



## DL250A

Engine Power : SAE J1995, gross 127 KW (172PS) @ 2,200 rpm

Operational Weight : 14,200 KG (31306 lb) STD

Bucket capacity(SAE) : 2.5 ~ 3.1 m<sup>3</sup> (3.3 ~ 4.1 cu yd)



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Photo may include optional equipment



Wheel loader : DOOSAN DL250A

# A Powerful Wheel loader with Novel Features



## DL 250A



The new DL250A wheel loader has all the advantages of the previous model, and now offers additional added value to the operator.

The new DL250A was developed with the concept of “providing optimum value to the end user.” In concrete terms, this translates, into :

**Increased production** due to the powerful 8 liter 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

DL250A

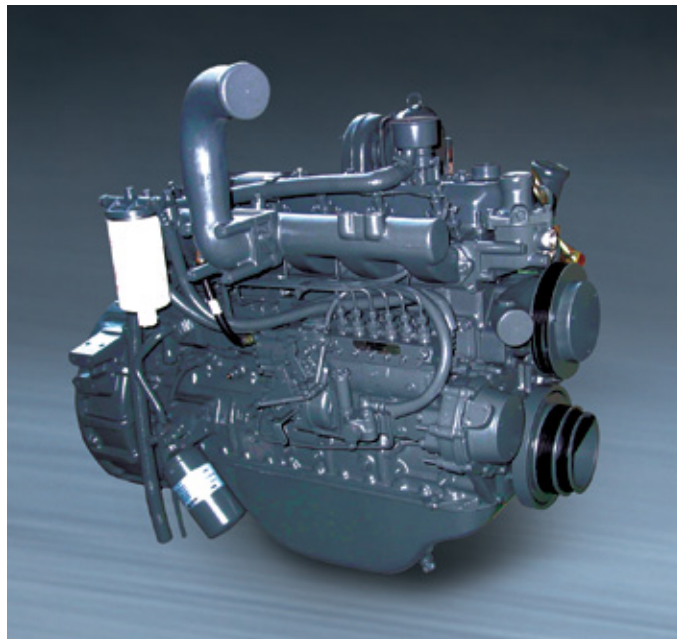
Perfect integration of power and intelligence.

When exceptional power is combined with the very best workmanship, the wheel loader reaches the peak of its performance.

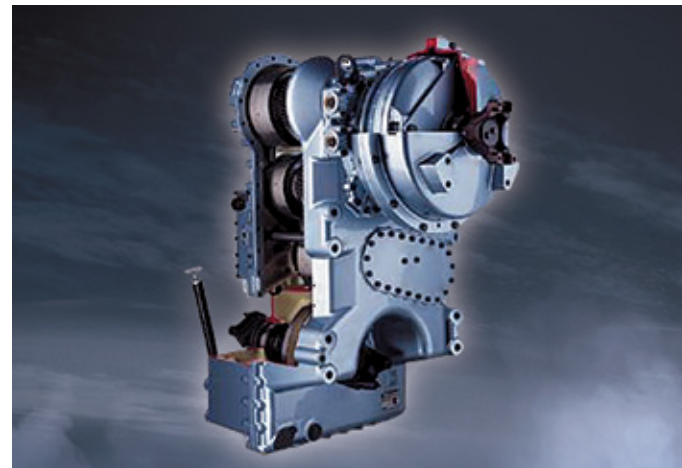
The DL250A loader gives you outstanding productivity. The reason is, on the one hand, the impressive digging power allows the hardest materials to be tackled and, on the other, high tractive power enables easy penetration.

With a powerful hydraulic system, the operator can work quickly and powerfully.

At the heart of the loader is the new DOOSAN D1146T Turbo Charged-Air Cooled Intercooler engine.



**DOOSAN D1146T Turbo Charged-Air Cooled Intercooler Engine**  
Our many years of experience in engine design and production have resulted in the emergence of a highly efficient and very powerful engine that boasts the highest power in its class.



#### Automatic Transmission

The transmission is particularly smooth and the gear ratios are optimised. There are no shocks, resulting in an appreciable level of comfort for the operator. The traction force is optimum under all working conditions. The combination of these characteristics enables the loader to maintain high speed under all conditions and favours penetration and thus optimum bucket filling at each cycle.

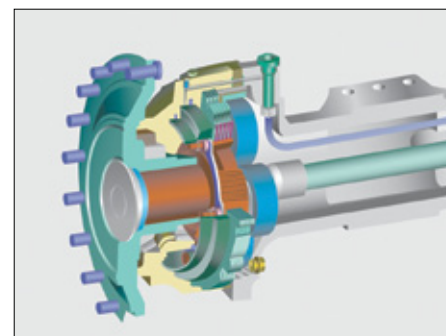
The transmission has three modes of operation:

- Manual
- Automatic (automatic shift for all gears)
- Semi - Automatic (automatic with a "kick down" for first gear)



#### Limited Slip ZF Differential

The machines axles are fitted with limited slip differentials at the front and rear. This automatically ensures the maximum tractive effort and easy driving over soft and muddy ground. It also reduces the risk of skidding and, at the same time, prevents excessive tire wear. 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.

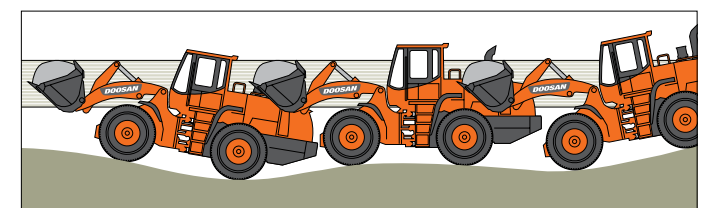


DL250A



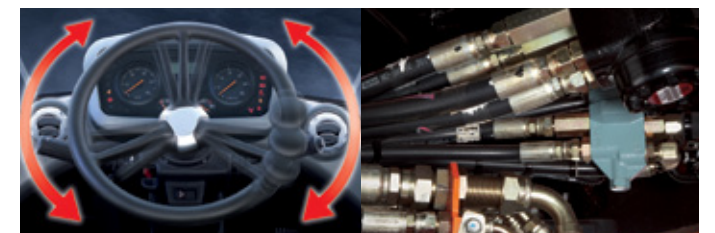
#### Z Kinetics

The Z lifting geometry is very robust and especially designed for heavy loads. Few moving parts, reduced loads, simplicity,... everything contributes to good loader stability. This geometry enables very rapid bucket movements and ensures correct angle positioning in all situations. The rapid bucket dump capability makes it easier to unload adhesive materials.



#### Load Stabilizer (option)

This system is ideal for all loading and movement situations and increases driver productivity and comfort. It also minimises the amount of material spilt during travelling.



#### Hydraulic Power Steering

The newly designed steering system ensures smooth steering even in the low engine speed ranges.



# COMFORT

DL250A

A perfect workspace has been created for you.

The work rate of the wheel loader is directly linked to the performance of its operator.

DOOSAN designed the DL250A by putting the operator at the centre of their development goals.

More space, better visibility, air conditioning, a very comfortable seat, sufficient storage space...

All these elements ensure that the operator can work for hours in excellent conditions.



## Visibility

Visibility has been improved in all directions and the size of the cab has been increased.



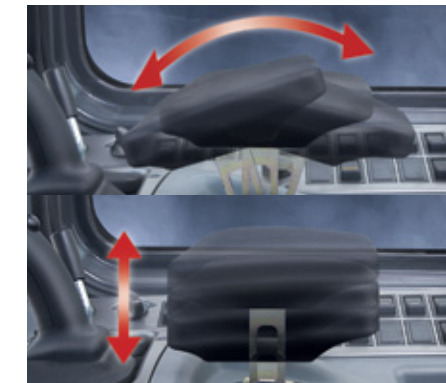
## Air Conditioning

The high performance air conditioning system provides an air flow which is adjusted and electronically controlled according to the conditions. A double air filter protects the operator's environment. The comfort is comparable to that of a new car.



## Steering Column

The steering column features both tilting and telescopic functions.



## Arm Rest

Correct positioning with clear controls makes the operator's task easier.



## Control Levers (option)

The control levers are very precise. Different options are available to match what the operator is accustomed to as well as an optional auxiliary lever.



## Lateral Console

The control console is thoughtfully placed to the right of the operator. Provision is provided to fit switches for additional equipment if required.



## Central Indicator Panel

A high visibility indicator panel allows the operator to check essential loader functions.



## Sunvisor & Room Mirror(Std.)



# MAINTENANCE

DL 250A

Short, simple maintenance operations at long intervals increase the availability of the equipment on site. DOOSAN has developed the DL250A with a view to high profitability for its user. A detailed design of each detail guarantees optimum reliability and reduced maintenance costs.



### Hydraulic Circuit Return Filter

The hydraulic circuit return filter, made of glass fibre, eliminates up to 99.5% of foreign substances. It effectively protects the hydraulic circuit and extends service intervals.



### Central Joints

The central joints of the machine are particularly robust. The attachment points are positioned to withstand bending and torsion forces. A large amount of space has been left to allow easy access to internal components.



### Air Cleaner

The forced air cleaner removes 99.9% of particles. It is preceded by a high capacity pre-filter. The cleaning and cartridge replacement intervals are very long.



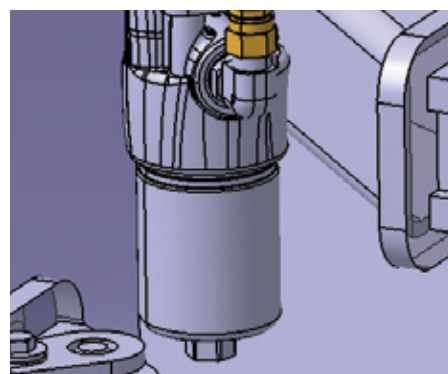
### Greasing Lubrication Ports

The front pins and steering cylinders and rear support assembly can be lubricated from the outside of the machine without crawling under the machine or in awkward positions through the lubrication ports.



### Transmission Filter

The transmission filter is easy to reach and can, like all other maintenance components, be checked from ground level.



### Brake & Pilot Filter

The pilot filter is easy to replace and protect hydraulic system.



### Convenient Transmission Oil Filling

The oil filler pipe is located near the articulation joint for easy access.



### Transmission Diagnostics

The transmission and engine can be diagnosed using a laptop computer to interface with the diagnostic system.



### Engine Oil and Coolant Drains

Drains are installed in very accessible places to facilitate emptying without the risk of polluting the environment.

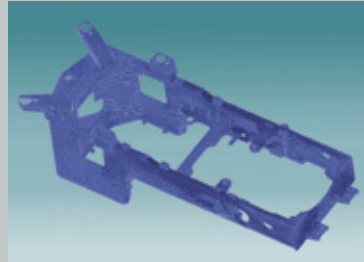
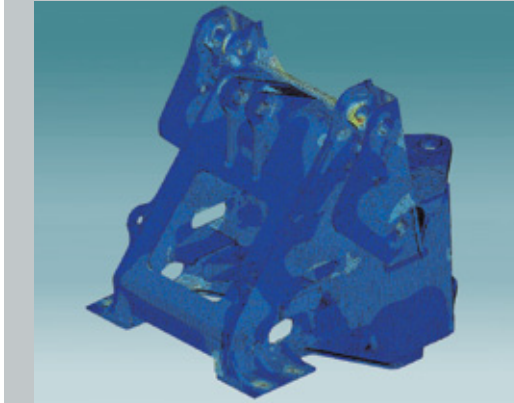


# RELIABILITY

# DL 250A

Because the operator knows that the DOOSAN loader is a tough, reliable, product with large power reserves, it can be relied on to work for long periods.

For DOOSAN, reliability means above all durability, availability, accessibility and simplicity.



Special attention was given to the design and manufacture of structural components.

To ensure long lifetime for the main structures, DOOSAN has used finite element techniques. All the structural components such as the chassis, the joints and the lifting arm have been designed using this method. After modelling, they are subjected to intensive laboratory and field testing where extreme conditions are simulated and tested. Statistical data is established in order to constantly increase the level of reliability.

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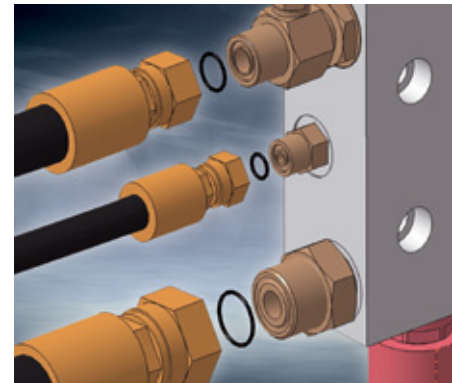
### Drive Shaft

The dust seal has been fitted to protect dust and mud, sand, thus wear during use is reduced. The air vent relief valve is installed against over-filling.



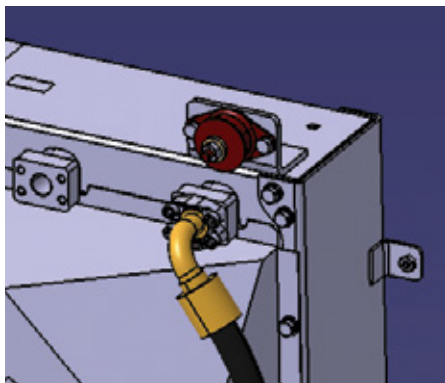
### Radiator Grill

The radiator grill is made from reinforced steel for increased shock resistance.



### ORFS

To ensure perfect oil tightness, all ports, even the low pressure ports which are used for the pilot lines, are ORFS type.



### Radiators Mounted on Rubber Mounts

The aluminium radiators are mounted on rubber mounts to effectively withstand vibrations.



### Front Combination Lamp

With the application of high-grade Hella products, the lamp life has extended much more.



### Rear Combination Lamp

A semi-permanent lamp life has been secured with the application of LED-type stop and position lamps.

# STANDARD AND OPTIONAL EQUIPMENT

## \* STANDARD EQUIPMENT

### • Engine

- Three stage air cleaner with cyclone pre-cleaner, inner filter, and external filter restriction indicator as at the dashboard
- Fuel filter
- External drains for engine oil and coolant changes

### • Lifting and Hydraulic system

- Robust Z bar lifting system
- General purpose bucket 2.5 m<sup>3</sup> (SAE,heaped)
- Automatic boom kick out
- Automatic bucket return to dig.
- Fast couplers for hydraulic check
- Mono control lever
- Hydraulic control valve with two sections

### • Steering system

- Load sensing steering system

### • External equipments

- Lifting hooks
- Articulation lock in the transport position
- Towing hitch
- Tool compartment
- Semi-fender

### • Electric System

- Alternator 60A / 24V
- Working lights: 2 at the front and 4 at the rear (6 x 70 W)
- Driving lights: low and high beams
- Tail indicators, stop, reversing lights
- Reversing alarm

### • Loader Linkage

- Z-bar loader linkage

### • Drive line and Brake system

- Transmission which can be declutched when braking
- Transmission with self diagnosis and monitoring indicator, plus electronic plug for fast adjustment
- Transmission Mode selector switch (Manual / Auto 1 ↔ 4 / Auto 2 ↔ 4)
- Starting safety system
- Travel direction and kickdown selection lever at left of the steering wheel and on the joystick
- Limited slip differentials on front and rear axles
- Dual brake circuits with accumulator
- Tires 20.5-25-16PR(L3)
- Dual service brake pedals
- Parking brake on the transmission, spring applied hydraulic release

### • Cab

- Air-conditioning / heating with recirculation function
- Double filtered air cab
- Mechanical seat with 2" safety belt
- Adjustable steering column (inclination & telescopic)
- Compartment for cans
- Floor mat
- Tinted glasses
- Left sliding window
- Front and rear wiper
- Front and rear washers
- Sun visor
- Interior cab light
- Interior rear view mirror (2)
- Machine monitoring (condition, control & maintenance indicators in front of the driver by dials, gauges and lamps)
- Main switches in front of the driver
- Switches for the general functions in the right console
- Electrical horn
- Cigarette lighter
- 12 Volt power socket
- Cup holder
- Compartment for shoes
- Radio antenna built into rear window
- MP3 / CD player
- Speakers & connection for radio
- ROPS cabin (Rollover Protective Structure); ROPS meets the following criteria: SAE J 394, SAE 1040, ISO 3471
- FOPS cabin (Falling Objects Protective Structure); FOPS meets the following criteria: SAE J 231, ISO 3449

## \* OPTIONAL EQUIPMENT

Some of these optional equipments may be standard in some markets. Some of these optional equipments cannot be available on some markets. You must check with the local DOOSAN dealer to know about the availability or to release the adaptation following the needs of the application.

### • Ground Engaging Tools

- Various types of buckets, Pallet fork, timber grapples and accessories

### • Tires

- L3 following various types of manufactures

### • Hydraulic

- Hydraulic control valve with 3 sections
- FNR mono lever with 3rd function lever for third section
- Two hydraulic levers for 2 sections with FNR function
- Three hydraulic levers for 3 sections with FNR function
- Load isolation system (LIS)
- Emergency steering pump driven by electric motor

### • Electric system

- Rotating beacon

### • Various

- Tool Kit

### • External equipments

- Full fenders
- Lower protection plates
- Boom float kick-out
- Additional counter weight
- Wheel chocks

### • Bucket and Attachments

- Bolt-on teeth (BOT)  
2.5m<sup>3</sup> (3.3 cu.yd.), 3.0m<sup>3</sup> (3.9 cu.yd.),
- Bolt-on cutting edge (BOC)  
2.6m<sup>3</sup> (3.4 cu.yd.), 3.1m<sup>3</sup> (4.1 cu.yd.),

## \* ENGINE

<b>• Model</b>	Doosan D1146T Turbo charged and direct injection type. The number of cylinder is 6.
<b>• Number of cylinders</b>	6
<b>• Rated power</b>	127 kW(172 PS) @ 2,200 rpm (SAE J1995, gross)
<b>• Maximum power</b>	127 kW(172 PS) @ 2,200 rpm (SAE J1995, gross)
<b>• Maximum torque</b>	71 kgf.m (696 Nm) at 1,400 rpm
<b>• Piston displacement</b>	8,000 cc(488 cu.in)
<b>• Bore &amp; stroke</b>	111*139
<b>• Starter</b>	24 V / 6.0 kW
<b>• Batteries</b>	2 x 12 V / 150Ah
<b>• Air cleaner</b>	Double element and pre-filtered with auto dust evacuation.

## \* TRANSMISSION

The "Power Shift" transmission can be used in manual mode, fully automatic or semi-automatic with the "kick down" function. This transmission is based on components of excellent reputation. It is equipped with a modulation system designed to protect it and ensure smooth gear and direction changes. A manual transmission control lever is located to the left of the operator. In automatic or semi-automatic mode a change of direction function is also available. The transmission can be disengaged by the brake pedal to make all the engine power available for the hydraulics. A safety device prevents the engine being started if the transmission is not in neutral. The transmission can be tested and adjusted with special equipment. A computer can be connected to monitor the history of its operation.

### Gearbox

ZF 4 WG 190
<b>• Torque converter</b>
Simple stage / mono phase
<b>• Movement speed, kph</b>
Forward: 7.2 - 11.9 - 23.5 - 36.5 (1 - 2 - 3 - 4)
Reverse: 7.6 - 12.6 - 24.6 (1 - 2 - 3)
<b>• Maximum traction</b>
13.8 tonnes

## \* LIFTING SYSTEM

The type Z lifting system has a simple lifting piston system and is designed for the toughest jobs. The breakout force of 12.0 tonnes combines with a Bucket angle that is well maintained throughout the range of movement. The bucket angles are optimised in the travelling position and at ground level.

The load isolation system (LIS) is fitted as option. It increases operator comfort and improves output.

<b>• Lifting cylinders (2)</b>	Bore x stroke: 140 mm x 790 mm(5.5" x 2'7")
<b>• Bucket cylinders (1)</b>	Bore x stroke: 160 mm x 510 mm(6.3" x 1'8")

## \* AXLES

<b>• Model ZF</b>
The front and rear drive axles are fully suspended and have planetary reduction gears in the hubs. Equipped with limited slip differentials in the front and rear axles, traction is optimum under all conditions. A traction power of 12.0 tonnes allows inclines with a slope of 58% to be tackled.
<b>• LSD differential (front and rear)</b>
45%
<b>• Oscillation angle</b>
+/- 11°
<b>• Brakes</b>
Dual multi-disc circuit. Self auto adjusted discs extend service life. The braking system is activated by a pump and accumulator circuits. The parking brake consists of a disc mounted on the transmission shaft applied by a spring and released hydraulically.

## \* HYDRAULIC SYSTEM

The hydraulic system consists of triple section vane pump. Automatic functions for positioning the bucket for digging as well as stopping the boom at the desired height position are standard. A simple levelling function is also available as standard. The hydraulic control valve has a third port for powering an auxiliary hydraulic function.

<b>• Main pumps</b>	Triple section vane pump
<b>• Maximum flow</b>	115 / 126 / 39 ℓ /min(30.4 /33.3 /10.3 gal/min)
<b>• Working pressure</b>	200 kgf/cm <sup>2</sup> (196 bar)
<b>• Pilot system</b>	Automatic functions for positioning the bucket for digging as well as for stopping the boom at the desired height position are standard. A simple levelling function is also standard.
<b>• Filters</b>	In the oil return to the tank, the glass fibre filter has a filtering capability of 10 micron.
<b>• Loading cycle</b>	
Lifting speed (loaded)	5.4 seconds
Dumping speed (loaded)	1.3 seconds
Lowering speed (empty)	3.3 seconds

## \* CAB

The modular cab gives excellent visibility in all directions. The driving position provides an excellent view of the bucket, the tires and the loading area. The ventilation is optimum. The air conditioning and heating are controlled by pushbuttons with an air recirculation function. A double cab air filter is installed in the cab and a slight overpressure effectively protects the operator in dusty and polluted environments. The cab is mounted on viscous suspension mounts for maximum comfort. The cab is spacious and has generous amounts of storage. All information necessary for operating the machine is displayed in front of the operator. The control functions are centralised on a console on the right. Seat and arm rests are adjustable according to the operator. The same applies for the steering column.

<b>• Number of doors</b>	1
<b>• Emergency exits</b>	2
<b>• Standards</b>	ROPS ISO 3471 and FOPS: ISO 3449

## \* STEERING SYSTEM

The steering system is hydraulic load sensitive type.

<b>• Steering angle</b>	40°
<b>• Oil flow</b>	80 ℓ/min (21.1 US gpm, 27.7 Imp gpm)
<b>• Operating pressure</b>	200 kgf/cm <sup>2</sup> (196 bar)
<b>• Steering cylinders (2)</b>	Bore x stroke : 70 mm x 430 mm(2.7" x 1'5") Emergency steering system with hydraulic pump driven by an electric motor.(option)
<b>• Refill capacities</b>	Fuel tank : 275 ℓ (72.6 US gal, 60.5 Imp gal) Cooling system : 50 ℓ (13.2 US gal, 5.1 Imp gal) Engine oil : 21 ℓ (5.5 US gal, 5.9 Imp gal) Front axle : 35 ℓ (9.2 US gal, 7.6 Imp gal) Rear axle : 22ℓ (5.8 US gal, 4.8 Imp gal) Gearbox and converter : 27 ℓ (7.1 US gal, 5.9 Imp gal) Hydraulic system : 174 ℓ (46 US gal, 38.3 Imp gal)

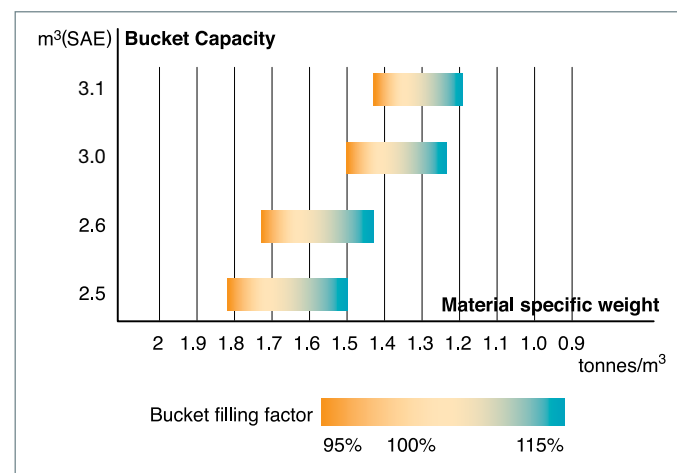
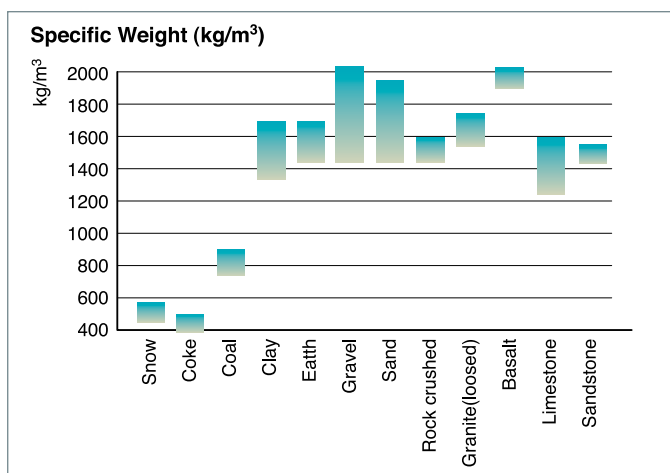
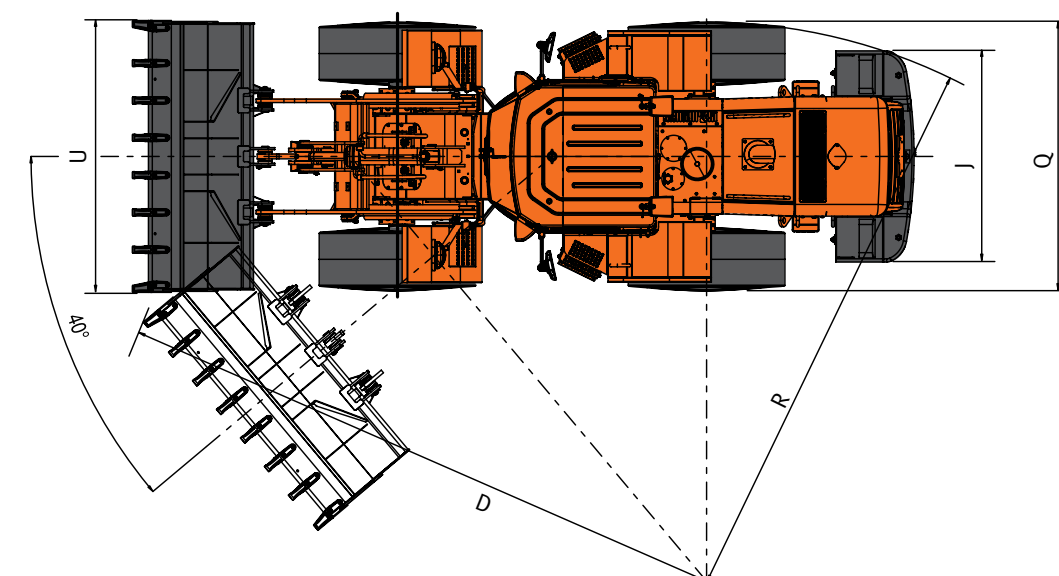
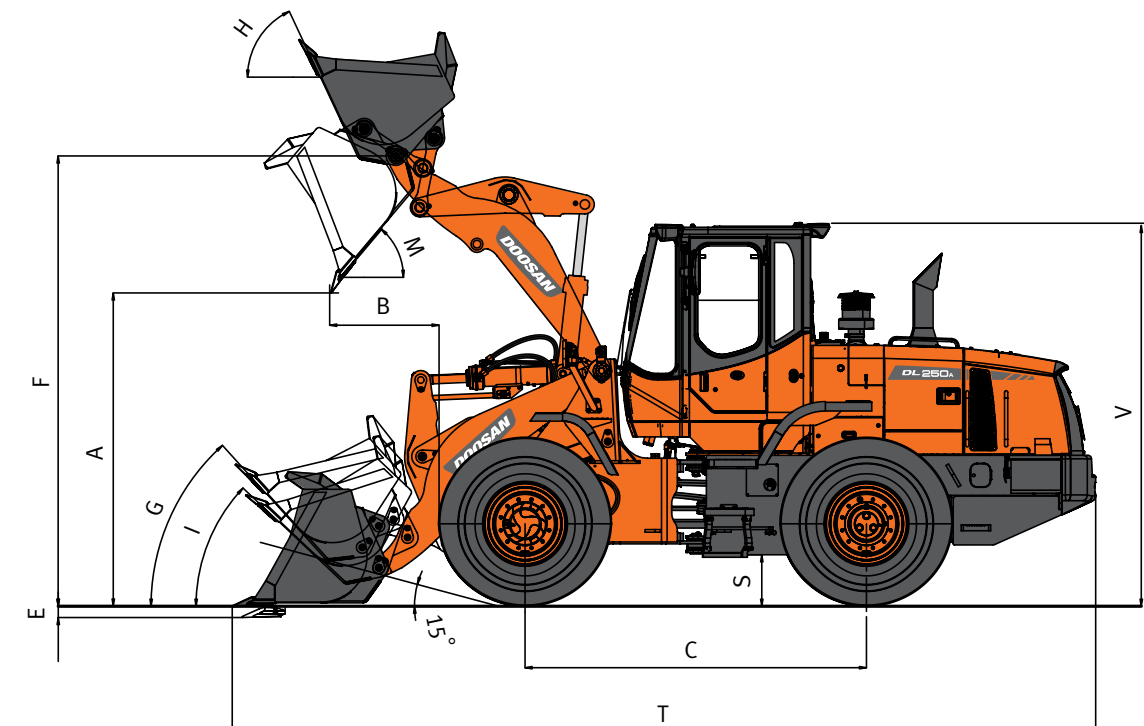
# OPERATIONAL DATA

Bucket mount			PIN ON	PIN ON	PIN ON	PIN ON
Configuration	Code	Unit	Teeth (std.) (BOT)	Bolt-on edges (BOC)	Teeth (BOT)	Bolt-on edges (BOC)
Capacity heaped ISO/SAE		m <sup>3</sup>	2.5	2.6	3.0	3.1
Bucket width	U	mm	2,740	2,740	2,838	2,838
Breakout force		ton	12.0	12.0	11.0	11.0
Static tipping load (straight)		kg	10,952	10,832	10,818	10,689
Static tipping load (at full turn)		kg	9,495	9,391	9,379	9,267
Dump height (at 45°) <sup>1)</sup> (at fully raised)	A	mm	2,802	2,880	2,739	2,817
Dump reach (at 45°) <sup>1)</sup> (at fully raised)	B	mm	1,176	1,106	1,244	1,174
Digging depth	E	mm	97	97	97	97
Height at bucket pivot point	F	mm	3,957	3,957	3,957	3,957
Max. tilt angle at carry position	G	degree	50	50	50	50
Max. tilt angle at fully raised	H	degree	61	61	61	61
Max. tilt angle on ground	I	degree	44	44	44	44
Max. dump angle at fully raised	M	degree	45	45	45	45
External radius at tire side	R	mm	5,450	5,450	5,450	5,450
External radius at bucket edge	D	mm	6,097	6,071	6,166	6,126
Wheel base	C	mm	3,020	3,020	3,020	3,020
Width at tires	Q	mm	2,608	2,608	2,608	2,608
Tread	J	mm	2,040	2,040	2,040	2,040
Ground clearance	S	mm	428	428	428	428
Overall length	T	mm	7,704	7,599	7,808	7,703
Overall height	V	mm	3,321	3,321	3,321	3,321
Tire size			20.5-25-16PR (L3)	20.5-25-16PR (L3)	20.5-25-16PR (L3)	20.5-25-16PR (L3)
Operating weight		kg	14,200	14,310	14,280	14,400

<sup>1)</sup> Measured to the tip of the bucket teeth or bolt-on edges.

# DIMENSIONS

## DL250A



The specific weight of material largely depends on moisture rate, compacting value, percentage of various components etc... This chart is given only for information.

The Bucket filling factor depends also of the nature of material, the working conditions and the operator ability.