

**Seoul Office :**

Doosan Tower 27<sup>th</sup> FL. 18-12, Euljiro-6 Ga,  
Jung-Gu, Seoul, Korea 100-730

Tel : +82-2-3398-8049

Fax : +82-2-3398-8117

[www.doosaninfracore.com](http://www.doosaninfracore.com)

**Doosan Infracore Europe S.A.**

1A, Rue Achille Degrace, 7080 Frameries, Belgium  
Tel : +32-65-61-3230 Fax : +32-65-67-7338

**Doosan Infracore U.K., Ltd.**

Doosan House, Unit 6, 3 Heol Y Gamlas, Parc Nantgarw, Nantgarw,  
Cardiff. CF15 7QU, U.K.  
Tel : +44-1443-84-2273 Fax : +44-1443-84-1933

**Doosan Infracore Europe S.A. Germa**

Heinrich-von- Stephan str. 2 40764 Langenfeld, Germany  
Tel : +49-2173-2035-210 Fax : +49-2173-2035-219

**Doosan Infracore France**

ZAC de La Clef Saint Pierre - Buroplus 2 1A Avenue Jean d'Alembert  
78990 Elancourt, France  
Tel : +33-(0)1-30-16-21-41 Fax : +33-(0)1-30-16-21-44

**Doosan Infracore America Corporation**

2905 Shawnee Industrial Way, Suwanee, Georgia 30024, U. S. A  
Tel : +1-770-831-2200 Fax : +1-770-831-0480

**Doosan Infracore China Co., Ltd.**

#28, Wuzhishan Road, Eco. & Tech, Development Zone, Yantai, Shandong, China  
Tel : +86-535-638-2000 Fax : +86-535-638-2004

**Doosan Infracore Russia**

123242, Moscow, Kapranova Lane, bld.3, office 402, 4-th floor  
Business Centre "Premier Plaza"  
Tel : +7 (495)663 82 38/ (499) 923 12 55 Fax: +7 (495) 663 82 39

**Doosan Infracore Middle East Center (Dubai)**

P.O.Box 183127, Al-Serkal Building, Air Port Road, Dubai, U.A.E  
Tel : +971-4-295-2781~2 Fax : +971-4-295-2783

**Doosan Infracore do Brasil Serviços de Suporte Comercial Ltda.**

Alameda Santos 2222 Cj52 CEP 01418.200 São Paulo, SP, Brasil  
Tel : +55-11-3061-3227 Fax : +55-11-3061-2731

**Doosan Infracore India Pvt.Ltd**

Plot No. 34, Door No. 1/61-19, Palwels street, Ravi Colony,  
St. Thomas Mount, Chennai-600 016  
Tel : +91-44-4222-3900 Fax : +91-44-4222-3905

**World Tractor (1996) Co.,Ltd**

159/20-22 Vipawadee Rangsit Rd. Talad Bangkhen,  
Laksi, Bangkok 10210

Head Office : Tel : 0-2551-1021, 0-2551-1137-42 Fax : 0-2552-2841  
Rangsit Office : Tel : 0-2902-9850-3 Fax : 0-2902-9854

[www.worldtractor1996.com](http://www.worldtractor1996.com)  
[www.facebook.com/worldtractor1996](https://www.facebook.com/worldtractor1996)

PBP D420W000 1002

The illustrations do not necessary show the product in standard version.  
All products and equipment are not available in all markets.  
Materials and specifications are subject to change without prior notice.



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<sup>3</sup>(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 unit injector 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.

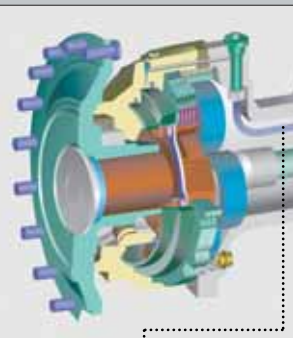
**Axle**

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)**

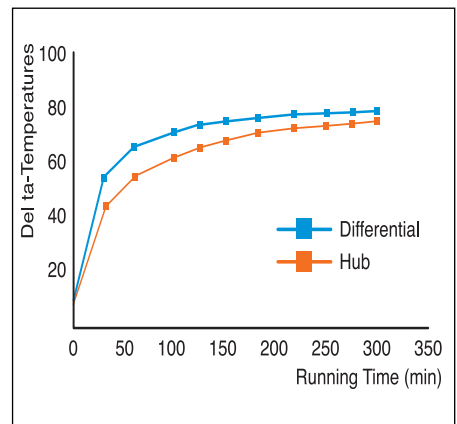
The standard equipment LSD allows easy driving through soft and swampy grounds.



**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

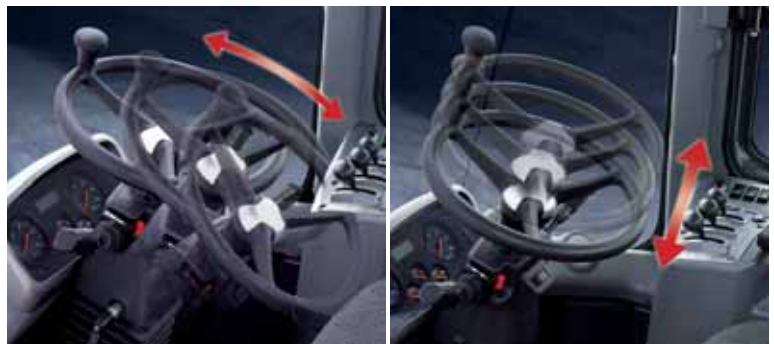
## DL420

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.



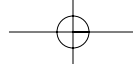
### Noise Level

- 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 (if 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 laptop 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



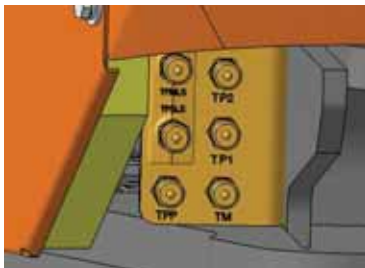
#### Hydraulically operated reverse fan

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.



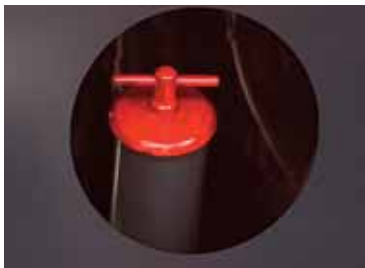
#### Remote Engine oil & Coolant Drain

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 signal 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.



#### 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.



#### Large Capacity Transmission Oil Cooler

The large capacity transmission oil cooler ensures durable and stable operation of transmission.



#### Transmission & Engine Diagnosis

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.



#### 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.

#### Air-Cleaner Filter

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

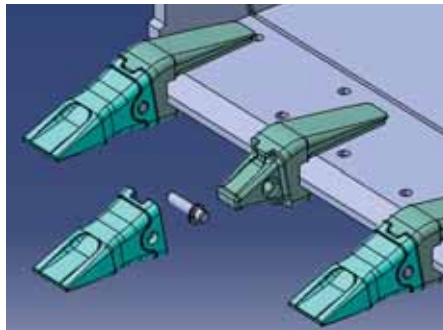
# Reliability

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 sold. 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.



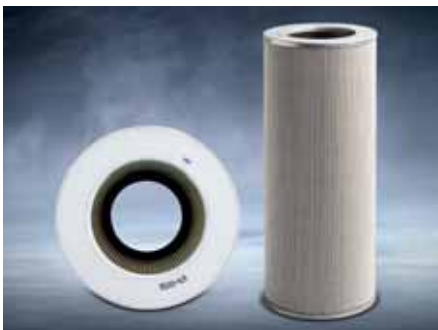
**ORFS-All Ports**(Even in Pilot line and Low pressure line)



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

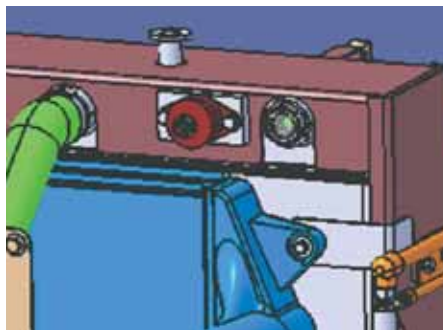


**Radiator Grill** (Steel structure)



### 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

*Lifting Capacity*

Height (mm)	Lifting Capacity (kgf)				
	Bucket (4.0 m <sup>3</sup> )	Bucket (3.7 m <sup>3</sup> )	Fork	Hook (3.9 m <sup>3</sup> )	Hook (3.7 m <sup>3</sup> )
300	33,112	33,208	23,934	33,280	33,368
600	27,559	27,643	20,638	27,627	27,707
900	25,562	25,646	20,096	25,599	25,680
1200	21,975	22,053	18,144	21,996	22,072
1500	20,515	20,593	17,758	20,530	20,606
1800	19,234	19,313	17,445	19,245	19,322
2100	18,080	18,158	17,292	18,087	18,165
2295	17,380	17,458	17,184	17,387	17,465
2400	17,023	17,101	17,128	17,386	17,106
2700	16,041	16,119	17,255	16,044	16,122
3000	15,093	15,171	15,842	15,096	15,174
3300	14,160	14,238	13,783	14,162	14,240
3600	13,229	13,307	11,802	13,230	13,308
3900	12,213	12,291	10,092	12,212	12,289
4200	11,042	11,118	9,033	11,037	11,113
4297	10,602	10,675	8,673	10,597	10,670



# 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 :**

∅ 125 x 147 mm(4.9" x 5.8")mm

Wet replaceable cylinder liner

3 stages Air cleaner including a very efficient 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 260

**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/cm<sup>2</sup> (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 equipped 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 3.9m<sup>3</sup> 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 (6.7" 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) :** 34 ℓ (8.9 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)

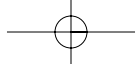
**Rear axle :** 42.5 ℓ (11.2 gal)

## DL420

## Operational Data

Bucket type		General purpose							Rock	Light material		High lift
Configuration	Unit	Teeth (std.)	Bolt-on edge	Teeth	Teeth	Bolt-on edge	Bolt-on edge	Teeth & segments	Teeth	Teeth	Bolt-on edge	Bolt-on edge
Capacity heaped ISO/SAE	m <sup>3</sup>	4.0	4.2	3.7	3.9	3.9	4.1	4.1	3.5	4.3	4.5	4.2
	yd <sup>3</sup>	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°) <sup>1)</sup> (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°) <sup>1)</sup> (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	22,300	22,400	22,106	22,275	22,221	22,381	22,457	22,527	22,361	22,467	22,600
	lb	49,162	49,604	49,383	49,107	48,988	49,341	49,508	49,663	49,297	49,531	49,824

1) Measured to the tip of the bucket teeth.



# DL420

## Dimensions

