



D60/70/80/90S-9

D100/120/140/160S-9, DV160S-9

NEW 9-SERIES FORKLIFTS

Pneumatic Diesel 6 to 16 ton



Powerful performance

6-9 ton

- Conforming to Stage V exhaust gas regulation
 - Exhaust gas cleaning solutions (55kw/81kw):
DOC+DPF/DOC+SCR+DPF
 - Particulate matter reduced by 40% compared to Stage IV
 - NOx reduced by 98%
- Medium-low speed interval engine torque increase
55 kW (360 Nm → 400 Nm), 81 kW (375 Nm → 460 Nm)
- Bosch common rail fuel system of proven durability
- Combustion efficiency enhanced by eliminating EGR system
 - Increased durability thanks to 3% fuel economy improvement and 10% reduction in heat generation
- Good cold-weather starting thanks to engine fuel delivery optimization technology
- Full-fledged economy mode ensured by optimizing the engine
- RPM/Torque (ECO/STD/Power Mode)
- Auto adjust for intake & exhaust valve clearance /Auto tensioner fan belt (low maintenance costs)



Excellent performance; the best in class

	D70S-9 55 kW	D70S-9 81 kW
Engine output	55kW/2,300 rpm	81kW/2,300 rpm
Maximum torque	400 Nm/1,300 rpm	460 Nm/1,600 rpm
Maximum travel speed	34.5 km/h	34 km/h
Maximum gradeability	31%	39%



High performance and durability transmission

- The strength of every ZF transmission is its ability to shift gears at the ideal moment.
- The transmission-engine combination is fine-tuned for optimum performance under all conditions.
- Clear indications about the transmission status on the display, including diagnostic system.

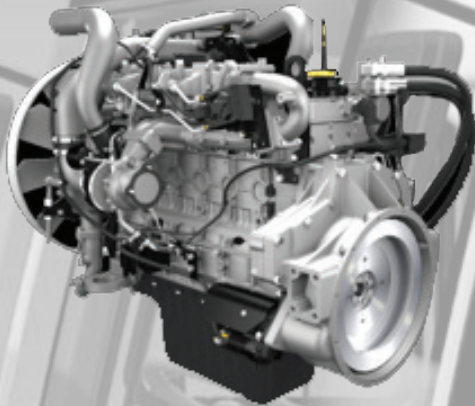
Strong and durable drive axle

The use of the large capacity hub planetary gear, differential gear and the parking brake enhances the safety of the braking system. The oil-cooled disc brakes (ODB) ensures reliable braking and a semi-permanent service life, which drastically reduces maintenance costs.



High efficiency

10-16 ton



- Conforming to Stage V exhaust gas regulation
 - Exhaust gas cleaning solutions: DOC+SCR+DPF
 - Particulate matter reduced by 40% compared to Stage IV
 - NOx reduced by 98%
- Bosch common rail fuel system of proven durability
- Combustion efficiency enhanced by eliminating EGR system
 - Increased durability thanks to 5% fuel economy improvement and 20% reduction in heat generation
- Good cold-weather starting thanks to engine fuel delivery optimization technology
- Full-fledged economy mode ensured by optimizing the engine
- RPM/Torque (ECO/STD Mode)

	D160S-9	DV160S-9
Engine output	128.7kW/2,100 rpm	139.7 kW/2,100 rpm
Maximum torque	725.9Nm/1,400 rpm	784.8 Nm/1.400 rpm
Maximum travel speed	33 km/h	42 km/h
Maximum gradeability	34%	36%

High powered performance



High-performance/high-efficiency 3-speed transmission

- ZF 3-speed 3WG171 offers excellent drive performance and drawbar pull
 - 5% improvement in fuel efficiency compared to the previous model
- Smooth automatic shifts
 - Reduces driver fatigue and improves efficiency
- Optimized power matching between engine and mission
 - Excellent engine response, excellent performance and smooth transmission
- Self-diagnostic system enables effective maintenance

Hydraulic system with load-sensing type piston pump

- Reduced fuel consumption(-5%), because system is based on demand
- Less heat generated
- Increased controlability of hydraulic functions



Great durability and maintainability Minimized total cost of ownership

6-9 ton, 10-16 ton

Long service interval with oil-cooled disc brakes

Oil-cooled-disc-brakes for reliable and strong performance, combined with low maintenance costs.



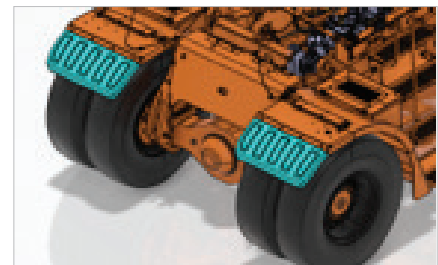
Highly durable steering axle

The tapered roller bearing applied to the kingpin part guarantees a long service life in any working environment.



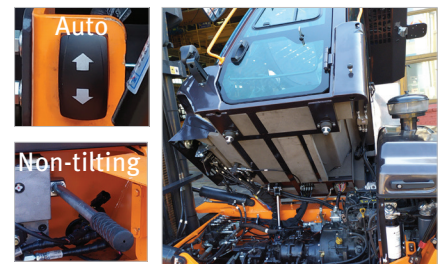
Mud guards and frame belly plate (optional)

The front- and rear mudguards keep the machine clean and the belly plate keeps the engine and radiator area clean from debris.



Tiltable operator cab (auto/non-tilting)

- The cabin can be tilted to an angle of 65° for easy access to all main components.
- Non-tilting (standard) or electrical for even faster access and convenience (optional).



Increased opening angle of the hood

Drastically increasing the opening angle of the engine hood from 30° to 50° (58° for D160S-9 Series) facilitates daily maintenance, such as checking the cooling water, air cleaner and engine oil.

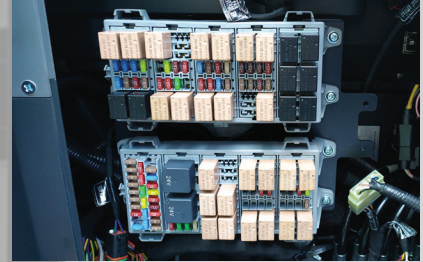


Automatic idle RPM up (Auto throttle up)

While activating a hydraulic function, the engine idle speed will be slightly increased, for better function controlability.

Centralization of electronic parts

A prefabricated junction box is installed in the cockpit so that all electronic components are centralized, including fuse and relays, for easy inspection and maintenance.



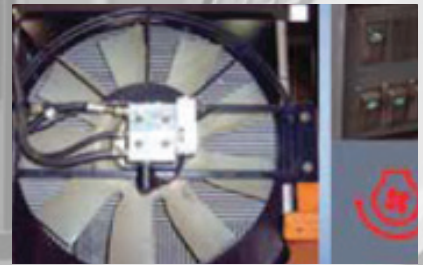
1/2" attachment hose with excellent wear resistance (only for D160S-9 Series)

Hoses finished with super-stiff lining provide offer excellent abrasion resistance compared to conventional rubber hose. The increased hose size 3/8" → 1/2" will offer performance of the auxiliary working functions



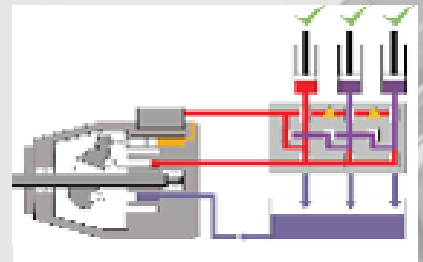
Fan drive system (optional) (only for D160S-9 Series)

The variable hydraulic cooling fan is controlled according to demand and minimises noise and fuel consumption. The reversible fan option ensures long working cycles by automatically cleaning the radiator. The reversal fan drive function facilitates cleaning of the radiator.



Hydraulics works simultaneously (only for D160S-9 Series)

Working efficiency is significantly improved by smooth simultaneous operation thanks to the flow distribution function. The flow rate delivered is proportional to the amount required for each function during simultaneous operation of the hydraulics.



Extended hydraulic-oil service interval (only for D160S-9 Series)

The TCO can be drastically reduced by extending the oil change cycle from 2,000 hours to 4,000 hours.

Extended engine-oil service interval (only for D70S-9 Series)

The TCO can be drastically reduced by extending the engine oil service interval from 500 to 1000 hours, which meets the service requirements of the transmission.

Pleasant driver's seat design for quiet and comfortable operation

6-9 ton, 10-16 ton



Clear and open view

The redesigned cabin has a large glass area that provides the operator with optimum visibility from all sides: through the front- and rear window, roof and doors. The panoramic window gives the driver optimal visibility in all conditions. This benefits workability and safety.

Silence of an incomparable level

The over-pressurized cabin ensures that no dust can enter.

- 2 large air filters clean the supplied air
- Very low noise and vibration level inside the cabin for high driving comfort

Convenient and easy-to-use heating, ventilation and air-conditioning (HVAC) system

This system offers integrated heating/cooling/ventilation control, allowing automatic heating/cooling temperature control (full automatic temperature control), and the all-in-one heating/air conditioning system with its twin evaporators provides excellent performance.

Comfortable full suspension seat

Ergonomically designed seats maximize driver comfort with excellent cushioning, a wide seat and a long backrest. They provide comfortable handling while driving long distances.

Audio with DAB and Bluetooth

Besides the simple audio service of existing AM/FM terrestrial broadcasting, digital satellite broadcasting (DAB) and Bluetooth features are applied that enable high-quality voice reception.





Integrated type 7” multi-function display panel

The largest mounted display in its class provides excellent operability and visibility.

- Front and rear view camera (optional)
- Integrated maintenance management program
- Weight indicator (optional)
- Diagnostic function
- Located at A-pillar for optimal view



Integrated type vehicle control unit (VCU)

This smart, innovative system offers the integrated control of various decentralized control units in combination with CAN communication, enabling vehicle diagnostics and management as well as various safety and comfort functions on demand.

Centralized switches

All control switches are arranged in one place, making the machine more accessible to the operator. In addition, a new keypad developed exclusively for STD/HVAC is applied. The operator can see on the display the operating status corresponding to the keypad input, which enhances user-friendliness.



Steering wheel providing fore-/backwards and up/down adjustment

Fore-/backwards and up/down adjustment is possible with a simple lever control, allowing the operator to use the machine safely and comfortably.

Big anti slip step plate

Low height of the 1st and 2nd steps to allow the operator to get on and off the truck easily and comfortably.



Ease of work and site-focused safety

6-9 ton, 10-16 ton

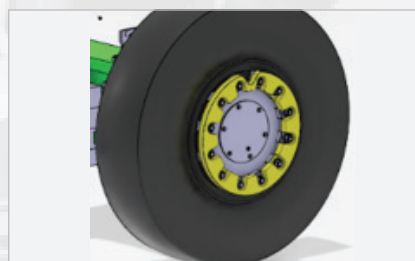
Full LED lamp installation (optional)

LED headlight for low beam/high beam is applied for the first time in the industry and guarantees a complete LED lamp installation. This contributes to clear visibility and efficiency during night work and prevents accidents, not to mention lower maintenance costs.



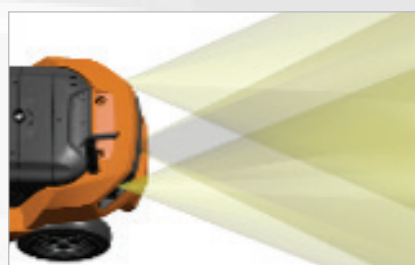
Same wheels applied to the front/rear wheel (only for D70S-9 Series)

This helps to minimize the amount of spare tires required, reducing inventory costs while allowing them to be easily carried for emergency use or tire replacement (with wheel nut cover).



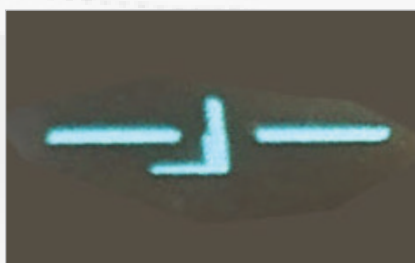
Rear view monitoring and alarm system

When a pedestrian or object enters the detection range, this system activates the alarm, i.e. buzzer. The system provides a step-by-step warning function based on distance to prevent personal or property damage to ensure workplace safety.



Display mast angle

The mast angle is displayed on the monitor to significantly improve working comfort, safety and productivity.



Hill start assist (only for D160S-9 Series)

The parking brake is automatically engaged when the vehicle stops on a slope and then disengaged as soon as the accelerator pedal is pressed. In this way, driving stability is significantly improved, as the vehicle can drive-off smoothly without rolling backwards.



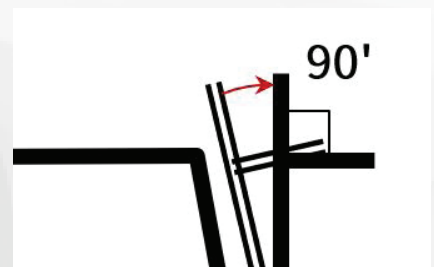
Front/rear view camera and monitor (optional)

Workplace safety is ensured by maximizing front/rear visibility.



Auto-tilt leveling (optional)

With the mast tilted backward, pressing the lift lever switch for tilt-forward operation will put the mast back to the upright position, enhancing work convenience and efficiency.



Main Specifications

6-9 ton

		D60S-9	D70S-9
Engine manufacturer		Doosan	Doosan
Engine type		DM03	DM03
Engine power according to DIN ISO1585	kW	55.4	
Rated speed	min-1	2300	2300
Torque at 1/min	N•m	400	400
Travel speed, loaded/unloaded	km/h	30.7/34.7	28.6/34.5
Lift speed, loaded/unloaded	mm/s	470/530	410/470
Drawbar pull, loaded (@ 1.6km/h)	N	49119	49001
Gradeability, loaded(@ 1.6km/h)	%	34.8	31
Fuel tank capacity	l	150	150
Sound level at the driver's ear (according to EN 12 053)	dB(A)	74	74
Height of cabin	mm	2,535	2,535
Ground clearance, loaded, below mast	mm	196	196
Ground clearance, center of wheelbase	mm	214	214
Load Distance: center of driveaxle to fork	mm	632	632
Wheelbase	mm	2,300	2,300
Service weight	kg	9,170	9,860
Height of seat	mm	1,455	1,455
Length to forkface	mm	3,618	3,697
Overall width	mm	2,156	2,156
Turning radius	mm	3,380	3,430

Standard Features and Optional Extras

6-9 ton

SAFETY

Electronic parking brake	Standard
Speed limit	Standard
Rear view mirror (LH/RH)	Standard
Panoramic Mirror	Standard
Vehicle control unit (VCU) & Operator Sensing System (OSS)	Standard
Seat belt interlock	Optional
Safety light (always on/activated by gear)	Optional
4th lever interlock for attachment	Optional
Auto tilt leveling	Optional
Front/rear view camera	Optional
Weight indicator (hydraulic/load cell)	Optional
Anti-surge function	Optional

■ Standard
■ Optional

ERGONOMICS

7" Multi functional display (full color)	Standard
Telescopic steering column (w/tilting)	Standard
Large entry grab bar	Standard
Rear grab bar with horn	Standard
Power jack & USB port	Standard
Suspension seat with arm rest	Standard
Heater & air conditioner	Optional
Full cabin	Optional
Siren & Microphone	Optional
Audio (DAB radio, MP3)	Optional

D60S-9	D70S-9	D80S-9	D90S-9
Doosan	Doosan	Doosan	Doosan
DM03	DM03	DM03	DM03
80.9			
2300	2300	2300	2300
460	460	460	460
30.8/34.3	30/34	30/35	30/35
500/540	440/480	430/480	430/480
60900	60420	64150	56810
45	39	35	28
150	150	250	250
75	75	75	75
2,535	2,535	2,771	2,771
196	196	258	258
214	214	329	329
632	632	725	725
2,300	2,300	2,500	2,500
9,200	9,890	11,330	11,980
1,455	1,455	1,526	1,526
3,618	3,697	4,014	4,040
2,156	2,156	2,230	2,230
3,380	3,430	3,650	3,680

PRODUCTIVITY

3-speed ZF transmission (Autoshift)	
Oil-cooled disc brakes	
Front LED light	
Multi-engine mapping (eco/STD/power)	
Rear 2 LED lights	
Additional 2 Front LED (on cabin or on mast)	
Combination LED lights (w/hazard switch)	
Strobe light (above/below)	
Rotating strobe light (above, LED)	

RELIABILITY

Anti-moisture electric connectors	
AJAR switch (door open sensing)	
Additional cooler (hydraulic/TM oil)	
Radiator screen	
Under protection (belly plate)	
Pre fuel filter	
Mud guard, rear tire	

SERVICEABILITY

Junction Box	
Non-tilting	
Automatic tilting	
Steer axle common wheel (w/wheel nut cover)	

Main Specifications

10-16 ton

D100S-9

D120S-9

		D100S-9	D120S-9
Engine manufacturer		Doosan	Doosan
Engine type		DL06	DL06
Engine power according to DIN ISO1585	kW	128.7	128.7
Rated speed	min-1	2,100	2,100
Torque at 1/min	N•m	725.9	725.9
Travel speed, loaded/unloaded	km/h	41	40
Lift speed, loaded/unloaded	mm/s	460/490	450/490
Drawbar pull, loaded (@ 1.6km/h)	N	113200	112,500
Gradeability, loaded(@ 1.6km/h)	%	51	44
Fuel tank capacity	l	195	195
Sound level at the driver's ear (according to EN 12 053)	dB(A)	71	71
Height of cabin	mm	2,990	2,990
Ground clearance, loaded, below mast	mm	270	270
Ground clearance, center of wheelbase	mm	320	320
Load Distance: center of driveaxle to fork	mm	755	765
Wheelbase	mm	3,000	3,000
Service weight	kg	15,300	16,300
Height of seat	mm	1,825	1,825
Length to forkface	mm	4,490	4,500
Overall width	mm	2,350	2,350
Turning radius	mm	4,255	4,255

Standard Features and Optional Extras

10-16 ton

SAFETY

Electronic parking brake	Standard
Hill start assist	Standard
Speed limit	Standard
Rear view mirror (LH/RH)	Standard
Vehicle control unit (VCU) & Operator Sensing System (OSS)	Standard
Seat belt interlock	Optional
Safety light (always on/activated by gear)	Optional
4th lever interlock for attachment	Optional
Auto tilt leveling	Optional
Front/rear view camera	Optional
Weight indicator (hydraulic/load cell)	Optional

Standard

Optional

ERGONOMICS

Full Cabin	Standard
Power jack & USB port	Standard
Suspension seat with arm rest (cabin: with heating)	Standard
7" Multi functional display (full color)	Standard
Telescopic steering Column (w/tilting)	Standard
Large entry grab bar – LH/RH	Standard
Rear grab bar with horn	Standard
Audio (DAB type radio, MP3)	Optional
Rear detector	Optional
Siren & Microphone	Optional
Heater & Air Conditioner	Optional

D140S-9	D160S-9	DV160S-9
Doosan	Doosan	Doosan
DL06	DL06	DL06
128.7	128.7	128.7
2,100	2,100	2,100
725.9	725.9	784.8
35	34	39
410/460	400/460	390/460
122,900	111,000	117,000
43	38	32.4
235	235	290
71	71	71
3,020	3,020	3,020
270	270	270
340	340	340
815	815	985
3,250	3,250	3,750
18,300	19,300	23,600
1,855	1,855	1,855
4,830	4,830	5,555
2,490	2,490	2,540
4,545	4,545	5,115

PRODUCTIVITY

3-speed ZF transmission (w/Stator Freewheel)	
Load sensing hydraulic system (CCLS)	
Auto Throttle up	
Oil-cooled Disc Brakes	
Front LED light	
Rear 2 LED lights	
Multi-engine mapping (eco/STD)	
Additional 2 Front LED (on mast)	
Combination LED lights (w/hazard switch)	
Strobe light (above/below)	
Rotating strobe light (above, LED)	

RELIABILITY

Anti-moisture electric connectors	
Under protection (engine guard)	
AJAR Switch (door open sensing)	
1/2" attachment hose	
Engine block heater	
Under protection (under cover plate)	
Mud guard (front/rear)	

SERVICEABILITY

Junction Box	
Non-tilting	
Steer axle common wheel (w/wheel nut cover)	
Hydraulic pressure check package	
Automatic tilting	