





# Proven AC technology! Hyundai 9 Series battery forklift

Introducing the upgraded Hyundai 9 Series electric pneumatic tire forklift.

The new B-9U Series brings customer added value to the next level by

dramatically reducing energy costs and enhancing powertrain durability.

### Work efficiency & productivity

- 32% increase in energy efficiency with EHPS (Electro Hydraulic Power Steering) system application
- Powerful and precise driving performance of dual drive motors
- Vehicle performance optimized for various working conditions
- Directional & horn switch on lever (OPT)
- 2 Door bolt on type cabin (OPT)

### **Durability & reliability**

- Stiffer drive unit input shaft
- Dual micom with improved data processing reliability: ZAPI Controller
- Oil Cooled Disc Brakes
- IP43 Motor & IP65 Controller

### Safety

- EHPS (Electro Hydraulic Power Steering)
- Curve Control
- Prevention of rear roll back when restarting after ramp stop
- Maximum driving speed setting
- Operator Presence Sensing System (OPSS)

### Easy management

- Self-diagnosis of electric system failure
- Durable Continental solid tire
- Brake fluid level sensing system



Some of the photos may include optional equipment.



# High Efficiency & Optimal Performance

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





## 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 traction 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.



# Improvement in energy consumption

EHPS (Electro Hydraulic Power Steering) system only functions when the driver operates the steering handle and significantly reduces the energy consumption rate because unlike the existing hydraulic power steering (HPS) system, it does not have a standby mode or a priority valve for supplying hydraulic power to the steering line. Moreover, the hydraulic pump noise generated from the steering standby mode of the HPS system has been completely eliminated.

Previous model (25B-9:715Ah): 185 minutes (100%)

Upgraded model (25B-9U: 660Ah): 246 minutes (132%)

\* The figures above are based on Hyundai's test results for a single charge cycle and may differ from actual working conditions.

#### **UPGRADE**



#### EHPS (Electro Hydraulic Power Steering)

Equipped with both the energy efficiency of the electric power steering system and the stability of the hydraulic power steering system, the EHPS system is composed of a torque sensor, controller, motor, hydraulic pump, and steering cylinder, and operates efficiently with little energy required.



#### **Dual MiCOM ZAPI controller**

**UPGRADE** 

With a dual micom on the inside. ZAPI's new AC controller safely controls the forklift by processing signals and faults via a two-way method, and is protected from moisture and other pollutants as IP65. Also, the drive controller capacity is optimized and a left and right split structure is adopted to reduce energy consumption.



#### Robust and economical AC motor

The enclosed drive and pump motor with AC technology combine power, extended maintenance intervals and excellent durability. The brushless AC motors offer improved efficiency and reduction maintenance cost. It is certified IP43.



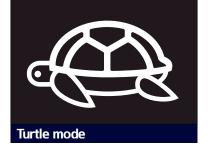
#### Wet disc brake

The semi-permanent brake improves work efficiency by providing consistent braking force since there are no overheating despite lengthy. Maintenance costs are lower without brake linings that need regular replacement.



#### **Optimized operation mode setting**

Through the cluster and ZAPI controller function, optimal performance mode-H (High), N (Normal), E (Economic) - can be selected based on working conditions, worksite size and operator's proficiency.



Selecting turtle mode allows the operator to reduce travel to a pre-set speed, which is ideal when working in narrow and or congested work areas.



## **Ergonomically designed workspace**

Ergonomic design focusing on operator convenience and maneuverability further enhances work efficiency. Easy to operate levers and pedals, adjustable handle, suspension seat and a large multi-functional cluster dashboard allow comfortable and efficient driving. A 12V power socket is a standard feature to improve operator convenience.





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.



An optional electronic directional control and secondary hom are mounted to the hydraulic lift lever for quick and precise directional

control. Also, the position of the hom button provide quick access if needed.



#### **Grammer seat**

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

- Accommodates operator weights from 110 to 375 lbs.
- ELR (Emergency Locking Retractable) type seat belt
- Heater and headrest (OPT)



The angle of the steering column can easily be adjusted to improve operator comfort.

## 4.3inch LCD color monitor

The LCD color monitor with 4.3 inch graphic smart display allows the operator to identify speed, travel direction, and operating hours and control the machine efficiently. The load indicator displays the load weight in the monitor. The operator can select various performance modes to meet all working conditions. Multilanguage (maximum 12) is available.



#### **Main functions**

- Speed (Digital)
- 2 Steering wheel position and travel direction
- Battery discharge indicator
- A Scroll up
- 6 Menu / Scroll Left
- 6 Performance / Scroll right

- 7 Turtle / Scroll down
- ESC / Back
- Enter
- O Low brake oil warning lamp
- Error warning lamp
- High temp warning lamp



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.



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.



# **Excellent visibility for safe operation**

Lift cylinders and lifting chains are positioned behind the mast rails for optimum visibility. A rear camera(OPT) and panoramic mirror expands the driver's view when backing up.





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



#### Curve control

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

### Maximum speed control

The operator can set and limit the maximum speed from 6 mph to 0.5 mph unit, 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.

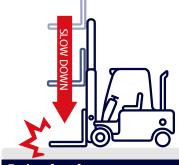
# **Safety features**

The adoption of a high-sensitivity sensor and advanced safety system can prevent 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 hydraulic lift and tilt controls and travel are locked out.





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

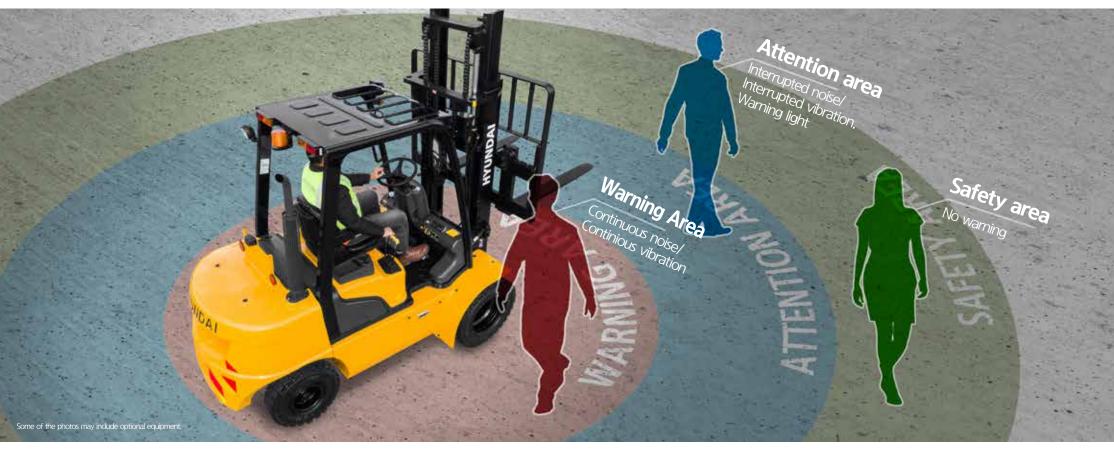


HYUNDAI

# **IPAS: Intelligent Proximity Alert System (OPT)**

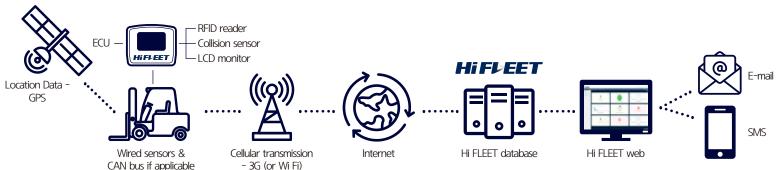
Emits a warning (vibration, warning noise) in each area by measuring the distance between the forklift and a nearby pedestrian in real time via wireless communication.





# Fleet Management System(Hi FLEET) (OPT)

Hi FLEET, Hyundai Material Handling's fleet management system, is the optimal operation solution for a fleet of forklifts. It connects driver and vehide in real time.



# New 9 Series Mast Specification



5,800

5,600

5,400

1,500

6

6 6

3 3

5,550

5,350

5,150

1,250

# 25B-9U

Mast Type				Fr	Tilt Angle		Load	Load			
		Maximum Fork Height	Overall Height (Lowered)	With Load Backrest	Without Load Backrest	Without Load Backrest (3/4-SPOOL)	Fwd	Bwd	capacity (24 inch LC) w/ side shift	capacity (24 inch LC) w/o side shift	Truck Weight (Unloaded)
		inch	inch	inch	inch	inch	deg	deg	lb	lb	lb
	V300	118.3	79.2				6	10	5,000	5,000	9,556
	*V330	130.1	85.1	4.5	4.5	4.5	6	10	5,000	5,000	9,617
2-STAGE LIMITED	V350	138.0	89.0				6	10	5,000	5,000	9,647
FREE LIFT	V370	145.9	95.0		4.5		6	10	5,000	4,950	9,696
	V400	158.3	100.9				6	10	5,000	2,850	9,742
	V450	177.4	112.7				6	6	4,800	4,650	9,916
2-STAGE FULL FREE LIFT	VF325	129.9	85.1	38.7	60.2	60.2	6	6	5,000	5,000	9,742
	TF430	169.5	79.2	32.8	54.3	54.3	6	6	4,900	10,053	4538
	TF450	177.4	83.1	36.7	58.2	58.2	6	6	4,800	4,650	10,102
	TF470	185.2	85.1	38.7	60.2	60.2	6	6	4,700	4,550	10,128
	TF500	197.0	80.0	42.6	64.1	64.1	6	6	4,600	4,450	10,181
3-STAGE FULL	TF550	216.7	96.9	50.5	72.0	72.0	6	6	4,400	4,250	10,271
FREE LIFT	TF600	236.4	104.8	58.3	79.9	79.9	6	6	4,300	4,150	10,357
	TS430	169.5	79.2	32.8	54.3	54.3	3	3	4,900	2,750	10,053
	TS470	185.2	85.1	38.7	60.2	60.2	6	6	4,700	4,550	10,128
	TS500	197.0	89.0	42.6	64.1	64.1	6	6	4,600	4,450	10,181
	TS550	216.7	96.9	50.5	72.0	72.0	6	6	4,400	4,250	10,271
4-STAGE FULL	QF700	276.2	96.3	49.9	67.4	69.4	3	3	2,600	1,450	11,028
FREE LIFT	QF790	311.6	108.1	61.7	83.2	69.4	3	3	1,500	1,350	11,349

<sup>\*</sup> TF-Mast: Wide Visible 3-Stage Full Free Lift Mast with 1 Free Lift Cylinders

\* : Standard

30B-9U

				Fr	ee lift heig	ht	Tilt A	Angle	Load	Load	
Mast Type		Maximum Fork Height	Overall Height (Lowered)	With Load Backrest	Without Load Backrest	Without Load Backrest (3/4-SPOOL)	Fwd Bwd		capacity (24 inch LC) w/ side shift	capacity (24 inch LC) w/o side shift	Truck Weight (Unloaded)
		inch	inch	inch	inch	inch	deg	deg	lb	lb	lb
	V300	118.3	79.2				6	10	6,000	6,000	10,172
	*V330	130.1	85.1	4.5	4.5	4.5	6	10	6,000	6,000	10,214
2-STAGE	V350	138.0	89.0				6	10	6,000	6,000	10,250
LIMITED FREE LIFT	V400	158.3	100.9				6	10	6,000	6,000	10,348
	V450	177.4	112.7				6	6	6,000	5,900	10,520
	V500	197.0	197.0				6	6	5,800	5,550	10,602
2-STAGE FULL FREE LIFT	VF295	117.2	79.2	32.8	54.3	54.3	6	6	6,000	6,000	10.216
	TF400	158.3	75.3	28.8	47.9	46.5	6	6	6,000	6,000	10,584
	TF430	169.5	79.2	32.8	51.9	50.4	6	6	6,000	5,900	10,628
	TF450	177.4	83.1	36.7	55.8	55.8	6	6	6,000	5,750	10,688
	TF470	185.2	85.1	38.7	57.8	56.3	6	6	5,900	5,650	10,721
	TF500	197.0	89.0	42.6	61.7	60.3	6	6	5,800	5,650	10,778
	TF550	216.7	96.9	50.5	69.6	1767	6	6	5,600	5,350	10,871
3-STAGE FULL FREE LIFT	TF600	236.4	104.8	58.3	77.4	77.4	6	6	5,400	5,150	10,959
	TS430	169.5	79.2	32.8	51.9	49.3	6	6	6,000	5,900	10,628
	TS450	177.4	83.1	36.7	55.8	55.2	6	6	6,000	5,740	10,688
	TS470	185.2	85.1	38.7	57.8	55.2	6	6	5,900	5,650	10,721
		1							i e	1	

61.7

69.6

77.4

69.0

76.9

72.2

42.6

50.5

58.3

61.7

89.0

96.9

104.8

108.1

197.0

216.7

236.4

311.6

TS500

TS550

TS600

QF790

4-STAGE FULL

FREE LIFT

11,882 \* : Standard

10,778

10,871

10,959

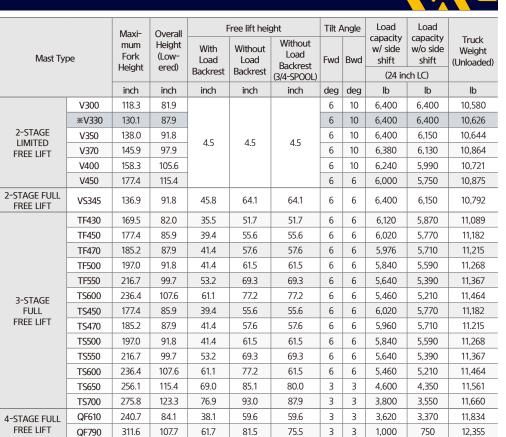
<sup>\*</sup> TS-Mast: Wide Visible 3-Stage Full Free Lift Mast with 2 Free Lift Cylinders

<sup>\*</sup> TF-Mast: Wide Visible 3-Stage Full Free Lift Mast with 1 Free Lift Cylinders

# New 9 Series Mast Specification



## 32B-9U



\* TF-Mast: Wide Visible 3-Stage Full Free Lift Mast with 1 Free Lift Cylinders

\* TS-Mast: Wide Visible 3-Stage Full Free Lift Mast with 2 Free Lift Cylinders

### 35B-9U

\* : Standard

Mast Type		Maxi-	Overall	Overall Free lift height			Tilt Angle		Load	Load	
		mum Fork Height	Height (Low- ered)	With Load	Load Load Backrest Backrest	Without Load Backrest	Fwd Bwd	Bwd	capacity w/ side shift	capacity w/o side shift	Weight (Unloaded)
						(3/4-SPOOL)			(24ind	,	
		inch	inch	inch	inch	inch	deg	deg	lb	lb	lb
	V300	118.3	82.4	4.5	4.5	4.5	6	10	7,000	7,000	11,021
2-STAGE	*V330	130.1	88.3				6	10	7,000	7,000	11,067
2-STAGE LIMITED	V350	138.0	92.2				6	10	7,000	7,000	11,085
FREE LIFT	V370	145.9	98.1				6	10	7,000	7,000	11,125
	V400	158.3	104.1				6	10	7,000	6,860	11,162
	V450	177.4	115.9				6	6	6,900	6,600	11,233
2-STAGE FULL FREE LIFT	VS345	136.9	88.3	45.8	64.1	64.1	6	6	7,000	6,700	11,233
	TF430	169.4	82.4	35.9	54.2	54.2	6	6	6,900	6,600	11,530
	TF450	169.5	86.3	39.9	58.1	58.1	6	6	6,800	6,500	11,623
	TF470	185.2	88.3	41.8	60.1	60.1	6	6	6,700	6,400	11,656
	TF500	197.0	92.2	45.8	64.1	64.1	6	6	6,600	6,300	11,709
	TF550	236.4	100.1	53.7	71.9	71.9	6	6	6,300	6,000	11,808
3-STAGE	TF600	236.4	108.0	61.5	79.8	79.8	6	6	6,200	5,900	11,905
FULL	TS450	177.4	86.3	39.9	58.1	58.1	6	6	6,800	6,500	11,623
FREE LIFT	TS470	185.2	88.3	41.9	60.1	60.1	6	6	6,700	6,400	11,656
	TS500	197.0	92.2	45.8	64.1	64.1	6	6	6,600	6,300	11,709
	TS550	236.4	100.1	53.7	71.9	71.9	6	6	6,300	6,000	11,808
	TS600	236.4	108.0	61.5	79.8	79.8	6	6	6,200	5,900	11,905
	TS650	256.1	115.9	69.4	85.6	80.0	3	3	5,200	4,900	12,002
	TS700	275.8	123.7	77.3	93.4	87.9	3	3	4,400	4,100	12,101
4-STAGE FULL	QF610	240.7	84.5	38.0	59.6	59.6	3	3	3,860	3,610	12,275
FREE LIFT	QF790	311.6	108.1	61.7	81.5	75.5	3	3	1,200	950	11,882

\* TF-Mast: Wide Visible 3-Stage Full Free Lift Mast with 1 Free Lift Cylinders

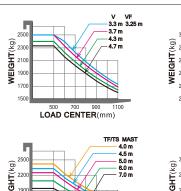
\* TS-Mast: Wide Visible 3-Stage Full Free Lift Mast with 2 Free Lift Cylinders

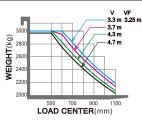
\* : Standard

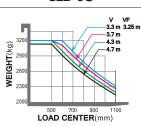
# **New 9 Series**

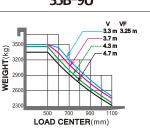
## 25/30/32/35B-9U

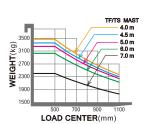
### **Load Capacity** 25B-9U 30B-9U 32B-9U 35B-9U

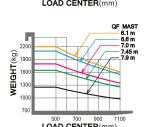


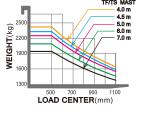


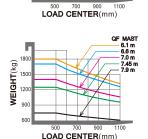


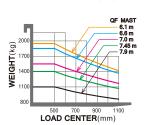




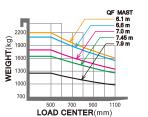








LOAD CENTER(mm)



# **Optional Items**



• Fork (mm) 25B-9U: 900, 1000, 1050(STD), 1200, 1350, 1500, 1650, 1800, 2100 30/32/35B-9U: 900, 1050(STD), 1150, 1200, 1350, 1500, 1650, 1800, 1970, 2120, 2300, 2400

500 700 900 1100 LOAD CENTER(mm)

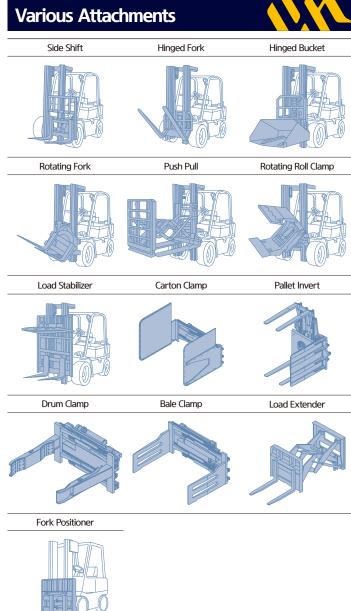
- Integral side shift
- Tire : Solid (STD) / pneumatic / non-marking

Wide [25/30/32B-9U: Front(23X10-12)]

5.0 m 6.0 m

- Finger Tip Control
- Cold Storage: Applicable to working conditions to -22F
- M.C.V: 2-Spool, 3-Spool (STD), 4-Spool
- Auto fork leveling
- Side Battery Removal (STD), Top Battery Removal (No Charge)

- Directional Switch and Horn on Lift Lever
- Cabin (one-door)
- 1) FRONT + ROOF + REAR
- 2) FRONT + ROOF + REAR + DOOR
- (3) FRONT + ROOF + REAR + DOOR
- + HEATER



<sup>\*</sup> Exterior designs and forklift options in this catalog may change for improvement

# **New 9 Series**

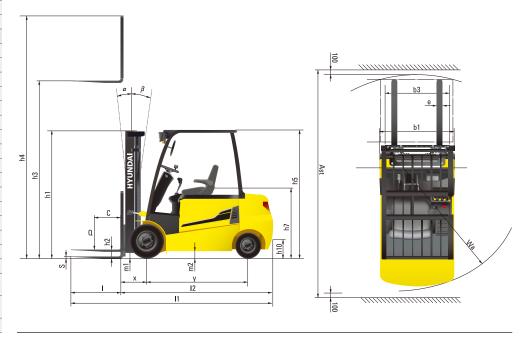
### 25/30/32/35B-9U

# **Specification**

DISTIN	IGUISHING MARK							
1.1	Manufacturer (Abbreviation)		HYUNDAI					
1.2	Manufacturer's Type Designation		25B-9U	30B-9U	32B-9U	35B-9U		
1.3	Drive : Electric (Battery Or Mains), Diesel, Petrol,	Fuel Gas	Electric	Electric	Electric	Electric		
1.4	Type Of Operation: Hand, Pedestrian, Stand Order-Picker	ding, Seated,	seated	seated	seated	seated		
1.5	Load Capacity / Rated Load	lb	5,000	6,000	6,400	7,000		
1.6	Load Center Distance	c inch	24.0	24	24	24		
1.8	Load Distance, Center Of Drive Axle To Fork	x inch	18.0	18.0	18.0	18.5		
1.9	Wheelbase	y inch	55.1	63.0	63.0	63.0		
WEIGH	<del>I</del> T							
2.1	Service Weight	lb	9,612	10,214	10,626	11,067		
2.2	Axle Loading, Loaded Front / Rear	lb	13,262 / 1,861	15,018 / 1808	15642 / 2,039	16,616 / 2,167		
2.3	Axle Loading, Unloaded Front / Rear	lb	3,979 / 5,633	4445 / 5769	4,365 / 6,261	4,301 / 6,845		
TIRES,	CHASSIS							
3.1	Tires : Solid Rubber, Superelastic, Pneumatic, Pol	yurethane	SE, P	SE, P	SE, P	SE, P		
3.2	Tire Size, Front	23X9-10	23X9-10	23X9-10	23X10-12			
3.3	Tire Size, Rear	18X7-8	18X7-8	18X7-8	18X7-8			
3.5	Wheels, Number Front / Rear (X = Driven \	2x/2	2x/2	2x/2	2x/2			
3.6	Tread, Front	inch	39.1	39.1	39.1	39.6		
3.7	Tread, Rear	inch	38.6	38.6	38.6	38.6		
DIMEN	ISIONS							
4.1	Tilt Of Mast / Fork Carriage Forward / Backrward	degrees	6 / 10	6 / 10	6 / 10	6 / 10		
4.2	Height, Mast Lowered	h1 (inch)	85.1	85.1	87.9	88.3		
4.3	Free Lift	h2 (inch)	4.5	4.5	4.5	4.5		
4.4	Lift Height	h3 (inch)	130.0	130.0	130.0	130.0		
4.5	Height, Mast Extended	h4 (inch)	176.6	176.6	176.6	176.6		
4.7	Height Of Overhead Guard (Cabin)	h5 (inch)	87.8	87.8	87.8	87.8		
4.8	Seat Height / Stand Height Rel. To Sip	h7 (inch)	87.8	87.8	87.8	87.8		
4.12	Coupling Height	h10 (inch)	12.8	12.8	12.8	12.8		
4.19	Overall Length	I1 (inch)	131.7	139.2	139.9	143.3		
4.20	Length To Face Of Forks	I2 (inch)	90.4	97.8	98.5	102.0		
4.21	Overall Width	b1 (inch)	47.2	47.2	47.2	49.2		
4.22	Fork Dimensions	I ×e ×s (inch)	41.3 / 3.9 / 1.7	41.3 / 3.9 / 1.7	41.3 / 3.9 / 1.7	41.3 / 3.9 / 1.7		
4.23	Fork Carriage ITA Class		II	III	III	III		
4.24	Fork-Carriage Width	b3 (inch)	43.4	43.4	43.4	43.4		
4.31	Ground Clearance, Below Mast, Loaded	m1 (inch)	4.6	4.6	4.6	5.0		
4.32	Ground Clearance, Center Of Wheelbase	m2 (inch)	5.1	5.1	5.1	5.1		
4.33	Aisle Width For Pallets 1000 × 1200 Crossways (L×W)	Ast (inch)	143.2	150.7	151.3	153.4		
4.34	Aisle Width Of Pallets 800 × 1200 Crossways (W L)	Ast (inch)	149.7	157.8	158.4	160.5		
4.35	Turning Radius	Wa (inch)	76.4	84.6	85.2	86.8		

PERFORMANCE DATA										
5.1	Travel Speed, Loaded / Unloaded	mph	10 / 11	10 / 11	10 / 11	10 / 11				
5.2	Lift Speed, Loaded / Unloaded	inch/s	16.5 / 23.6	13.4 / 19.7	13.0 / 19.7	11.8 / 18.1				
5.3	Lowering Speed, Loaded / Unloaded	inch/s	19.7 / 17.7	19.7 / 17.7	19.7 / 17.7	19.7 / 17.7				
5.6	Max. Drawbar Pull, Loaded / Unloaded	N	14,710 / 14,690	14,640 / 14,700	14,580 / 14,660	14,580 / 14,410				
5.8	Max. Gradeability, Loaded	%(°)	22 (12.4)	19 (10.8)	18 (10.2)	17 (9.6)				
5.10	Service Brake		Hydraulic	Hydraulic	Hydraulic	Hydraulic				
ELECTE	ELECTRIC-MOTOR									
6.1	Drive Motor Rating S2 60 Min	kw	7.0×2	7.0×2	7.0×2	7.0×2				
6.2	Lift Motor Rating At S3 15%	kw	17	17	17	17				
6.4	Battery Voltage, Nominal Capacity K5	V/Ah	48 / 660	48 / 715	48 / 715	48 / 715				
6.5	Battery Weight (Min.)	lb	2,403	2,535	2,535	2,535				
6.5	Battery Compartment Dimensions L/W/H	inch	40.7 / 31.5 / 22.2	40.7 / 39.4 / 22.2	40.7 / 39.4 / 22.2	40.7 / 39.4 / 22.2				
ADDIT	ADDITION DATA									
8.1	Type Of Drive Control		AC	AC	AC	AC				

## **Dimension**



<sup>\*</sup> Exterior designs and forklift options in this catalog may change for improvement

# **MEMO**