Technical specifications

Engine

Scania Stage IV (Tier 4 final) compliant diesel engine fully meets the latest emissions regulations.
XPI direct injection (Extra high Pressure Injection) ensures very good fuel efficiency.
Variable Geometry Turbocharger (VGT) delivers high power and strong torque, even at low idle.
Electronic engine controls optimize machine performance and manage the catalytic operations by a Diesel Oxidation Catalyst (DOC) and a Selective Catalytic Reduction (SCR).

	DL420-5	DL450-5
Model	Scania DC13	
Regulation compliant	Stage IV	
No. of cylinders	6	
Nominal power - gross (SAE J1995)	345 hp (257 kW) at 1800 rpm	
Maximum torque - gross	1600 Nm at 1300 rpm	1600 Nm at 1400 rpm
Engine speed (auto-idle - idle - high)	750 - 950 - 2130 [±20] rpm	750 - 950 - 2200 [±20] rpm
Displacement	12.7 litres	
Bore × stroke	130 mm × 160 mm	
Starter	24 V - 6 kW	
Batteries - alternator	2 × 12 V, 200 Ah - 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.	

Transmission

5-Gear powershift transmission with 3 operating modes: manual, fully automatic or semi-automatic with "kick-down" function.
Based on high-quality components. Equipped with a modulation system for protection and smooth gear and direction changes. A manual transmission control lever is located to the left of the steering wheel. Direction change function also available in automatic or semi-automatic mode. Transmission can be disengaged by the brake pedal to deliver full engine power to the hydraulics system. A safety device prevents the engine from starting if the transmission is not in neutral. Torque converter lock-up function from 2nd to 5th gear. Transmission testing and adjustment equipment available.

	DL420-5	DL450-5
Type	5-speed auto-powershift with lock-up	
Torque converter	Simple stage / mono phase / fixed wheel stator	
Speeds - Forward 1-2-3-4-5	7.0 - 12.0 - 18.5 - 26.5 - 37.0 km/h	6.5 - 12.0 - 19.0 - 26.5 - 37.0 km/h
Speeds - Reverse 1-2-3	7.0 - 12.0 - 18.5 km/h	6.5 - 12.0 - 26.0 km/h
Maximum traction	22.4 t	23.6 t
Maximum gradeability	51% / 27°	58% / 30°

Axles

Front & rear axles manufactured by ZF with outboard planetary reduction gears.
The front and the rear are equipped with Limited Slip Differential (LSD), which means the machine has the optimum traction in all conditions.
From 22.4 t to 23.6 t traction power allows operation on slopes of 27° to 31°.

	DL420-5	DL450-5
LSD lock ratio	30% (Front & Rear)	
HDL lock ratio	100% (Front)	
Oscillation angle	+/- 12°	+/- 11°
Tire size - standard	26.5 R25 (L3)	

Hydraulic system

	DL420-5	DL450-5
Type	Load sensing - closed center hydraulic system	
Main pump	Dual variable displacement axial pistons pumps	
Maximum flow	476 l/min	476 l/min
Maximum pressure	315 bar	315 bar
Pilot system	Automatic functions for positioning the bucket ready to dig and a function for stopping the lift arm at the desired height, and low position adjusted manually by switch, are standard.	
Filtration	In the oil return to the tank, the fibre glass filter has a filtering capability of 10 micron.	

Lift arm

Z-kinematics with simple lifting piston system designed for heavy-duty applications. 20.1 & 23.1 tons 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

	DL420-5	DL450-5
Lift arm - up	6.0 s	6.1 s
Lift arm - down	3.0 s	
Bucket - crowd	2.3 s	
Bucket - dump	1.7 s	1.6 s

Hydraulic cylinders

	DL420-5	DL450-5
	Quantity	Bore × rod diameter × stroke (mm)
Lift	2	170 × 105 × 789
Bucket	1	190 × 120 × 590

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 60 l/min.
Operator can activate/deactivate the Clutch Cut Off 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.

	DL420-5	DL450-5
Braking distance	7.5 m at 32 km/h	9.0 m at 36 km/h
Number of disc brakes per wheel (front / rear)	14 / 14	9 / 9
Accumulators	0.75 l - 30 bar	

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. Push-button 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.

	DL420-5	DL450-5
Safety standards	ROPS ISO 3471:2008 FOPS ISO 3449	
Door	1	
Emergency exits	2	

Noise emissions

	DL420-5	DL450-5
A weighted emission sound pressure level at the operator position (ISO 6396)	Declared: 72 dB(A) Measured: 71 dB(A)	Declared: 73 dB(A) Measured: 72 dB(A)
A weighted emission sound power level at external position (ISO 6395)	Declared: 106 dB(A) Measured: 105 dB(A)	Declared: 106 dB(A) Measured: 104 dB(A)

Fluid capacities

	DL420-5	DL450-5
Fuel tank	278 l	319 l
Urea (AdBlue®) tank	60 l	
Cooling system	52 l	
Engine oil	38 l	
Front axle	42 l	
Rear axle	40 l	42 l
Hydraulic system	250 l	275 l
Hydraulic tank	126 l	
Transmission oil	54 l	

Steering system

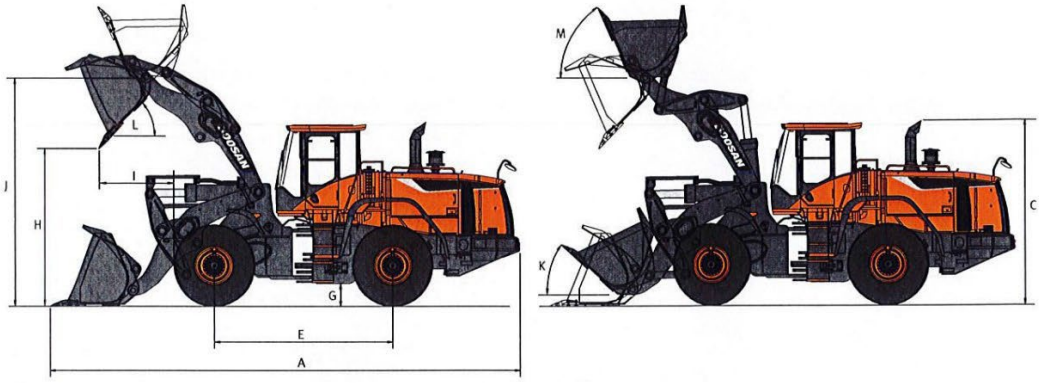
	DL420-5	DL450-5
Type	Load sensing with amplification stage and priority valve	
Steering angle	40°	
Oil flow	210 l/min	
Operating pressure	185 bar	200 bar
Steering cylinders (2)	Emergency steering system with electric motor-driven hydraulic pump.	
Bore × rod diameter × stroke	100 × 50 × 442	100 × 50 × 450

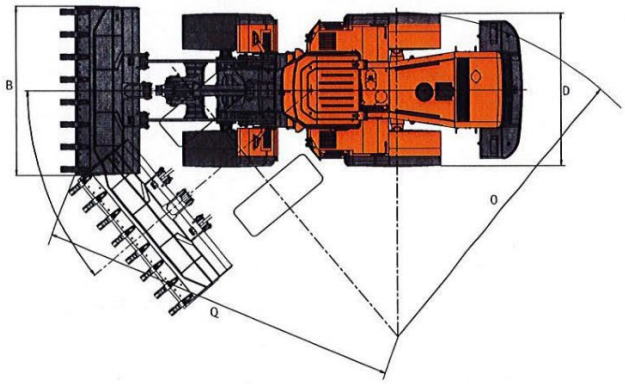
Pressure settings

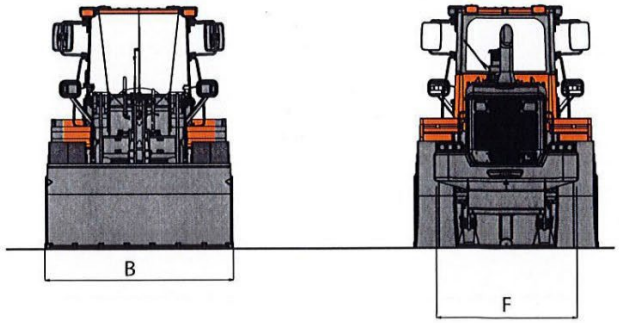
	DL420-5	DL450-5
Working (pump cut-off)	315 ± 10 bar	
Steering relief – LS port side	185 ± 10 bar	185 ± 5 bar
Steering relief – steering pump side	200 ± 10 bar	
Pilot control	30 ± 10 bar	30 + 2 bar
Brake accumulator charging	100–160 bar	
Service brake	80 ± 3 bar	
Fan motor	150 ± 10 bar	
Parking brake release	120 ± 5 bar	
Transmission selection pressure	17 ± 1 bar	



Technical specifications







Bucket selection chart DL420-5 & DL450-5

	Fill factor	Material density
Earth or Clay	115%	1.4-1.7
Sand or Gravel	110%	1.5-1.8
Aggregate	105%	1.6-1.7
Rock	‹ 95%	1.7

Dimensions and operational data DL420-5

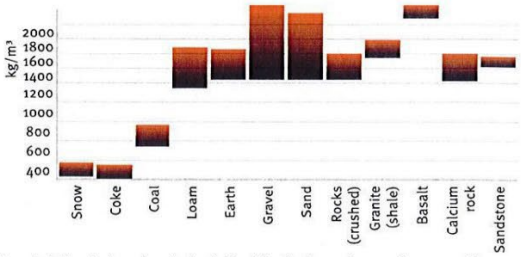
	DL420-5 – Pin-on Ground Engaging Tools Configuration		Rehandling configurations Bolt-on cutting edge Straight sides	 Convex sides	 Straight sides	 Convex sides	General purpose configurations Teeth Straight sides	 Convex sides	 Straight sides	 Convex sides	Rock Teeth Concave sides	High Lift	QC
	Capacity heaped ISO/SAE	m³	4.3	4.7	4.5	4.9	4.2	4.5	4.4	4.7	3.5	=	=
	Capacity at 110% fill factor	m³	4.8	5.1	5.0	5.4	4.6	5.0	4.8	5.2	3.9	=	=
B	Bucket width	mm	2995	2995	3200	3200	2995	2995	3200	3200	3230	=	=
	Breakout force	kN	211	210	210	210	211	211	219	210	210	- 8	- 5
	Static tipping load (straight)	kg	18492	18435	8397	18341	18540	18483	18461	18405	18100	- 3615	- 2249
	Static tipping load (at full turn)	kg	16342	16285	16247	16191	16390	16333	16311	16255	15980	- 3175	- 2109
H	Dump height (at 45° – fully raised)*	mm	2909	2909	2941	2941	3044	3044	3076	3076	2882	+ 490	- 166
I	Dump reach (at 45° – fully raised)*	mm	1416	1416	1384	1384	1281	1281	1249	1249	1445	+ 80	+ 166
	Digging depth	mm	150	150	150	150	150	150	150	150	150	+ 35	=
J	Height at bucket pivot point	mm	4280	4280	4280	4280	4280	4280	4280	4280	4280	+ 465	=
	Max. tilt angle in carry position	°	48	48	48	48	48	48	48	48	48	+ 3	=
M	Max. tilt angle fully raised	°	63	63	63	63	63	63	63	63	63	+ 1	=
K	Max. tilt angle on ground	°	44	44	44	44	44	44	44	44	44	+ 1	=
	Max. tilt angle at max. reach	°	59	59	59	59	59	59	59	59	59	=	=
	Max. dump angle at max. reach	°	74	74	74	74	74	74	74	74	74	- 13	=
	Max. dump angle on ground	°	65	65	65	65	65	65	65	65	65	=	=
L	Max. dump angle fully raised	°	46	46	46	46	46	46	46	46	46	+ 1	=
O	External radius at tire side	mm	6570	6570	6570	6570	6570	6570	6570	6570	6570	=	=
Q	External radius at bucket edge	mm	6955	6955	7065	7065	6970	6970	7080	7080	6875	+ 80	+ 40
E	Wheel base	mm	3500	3500	3500	3500	3500	3500	3500	3500	3500	=	=
D	Width at tires edge	mm	2982	2982	2982	2982	2982	2982	2982	2982	2982	=	=
F	Tread	mm	2300	2300	2300	2300	2300	2300	2300	2300	2300	=	=
G	Ground clearance (at 12° osc.)	mm	495	495	495	495	495	495	495	495	495	=	=
A	Overall length	mm	8859	8859	8904	8904	9050	9050	9095	9095	9000	+ 697	+ 235
C	Overall height	mm	3535	3535	3535	3535	3535	3535	3535	3535	3535	=	=
	Operating weight	kg	22838	22895	22933	22989	22790	22847	22869	22925	23170	+ 495	+ 882

(*): 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.

Dimensions and operational data DL420-5

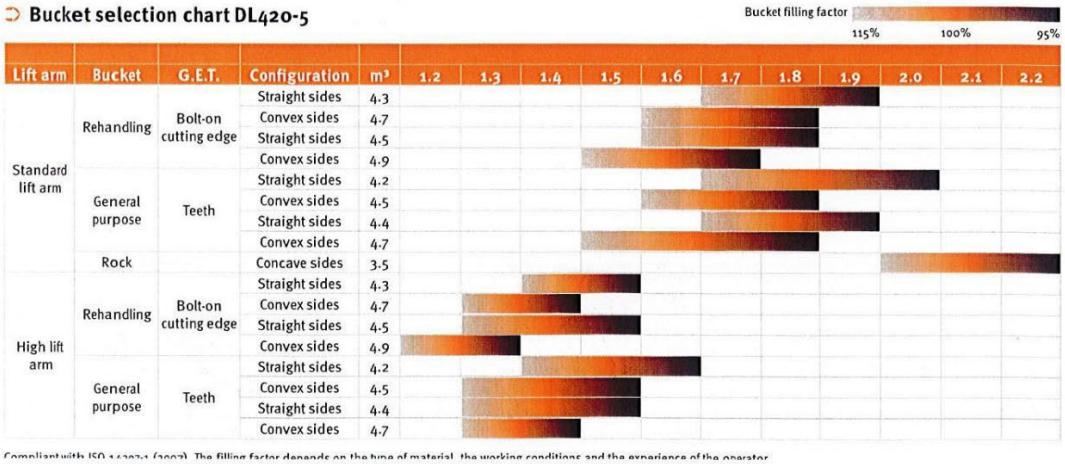
			26.5 R25 L3	26.5 R25 L4	26.5 R25 L5
	Width at tires edge - Empty	mm	2982	- 2	+ 2
	Width at tires edge - Loaded	mm	3058	- 18	+ 3
C	Overall height	mm	Base	+ 21	+ 26
G	Ground clearance (at 12° osc.)	mm	Base	+ 21	+ 26
J	Height at bucket pivot point	mm	Base	+ 21	+ 26
	Static tipping load (straight)	kg	Base	+ 344	+ 861
	Static tipping load (at full turn)	kg	Base	+ 304	+ 760
	Operating weight	kg	Base	+ 419	+ 1051

Density of operating materials



The specific weight of the material largely depends on the level of humidity, the degree of compaction, composition, etc.

Bucket selection chart DL420-5



Compliant with ISO 14397-1 (2007). The filling factor depends on the type of material, the working conditions and the experience of the operator.

Technical specifications

Dimensions and operational data DL450-5

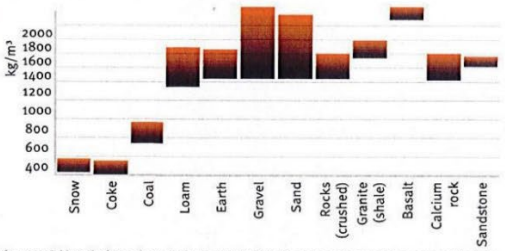
DL450-5 – Pin-on Ground Engaging Tools			Rehandling configurations				General purpose configurations				Rock	High Lift	QC
			Bolt-on cutting edge				Teeth				Teeth		
Configuration			Straight sides	Convex sides	Straight sides	Convex sides	Straight sides	Convex sides	Straight sides	Convex sides	Concave sides		
	Capacity heaped ISO/SAE	m³	4.6	5.0	5.0	5.3	4.5	4.8	4.8	5.2	4.0	=	=
	Capacity at 110% fill factor	m³	5.1	5.5	5.5	5.9	5.0	5.3	5.3	5.7	4.4	=	=
B	Bucket width	mm	3300	3300	3300	3300	3300	3300	3300	3300	3340	=	=
	Breakout force	kN	232	231	231	231	232	232	232	231	230	- 2	- 9
	Static tipping load (straight)	kg	20722	20667	20648	20589	20794	20739	20720	20661	20475	- 1026	- 2435
	Static tipping load (at full turn)	kg	18312	18257	18238	18179	18384	18329	18310	18251	18080	- 869	- 2281
H	Dump height (at 45° – fully raised)*	mm	3237	3237	3187	3187	3104	3104	3055	3055	3105	+ 465	- 191
I	Dump reach (at 45° – fully raised)*	mm	1298	1298	1348	1348	1431	1431	1480	1480	1430	+ 210	+ 191
	Digging depth	mm	110	110	110	110	105	105	105	105	165	+ 165	=
J	Height at bucket pivot point	mm	4500	4500	4500	4500	4500	4500	4500	4500	4500	+ 485	=
	Max. tilt angle in carry position	°	50	50	50	50	50	50	50	50	50	+ 1	=
M	Max. tilt angle fully raised	°	66	66	66	66	66	66	66	66	66	- 3	=
K	Max. tilt angle on ground	°	45	45	45	45	45	45	45	45	45	- 1	=
	Max. tilt angle at max. reach	°	71	71	71	71	71	71	71	71	69	- 10	=
	Max. dump angle at max. reach	°	70	70	70	70	70	70	70	70	70	- 6	=
	Max. dump angle on ground	°	69	69	69	69	69	69	69	69	69	+ 2	=
L	Max. dump angle fully raised	°	45	45	45	45	45	45	45	45	45	=	=
O	External radius at tire side	mm	6540	6540	6540	6540	6540	6540	6540	6540	6540	=	=
Q	External radius at bucket edge	mm	7160	7160	7190	7190	7205	7205	7235	7235	7155	+ 215	+ 80
E	Wheel base	mm	3550	3550	3550	3550	3550	3550	3550	3550	3550	=	=
D	Width at tires	mm	2982	2982	2982	2982	2982	2982	2982	2982	2982	=	=
F	Tread	mm	2300	2300	2300	2300	2300	2300	2300	2300	2300	=	=
G	Ground clearance (at 11° osc.)	mm	455	455	455	455	455	455	455	455	455	=	=
A	Overall length	mm	9168	9168	9238	9238	9355	9355	9425	9425	9350	+ 627	+ 270
C	Overall height	mm	3583	3583	3583	3583	3583	3583	3583	3583	3583	=	=
	Operating weight	kg	25623	25678	25697	25756	25551	25606	25625	25684	25870	+ 276	+ 1048

(*): 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.

Dimensions and operational data DL450-5

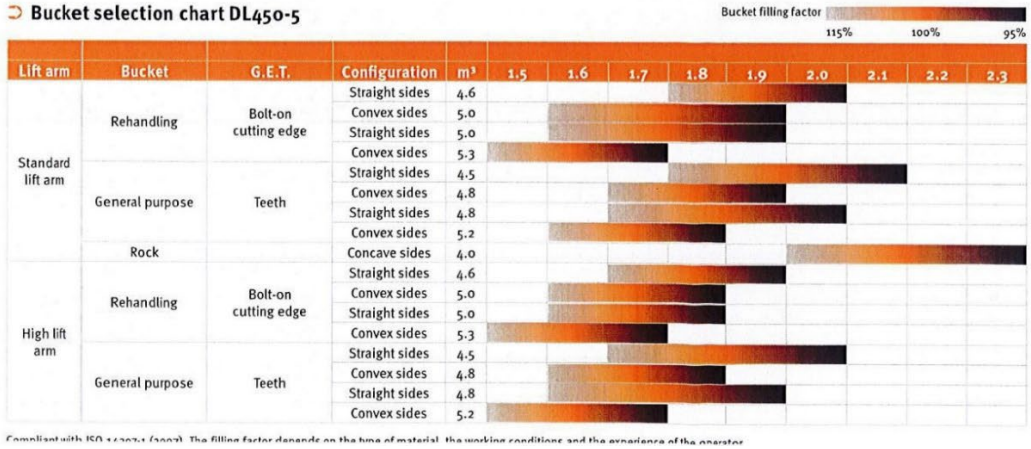
			26.5 R25 L3	26.5 R25 L4	26.5 R25 L5
	Width at tires edge - Empty	mm	2982	- 2	+ 2
	Width at tires edge - Loaded	mm	3058	- 18	+ 3
C	Overall height	mm	Base	+ 21	+ 26
G	Ground clearance (at 11° osc.)	mm	Base	+ 21	+ 26
J	Height at bucket pivot point	mm	Base	+ 21	+ 26
	Static tipping load (straight)	kg	Base	+ 328	+ 819
	Static tipping load (at full turn)	kg	Base	+ 289	+ 724
	Operating weight	kg	Base	+ 419	+ 1051

Density of operating materials



The specific weight of the material largely depends on the level of humidity, the degree of compaction, composition, etc.

Bucket selection chart DL450-5



Compliant with ISO 14397-1 (2007). The filling factor depends on the type of material, the working conditions and the experience of the operator.

Work tools

Configurable general purpose buckets

The Doosan range of configurable general purpose buckets offers you the possibility to configure the bucket that matches your application perfectly.

Now, in addition to deciding about teeth or bolt-on edge, you choose the coupling system, floor shape, spill guard type, bucket protection, and blade shape - all according to your needs!



Your Doosan dealer will help you configure your bucket for your application - so that you maximize your productivity, and get the level of protection you need.

Standard and optional equipment

Performance	DL420-5	DL450-5
Scania, Stage IV compliant, SCR, EGR, DOC, water-cooled, diesel engine with Variable Turbo Charger and air-to-air intercooler	●	●
No DPF	●	●
Engine power mode selector switch (Normal / Economy & Power modes)	●	●
Power-up pedal function by full stroke of acceleration	●	●
Auto shut-off engine	●	●
Auto idle function	●	●
Fuel heater	●	●
Torque converter lock-up	●	●
Transmission clutch cut-off via the brake pedal	●	●
Transmission mode selector switch (Manual / Auto 1 ↔ 5 / Auto 2 ↔ 5 with kick-down)	●	●
Automatic hydraulic load sensing system, variable displacement pump	●	●
Limited slip differentials on front and rear axles	●	○
Hydraulic differential lock on front axle	○	●
Counterweight	●	●
Additional counetrweight	○	○
Robust Z bar lifting system	●	●
High lift loader	○	○
Quick coupler	○	○
Wide range of buckets	○	○

Comfort		
Load isolation system (LIS)	●	●
Automatic lift arm kick-out	●	●
Automatic return to dig	●	●
Levelling function	●	●
3rd hydraulic function	●	●
Automatic air conditioning with electronic climate control	●	●
Grammer air-suspension seat with safety belt 2 points	●	●
Grammer air-suspension seat with safety belt 3 points	○	○
Electric joystick steering on armrest	○	○
Joystick lever with FNR and thumbwheel roller	●	●
Fingertip levers	○	○
Adjustable steering column (tiltable & telescopic)	●	●
Tinted safety glass	●	●
Left sliding window	●	●
Right opening window (180°)	●	●
Floor mat	●	●
Multiple storage compartments	●	●
Cup holder	●	●
Loudspeakers and connections for radio	●	●
Lift arm float kick-out	●	●
Alternator 24 V / 80 A	●	●
Dashboard monitoring with LCD display (dials, gauges and lamps)	●	●
Interior cab light	●	●
Cigarette lighter and 12 & 24 Volt power sockets	●	●
Weighing system	○	○

Safety		
Emergency steering pump driven be electric motor	●	●
Full fenders with rubber protection	●	●
ROPS cab (SAE J 394, SAE 1040, ISO 3471)	●	●
FOPS cab (SAE J 231, ISO 3449)	●	●
Double filtered air cab	●	●
Right opening window (emergency exit)	●	●
Front and rear wiper and washer	●	●
Retractable roller sun visor, front & rear	●	●
Road lights: low and high beam, tail indicators, stop, reversing lights	●	●
Work lights: 2 LED at the front and 4 halogen at the rear (6 × 70 W)	●	●
Reverse travel alarm	●	●
Rotating beacon	●	●
Horn	●	●
Heated external mirrors	●	●
Interior rear view mirrors	●	●
Anti-slip steps & platforms	●	●
Starting safety system	●	●
Brake circuits with accumulator	●	●
Dual service brake pedals	●	●
Electric parking brake on the transmission, spring-applied hydraulic release	●	●
Wheel chocks	●	●
Handrail on top of the cab and anti-slip platforms on front frame	●	●

Other		
Bottom protection plates	●	●
Tie hooks	●	●
Articulation lock in the transport position	●	●
Towing hitch	●	●
Tires 26.5 R25 (L3)	●	●
Tires 26.5 R25 (L4)	○	○
Tires 26.5 R25 (L5)	○	○

Maintenance	DL420-5	DL450-5
Automatic lubrication system	●	●
Hydraulic reversing engine fan	●	●
Doosan Connect Telematic system	●	●
Self-diagnosis system & monitoring indicator by the dashboard, plus electronic plug for fast adjustment	●	●
Fast couplers for hydraulic check	●	●
External drains for engine oil and coolant changes	●	●
Bio oil	○	○
3-year warranty or 5 year warranty	○	○
Protection+ warranty	○	○

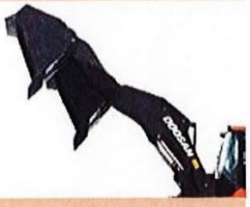
Standard: ●
Optional: ○



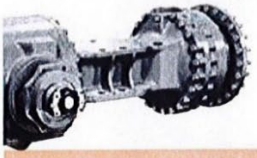
Electric joystick steering



Fingertip control



High lift arm



Differential hydraulic lock



Heavy-duty tire



Protection+ warranty



Quick coupler



Attachments

Some of these options may be standard in some markets. Some of these options may not be available for certain markets. Please check with your local DOOSAN dealer for more information about availability or to adapt your machine to your application needs.