

DOOSAN

Wheel Loaders

DL420CVT-7

Maximum power	326 hp
Operating weight	23.4 t
Bucket capacity	4.3 m ³
Emission standard	Stage V

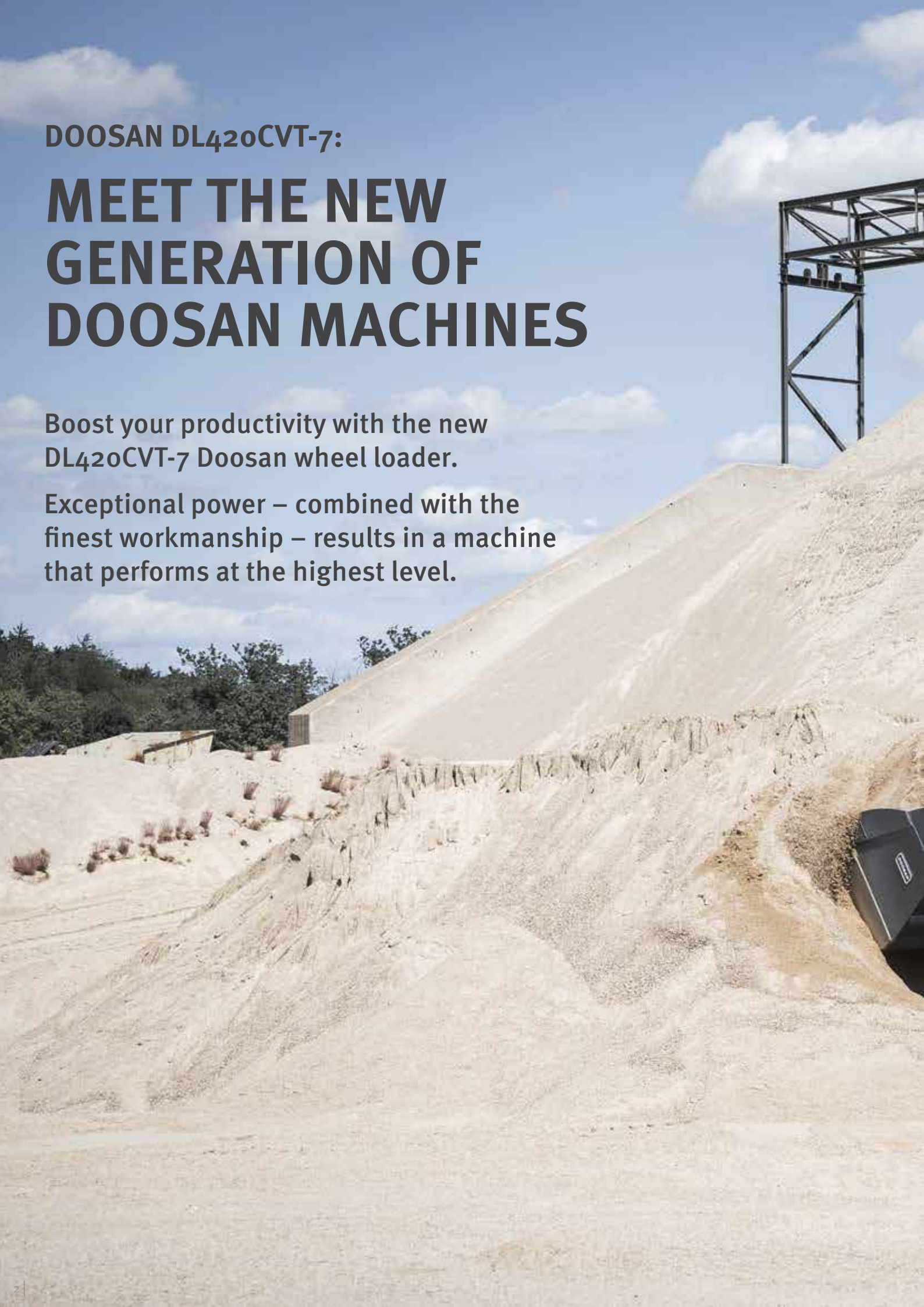


DOOSAN DL420CVT-7:

MEET THE NEW GENERATION OF DOOSAN MACHINES

**Boost your productivity with the new
DL420CVT-7 Doosan wheel loader.**

**Exceptional power – combined with the
finest workmanship – results in a machine
that performs at the highest level.**







The DL420CVT-7 enhances your output from every angle

Impressive breakout force and high traction make penetration easy and allow you to tackle the hardest materials.

- Powerful hydraulic system makes work quick and efficient.
 - Scania DC9 engine provides the power you need while meeting Stage V environmental regulations.
- The combination of these features gives Doosan wheel loaders excellent penetration power, ensuring optimum bucket load in each cycle.

TOP PERFORMANCE AND FUEL EFFICIENCY

ENVIRONMENT-FRIENDLY POWER

The DL420CVT-7 is powered by a Scania DC9 engine compliant with the Stage V emissions regulations. High-pressure fuel injection and precise timing provide highly efficient fuel burn and perfect combustion. The aftertreatment system is composed of a selective catalytic reduction module, an oxidation catalyst, and a long-life particulate filter to reduce emissions without requiring an EGR (exhaust gas recirculation) valve.

EFFICIENT POWER MANAGEMENT

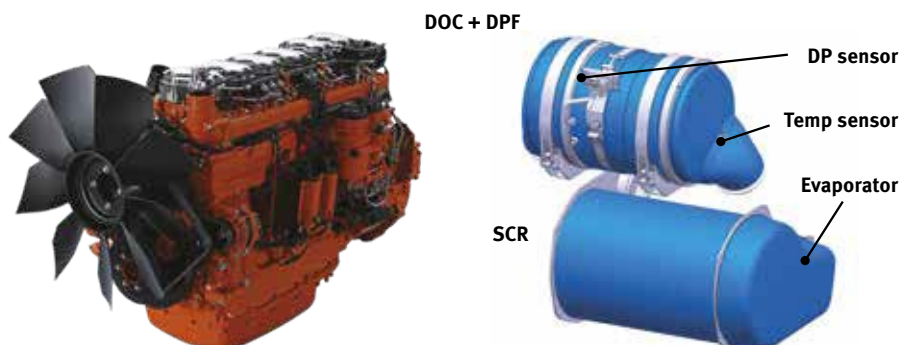
You can select from 2 different engine working modes – Eco and Normal – while the Power-up function lets you switch the parameters to level-up working mode with lower transmission shift intervals by fully applying the acceleration pedal.

VARIABLE GEOMETRY TURBOCHARGER

Optimizes boost pressure over wide range of engine speeds. The turbocharger generates higher torque, provides faster response, and reduces fuel consumption.

SAVE FUEL, SAVE MONEY

- **Auto Idle**
The standard auto idle feature automatically reduces the engine revs to standby idle a few seconds after the steering wheel, gearshift control lever and accelerator cease movement. This reduces noise, improves jobsite communications and saves fuel. When you move the controls, the loader automatically returns to working idle.
- **Auto Shutdown**
When enabled, the engine automatically shuts down after idle time reaches a specified elapsed time (3 to 60 minutes).





RELIABILITY – THE HABIT OF A LIFETIME

In your profession, you need equipment you can depend on. At Doosan, we put durability and reliability at the core of our machines' development. Our materials and structures undergo stringent testing for strength and resilience under the most extreme conditions.

DESIGNED FOR LONG-TERM, ALL-ROUND, HEAVY-DUTY PERFORMANCE

POWERTRAIN

The complete driving range, forward and in reverse, is controlled by continuously variable transmission (CVT). Low engine speeds ensure high efficiency and the highest driving comfort irrespective of the traction speed. The power splitting continuously variable technology facilitates moving off softly and hydraulically. Furthermore, with the CVT a fuel saving of up to 15% can be achieved. Traction force is also maximized. Together, these qualities enable high working speed in all conditions.

AXLE

New stronger axle allows you to carry more.

- Hydraulic differential lock on the front engages automatically to ensure maximum tractive effort with a lock of 100% and driving ease. Muddy and slippery areas can be navigated by the operator with the manual foot control. These features also reduce the risk of skidding and prevent excessive tire wear.
- The brake discs in the planetary reduction gears are reinforced, ensuring long hours of operation and easy maintenance access.
- Axle oil cooler is available for the most demanding conditions. Fully independent cooling circuit with filters for each axle.

ROBUST AND RELIABLE

We pay the closest attention to the design and manufacture of structural components. Finite Element Analysis is used to ensure an extended lifetime for main structures such as the chassis, joints and lift arm. Then, after modelling, they are subjected to intensive laboratory and field testing in extreme conditions. Ongoing statistical analysis is used to continually increase reliability.

DURABLE STEEL PARTS

Rear parts – such as the radiator grille, engine hood and fenders – are made of durable steel. They're also designed for easy repair, reducing the need to replace them if they are damaged.

EXHAUST

The inner exhaust pipe sucks air out of the engine compartment through an outer pipe – this 'chimney' effect provides constant air circulation and prevents deposits of flammable material on hot parts.

FAST CYCLE TIMES

The entire Doosan wheel loader lineup is carefully engineered for a perfect balance of speed and controllability – so you benefit from optimal production. Variable displacement piston pumps in all models allow Doosan wheel loaders to power through difficult jobs with minimal fuel consumption and multifunction operation of the lift arm and bucket.

FULL FENDERS

To keep them clean and avoid mud splashing on the windows or accidents on slippery steps, Doosan's wheel loaders are standard equipped with full fenders and mud guards. Enlarged front fenders protect front windows and ensure maximum operator visibility.

DRIVING ASSISTANCE

- Automatic transmission with smooth shifting
- Automatic transmission digging mode
- Automatic Hydraulic Differential Lock (HDL)
- Automatic Load Isolation System (LIS)
- Automatic kick-out function on lift arm
- Automatic return to dig position
- Automatic reversing fan
- Automatic greasing system





2

3


1

4

8

9

OPERATING IN HIGH COMFORT

- 
1. Doosan Smart Touch
 2. Intuitive gauge panel
 3. Steering wheel adjustable in all directions
 4. Integrated armrest with joystick
 5. Control panel
 6. Cup holders
 7. Storage compartments
 8. Premium seat with 3-point safety belt
 9. Electric joystick steering

ADJUSTABLE STEERING COLUMN

Enhance your driving comfort, and work without fatigue, by easily adjusting the steering column's tilt and telescopic movements to fit your preferred position.

DOOSAN SMART TOUCH

- An easy to read and use 8" touch screen integrates all functions in one place.
- All information about the machine, settings, rear-view camera, weighing system, A/C control, multimedia.
- Help function - operators can quickly and easily understand all functions without referring to the operator's manual.

ELECTRONIC JOYSTICK

Reduce your cycle times with fully integrated electronic joystick in right armrest. Sensitivity settings and shock prevention are designed to ensure maximum machine controllability and operator comfort. Less movement for repetitive tasks with auto-leveling function.

- Return to Dig

Sensors on the lift arm and bucket linkage allow you to change your 'return to dig' setting from inside the cab. The cylinders and cutting edge return to the same position every time, enabling more efficient, consistent work.

- Lift Kickout

Set the maximum lift height for working inside buildings or other areas with height restrictions. Simply pull back on the control joystick to override.

ELECTRIC JOYSTICK STEERING

Keep your concentration and reduce strain with the comfortable joystick steering integrated on the armrest. Drive your machine easily, especially in repetitive tasks and tight spaces. You can customize the sensitivity level – from low to high. For better controllability, steering sensitivity changes with travel speed.

LUXURY CHAIR

Improved high comfortable seat with vertical and horizontal low-frequency suspension, pneumatic lumbar support, heating and 3-point safety belt with alarm icon on gauge panel and in Doosan Smart Touch.



TAKE A SEAT IN BUSINESS CLASS

The ergonomic controls and the easy-to-view color monitor place the machine firmly in your hands.

TOTAL CONTROL IN ALL SIMPLICITY

DOOSAN SMART KEY

We bring automotive standards and comfort to construction machinery

- Search function
- Coming/leaving home light function
- Remote door opening
- Keyless engine start

DOOSAN SMART GUIDANCE SYSTEM

Boost your performance and reduce fuel consumption based on the system's recommendation. Machine automatically monitors and analyses driving strategy and recommends how to improve settings.

SPACIOUS CAB

Re-designed interior offers much larger, quieter and more comfortable operator environment, which improves safety and productivity and helps the operator work with high concentration. Increased leg room with re-designed accelerator and brake pedal position. Enlarged storage area and cool-box position increase operator comfort. Improved air conditioning system, with optimized air circulation, ensures a pleasant working environment.

VISIBILITY

Completely re-designed cab improves operator comfort and safety. Enlarged front windshield ensures better front visibility, while larger mirrors extend operator's view on the sides and rear - providing maximum safety for pedestrians and machine and improving productivity at the same time.

COMFORTABLE AUTOMATIC LIFT ARM

Save time and reduce the number of operations with the new bucket leveling function. Automatically return the bucket to dig position from roll back or dump position. Automatic function is also available for lift arm positions.

EASY ENTRY AND EXIT

Grab handles and offset steps with slip-resistant surfaces provide safe & easy access to the cab and easy exit when work is finished. The door opens 180° - and can be locked in the open position - to provide a wide opening for moving in and out of the machine.



RAISE PROFITS, PRODUCTIVITY & FUEL EFFICIENCY

STRENGTH AND INTELLIGENCE – A WINNING COMBINATION!

With tremendous lift height and capacity, along with enough torque to bite into the toughest materials, Doosan wheel loaders go a step beyond scooping, carrying and loading. It's your ticket to making harder work easier, longer days more enjoyable, and every minute more productive and profitable.

BOOST YOUR PRODUCTIVITY

- Ride control – Load Isolation System
- Bucket auto leveling function
- End-stroke cushioning for smooth arm and work tools movements
- Optimized driving program

MAXIMUM SAFETY

- Rear-view camera
- Full hand rails for safe maintenance
- Up to 12 LED working lights available
- Rear-view mirrors with electric adjustment possibility
- 3-point safety belt

READY FOR VERSATILITY

- Improved Doosan weighing system
- Attachments fully tailored for application
- Wide selection of tires

MAXIMIZE YOUR UPTIME

- Massive frame
- Automatic lubrication system
- Wide fin radiator and reversible fan
- DoosanConnect fleet management



BUSINESS CLASS OPERATOR COMFORT

The new spacious cab offers an operator-friendly environment with top-class all-round visibility. It centers around a high comfortable seat with 3-point safety belt for maximum operator safety. The joystick is fully integrated in the seat's right armrest. The electrically adjustable rear mirror contributes to maximum operator comfort.

ALL-IN-ONE FOR BETTER PERFORMANCE

All important functions are easily accessible on the Doosan Smart Touch

- Machine settings
- Rear-view camera
- Radio
- HVAC
- Weighing system
- Doosan Smart Guidance

BETTER FUEL EFFICIENCY

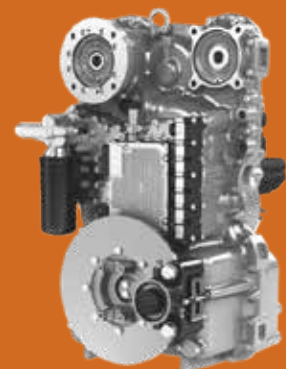
The DL420CVT-7 is equipped with a powerful, new engine with low fuel consumption

- without requiring an EGR (exhaust gas recirculation) valve.



CVT – CONTINUOUSLY VARIABLE TRANSMISSION

Hydrostatic and mechanical power split transmission ensures significant fuel consumption savings of up to 15%. Enables carrying high loads at low engine speeds in combination with high dynamics.







SIMPLE MAINTENANCE WITH MAXIMUM UPTIME

COOLING PACKAGE

Wide pitch fin radiators coupling with reversible fan keep the cooling system performing constantly - minimizing machine downtime and reducing daily maintenance. The operator can easily set standard intervals for fan reverse from the Doosan Smart Touch. Performance is regulated for lower fuel consumption and shorter warm-up periods.

AIR INTAKE

Maintenance-free cyclone air pre-filter separates more than 99% of particles 20 microns in size and larger. Cleaning and cartridge replacement are only needed at long intervals. In addition to extending the air filter's lifetime, the pre-filter also ensures better combustion and a longer engine lifetime.

AUTOMATIC LUBRICATION SYSTEM

The DL420CVT-7 is standard equipped with a factory-fitted auto-lube system, with greasing point at the middle of the pin and bushing for better grease distribution and enhanced lifetime.

WE ARE HERE FOR YOU

Boost your productivity and machine uptime with our genuine Doosan parts; Protection+, an extended warranty covering parts, travel and service (check with your local dealer); and a maintenance contract in which your dealer supports you with routine service at regular intervals.

FLEET MANAGEMENT

With DoosanConnect, you can proactively react to machine status, properly plan maintenance, and reduce downtime.

SAFE ACCESS

To facilitate access and mobility on the machine, multiple platforms and hand-rails ensure that the operator always has a firm support to hold on to and 3-point contacts.



TECHNICAL SPECIFICATIONS

ENGINE

Designed to deliver superior performance and fuel efficiency, the Scania DC9 diesel engine fully meets the latest Stage V emission regulations. To optimize machine performance, the engine uses high-pressure fuel injectors, air-to-air inter-cooler and electronic engine controls. 4-Cycle Water-Cooled, Variable Geometry Turbocharged, Diesel Oxidation Catalyst (DOC) & Selective Catalytic Reduction (SCR) and Diesel Particulate Filter (DPF), no Exhaust Gas Recirculation (EGR).

Model

Scania DC9

No. of cylinders

5

Max. power (SAE J1995)

240 kW/326 hp @ 1800 rpm

Max. torque (SAE J1995)

1846 N·m @ 1200 rpm

Displacement

9300 cm³

Bore × stroke

130 mm × 140 mm

Starter

24 V / 6 kW

Batteries - Alternator

2 x 12 V - 28 V/100 A

Air filter

Centrifugal pre-cleaner Top Spin™ Donaldson® with 2-stage dry filter

Cooling

Cooling package with automatic reversing fan to facilitate radiator cleaning. Automatic rotation speed adjustment according to temperature conditions.

Radiator

Wide fin radiator – Intercooler/Hydraulic oil cooler/Transmission oil cooler

AXLES

Front & rear axles manufactured by ZF with outboard planetary reduction gears. Maximum traction power 22.4 t allows operation on slopes of 27° (51%).

LSD lock ratio

30% (front & rear)

HDL lock ratio

100% (front)

Oscillation angle

+/- 12°

Tire size - standard

26.5R25

TRANSMISSION

The full power-split CVT (Continuously Variable Transmission) technology combines these characteristics with reduced fuel consumption of up to 15%. The transmission operates at low engine speeds, thus increasing efficiency and driver comfort even more. Continuously variable drive over complete drive range forward and reverse, smooth, hydraulic start due to continuously variable power-split technology and high efficiency through low engine speeds, independent of vehicle speed.

Type

CVT (Continuously Variable Transmission)

Speeds - forward 1 / 2 / 3 / 4

7.2 / 13.6 / 19.7 / 38.3

Speeds - reverse 1 / 2 / 3

7.2 / 13.6 / 19.7

Maximum traction

22.1 ton

Maximum gradeability

27° (51%)

HYDRAULIC SYSTEM

Type

Load sensing – closed center hydraulic system

Main pump

Dual variable displacement axial pistons pumps

Maximum flow

476 l/min

Maximum pressure

315 bar

EMCV

Automatic functions for positioning the bucket ready to dig and a function for stopping the lift arm at the desired height.

Filtration

In the oil return to the tank, the fiberglass filter has a filtering capability of 10 micron.

LIFT ARM

Z-kinematics with simple lifting piston system designed for heavy-duty applications. 183 kN breakout force combined with a bucket angle that is maintained throughout the range of movement. Bucket angles are optimized in the travelling position and at ground level. Load Isolation System (LIS) is fitted as standard for improved operator comfort, output and lifetime.

Load cycle

Lift arm – up	6 s
Lift arm – down	2.7 s
Bucket – dump	2 s

HYDRAULIC CYLINDERS

High-strength steel piston rods and cylinder bodies. Shock-absorbing mechanism fitted in all cylinders for shock-free operation and extended piston life.

Cylinders	Quantity	Bore × rod diameter × stroke (mm)
Lift	2	150 × 95 × 795
Bucket	1	160 × 100 × 615

BRAKES

Dual multi-disc circuit with sintered metal discs for extended service life. Braking system activated by a pump and accumulator circuits. Spring-applied, hydraulically released parking brake is mounted on the transmission shaft and accumulator circuits and is electronically activated. Brake type: spring-applied / hydraulically released. Brake pump with variable displacement axial pistons provide 58 l/min. Operator can activate/deactivate the Inching function on the brake pedal from a switch and can adjust the sensor proximity with the same switch. The emergency brakes are composed of a double system continually under pressure by accumulators.

CAB

Safety compliance with Roll Over Protection System (ROPS) and Falling Object Protective Structure (FOPS) requirements. Spacious modular cab with excellent all-round visibility and ample storage space. Good overview of the bucket, tires and loading area thanks to wide windows. Pushbutton controlled air conditioning and heating with air recirculation function. Double cab air filter installed in the cab with extra protection for the operator in dusty or polluted environments. Viscous suspension mount for maximum comfort. Adjustable high-quality heated seat with air suspension, arm rests and height and tilt adjustable steering column. All operating information clearly displayed in front of the operator. Control functions are centralized on a console on the right.

Safety standards

ROPS ISO 3471:2008

FOPS ISO 3449

Noise emissions

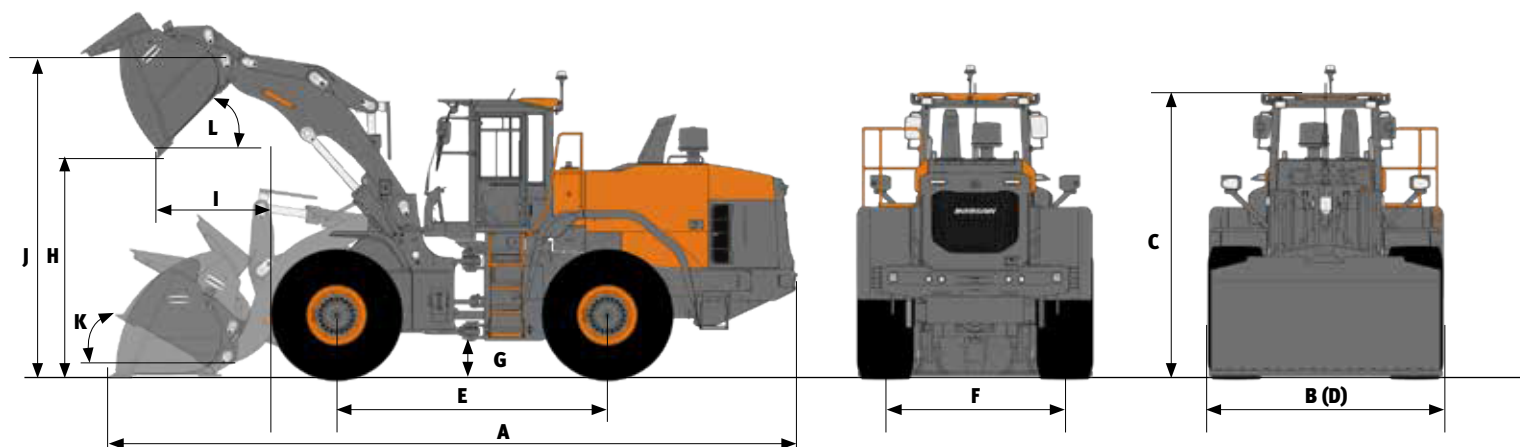
Operator Sound Pressure Level (ISO 6396)	69 dB
Exterior Sound Power Level (ISO 6395)	106 dB

FLUID CAPACITIES

Fuel tank	313 l
DEF (AdBlue®) tank	60 l
Cooling system (radiator)	53 l
Engine oil	36 l
Front axle	42 l
Rear axle	42 l
Hydraulic system	223 l
Hydraulic oil tank	125 l
Transmission oil	66 l



PERFORMANCE DATA & DIMENSIONS



DL420CVT-7

Pin-on		Unit	Performance bucket				Eco bucket		High lift
			General purpose		Material handling		General purpose		
Ground engaging tools			4.5 m³ BOCE	4.4 m³ BOT	4.9 m³ BOCE	4.7 m³ BOT	4.3 m³ BOT	4.5 m³ BOCE	
			straight sides	straight sides	convex sides	convex sides	straight sides	straight sides	
Configuration									
	Capacity heaped ISO/SAE	m³	4.5	4.4	4.9	4.7	4.3	4.5	=
	Capacity at 110% fill factor	m³	4.9	4.8	5.3	5.2	4.8	5.0	=
B	Bucket width	mm	3000	3000	3000	3000	3200	3200	-5
	Breakout force	kN	167	173	167	172	183	171	=
	Static tipping load (straight)	kg	19287	19347	19250	19310	19351	18696	-2838
	Static tipping load (full turn - 40°)	kg	17273	17334	17235	17295	17071	16493	-2591
H	Dump height (at 45° - fully raised)	mm	2911	2719	2911	2719	2835	2990	+483
I	Dump reach (at 45°- fully raised)	mm	1342	1503	1342	1503	1465	1320	+72
	Digging depth	mm	145	165	145	165	110	115	+119
J	Height at bucket pivot point	mm	4265	4265	4265	4265	4265	4265	+480
	Max. tilt angle in carry position	°	50	50	50	50	48	48	+4
	Max. tilt angle fully raised	°	63	63	63	63	62	62	+1
K	Max. tilt angle on ground	°	44	45	44	45	43	43	+1
	Max. tilt angle at max. reach	°	59	59	59	59	59	59	=
	Max. dump angle at max. reach	°	72	72	72	72	71	71	-10
	Max. dump angle on ground	°	64	64	64	64	65	65	-1
L	Max. dump angle fully raised	°	46	46	46	46	45	45	-1
	External radius - tire side	mm	6388	6388	6388	6388	6388	6388	=
	External radius - bucket edge	mm	7028	7146	7028	7146	7065	7000	+212
E	Wheel base	mm	3525	3525	3525	3525	3525	3525	=
D	Width at tires edge	mm	2982	2982	2982	2982	2982	2982	=
F	Tread	mm	2300	2300	2300	2300	2300	2300	=
G	Ground clearance (at 12° osc.)	mm	495	495	495	495	495	495	=
A	Overall length	mm	9244	9510	9244	9510	9138	8926	+471
C	Overall height	mm	3660	3660	3660	3660	3660	3660	=
	Operating weight	kg	23437	23373	23494	23430	23419	23570	+585

All capacities according ISO 7546, with straight blade [measure at the tip of bucket teeth or cutting edge], tires 26.5 R25 (L3), base EU configuration.

STANDARD AND OPTIONAL EQUIPMENT

● Standard ○ Optional

Engine

- Exhaust aftertreatment (DOC + DPF + SCR)
- Auto idle function
- Auto shutdown function
- Variable Geometric Turbocharger (VGT)
- Air pre-cleaner (centrifugal)
- Engine management
- Fan – reversible, variable speed, with automatic function
- Wide fin radiator

Powertrain

- CVT transmission
- Transmission mode management
- Inching brake pedal
- Axle differential – Hydraulic Differential Lock (HDL)
- Axle differential – Limited Slip Differential (LSD)
- Axles oil cooler

Hydraulic

- Load sensing hydraulic system, variable displacement pump
- EMCV (Electric main control valve)
- 3rd spool valve
- MCV

Lift Arm

- Standard lift arm, Z-bar kinematic
- Hydraulic lift arm suspension - Load Isolation System (LIS)
- Smooth end position bucket & arm (only with EMCV)
- Position memories
- Automatic bucket position "return to dig"
- High lift arm, Z-bar kinematic

Work tools

- DOOSAN quick coupler
- DOOSAN bucket
- DOOSAN performance bucket

Cab & operator comfort

- ROPS (ISO 3471:2008)/FOPS (ISO 3449) pressurized cab
- Grammer seat with vertical and horizontal low-frequency suspension, pneumatic lumbar support, heating, 3-point safety belt
- Joystick lever with FNR and thumbwheel roller integrated to the seat's right armrest
- Electric joystick steering on left armrest
- DOOSAN Smart Key
- Door remote opening
- DOOSAN Smart Touch – 8" touch screen, all-in-one
- DOOSAN Smart Guidance System
- Rear-view mirrors – heated
- DoosanCONNECT (telematic system)
- 12V socket
- USB socket
- Fingertip control
- Rear-view mirrors – heated, electric adjustment

Safety

- Safety belt alarm
- Rear-view camera
- Full handrails and maintenance platforms
- Strobe reversing light
- LED working lights on cab (4× front + 4× rear)
- LED working lights on cab (6× front + 6× rear)

Other

- Automatic lubrication system
- 26.5R25 (L3)
- 26.5R25 (L4)
- 26.5R25 (L5)
- Additional counterweight
- DOOSAN weighing system

DOOSAN CONNECT

OPERATION TREND

Total operation hours and operation hours by mode

FUEL EFFICIENCY*

Fuel level and fuel consumption

LOCATION

GPS and geo-fence

REPORTS

Operation report & utilization

WARNING & ALERT

Detect machine warnings, antenna disconnection, and geo/time fence

FILTER & OIL MANAGEMENT

Preventive maintenance by item replacement cycle

TELEMATICS TERMINAL

Terminal device is installed and connected to a machine to get machine data.

TELECOMMUNICATION

Doosan provides dual-mode (Mobile, Satellite) communication to maximize communication coverage.

DOOSANCONNECT WEB

Users can monitor machine status from DoosanCONNECT Web.

Powered by Innovation

DISCOVER MORE:
DL420CVT-7



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