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PBP D420W000 0907

Doosan Infracore
Construction Equipment

DL420

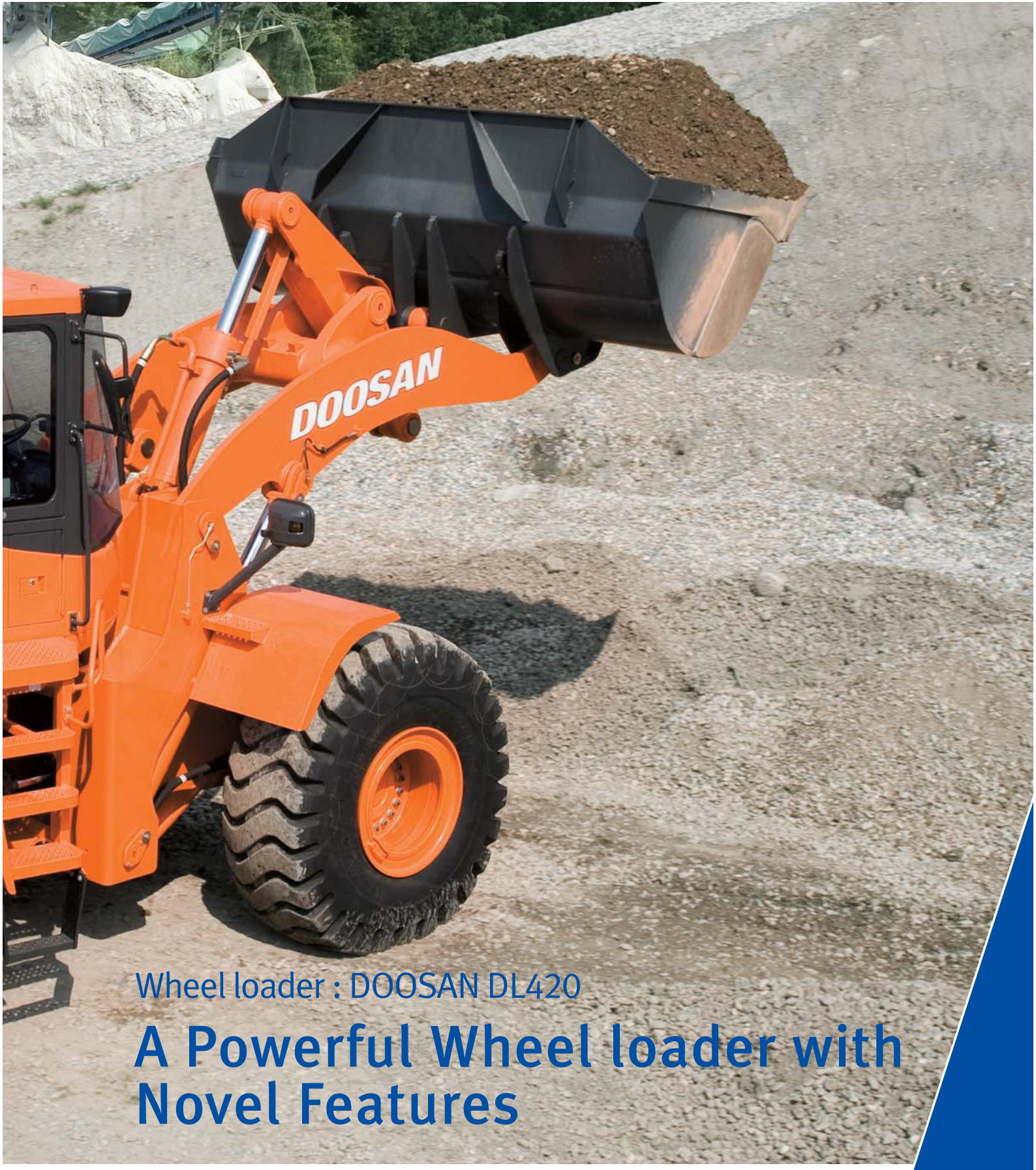
Engine Power : SAE J1995, gross 209 kW(280 HP)@ 2,000 rpm
Operational Weight : 22,300 kg (49,163 lb) - STD.
Bucket capacity(SAE) : 3.7 ~ 4.5 m^3(4.8 ~ 5.9 cu.yd)

Photo may include optional equipment

DL 420

The new DL420 wheel loader has all the advantages of the previous loaders. This logical new step provides real added value to the operator.

The new DL420 was developed with the concept of “providing optimum value to the end user.” In concrete terms, this translates, into :



Wheel loader : DOOSAN DL420

A Powerful Wheel loader with Novel Features

Increased production due to the use of a new generation "Common Rail" engine and the excellent synchronisation of the drive train with the hydraulics system.

Improved ergonomics, increased comfort and excellent all round visibility ensuring safe and pleasant working conditions.

Improved reliability through the use of higher performance new materials, the development of new computer-assisted structural design techniques and by intensive and systematic test programs. All of these combine to increase the life of vital components and reduce operating costs.

Reduced maintenance increases the availability of the loader and reduces operating costs.

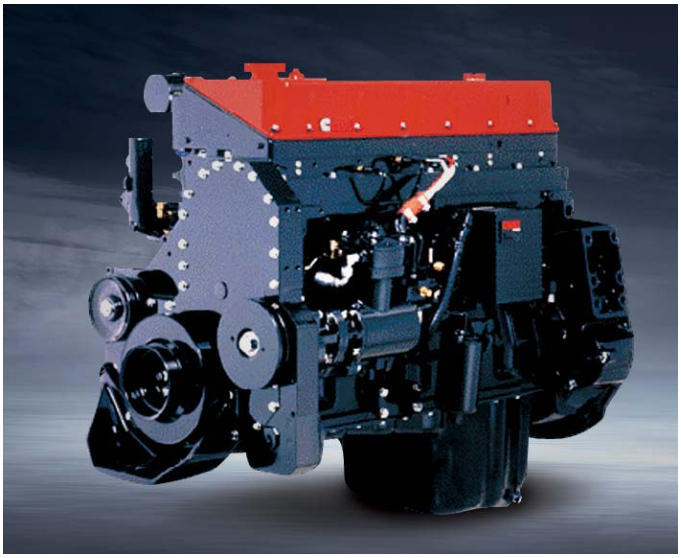
Performance

DL420

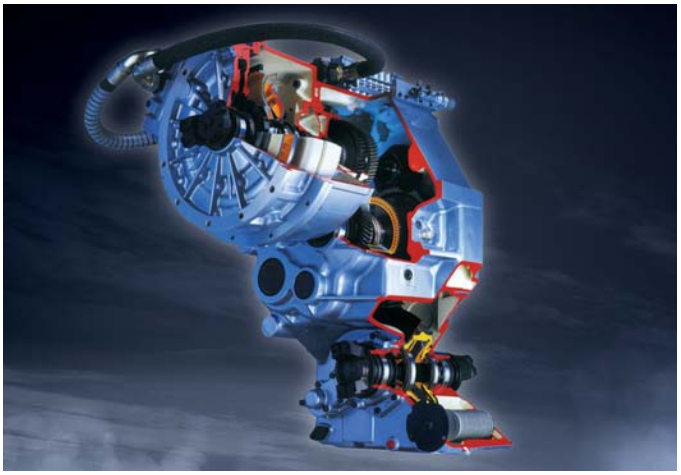
DL420 features an intelligent, load-sensing hydraulic system. Two variable piston pumps provide the exact flow and pressure required and delivers a powerful, highly effective force, offering superior penetration of the hardest materials. The exceptional drawbar pull at the wheels, is reinforced further by providing limited-slip differentials as standard equipment. The engine offers high power and torque characteristics. As a result, the hydraulic system is able to multi-function with power and speed.

Hydraulic Power Steering
Works with a flow amplifier and priority valve. And the emergency steering system is equipped as an option to secure a safety against a malfunction of steering system during traveling.

High Lift
As High Lift is equipped besides Standard Lift, customers have further options.

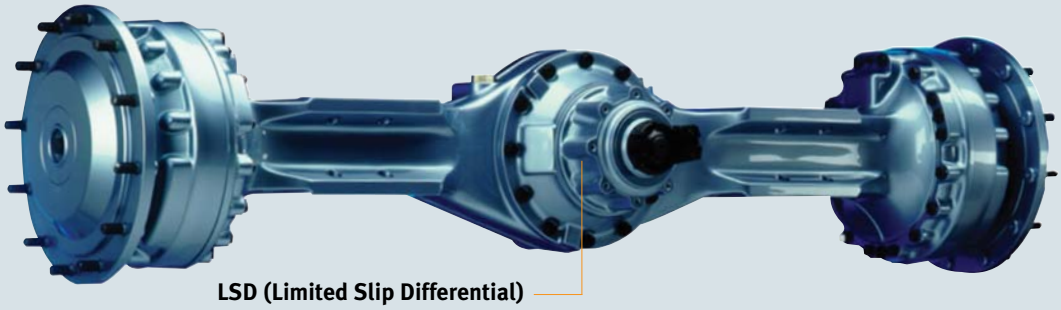


Cummins "QSM 11" Engine
The QSM 11 low emission engine combines a patented High-Pressure Common-Rail (HPCR) fuel injection system with full authority electronics for superior low-end performance with a strong torque rise.

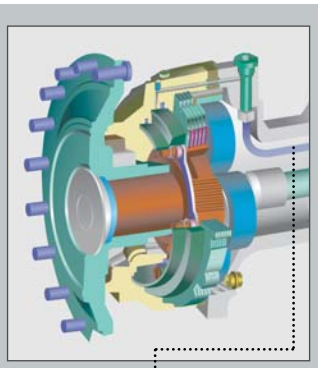


Full Auto Transmission
The electronic powershift transmission is particularly smooth and gear ratios perfectly spaced to give optimal speed.That gives comfort at the same time that it delivers excellent traction in every working conditions. Built-in electronic controls enhance productivity and durability. The free wheel stator torque converter improves power train efficiency in load and carry operations which contributes to the improved fuel efficiency.

Axle
Improved internal oil flow greatly reduced the temperature difference between the hub and the differential, as well as prevents premature disc wear due to overheating of the internal hub components.

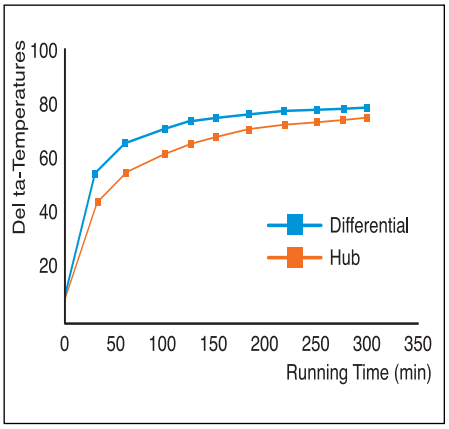


LSD (Limited Slip Differential)
The standard equipment LSD allows easy driving through soft and swampy grounds.



Increased Axle durability
The brake discs have been repositioned to the rear part of the reduction gear where the rotation speed is lower. As a result, the discs are exposed to lower rpm's and heat generation is reduced and the life span of the discs is greatly extended. Automatic disc clearance regulator has been intergrated into the design and the disc clearance is maintained at the optimum level at all times as the discs wear out. This prevents any lag in brake response. Another convenient feature is that brake disc wear can easily be measured without disassembling the hub.

The brake piping has been redesigned into the axle housing and is protected from damage from external shock as the machine drives over rough terrain.



• This result may change according to test condition.

Comfort

DL420

From the beginning, Doosan has had great concern for machine operators. People need to work in a well-designed and comfortable environment. The work area is spacious, with several places for storage. The checking and monitoring devices are comprehensive. There is an open view of the work area. For night work, operators are provided with powerful front and rear lighting.

Noise Level

- LwA Surface Sound Power Level : 104.7dB(A) (ISO 6395)
- LpA Operator's Cabin noise level : 71.2dB(A) (ISO 6396)

The steering Column

The steering column features both tilting and telescopic functions.

Air Conditioning & Defroster System
Double filtered air cab, air ducts are properly placed all around the cab with proportional sensitive controls and air re-circulation facility. we offer the same comfort as a passenger car.

3 " Safety belt
- Retractable seat belt

Air-Suspension Seat
Now available Air-suspension seats provide more comfort and support for the operator.

Switch
The ergonomically laid out switch panel in line with the natural movements of the body allows for very convenient operation. The spare switch cut-outs allows easy installation of additional electric accessories.

Various Control Lever
The joystick installed in compliance with various needs and preferences of operators ensures more convenient work.

Central Monitor Panel
The compact central monitor panel is ergonomically designed and allows the operator to monitor the status and warning lights at a single glance.

Sunvisor & Room mirror(Std.)

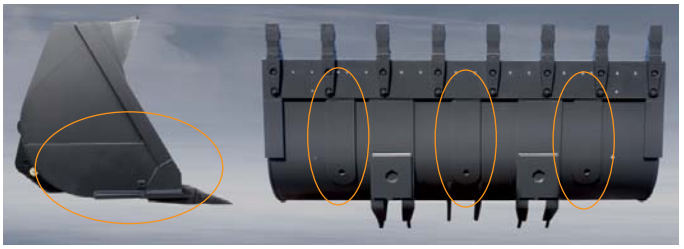
Wrist rest
The tilting and telescopic wrist rest allows the operator to work more comfortably.

Maintenance

DL420

A liquid crystal display conveys information to the operator relative to the ZF transmission. At the same time, it reports the nature of a problem (of one exists). When servicing the loader, a specialised apparatus can be used to adjust the clutch disks to compensate for their wear. Additionally, by connecting a lap top computer, a complete transmission diagnostic can be performed.

A good accessibility at the articulation joint is essential for an easy maintenance.



Reinforced Bucket

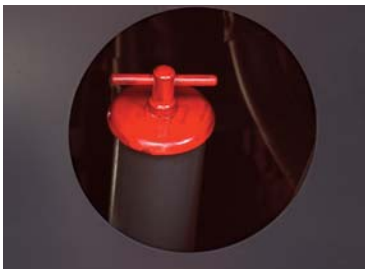
The lower and side panels of the bucket have been reinforced with additional plates (Std).

- Reinforcement : At both sides - 1 point each
  At lower panel - 3 point

Hydraulically operated reverse fan
With electronic control of the variable speed on-demand fan, temperature levels of the engine coolant, transmission oil are constantly monitored. Controlled fan speed improves fuel efficiency,lowers noise levels and reduces radiator plugging. The hydraulic fan can be switched to reverse operation from the cabin for quickly clean out the cooling system.

Remote Engine oil & Coolant Drain
Remote drain valves have been installed in an easily accessible location for convenient draining of fluids. (Coolant - upper, Engine oil - lower)

Central Remote Hydraulic Check Port
The centralized remote hydraulic check ports allow main, steering, brake charge, pilot,load-sensing sygnal and transmission clutch pressures to be checked at a convenient central location.



Convenient Transmission Oil Filling
The oil filler pipe is located near the articulation joint for easy access.

Large Capacity Transmission Oil Cooler
The large capacity transmission oil cooler ensures durable and stable operation of transmission.

Transmission & Engine Diagonosis
The transmission can be diagnosed using a laptop computer to interface with the diagnostic system.

Remote Greasing Lubrication Ports
The front pins can be lubricated from the outside of the machine without crawling under the machine or in awkward positions through the lubrication ports.

Sight Gauges
Well-located, yet easily visible sight gauges for the hydraulic oil and radiator coolant allow easy daily checks while reducing the risk of contaminants entering the systems.

Propeller Shaft
A protective cover has been installed to protect the oil seal from dust, foreign objects and premature wear.

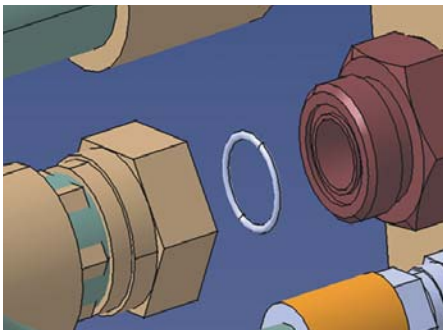
Transmission Filter
The transmission filters are within easy reach and like the rest of the machine's service components, can be checked from ground level.

Air-Cleaner Filter
The high capacity air cleaner eliminates harmful particles from the air and extends the life of the engine and replacement intervals.

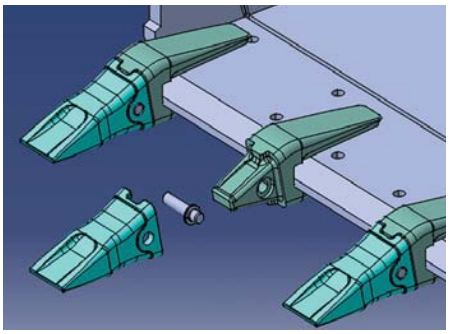
Reliability

DL420

Every morning, when the operators commence work, they know that things will go smoothly- because Doosan has taken care of it. The product is soild. Operators know that they have significant reserves at hand and that they won't have to push the machine to its limit. The Doosan DL420 wheel loader is designed and built to last. For Doosan, 'reliable' means availability, accessibility and simplicity.



ORFS-All Ports(Even in Pilot line and Low pressure line)

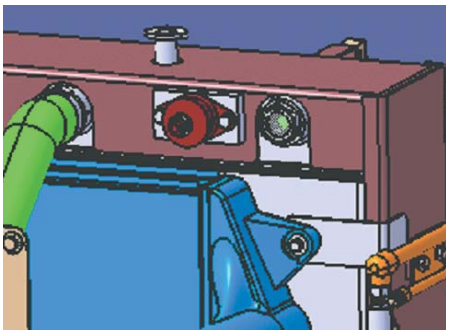


2-piece type tooth(Pin-on+Bolt-on adapter)

Radiator Grill (Steel structure)

Hydraulic Oil Return Filter

The high-efficiency, large-capacity return filter manufactured with the glass-fiber media can eliminate foreign substances up to 99.5 percent to protect the costly hydraulic equipment and substantially extend the replacement cycle.



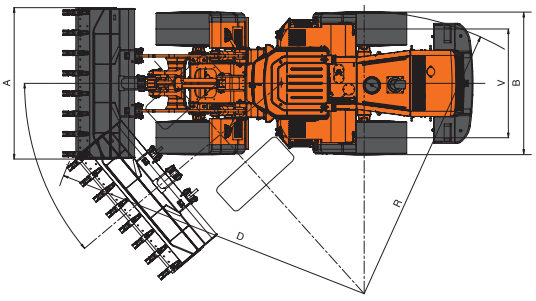
Rubber-mounting (for Radiator: Lateral 2EA / Vertical 2EA)

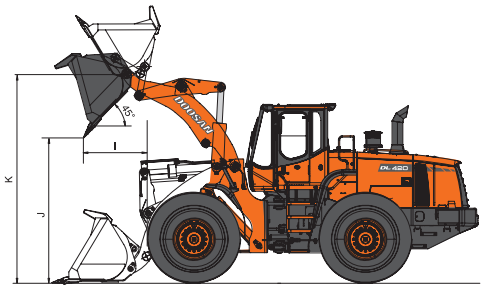
DL420

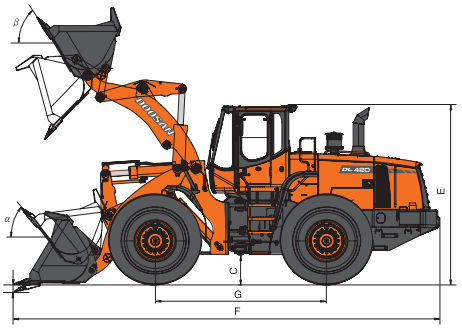
Operational Data & Dimension

Bucket type			General purpose							Rock	Light material		High lift
Configuration		Unit	Teeth	Bolt-on edge	Teeth	Teeth (std.)	Bolt-on edge	Bolt-on edge	Teeth & segments	Teeth	Teeth	Bolt-on edge	Bolt-on edge
Capacity heaped ISO/SAE		m^3	4.0	4.2	3.7	3.9	3.9	4.1	4.1	3.5	4.3	4.5	4.2
		yd^3	5.2	5.5	4.8	5.1	5.1	5.4	5.4	4.6	5.6	5.9	5.5
Tooth type			Adapter tooth	-	Adapter tooth	Adapter tooth	-	-	Adapter tooth	Adapter tooth	Adapter tooth	-	-
Bucket width	A	mm	3,270	3,270	3,040	3,200	3,040	3,200	3,200	3,231	3,354	3,354	3,270
		ft in	10'8"	10'8"	10'	10'6"	10'	10'6"	10'6"	10'7"	11'	11'	10'9"
Breakout force		kN	210	210	220	220	220	220	220	210	190	190	205
		lbf	47,210	47,210	49,458	49,458	49,458	49,458	49,458	47,210	42,714	42,714	46,086
Static tipping load (straight)		kg	18,004	17,886	18,203	18,073	18,128	17,965	17,887	17,816	17,985	17,877	15,486
		lb	39,691	39,431	40,130	39,844	39,965	39,605	39,434	39,277	39,650	39,411	34,141
Static tipping load (at full turn)		kg	15,633	15,531	15,806	15,693	15,741	15,599	15,532	15,470	15,617	15,523	13,485
		lb	34,464	34,239	34,846	34,597	34,702	34,389	34,242	34,105	34,429	34,222	29,729
Dump height (at 45°)[1] (at fully raised)	J	mm	2,958	3,087	2,958	2,958	3.087	3,087	2,958	2,884	2,802	2,955	3,600
		ft in	9'8"	10'1"	9'8"	9'8"	10'1"	10'1"	9'8"	9'6"	9'2"	9'8"	11'10"
Dump reach (at 45°)[1] (at fully raised)	I	mm	1,400	1,266	1,400	1,400	1,266	1,266	1,400	1,489	1,567	1,395	1,290
		ft in	4'7"	4'2"	4'7"	4'7"	4'2"	4'2"	4'7"	4'11"	5'2"	4'7"	4'3"
Digging depth	H	mm	130	130	130	130	130	130	130	130	130	130	85
		ft in	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	3"
Height at bucket pivot point	K	mm	4,350	4,350	4,350	4,350	4,350	4,350	4,350	4,350	4,350	4,350	4,807
		ft in	14'3"	14'3"	14'3"	14'3"	14'3"	14'3"	14'3"	14'3"	14'3"	14'3"	15'9"
Max. tilt angle at carry position	α	°	46.5	46.5	46	46	46	46	46	46	46	46	50
Max. tilt angle at fully raised	β	°	59	59	59	59	59	59	59	59	59	59	60
Max. tilt angle on ground		°	42	42	42	42	42	42	42	42	42	42	44
External radius at tire sidea	R	mm	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350
		ft in	20'10"	20'10"	20'10"	20'10"	20'10"	20'10"	20'10"	20'10"	20'10"	20'10"	20'10"
External radius at bucket edge	D	mm	6,995	6,980	6,885	6,955	6,870	6,940	6,955	6,900	7,080	7,060	7,060
		ft in	22'11"	22'11"	22'7"	22'10"	22'6"	22'9"	22'10"	22'8"	23'3"	23'2"	23'2"
Wheel base	G	mm	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
		ft in	11'6"	11'6"	11'6"	11'6"	11'6"	11'6"	11'6"	11'6"	11'6"	11'6"	11'6"
Width at tyres	B	mm	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985
		ft in	9'10"	9'10"	9'10"	9'10"	9'10"	9'10"	9'10"	9'10"	9'10"	9'10"	9'10"
Tread	V	mm	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
		ft in	7'7"	7'7"	7'7"	7'7"	7'7"	7'7"	7'7"	7'7"	7'7"	7'7"	7'7"
Ground clearance	C	mm	520	520	510	510	510	510	510	510	510	510	510
		ft in	1'8"	1'8"	1'8"	1'8"	1'8"	1'8"	1'8"	1'8"	1'8"	1'8"	1'8"
Overall length	F	mm	8,880	8,700	8,760	8,760	8,635	8,635	8,760	8,900	9,020	8,820	9,124
		ft in	29'2"	28'7"	28'9"	28'9"	28'4"	28'4"	28'9"	29'2"	29'7"	28'11"	29'11"
Overall height	E	mm	3,522	3,522	3,438	3,438	3,438	3,438			3,438	3,438	3,438
		ft in	11'7"	11'7"	11'3"	11'3"	11'3"	11'3"			11'3"	11'3"	11'3"
Tyre size			26.0-25-28PR	26.0-25-28PR	26.0-25-28PR	26.0-25-20PR(L3)	26.0-25-20PR(L3)	26.0-25-20PR(L3)	26.0-25-20PR(L3)	26.0-25-20PR(L3)	26.0-25-20PR(L3)	26.0-25-20PR(L3)	26.0-25-20PR(L3)
Operating weight		kg	22,420	22,500	22,380	22,740	22,840	22,675	22,700	22,820	23,170	23,940	23,940
		lb	49,428	49,604	49,339	50,133	50,354	49,990	50,045	50,309	51,081	52,779	52,779

1) Measured to the tip of the bucket teeth or bolt-on edge.







DL420

Technical specifications

ENGINE

The high performance Cummins QSM 11 combined a 6 cylinder in-line, high-pressure common-rail (HPCR) fuel injection system with electronically
controlled direct injection and turbo charged air to air intercooler offers low fuel consumption and emission.
(Phase I Area: Doosan QSM 11 Engine)

-GROSS SAE J1995

Rated Power :

209 kW @ 2,000rpm
280 HP @ 2,000rpm
284 ps @ 2,000rpm

Max. Power :

310 HP @1,700 rpm

Max Torque :

148 kgf.m @ 1,400rpm
1,451 Nm @ 1,400rpm
1,072 lbf.ft @ 1,400rpm

Displacement :

10,800 cc (659 cu.in)

Bore x stroke :

ϕ125 x 147 mm(4.9"x 5.8")mm

Wet replaceable cylinder liner

3 stages Air cleaner including a very efficent pre-cleaner, main and safety elements.

Hydraulically driven puller type fan with possibility of adjustment.

Battery :

System voltage : 24V
Quantity : 12Vx2
Capacity(AMP) : 150Ah

Starter power :

7.5kW

Alternator output :

70A

AXLES

The front and rear axles with planetary hub reductions are built on the base of very reputed components.

Fitted as standard, the front and rear limited slip differentials, ensure the traction is optimal in all circumstances.

Maker and model :

ZF MT-L3000 Series

LSD Differential

Front (30%) / Rear (45%)

Oscillation angle :

+/- 12°

Brake :

Dual circuit multi-plate wet discs.
Hydraulic actuation with pump and accumulator.

The sintered metal brake discs extended discs service intervals : increased three times

A spring applied and hydraulically released parking brake is mounted on the transmission shaft.

TRANSMISSION

"Full Power Shift" transmission. It can be used in manual or automatic modes.

This transmission is based on components having excellent worldwide reputations. It is equipped with a modulation system allowing soft gear shifting and inversion of travel direction. Safety devices also protect the transmission of bad operations.

The gear and direction shifting is operated by a single lever to the left of the steering wheel. A travel direction control is also mounted on the hydraulic joystick.

With a special electronic device, the transmission can be tested and adjusted easily for optimum performance and efficiently.

The transmission can be de-clutched by the operation of brake pedal to increase the power available to the hydraulic pumps.

A safety device prevents the starting of the engine when not in neutral.

Torque converter :

Type : Single stage, one phase, three elements
Stall ratio : 2.104

Gear box :

Maker and model
ZF 4 WG 210

Speed Forward/Rearward :

(Tire 26.5 - 25 - 20PR - L3)

1	6.5 / 6.5 km/h (4.0 / 4.0 mph)
2	12.4 / 12.4 km/h (7.7 / 7.7 mph)
3	18.4 / 18.4 km/h (11.4 / 11.4 mph)
4	38 km/h (23.6 mph)

HYDRAULIC SYSTEM

Two load-sensing axial piston pumps with variable displacement.

Main control valve of double acting 2-spool is controlled by standard single lever.

Automatic boom kick out and bucket return to dig. Is standard.

All of hydraulic lines are equipped with special seals (ORFS)

Max flow main:

200 ℓ / min (52.8 g/ min)

Working Pressure:

250kgf/cm² (245 bars)

Pressure of the pilot circuit:

30 bars

Filtration capacity on the return line:

10 microns

Loading cycles time:

Lifting speed (loaded) :
5.8 seconds
Dumping speed (loaded) :
1.4 seconds
Lowering speed (empty) :
3.0 seconds

OPERATOR' CAB

The modular cab allows excellent visibility in all directions. The optimal ventilation is obtained by numerous ventilation outlets. Touch buttons control the air re-circulation air conditioning and heating systems. The air of the cab is filtered.

All necessary information for the operator are centralized in front of him.

The main functions are actuated via switches located on a console at the right of the operator.

Generous storage places are well located. The cab, mounted on viscous element and equiped with an air suspended seat, offers a better comfort for the operator.

Access door: 1

Emergency exits: 2

The cab conforms ROPS ISO 3471 and FOPS : ISO 3449

Guaranteed external noise level Lwa:

(following 2000 / 14 / EC) 104.7 dB (A)

STEERING

The steering system is a load sensing type with a flow amplifier and a priority valve.

Steering angle :

40 °

Oil flow :

190 ℓ /min(50.2 g / min)@2000 rpm, rated

Working pressure :

185 bars

Steering cylinders (2) :

bore x stroke : 100 x 450 mm (3.9 " x 1' 6 ")

Emergency steering system with hydraulic pump driven by electric motor.

LIFTING SYSTEM

The lifting system with two cylinders and Z configuration is designed for the toughest jobs. The breakout force (22 ton with a 3.9m³ bucket) is very important and the bucket movements are fast.

The bucket angles are well kept in good positions on all the range of bucket movement.

Lifting cylinders (2)

bore x stroke : 160 x 928 mm (6.2 " x 3'1 ")

Bucket cylinders (1)

bore x stroke : 180 x 600 mm (0.7 " x 2')

MAINTENANCE

Maintenance is easy due to excellent access.

The transmission is electronically controlled. An error coding system allows easy diagnosis of the systems and proper intervention.

Engine (oil) :	25 ℓ (6.6 gal)
Radiator (cooling liquid) :	50 ℓ (13.2 gal)
Fuel :	367 ℓ (96.9 gal)
Hydraulic oil :	230 ℓ (60.7 gal)
Gear box and torque converter :	54 ℓ (14.3 gal)
Front axle :	51 ℓ (13.4 gal)
Rear axle:	42.5 ℓ (11.2 gal)