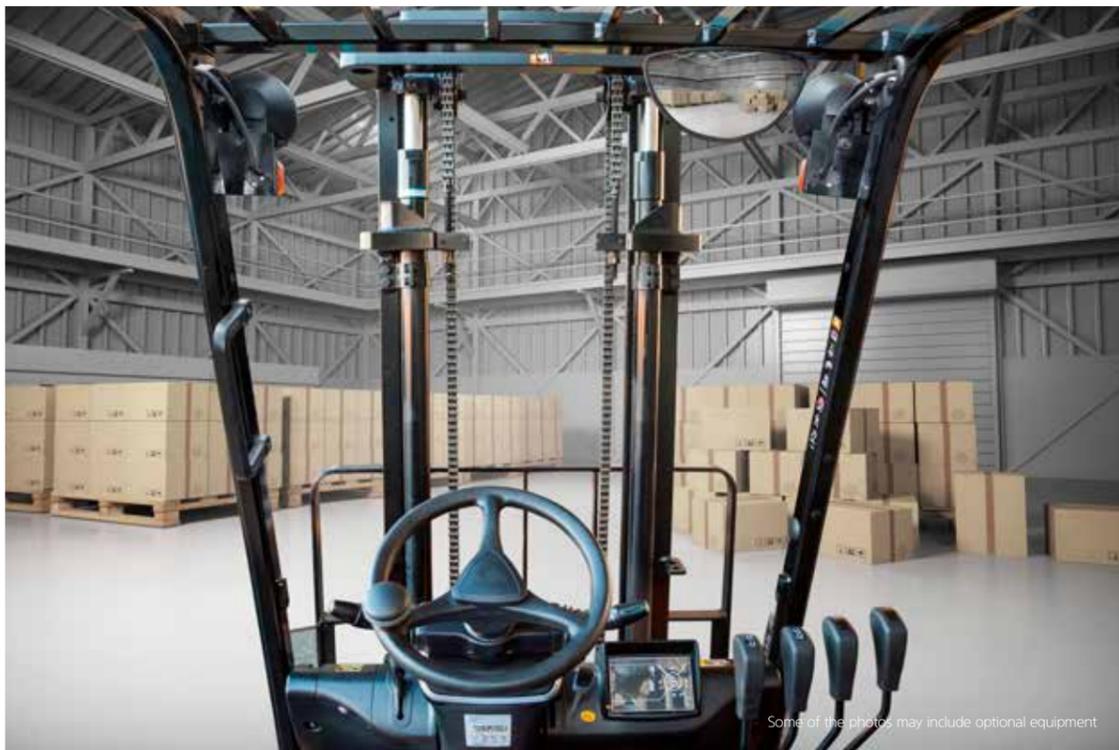
The safely designed driver's space makes your operating more comfortable.



Some of the photos may include optional equipment

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.



Some of the photos may include optional equipment



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.

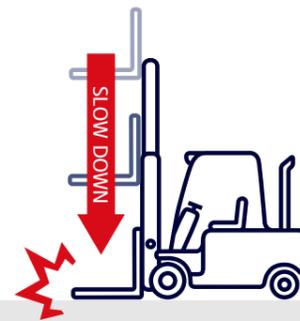
Safety features

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.



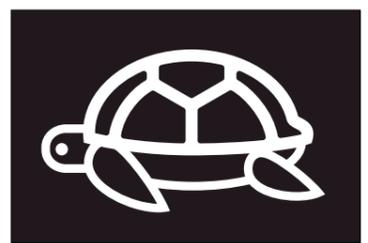
Operator presence sensing system (OPSS)

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

16/18/20B-9F

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-SPOOL) | Fwd | Bwd | 500mm LC | 500mm LC | | |
| | | | | | | | | mm | mm | | mm |
| 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

18B-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-SPOOL) | Fwd | Bwd | 500mm LC | 500mm LC | | |
| | | | | | | | | mm | mm | | mm |
| 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/V300 | 3,025 | 1,979 | 981 | 1,479 | 1,339 | 5 | 5 | 1,800 | 1,730 | 3,230 |
| | VF/V330 | 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

16/18/20B-9F

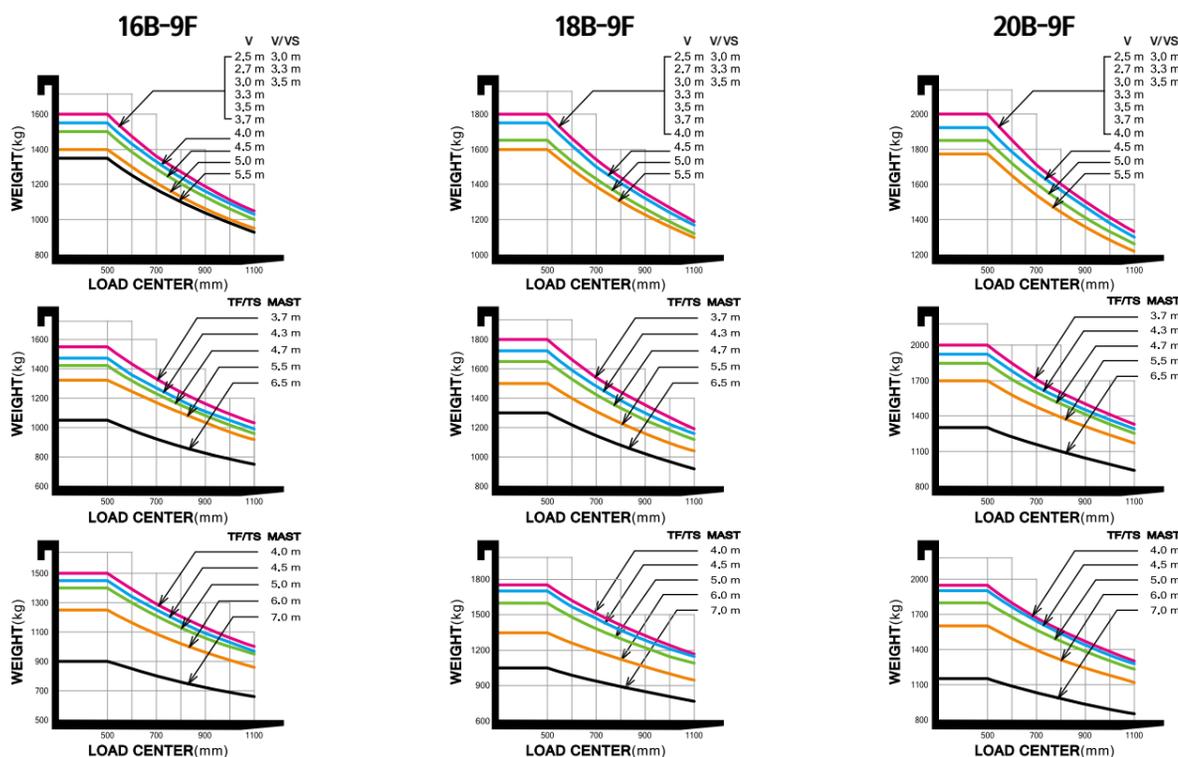
20B-9F



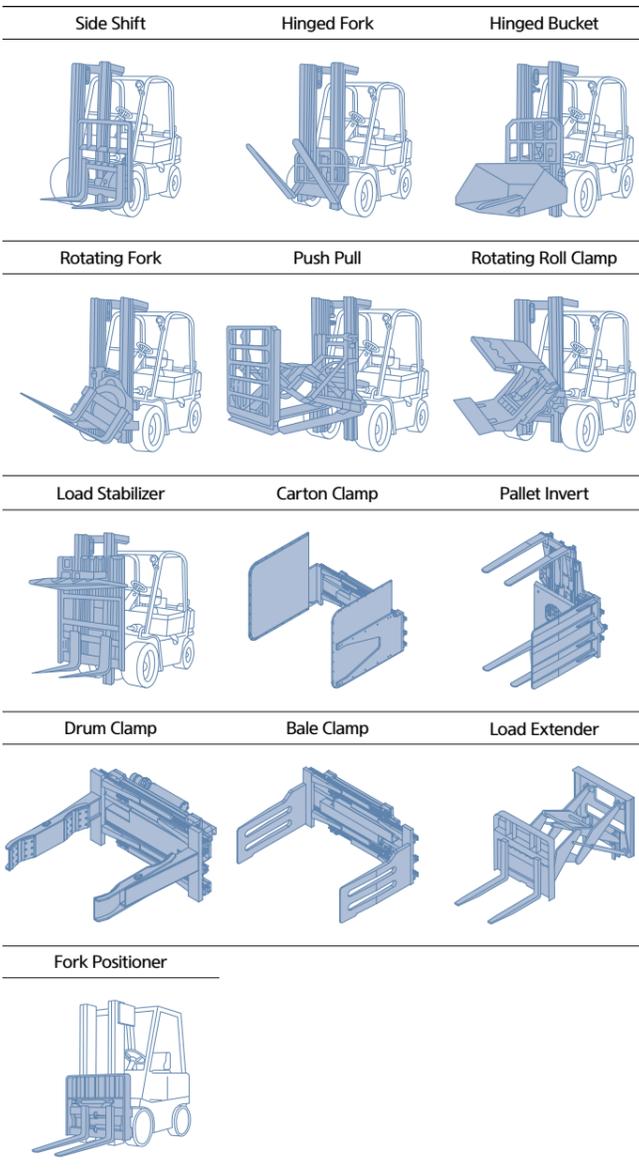
| Mast Type | Maximum Fork Height | Overall Height (Lowered) | Free lift height | | | Tilt Angle | | Load capacity Without side shift | Load capacity With side shift | Truck Weight (Unloaded) | |
|---------------------------|---------------------|--------------------------|--------------------|-----------------------|-----------------------------------|------------|-----|----------------------------------|-------------------------------|-------------------------|-------|
| | | | With Load Backrest | Without Load Backrest | Without Load Backrest (3/4-SPOOL) | Fwd | Bwd | 500mm LC | 500mm LC | | |
| | | | | | | | | mm | mm | | mm |
| 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 |

※ : Standard

Load Capacity



Various Attachments



Optional Items

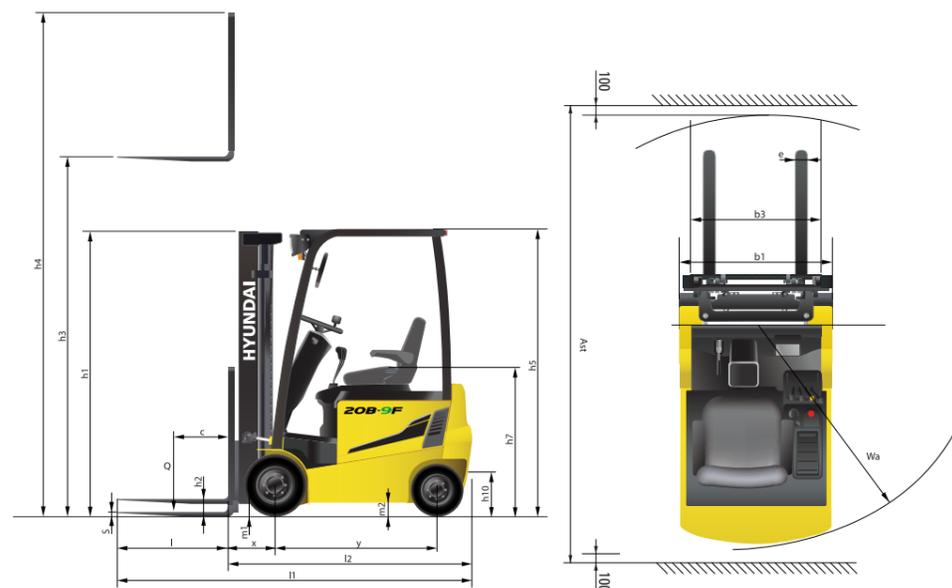
- Fork (mm)
 - 16 / 18B-9F : 35X100X750/850/900(STD)/1,050/1,200/1,350/1,500
 - 20B-9F : 40X100X900(STD)/950/1,000/1,050/1,150/1,200/1,350/1,500/1,600
- Integral Sideshift / Sideshift
- Tire : SOLID(STD) / Non-marking / Wide tire [16B-9F : Front tire (200 / 50-10)]
- Seat : semi suspension seat (STD)
 - Full suspension seat (Armrest, Backrest extension, Heating, Buckle SW)
- 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)

Specification

| Identification | | | | |
|----------------|---|----------------|---------------|---------------|
| 1.1 | Manufacturer | | Hyundai | |
| 1.2 | Model | | 16B-9F | 18B-9F |
| 1.3 | Power type | | Electric | Electric |
| 1.4 | Type of operation | | Seated | Seated |
| 1.5 | Load capacity | Q kg | 1,600 | 1,800 |
| 1.6 | Load center distance | c mm | 500 | 500 |
| 1.8 | Load distance, center of front axle to fork | x mm | 360 | 360 |
| 1.9 | Wheelbase | y mm | 1,355 | 1,440 |
| Weights | | | | |
| 2.1 | Service weight (including battery) | kg | 3,085 | 3,214 |
| 2.2 | Axle loading, loaded front / rear | kg | 4,106 / 578 | 4,437 / 577 |
| 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 |
| 3.2 | Front Tire size (Ø×width) | | 18×7-8 | 200 / 50-10 |
| 3.3 | Rear tire size (Ø×width) | | 16×6-8 | 16×6-8 |
| 3.5 | Wheels, number front rear (x = driven wheels) | | 2× / 2 | 2× / 2 |
| 3.6 | Track width, front | mm | 895 | 905 |
| 3.7 | Track width, rear | mm | 880 | 880 |
| Dimensions | | | | |
| 4.1 | Mast / fork carriage tilt forward / backward | degrees(°) | 5 / 7 | 5 / 7 |
| 4.2 | Lowered mast height | h1 (mm) | 1,970 | 1,979 |
| 4.3 | Free lift height | h2 (mm) | 35 | 35 |
| 4.4 | Lift height | h3 (mm) | 3,025 | 3,025 |
| 4.5 | Extended mast height | h4 (mm) | 4,020 | 4,020 |
| 4.7 | Overhead guard (cab) height | h5 (mm) | 2,065 | 2,065 |
| 4.8 | Seat height / Standing height | h7 (mm) | 1,090 | 1,090 |
| 4.12 | Coupling height | h10 (mm) | 250 | 250 |
| 4.19 | Overall length | l1 (mm) | 2,935 | 3,020 |
| 4.20 | Length to face of forks | l2 (mm) | 2,035 | 2,120 |
| 4.21 | Overall width | b1 (mm) | 1,074 | 1,105 |
| 4.22 | Fork dimensions | s / e / l (mm) | 35×10×900 | 35×100×900 |
| 4.23 | Fork carriage ISO 2328, class / type A, B | | II/A | II/A |
| 4.24 | Fork-carriage width | b3 (mm) | 1,006 | 1,006 |
| 4.31 | Ground clearance, loaded, under mast | m1 (mm) | 85 | 94 |
| 4.32 | Ground clearance, centre of wheelbase | m2 (mm) | 90 | 90 |
| 4.34.1 | Aisle width for pallets 1,000×1,200 crossways (L×W) | Ast (mm) | 3,345 | 3,428 |
| 4.34.2 | Aisle width of pallets 800×1,200 crossways (W×L) | Ast (mm) | 3,503 | 3,583 |
| 4.35 | Turning radius | Wa (mm) | 1,710 | 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.

MEMO

MEMO

