



Volvo Construction Equipment

# L105

VOLVO WHEEL LOADER 16.8-18.1 t 224 hp



# Powered by Volvo.

A premium Volvo engine is at the center of the L105 – maximizing your uptime and increasing your productivity. The L105 delivers more power for less fuel – featuring Volvo’s unique eco pedal which ensures operators drive efficiently. Experience Volvo’s proven, advanced technology and benefit from ultimate quality and durability.

## Cooling system

The cooling fan effectively reduces the temperature of the engine. It works automatically and only turns on when needed – reducing fuel consumption.



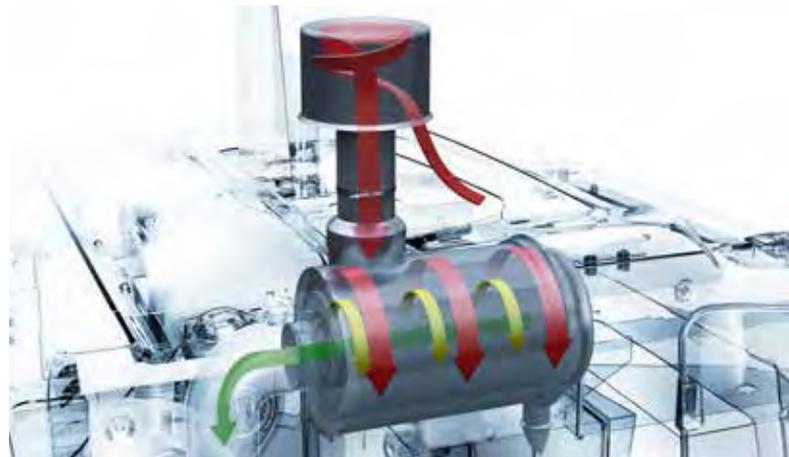
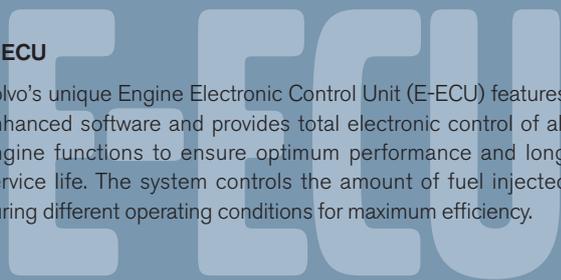
## Eco pedal

Volvo’s unique eco pedal reduces fuel consumption by applying push-back force when the accelerator is used excessively – encouraging the operator to ease off the throttle.



## E-ECU

Volvo’s unique Engine Electronic Control Unit (E-ECU) features enhanced software and provides total electronic control of all engine functions to ensure optimum performance and long service life. The system controls the amount of fuel injected during different operating conditions for maximum efficiency.



## Air intake filters

Three air filters (cyclone pre-cleaner, main filter and safety filter) protect the engine from dirt for longer life and increased reliability. Around 70% of all impurities are removed at the first stage, reducing the workload of the main filter.



#### Engine

Volvo diesel engines are built with advanced technology and on decades of experience. Volvo's state-of-the-art 7 liter, 6-cylinder turbocharged engine gives you high torque at low rpm for industry-leading quality, high performance and low fuel consumption.



#### APS transmission

Unique, Volvo-designed Automatic Power Shift (APS) system simplifies operation by automatically selecting the right gear – increasing productivity by allowing the operator to concentrate on the job in hand.

# Built to last.

Capitalize on productivity and experience top to bottom Volvo quality with the L105. All components work in perfect harmony to ensure superior performance in all wheel loader operations, whatever the conditions. With durability you can count on, you can trust Volvo to increase your uptime.

## Parking brake

Electrically activated parking brake is easy to use for maximum operator control and safety.



## Articulated center hinge

The central hinge, with upper and lower bearings, is widely spaced to withstand increased vertical and horizontal stress – reducing the risk of fault in demanding conditions.



## Brakes

Hydraulically operated dry disc brakes deliver powerful stopping forces for safe and effective control. The service brake system is divided in two circuits – one for the front axle and one for the rear axle. The circuits share a back-up accumulator to ensure reliable secondary braking capacity.

## Axles

Volvo's heavy-duty axles are designed for long life in tough conditions. Durable axles improve reliability and machine uptime.

# Feel the power.

The Volvo L105 gives you a powerful performance. Featuring proven, advanced technology, premium hydraulic components and durable Z-bar linkage – this machine will save you time and money. The L105 has been built strong and engineered to increase your productivity, even in the most demanding conditions.

## Hydraulic components

Volvo uses premium, high quality hydraulic components for improved reliability, durability and increased uptime – so your machine can run continuously without fault.



## Hydraulic lever

For ease of operation, the operator has complete fingertip control of the bucket and lifting unit by using small levers inside the cab.



## Auto positioning

Once activated, the automatic bucket leveler and boom kick-out functions stop the bucket and linkage in adjustable, pre-selected positions quickly and accurately. This increases productivity and shortens cycle times by improving ease of use and efficiency.



## ORFS hose joints

The ORFS (O-Ring Face Seal) technology of the hydraulic connectors provides a leak-free joint – resisting high pressure, vibrations and twisting. These durable seals can handle the most demanding conditions.



#### Lifting arm system

Volvo's powerful lifting arm system, made from high strength steel, features strong Z-bar linkage and lift arm sensors that have been designed for the toughest jobs. With more power, the high breakout torque, rim pull and lifting force work together to give you better bucket fill – ensuring efficient performance and increasing productivity.



### Visibility

Safely access the cab via the entry ladder and benefit from all-round visibility from large expanses of glass, slim cab pillars and well placed rear view mirrors. Viscous mounts between the cab and frame reduce vibration for increased comfort. It all adds up to more productivity with Volvo.

# More comfort = more productivity.

At Volvo we know that increased operator comfort reduces fatigue. That's why our industry-leading cab provides the operator with a spacious, comfortable and quiet environment – perfect for optimizing productivity all day long. Step inside and see the results for yourself.

## I-ECU monitor

The large monitor clearly presents machine information. Using a keypad the operator and service technician can make quick visual and diagnostic checks, increasing uptime and productivity.



## Radio USB

To keep operators focused and improve performance, the Volvo radio features a USB connection which allows operators to listen to their preferred music.



## ROPS/FOPS

The Volvo cab is Roll Over Protective Structure (ROPS) and Falling Object Protective Structure (FOPS) certified – providing operators with increased safety and peace of mind so they can focus on their work.



## Cab air filter

The cab air intake is positioned high on the machine, where air is cleanest. In Volvo's exclusive design, the easy-to-replace pre-filter separates coarser dust. Around 90% of cab air is recirculated through the main filter.



## Climate control

Volvo's powerful, industry-leading heating and air conditioning system ensures operators can work productively in any environment.



## Reduced noise

Low noise levels inside the cab reduce operator fatigue and increase performance by making it easier to concentrate on the task in hand.

# Maximize uptime with Volvo.

You can rely on Volvo to maintain your uptime. The L105 has been designed for long service life and features state-of-the-art technology to analyze machine operation. Benefit from built-in serviceability by quickly and easily carrying out maintenance and service checks. A Volvo machine won't let you down.

## Wiring

All electrical wires are well protected and routed through sturdy conduits. Each wire, connector and pin is clearly and systematically color/number coded for added simplicity and safety.



## Contronics

The computerized Volvo Contronic system continuously monitors machine performance and operation in real-time. Diagnostics and information needed for the best operation are communicated to the operator via a screen in the cab, reducing downtime.

## Service tools

For increased uptime, Volvo's high-tech, computer-based MATRIS tool uses information from the Contronic system to analyze machine operation. VCADS Pro analysis and programming software makes it easy to control and adjust the engine function.





#### Serviceability

Grouped service points and excellent access to the entire engine compartment provide easy and safe access for maintenance. This allows regular checks to be done faster, increasing machine uptime.

# Productivity. Defined.



## Z-bar

Volvo's powerful Z-bar linkage, made from high strength steel, delivers high breakout torque.

## Air intake filters

Three air filters protect the engine from dirt for longer life and increased reliability.



## Financial services

Volvo Financial Services China provides financial solutions – from loans to leases – designed to meet customer needs.

## Eco pedal

Volvo's unique eco pedal reduces fuel consumption by encouraging the operator to ease off the throttle.



## Attachments

Volvo understands how you work and has the right attachment for your specific application.



## APS

Unique, Volvo-designed Automatic Power Shift (APS) system simplifies operation by automatically selecting the right gear.



#### **Volvo cab**

Industry-leading Volvo cab provides a productive working environment. ROPS and FOPS certified for increased safety.

#### **Climate control**

Volvo's powerful, industry-leading heating and air conditioning system ensures operators can work in any environment.



#### **Engine**

Volvo's 7 liter, 6-cylinder turbocharged engine gives you superior quality, performance and low fuel consumption.

#### **Contronics**

Volvo Contronic system continuously monitors machine performance and communicates the information to the operator in the cab.



#### **Serviceability**

Grouped service points and excellent access to the entire engine compartment provide easy and safe access for maintenance.

#### **Cooling system**

Automatically reduces the temperature of the engine and only turns on when needed – reducing fuel consumption.

# The right attachment for you.

Volvo understands how its customers work and has the right attachment to suit all applications. Whether you're working in coal, iron, quarry, aggregate or any other application – Volvo has the attachment for your specific requirements. With a wide range of perfectly matched attachments, the L105 is a versatile machine which can effectively perform a variety of tasks. Trust Volvo to get the job done.

## Performance Parts

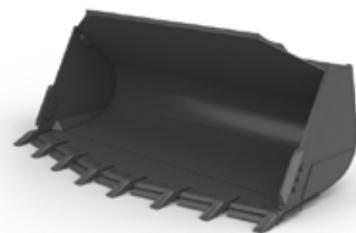
Volvo offers a selection of economic ground engaging tools in good level of quality. They are engineered for affordable strength and impact absorption. All parts are wear resistant and available as spare parts. Bolt on edge are reversible and this reduces replacement interval. Affordable cost level gives lower costs per hour in appropriate applications. Help your machines do more work each hour, which increases your productivity.



## Attachment bracket

Connect and go with Volvo's attachment bracket which has been internationally ISO standardized. The bracket allows quick interchange of attachments for increased flexibility. The strong, open bracket design gives the operator visibility of the attachment from the cab.





# First-class support.

At Volvo we're not just committed to providing you with a quality machine – we can also deliver continuous state-of-the-art support through our soft product offering. Take advantage of the excellent Volvo support network and enjoy access to all the products and competence required to ensure your machine generates maximum profit and growth for your business.

## Customer Support Agreements

Volvo Customer Support Agreements offer service and maintenance with maximum cost control and machine uptime. The flexible system caters for a range of needs from total repair and maintenance to an inspection program covering vital parts and functions.



## Operator training

Volvo Eco Operator courses are a fast and easy way to increase productivity and reduce costs. Operators are trained to become more productive, fuel efficient and safer as well as reduce wear and tear on your machines. The program teaches correct operation and maneuvering as well as how to plan work in the smartest, most efficient way.



## Genuine Volvo Parts

Volvo Service Technicians work with industry-leading diagnostic tools and techniques, using only Genuine Volvo Parts to deliver the highest levels of quality and service. Talk to your local Volvo dealer about how genuine Volvo services can provide the service and maintenance plan that best fits your needs.



## Support center

Volvo customers have direct access to the unique dealer support network. Customers can telephone a support number which identifies the call and transfers it to the local dealer where a dedicated team will take care of your needs – maximizing machine uptime.



**Finance service**

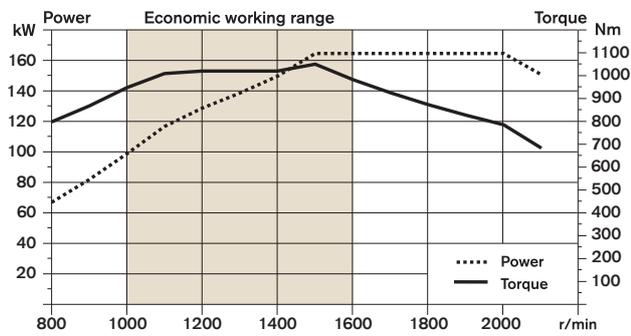
Volvo Financial Services China provides integrated, competitive financial solutions designed to meet customer needs. A variety of possibilities from versatile loans to lease solutions can be tailor-made and delivered through Volvo dealerships.

# Volvo L105 in detail.

## Engine

6-cylinder, 7.1 liters inline turbocharged diesel engine with an advanced fuel injection system with the common rail. Fuel is distributed under high pressure from a high-pressure accumulator, the rail. One camshaft-driven high pressure pump deliver the fuel to the rail and then further on via high-pressure pipes to the electrically operated fuel injectors. Air cleaning: Three-stage, - Cyclone precleaner - primary filter - secondary filter. Cooling system: Electric controlled silicone-oil clutch fan and intercooler of the air-to-air type.

Engine		D7D (Tier II)
Max power at	r/s (r/min)	25 (1 500)
SAE J1995 gross	kW / hp	165 / 224
Max torque at	r/s (r/min)	25 (1 500)
SAE J 1995 gross	Nm	1 053
Economic working range	r/min	1 000 -1 600
Displacement	l	7.15



## Brake system

Service brake: Volvo fully hydraulic operated dry disc brakes, shared(integrated)-circuit system with a nitrogen charged accumulator to ensure reliable secondary braking capability. Parking brake: Dry disc brake on the transmission output shaft. Applied by spring force, electro-hydraulically released with a switch on the instrument panel. Secondary brake: Dual brake circuits with a rechargeable accumulator. One circuit or the parking brake fulfills all safety requirements. Standard: The brake system complies with the requirements of ISO 3450.

Accumulators	l	3 x 0.5
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## Drivetrain

Torque converter: Single-stage.  
Transmission: Volvo countershaft transmission with single lever control. Fast and smooth shifting of gears.  
Transmission: Volvo Automatic Power Shift (APS) with automatic shifting 1-4 and mode selector with 4 different gear shifting programs, including AUTO.  
Axles: Volvo fully floating axle shafts with spiral bevel gear reductions as main one and planetary hub reductions on wheel side and cast steel axle housing. Fixed front axle and oscillating rear axle.

Transmission	Volvo	HTE203
Maximum speed, forward/reverse	1st gear	km/h 7.2
	2nd gear	km/h 13.3
	3rd gear	km/h 26.2
	4th gear*	km/h 38.4
Measured with tires		760/23.5-25
Front axle/rear axle		LF701/LR701
Rear axle oscillation ±	°	± 13
Ground clearance at 13° osc.	mm	430

## Electrical system

Central warning system: Contronic electrical system with central warning light and buzzer for following functions: - Serious engine fault - Over speed warning engine - Interruption in communication (computer fault) Central warning light and buzzer with the gear engaged for the following functions. - Low engine oil pressure - High charge air temperature - Low coolant level - High coolant temperature - High crank case pressure - Low transmission oil pressure - High transmission oil temperature - Low brake pressure - Engaged parking brake - Fault on brake charging - Low hydraulic oil level - High hydraulic oil temperature - Overspeeding in engaged gear.

Voltage	V	24
Batteries	V	2 x 12
Battery capacity	Ah	2x120
Cold cranking capacity, approx	A	850
Batteries		
Alternator rating	W/A	2 240/80
Starter motor output	kW	5.5

## Cab

Instrumentation: All important information is centrally located in the operator's field of vision. Display for Contrinsic monitoring system.

Heater and defroster: Heater coil with filtered fresh air and fan with manual and 4 speeds. Defroster vents for all window areas. Operator's seat: Operator's seat with adjustable suspension and retractable seatbelt. The seat is mounted on a bracket on the rear cab wall and floor. The forces from the retractable seatbelt are absorbed by the seat rails.

Standard: The cab is tested and approved according to ROPS (ISO 3471), FOPS (ISO 3449).

Emergency exit: Use emergency hammer to break window

Sound level in cab according to ISO 6396/SAE J2105

	dB(A)	78
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External sound level according to ISO 6396/SAE J2105

	dB(A)	115
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Ventilation	m <sup>3</sup> /min	9
Heating capacity	kW	14
Air conditioning	kW	4.8

## Lift arm system

Z-bar linkage with high breakout torque. The lift arms are singel plate design with a high-strength welding cross tube. The singel bell crank and bucket link are structural steel weldings.

Lift cylinders		2
Cylinder bore	mm	160
Piston rod diameter	mm	90
Stroke	mm	774
Tilt cylinder		1
Cylinder bore	mm	190
Piston rod diameter	mm	90
Stroke	mm	550

## Steering system

Steering system: Load-sensing hydrostatic articulated steering.

System supply: The steering system has priority feed from fixed displacement gear pump.

Steering cylinders: Two double-acting cylinders.

Steering cylinders		2
Cylinder bore	mm	80
Rod diameter	mm	50
Stroke	mm	480
Working pressure	MPa	28
Maximum flow	l/min	80
Maximum articulation	± °	40

## Hydraulic system

Open Centre hydraulics with efficient Gear Pumps.

Valves: Double-acting 2-spool valve. The main valve is controlled by a dual lever pilot valve.

Lift function: The valve has four positions; raise, hold, lower and float position. Inductive/magnetic automatic boom kickout can be switched on and off and is adjustable to any position between maximum reach and full lifting height.

Tilt function: The valve has three functions including rollback, hold and dump. Inductive/magnetic automatic tilt can be adjusted to the desired bucket angle.

Cylinders: Double-acting cylinders for all functions

Filter: Full flow filtration through 10 micron (absolute) filter cartridge.

Working pressure maximum, pump 1 for working hydraulic system

	MPa	21
Flow	l/min	220
at engine speed	r/s(r/min)	38.3 (2 300)

Working pressure maximum, pump 2 for steering-, brake-, pilot- and working hydraulic system

	MPa	21
Flow	l/min	114
at engine speed	r/s(r/min)	38.3 (2 300)

Working pressure maximum, pump 3 for brake system

	MPa	22.5
Flow	l/min	55
at engine speed	r/s(r/min)	38.3 (2 300)

Pilot system, working pressure

	MPa	21
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Cycle times

Lift	s	5
Tilt	s	2.2
Lower, empty	s	2.8
Total cycle time	s	10.4

## Service

Service accessibility: Large, easy-to-open hood covering whole engine department. Fluid filters and component breather air filters promote long service intervals. Possibility to monitor, log and analyze data to facilitate troubleshooting.

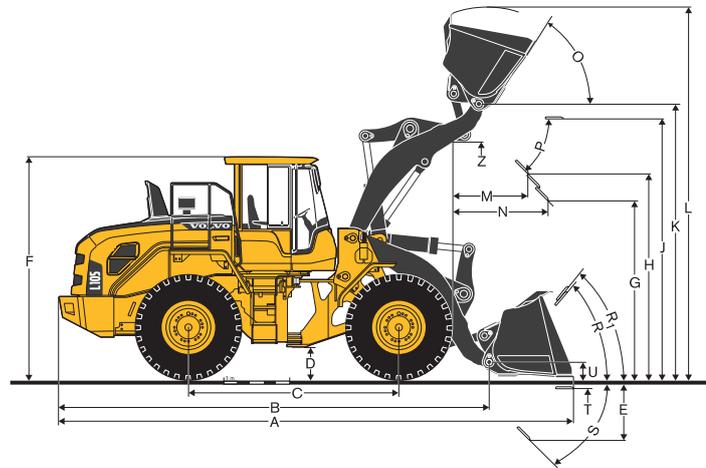
Fuel Tank	l	270
Engine coolant	l	37
Hydraulic oil tank	l	130
Transmission oil	l	38
Engine oil	l	23.5
Axle oil front	l	40
Axle oil rear	l	38

# Specifications.

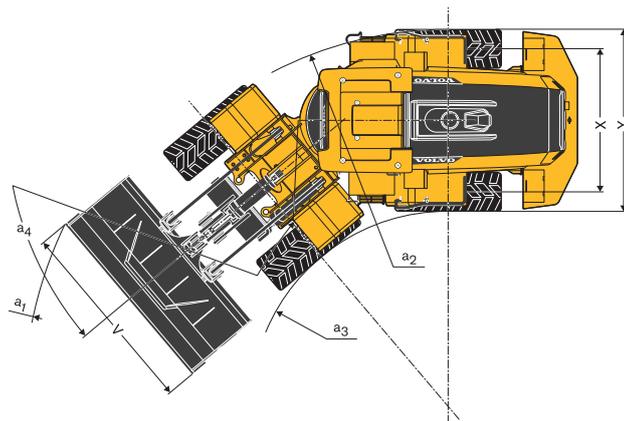
## Tires 23.5-25

Description	Standard boom	Long boom
B	mm	6 390
C	mm	3 200
D	mm	430
F	mm	3 380
G	mm	2 130
J	mm	3 890
K	mm	4 140
O	°	56
Pmax	°	50
R	°	48
R1*	°	53
S	°	64
T	mm	130
U	mm	460
X	mm	2 070
Y	mm	2 680
Z	mm	3 820
a <sup>2</sup>	mm	5 730
a <sup>3</sup>	mm	3 060
a <sup>4</sup>	±°	40

\* Carry position SAE



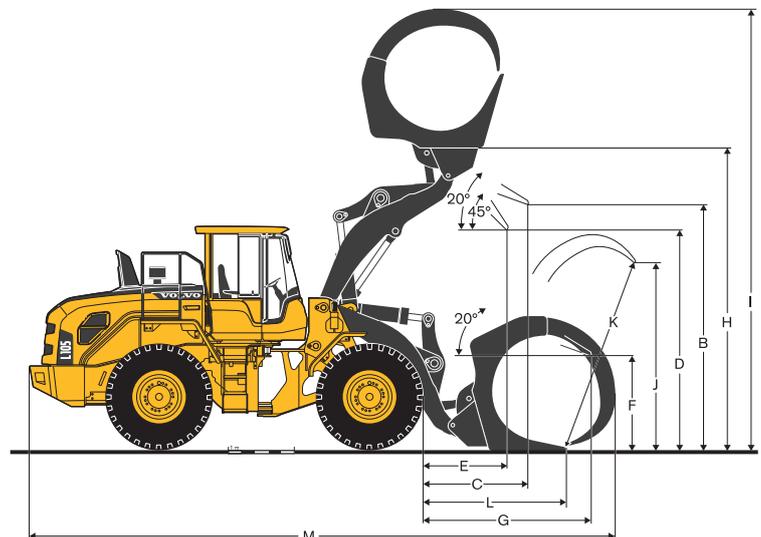
Where applicable, specifications and dimensions are according to ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 14397, SAE J818.



Operating weight  
(incl. logging cw 430 kg): 18 100 kg  
Operating load: 5 000 kg

## Tires 23.5-25

Description		
A	m <sup>2</sup>	1.1
B	mm	3 674
C	mm	1 944
D	mm	3 108
E	mm	1 619
F	mm	1 610
G	mm	2 836
H	mm	4 770
I	mm	6 239
J	mm	2 331
K	mm	2 406
L	mm	2 174
M	mm	8 604



		<b>GP</b>	<b>Iron ore</b>	<b>Rehandling</b>	<b>Rock</b>		<b>Light M</b>		
									
		STE P BOE	STE H BOE	STE P BOE	STE P BOE*	STE P T	SPN P T SEG	LM P	LM P Long boom
Volume, heaped ISO/SAE	m <sup>3</sup>	3.1	3.1	2.3	3.4	2.8	2.9	4.5	3.7
Static tipping load, straight	kg	12 070	12 310	11 720	12 440	12 140	11 860	11 640	10 070
at 35° turn	kg	10 730	10 920	10 440	11 040	10 800	10 530	10 320	8 880
at full turn	kg	10 335	10 510	10 060	10 630	10 410	10 140	9 930	8 530
Breakout force	kN	195	153	225	168	206	176	172	174
A	mm	7 920	8 150	7 740	8 120	8 060	8 180	8 090	8 390
E	mm	1 180	1 260	1 020	1 350	1 300	1 410	1 330	1 240
H	mm	3 100	2 980	3 230	2 970	3 010	2 930	2 990	3 530
L	mm	5 640	5 740	5 390	5 660	5 490	5 490	5 770	6 100
M	mm	1 270	1 430	1 150	1 410	1 370	1 470	1 390	1 330
N	mm	1 950	1 990	1 870	2 020	2 000	2 070	2 010	2 340
V	mm	3 000	3 000	3 000	3 000	3 000	3 000	3 200	3 200
a <sub>1</sub> clearance circle	mm	12 710	12 620	12 630	12 800	12 770	12 830	12 970	13 360
Operating weight	kg	17 180	17 700	17 120	17 710	17 560	17 290	17 430	17 650

\*Including extra counterweight

Bucket		Standard Boom		Long Boom		Application
		Max Material density		Max Material density		
		kg/m <sup>3</sup>		kg/m <sup>3</sup>		
<b>General Purpose</b>	3.1 m <sup>3</sup> STE P BOE	1 630		1 320		Sand /gravel
<b>General Purpose Long Boom</b>	2.7 m <sup>3</sup> STE P BOE	-		1 540		Sand /gravel
<b>General Purpose</b>	2.3 m <sup>3</sup> STE P BOE	2 140		1 740		Iron ore
<b>Rock</b>	2.8 m <sup>3</sup> STE P T	1 820		1 470		Blasted Rock
	2.9 m <sup>3</sup> SPN P T SEG	1 710		1 380		Blasted Rock
<b>Rehandling</b>	3.4 m <sup>3</sup> STE P BOE*	1 530		1 240		Rehandling, aggregate
<b>Light Material</b>	4.5 m <sup>3</sup> LM	1 080		870		Wood chips, coal
<b>Light material</b>	3.7 m <sup>3</sup> LM			1 130		Coal
<b>Light Material High Tip</b>	4.0 m <sup>3</sup> HIT	1 150		930		Wood chips, coal
<b>Side Dump</b>	2.5 m <sup>3</sup> ROSD	1 660		1 320		Blasted Rock

# Equipment.

## STANDARD EQUIPMENT

### Service and maintenance

Lubrication manifolds, ground accessible

Pressure check connections: transmission and hydraulic, quick-connects

Tool box, lockable

### Engine

Three stage air cleaner, pre-cleaner, primary and secondary filter

Easy to read coolant level

Preheating of induction air

Fuel pre-filter with water trap

Fuel filter

### Electrical system

24 V, pre-wired for optional accessories

Alternator 24V/ 120 A

Battery disconnect switch with removable key

Fuel gauge

Hour meter

Electric horn

Instrument cluster:

Fuel level

Transmission temperature

Coolant temperature

Instrument lighting

Lighting:

Twin halogen front headlights with high and low beams

Parking lights

Brake and tail lights

Turn signals with flashing hazard light function

Halogen work lights

### Contronic monitoring system

Monitoring and logging of machine data

Contronic display

Fuel consumption

Ambient temperature

Clock

Test function for warning and indicator lights

Brake test

Warning and indicator lights:

Battery charging

Parking brake

Warning and display message:

Engine coolant temperature

Charge-air temperature

Engine oil pressure

Transmission oil temperature

Transmission oil pressure

Hydraulic oil temperature

Brake pressure

Parking brake applied

Brake charging

Overspeed at direction change

Level warnings:

Fuel level

Engine coolant level

Hydraulic oil level

Engine torque reduction in case of malfunction indication:

High engine coolant temperature

Low engine oil pressure

High charge-air temperature

Engine shutdown to idle in case of malfunction indication:

High transmission oil temperature

Slip in transmission clutches

Keypad, background lit

Start interlock when gear is engaged

### Drivetrain

Automatic Power Shift

PWM-controlled gearshifting

Forward and reverse switch by hydraulic lever console

Indicator glass for transmission oil level

### Brake system

Dual brake circuits

Parking brake, electrical-hydraulic

### Cab

ROPS (ISO 3471), FOPS (ISO 3449)

Single key kit door/start

Acoustic inner lining

Ashtray

Cigarette lighter, 24 V power outlet

Lockable door

Cab heating with fresh air inlet and defroster

Fresh air inlet with two filters

Automatic heat control

Floor mat

Interior lights

Dual interior rear-view mirrors

Dual exterior rear-view mirrors

Sliding window, right side

Tinted safety glass

Retractable seatbelt (GB17921)

Adjustable steering wheel

Storage compartment

Document pocket

Sun visor

Beverage holder

Windshield washer front

Windshield wipers front

Interval function for front wipers

### Hydraulic system

Main valve, double acting 2-spool with hydraulic pilots

Fixed displacement Gear pumps (3) for:

P1 Working hydraulic system

P2 Steering- and Brake system

P3 Brake System, Steering System & Pilot system

Hydraulic servo controls

Hydraulic level lock

Boom kick-out, automatic

Bucket positioner, automatic

Double-acting hydraulic cylinders

Indicator glass for hydraulic oil level

Hydraulic oil cooler

### External equipment

Fenders, front and rear

Viscous cab mounts

Rubber engine and transmission mounts

Easy-to-open engine hood

Frame, joint lock

Vandalism lock prepared for

Batteries

Engine compartment

Lifting eyes

Tie-down eyes

Tow hitch

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**OPTIONAL EQUIPMENT****Service and maintenance**

Automatic lubrication system

**Engine**

Air pre-cleaner, oil-bath type

**Hydraulic system**

Attachment bracket, mechanical

Hydraulic function, 3rd

**External equipment**

Long boom

**Protective equipment****Other equipment**

Counterweight, logging

**Tyres**

23.5-25 18 PLY

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**ATTACHMENTS****Buckets:**

Volvo Rock straight or spade nose bucket

Volvo General purpose bucket

Volvo Re-handling bucket

Volvo Light material bucket

Volvo High tip bucket

Volvo Side dump bucket

**Wear parts:**

Weld-on bucket teeth

Segments

Cutting edge in three sections, bolt-on

Side shrouds

Volvo Fork equipment

Volvo Material handling arm

Volvo Log grapple

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**SELECTION OF VOLVO OPTIONAL EQUIPMENT****Rotating beacon****Hydraulic function, 3rd****Long boom****Tyres 18Plys**

Not all products are available in all markets. Under our policy of continuous improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.

**VOLVO**

**Volvo Construction Equipment**

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