

110/130/160D-9

Performance Enhanced For Tier-4 Final

MOVING YOU FURTHER

HYUNDAI CONSTRUCTION EQUIPMENT



 **HYUNDAI**
CONSTRUCTION EQUIPMENT

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www.hyundai-ce.com

2017. 04 Rev. 3

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Some of the photos may include optional equipment.

Your satisfaction is our priority!

Hyundai introduces a new line of 9-series diesel forklift trucks. The newly designed 4 wheel counterbalance trucks provide every operator comfortable driving, increased productivity and easy maintenance.

New Diesel Forklift with Proven Quality and Advanced Technology

- Maximum Performance
- Spacious Operator's cab
- Weight Indicator (Optional)
- OPSS System for Safe Operation
- Easy Serviceability
- Hi-mate (Remote Management System) (Optional)
- 4.3Inch Color LCD (Centralized Information Display)
- FATC (Full Automatic Temperature Control) Airconditioner (Optional)



Some of the photos may include optional equipment.

High Efficiency & Optimal Performance



Powerful engine and high technology systems provide you with enhanced performance and highest productivity.

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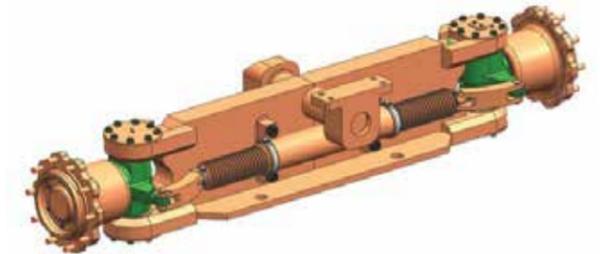


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Full-automatic Transmission

Full-automatic transmission gives easy, convenient handling and soft, smooth shifting. The operator can select two kinds of automatic modes. (1st→3rd, 2nd→3rd)



Fully Hydrostatic Power Steering

The hydraulic steering system always guarantees smooth and flexible steering, preventing over-run and kick-back.

Load Sensing System

Only flow required on cylinders is supplied. It makes energy saving. (No excessive flow)



Durable drive axle

The hypoid type planetary reduction drive axle smoothly delivers desired torque to the drive wheels.



Wet Disc Brake System

The wet disc brake system is virtually maintenance free and is enclosed to protect from dust and water.



Cummins QSB6.7 Engine

122KW/2,300rpm

74.7kgf.m/1,500rpm

Powerful Engine

The six cylinders turbo-charged engine is built for power, reliability and economy. This engine meets EPA Tier 4 and EU stage IV emission regulation.

Excellent Fuel Efficiency

Fuel consumption rate is improved than previous model.

DOC(Diesel Oxidation Catalyst)

SCR(Selective Catalytic Reduction)

EGR(Exhaust Gas Recirculation)

- High torque at low speeds
- Excellent transient behavior



Increased Mast Tilting Angle

Utilizing the mast tilting angle of 15 degrees forward and 12 degrees backward, the operator can perform loading and unloading jobs safely and rapidly.



Max.Gradeability (loaded/Unloaded)

Model	%
110D-9	52.1
130D-9	46.9
160D-9	37.7

Max.Travel Speed (Unloaded)

Model	Km / h
110D-9	35.6
130D-9	35.6
160D-9	35.2

Faster Travel Speed & Better Gradability

The powerful engine provides greater acceleration, better gradability and faster travel speed on any tough terrains or slopes.

Best Convenience & Optimised Ergonomics



The ergonomically designed cabin provides full support and comfort to the operator.

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Some of the photos may include optional equipment.

Spacious Operator Cabin

The newly designed cabin was conceived for more space, a wider field of view and operator comfort.



New Design Cluster

1	Parking lamp	2	Engine check warning lamp	3	High beam indicator lamp
4	Operator presence indicator lamp	5	Seat belt warning lamp	6	Left turn signal indicator lamp
7	Engine RPM indicator	8	Load weight indicator(option)	9	Hour meter
10	Odometer	11	Outside temperature indicator	12	Air-con setting temp. indicator
13	Vehicle tilt angle indicator	14	Clock	15	T/M information display
16	Urea level gauge	17	Rear wheel angle(option)	18	Mast tilt angle indicator
19	Right turn signal indicator lamp	20	Engine coolant temperature gauge	21	Transmission oil temperature gauge
22	Fuel gauge	23	Speed gauge		



MP3 CD Player



Bluetooth Hands Free Remote Control Socket (Optional)



Centralized Instrument Switch Panel



Luxury(Air-suspension+Heat+HeadRest) Seat (Optional)
An attractive and adjustable seat, based on a human engineering design, provides great comfort, safety and durability.



High-output Air Conditioner & Heater (Optional)

Air Vent positions of the air conditioner with integrated the condenser is mounted on cabin front rear side to make a wide room in the cabin. And an air conditioner with high-output and heater always provide you with comfortable environment when you work. *Especially Applied FATC(Full Automatic Temperature Control)



Adjustable Steering Column

Steering handle is adjustable depending on the operator's body shape. Adjustability of steering column makes you more comfortable.



Quick Response of Operating Control Levers

Only minimal operator's effort is required for precise, safe and productive control. (4 Lever : Standard), (3/5 Lever : Option)

Advanced Safety



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

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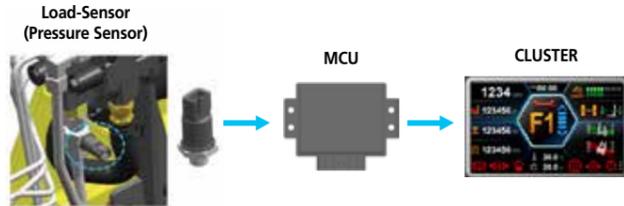
Engine Control Mode

According to operating load, the operator can select engine mode by changing side panel switch.
 STD Mode : Fuel reduction mode for lightduty operating load
 POWER Mode : Heavy-duty or operating at slope



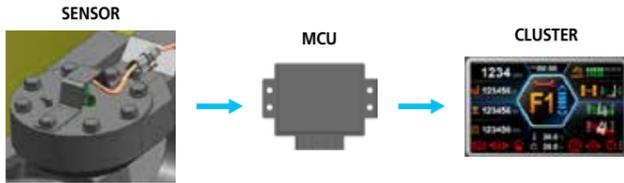
Adjustable Engine Low Idle RPM

While engine runs, low idle rpm can be increased by unit of 25rpm and it keeps previously set rpm when engine restarts.



Weight Indicator (Optional)

The optional Weight Indicator displays the load weight in the monitor. The load sensor reduces the time to check loaded weight and the alarm alerts the driver when overloaded.



Rear Wheel Angle Monitoring (Optional)

- indicate steering wheel angle for easy operation
- Real-time steering wheel angle display

OPSS (Operator Presence Sensing System)

When the operator is not in the seat all mast and drive movements are impossible.

Lift Lock **Tilt Lock** **Drive Lock**



Some of the photos may include optional equipment.



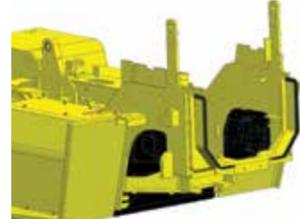
Up-to-date Cooling System

The minimum fuel consumption and low noise are available by applying hydraulic cooling fan sensing intake air temperature, transmission oil temperature, coolant temperature and hydraulic temperature.



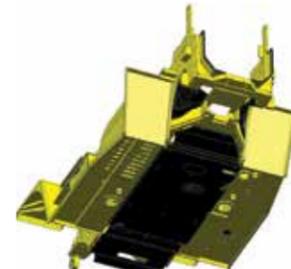
Cabin Tilting Automatic System

Cabin tilting automatic system makes servicing of all power train components quick and easy. An electrically assisted hydraulic actuated cylinder tilts operator cabin to left side about 65 degrees for easy access to inside of truck components.



Rear Tire Cover

The Rear tire cover with PE material is equipped to prevent clogging of the radiator from foreign substances.



Undercover (Optional)

The Under cover protect the engine and components from dusts caused by ground. It helps to lengthen Components life.



Highly Durable Mast & Carriage Side Roller

Side roller with great durability for mast and carriage is included.



Highly Durable Carriage

The carriage is very strong cause of applying the high tensile structural steel which has a excellent durability. Work at the narrow space is easy because the width of carriage is narrower than overall width of the vehicle.



Excellent Night Work

- Various position of work lamp provides the operator more comfortable and safe operating environments.
 - Front : fender(2), mast(4)
 - Rear : cab(2)
 - LED Rear Combination Lamp

Fast and Easy Maintenance

An ideal arrangement of components ensures easy access and convenience for maintenance.

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Large Engine Hood
Highly accessible engine compartment assures fast and efficient maintenance.

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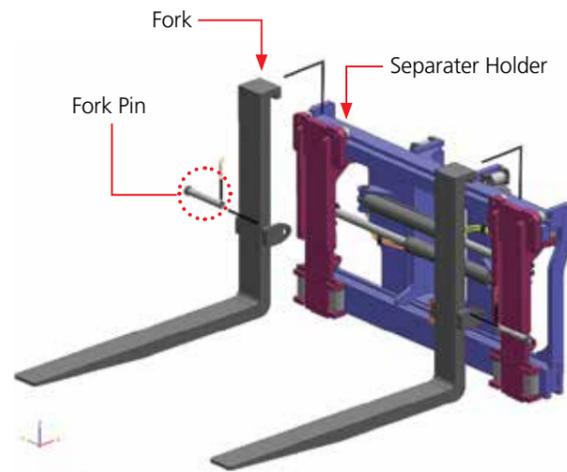
Hi-mate (Remote Management System)
Hi-mate, Hyundai's proprietary remote management system, provides operators and dealer service personnel access to vital service and diagnostic information on the machine from any computer with internet access.



Rear View Camera (Optional)
The rear view camera makes the operation more easy and convenient. And it supports 4camera channels.



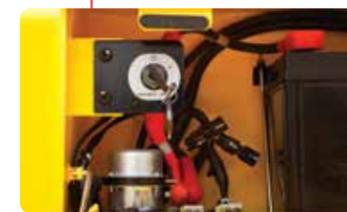
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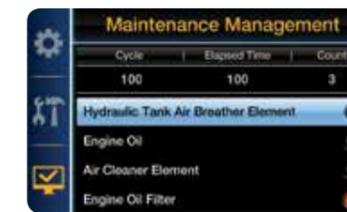
Separator Holder Type Fork Carriage (Optional)
To improve handling and easily switch forks and other attachment Separator holder system is adopted as option. It is possible to install various attachments like coil ram easily.



Cabin Air Fresh Filter
The internal pressure is maintained to be slightly higher than that of outside to exclude dust and to reduce noise levels.



Master Switch
A master switch disconnects the battery power to protect the electrical system from excess electrical drainage.



Maintenance Management Display



Engine Start Limit

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Mast Specification (110D-9)

Mast Type	Overall Height Lowered		Maximum Fork Height		FREE LIFT		Tilt Angle		Load capacity								TRUCK WEIGHT UNLOAD		
	in	mm	in	mm	in	mm	deg	deg	General				Integral side shift with Fork Positioner				lb	kg	
									24 in LC	600mm LC	47 in LC	1200mm LC	24 in LC	600mm LC	47 in LC	1200mm LC			
2-Stage Limited Free Lift	V280	114	2,900	110	2,805	0	0	15	12	25000	11,000	22286	10,130	25000	11,000	21670	9,850	35807	16,242
	※V300	118	3,000	118	3,005	0	0	15	12	25000	11,000	22110	10,050	25000	11,000	21494	9,770	35879	16,275
	V330	124	3,150	130	3,305	0	0	15	12	25000	11,000	21780	9,900	25000	11,000	21164	9,620	36047	16,351
	V350	128	3,250	138	3,505	0	0	15	12	25000	11,000	21582	9,810	25000	11,000	20944	9,520	36156	16,400
	V400	140	3,550	158	4,005	0	0	15	12	25000	11,000	21010	9,550	25000	11,000	20372	9,260	36713	16,653
	V450	150	3,800	177	4,505	0	0	15	12	25000	11,000	20504	9,320	25000	11,000	19866	9,030	36989	16,778
	V500	161	4,100	197	5,005	0	0	15	12	25000	11,000	19998	9,090	25000	11,000	19360	8,800	37318	16,927
	V550	171	4,350	217	5,505	0	0	15	12	25000	11,000	19492	8,860	25000	11,000	18854	8,570	37826	17,158
	V600	183	4,650	236	6,005	0	0	15	12	25000	11,000	19008	8,640	25000	11,000	18370	8,350	38162	17,310
	V650	193	4,900	256	6,505	0	0	15	12	25000	11,000	18568	8,440	23672	10,760	17908	8,140	38455	17,443
V700	203	5,150	276	7,005	0	0	15	12	23804	10,820	18128	8,240	22946	10,430	17468	7,940	38744	17,574	
2-Stage Full Free Lift	VS300	118	3,000	119	3,028	61	1,545	10	10	25000	11,000	21890	9,950	25000	11,000	20966	9,530	36265	16,449
	VS350	128	3,250	139	3,528	71	1,795	10	10	25000	11,000	21362	9,710	25000	11,000	20460	9,300	36573	16,589
	VS400	138	3,500	159	4,028	81	2,045	10	10	25000	11,000	20856	9,480	25000	11,000	19976	9,080	36885	16,731
	VS450	148	3,750	178	4,528	90	2,295	10	10	25000	11,000	20350	9,250	25000	11,000	19470	8,850	37206	16,877
	VS500	157	4,000	198	5,028	100	2,545	10	10	25000	11,000	19844	9,020	25000	11,000	18986	8,630	37773	17,134
	VS550	167	4,250	218	5,528	110	2,795	10	10	25000	11,000	19316	8,780	25000	11,000	18458	8,390	38254	17,352
3-Stage Full Free Lift	VS600	181	4,600	237	6,028	120	3,045	10	10	25000	11,000	18788	8,540	23848	10,840	17952	8,160	38797	17,598
	TS450	116	2,950	178	4,521	61	1,555	10	10	25000	11,000	19778	8,990	25000	11,000	19074	8,670	38370	17,405
	TS500	123	3,117	198	5,025	68	1,725	10	10	25000	11,000	19316	8,780	25000	11,000	18568	8,440	38572	17,496
	TS550	129	3,284	218	5,525	74	1,891	10	10	25000	11,000	18832	8,560	24090	10,950	18106	8,230	38774	17,588
	TS600	140	3,551	237	6,023	81	2,055	10	10	25000	11,000	18348	8,340	23320	10,600	17622	8,010	39095	17,733
	TS650	146	3,718	257	6,525	88	2,223	10	10	23584	10,720	17908	8,140	22616	10,280	17182	7,810	39297	17,825
	TS700	155	3,935	277	7,025	94	2,389	10	10	22836	10,380	17424	7,920	21868	9,940	16698	7,590	39828	18,066
TS750	161	4,102	296	7,525	101	2,555	10	10	22176	10,080	17006	7,730	21230	9,650	16280	7,400	40032	18,158	

Mast Specification (160D-9)

Mast Type	Overall Height Lowered		Maximum Fork Height		FREE LIFT		Tilt Angle		Load capacity								TRUCK WEIGHT UNLOAD		
	in	mm	in	mm	in	mm	deg	deg	General				Integral side shift with Fork Positioner				lb	kg	
									24 in LC	600mm LC	47 in LC	1200mm LC	24 in LC	600mm LC	47 in LC	1200mm LC			
2-Stage Limited Free Lift	V295	116	2,950	116	2,950	0	0	15	12	36000	16,000	31262	14,210	36000	16,000	30580	13,900	43384	19,679
	※V300	128	3,250	119	3,010	0	0	15	12	36000	16,000	31064	14,120	36000	16,000	30404	13,820	43746	19,843
	V330	134	3,400	130	3,310	0	0	15	12	36000	16,000	30646	13,930	36000	16,000	29942	13,610	43954	19,937
	V350	138	3,500	138	3,510	0	0	15	12	36000	16,000	30360	13,800	36000	16,000	29700	13,500	44052	19,982
	V400	148	3,750	158	4,010	0	0	15	12	36000	16,000	29612	13,460	36000	16,000	28930	13,150	44687	20,270
	V450	157	4,000	178	4,510	0	0	15	12	36000	16,000	28952	13,160	36000	16,000	28248	12,840	45027	20,424
	V500	169	4,300	197	5,010	0	0	15	12	36000	16,000	28270	12,850	36000	16,000	27566	12,530	45429	20,607
	V550	179	4,550	217	5,510	0	0	15	12	36000	16,000	27588	12,540	36000	16,000	26884	12,220	46021	20,875
	V600	191	4,850	237	6,010	0	0	15	12	36000	16,000	26950	12,250	34562	15,710	26224	11,920	46423	21,057
	V650	202	5,125	256	6,510	0	0	15	12	34540	15,700	26334	11,970	33572	15,260	25608	11,640	46789	21,223
V700	212	5,375	276	7,010	0	0	15	12	33594	15,270	25740	11,700	32626	14,830	25014	11,370	47123	21,375	
2-Stage Full Free Lift	VS300	126	3,200	119	3,010	61	1,550	10	10	36000	16,000	30932	14,060	36000	16,000	30228	13,740	43810	19,872
	VS330	132	3,350	130	3,310	67	1,700	10	10	36000	16,000	30514	13,870	36000	16,000	29810	13,550	43985	19,951
	VS350	136	3,450	138	3,510	71	1,800	10	10	36000	16,000	30228	13,740	36000	16,000	29524	13,420	44127	20,016
	VS400	146	3,700	158	4,010	81	2,050	10	10	36000	16,000	29546	13,430	36000	16,000	28842	13,110	44488	20,179
	VS450	156	3,950	178	4,510	91	2,300	10	10	36000	16,000	28886	13,130	36000	16,000	28160	12,800	45051	20,435
	VS500	167	4,250	197	5,010	100	2,550	10	10	36000	16,000	28226	12,830	36000	16,000	27478	12,490	45487	20,633
3-Stage Full Free Lift	VS550	177	4,500	217	5,510	110	2,800	10	10	36000	16,000	27588	12,540	36000	16,000	26840	12,200	45914	20,827
	VS600	189	4,800	237	6,010	120	3,050	10	10	36000	16,000	26950	12,250	34342	15,610	26180	11,900	46490	21,088
	TS450	116	2,950	178	4,516	59	1,500	10	10	36000	16,000	27566	12,530	34298	15,590	25850	11,750	46179	20,946
	TS500	125	3,167	198	5,017	66	1,667	10	10	36000	16,000	26884	12,220	33198	15,090	25146	11,430	46621	21,147
	TS550	131	3,333	217	5,515	72	1,833	10	10	34496	15,680	26268	11,940	32186	14,630	24530	11,150	46947	21,295
	TS600	140	3,550	237	6,016	79	2,000	10	10	33484	15,220	25652	11,660	31174	14,170	23870	10,850	47380	21,491
	TS650	146	3,717	257	6,517	85	2,167	10	10	32560	14,800	25058	11,390	30250	13,750	23254	10,570	47728	21,649
TS700	155	3,933	276	7,015	92	2,333	10	10	31592	14,360	24420	11,100	29260	13,300	22616	10,280	48417	21,962	
TS750	161	4,100	296	7,515	98	2,501	10	10	30712	13,960	23848	10,840	28380	12,900	22022	10,010	48776	22,125	

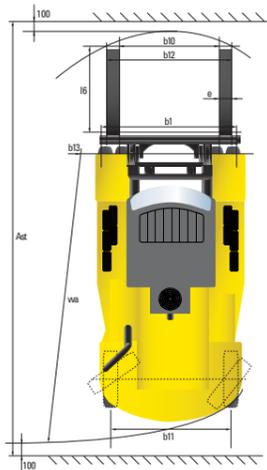
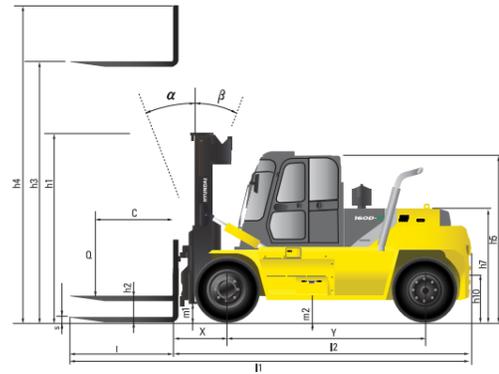
Mast Specification (130D-9)

Mast Type	Overall Height Lowered		Maximum Fork Height		FREE LIFT		Tilt Angle		Load capacity								TRUCK WEIGHT UNLOAD		
	in	mm	in	mm	in	mm	deg	deg	General				Integral side shift with Fork Positioner				lb	kg	
									24 in LC	600mm LC	47 in LC	1200mm LC	24 in LC	600mm LC	47 in LC	1200mm LC			
2-Stage Limited Free Lift	V280	114	2,900	110	2,805	0	0	15	12	29000	13,000	24530	11,150	29000	13,000	23892	10,860	37386	16,958
	※V300	118	3,000	118	3,005	0	0	15	12	29000	13,000	24332	11,060	29000	13,000	23672	10,760	37459	16,991
	V330	124	3,150	130	3,305	0	0	15	12	29000	13,000	23980	10,900	29000	13,000	23320	10,600	37626	17,067
	V350	128	3,250	138	3,505	0	0	15	12	29000	13,000	23738	10,790	29000	13,000	23100	10,500	37735	17,117
	V400	140	3,550	158	4,005	0	0	15	12	29000	13,000	23122	10,510	29000	13,000	22462	10,210	38292	17,369
	V450	150	3,800	177	4,505	0	0	15	12	29000	13,000	22572	10,260	29000	13,000	21912	9,960	38568	17,494
	V500	161	4,100	197	5,005	0	0	15	12	29000	13,000	22044	10,020	29000	13,000	21362	9,710	38897	17,644
	V550	171	4,350	217	5,505	0	0	15	12	29000	13,000	21472	9,760	27698	12,590	20812	9,460	39405	17,874

New 9 Series

110/130/160D-9

Dimension



Specification

Identification					
1.1	Manufacturer	HYUNDAI	HYUNDAI	HYUNDAI	
1.2	Manufacturer's type designation	110D-9	130D-9	160D-9	
1.3	Drive : electric(battery or mains) ,diesel, petrol ,fuel gas, manual	DIESEL	DIESEL	DIESEL	
1.4	Type of operation : hand, pedestrian, standing, seated, order - picker	seated	seated	seated	
1.5	Load capacity / rated load	kg	11,000	13,000	16,000
1.6	Load center distance	c mm	600	600	600
1.8	Load distance, center of drive axle to fork	x mm	750	770	815
1.9	Wheelbase	y mm	3,050	3,050	3,450

Weights					
2.1	Service weight	kg	16,275	16,991	19,843
2.2	Axle loading, loaded front / rear	kg	23,960 / 3,315	26,775 / 3,216	32,009 / 3,834
2.3	Axle loading , unloaded front / rear	kg	8,055 / 8,219	7,988 / 9,003	9,446 / 10,396

Wheels, Chassis					
3.1	Pneumatic, Solid	Pneumatic	Pneumatic	Pneumatic	
3.2	Tires size, front	10.00-20-16PR	10.00-20-16PR	12.00-20-18PR	
3.3	Tires size, rear	10.00-20-16PR	10.00-20-16PR	12.00-20-18PR	
3.5	Wheels, number front rear(x = driven wheels)	4 x 2	4 x 2	4 x 2	
3.6	Track width, front	mm	1,842	1,842	
3.7	Track width, rear	mm	1,910	1,910	1,958

Basic Dimensions					
4.1	Mast / fork carriage tilt forward / backward	degrees	15 / 12	15 / 12	15 / 12
4.2	Lowered mast height	h1 mm	3,000	3,000	3,250
4.3	Lift height	h3 mm	3,005	3,005	3,010
4.4	Extended mast height	h4 mm	4,465	4,465	4,710
4.5	Overhead guard (cab) height	h5 mm	2,945	2,945	2,980
4.6	Seat height / rel. to SIP	h7 mm	1,786	1,786	1,824
4.7	Coupling height	h10 mm	560	560	598
4.8	Overall length	l1 mm	5,920	5,930	6,430
4.9	Length to face of forks	l2 mm	4,570	4,580	5,080
4.10	Overall width	b1 mm	2,450	2,450	2,497
4.11	Fork dimensions	s / e / l mm	75x200x1,350	85x200x1,350	90x200x1,350
4.12	Fork - carriage width	b3 mm	2,362	2,362	2,488
4.13	Ground clearance, loaded, under mast	m1 mm	250	250	250
4.14	Ground clearance, centre of wheelbase	m2 mm	331	332	369
4.15	Aisle width for pallets 1,000 x 1,200 crossways	Ast mm	6,655	6,660	7,280
4.16	Aisle width for pallets 800 x 1,200 lengthways	Ast mm	6,655	6,660	7,280
4.17	Turning radius	Wa mm	4,350	4,350	4,895
4.18	Smallest pivot point distance	mm	1,634	1,634	1,865

Performance Data					
5.1	Travel speed, unloaded	km/h	35.6	35.6	35.2
5.2	Lift speed, loaded/ unloaded	mm/s	440 / 510	430 / 510	350 / 450
5.3	Lowering speed, loaded/unloaded	mm/s	510 / 460	510 / 460	430 / 390
5.5	Drawbar pull, Loaded	KN	135	137	136
5.7	Gradient performance, Loaded	%	52.1	46.9	37.7
5.10	Service brake		Wet, Hydraulic	Wet, Hydraulic	Wet, Hydraulic

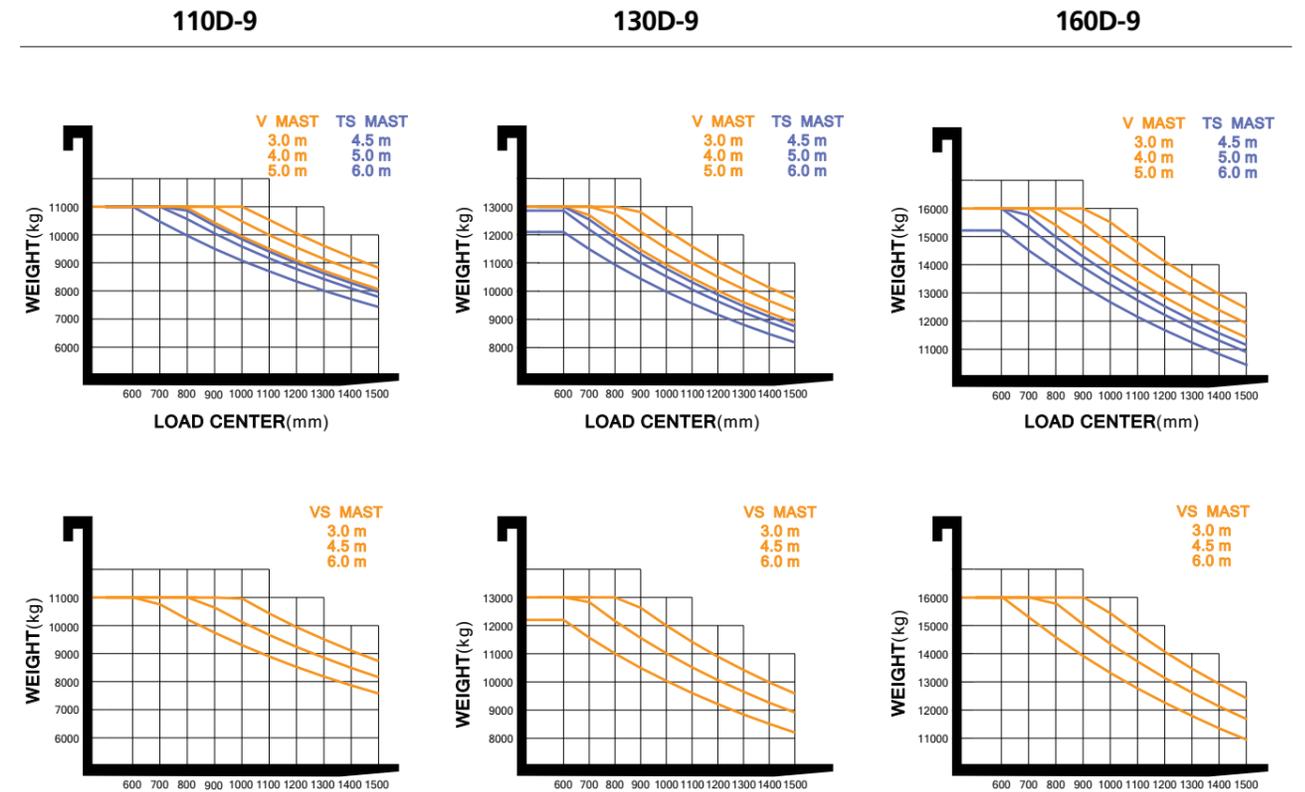
Engine					
6.1	Engine manufacturer / type	Cummins QSB6.7	Cummins QSB6.7	Cummins QSB6.7	
6.2	Engine power acc. to ISO 1585	kW	122	122	122
6.3	Rated speed	1/min	2,300	2,300	2,300
6.4	No. of cylinder / cubic capacity	/cm³	6 / 6,690	6 / 6,690	6 / 6,690
6.5	Fuel consumption acc. To VDI cycle	ℓ /h	11.1	11.4	12.1

Other Details					
8.1	Type of drive control	Power Shift	Power Shift	Power Shift	
8.2	Operating pressure for attachments(system/attach)	210 / 165	210 / 165	210 / 165	
8.3	Oil volume for attachments	ℓ /min	159	159	179
8.4	Sound level at driver's ear according to DIN 12 053		73.5	73.5	73.5

Air Conditioning System

The air condition system for the machine contains the fluorinated greenhouse gas with global warming potential of R134a. (Global Warming Potential : 1430)
The system hold 0.55kg refrigerant consisting of a CO₂ equivalent 0.79kg metric tonne. For more information, Please refer to the manual.

Load Capacity



Various Attachments

