



Volvo Excavators 54.5 - 56.3 t 435 hp

EC550E

Volvo Construction Equipment



Welcome to our world

Welcome to a world of industry leading machinery. A world where imagination, hard work and technological innovation will lead the way towards developing a future which is cleaner, smarter, and more connected. A world supported by the enduring values of the Volvo Group. A world of stability, sustainability and innovation. A world which we put our customers at the heart of.

Welcome to the world of Volvo Construction Equipment – we think you're going to like it here.

Working harder, working smarter

For over 180 years Volvo has been a pioneer in the design and manufacture of machines which set the standard for efficiency, performance and uptime. Across our range of excavators, wheel loaders and haulers, our reputation for engineering excellence is unrivalled, which means whatever your operation or application, we can provide a total fleet solution to help you succeed.

Building on our proud history, the Volvo Concept Lab continues to create cutting-edge ideas and innovative concepts, to ensure we offer customers machines which work harder and smarter long into the future.



Solutions for you

Our industry leading machines are just the start of your relationship with Volvo. As your partner, we have developed an extensive range of additional solutions to help you improve uptime, boost productivity and reduce costs.

Designed for your business

Structured across nine blocks, our portfolio of products and services are designed to complement your machine's performance and boost your profitability. Simply put, we offer some of the best guarantees, warranties and technological solutions in the industry today.

There when you need us

Whether you're buying new or used, our global network of dealers and technicians offer around-the-clock support, including machine monitoring and world-class parts availability. It's the basis of everything offered by Volvo Services, so you can be confident we've got you covered right from the start.



BUILDING TOMORROW

Go big with the 55-tonner

Delivering the type of durability and performance more commonly expected from a 60-tonne crawler excavator, the Volvo EC550E truly punches above its weight.

Outstanding levels of power and productivity make this crawler excavator the perfect partner for heavy-duty digging and mass excavation.

Dig fast, load more

Shorten cycle times in the EC550E which delivers the digging forces and lifting capacity more commonly found in a 60-tonner. Featuring impressive engine power, this excavator delivers superior swing torque and speed.



Built for the toughest tasks

The perfect choice for handling heavy loads in the toughest applications, the EC550E features an ultra-durable undercarriage with a long lower frame, a strong upper frame, and reinforced digging equipment with large pin size. The optional wider retractable lower frame provides further stability and higher ground clearance.



Less passes, more work

Optimize fleet use by up to 35%. The EC550E is the perfect partner to wide-body 38-40t hauling equipment, reducing the number of required passes – dramatically improving cycle times.





SET NEW STANDARDS

Boost productivity by up to 35% with the EC550E. Available with a range of optimum-sized buckets, the Volvo Crawler Excavator sets new standards for the industry.

Less cost, more profit

Reduce costs and boost profits thanks to the new electro-hydraulic system with Independent Metering Valve Technology (IMVT) – the latest pioneering innovation from Volvo – and a host of Fuel Efficiency Services.

Unique Independent Metering Valve Technology

The latest pioneering innovation from Volvo, the next generation electro-hydraulic system with Independent Metering Valve Technology (IMVT) is the most high-performing hydraulic system in the industry. IMVT provides intelligent electronic control with more control variable, compared to a conventional mechanically coupled hydraulic system. The result is maximum controllability and efficiency according to the specific application at hand.



Take your efficiency to the next level

While reliable and efficient machines of course play a vital role in reducing costs, enhancing safety and maximizing productivity, it is ultimately the performance of the operator that really makes the difference. We offer a range of training initiatives to help unlock the full capability of the Volvo machines, including EcoOperator Training – an advanced course for experienced operators which focuses on a more profitable and environmentally considerate operation.



Even more efficiency

Fuel is the industry's number one operational cost and Fuel Efficiency Reports help to identify areas where efficiency improvements can be made, providing clear insights into the fuel performance of a fleet, site or individual machine. If you need further support putting insight into action, your Volvo dealer is on hand to help you develop a plan to deliver long-term efficiency gains.





UP TO 22% MORE FUEL EFFICIENCY

Take fuel efficiency to new levels in the EC550E. The next generation electro-hydraulic system with Independent Metering Valve Technology produces up to a 22% improvement in fuel efficiency. Engine pump optimization, which lowers engine rpm while optimizing power, and optimized hydraulic piping and size routings, further contribute towards the incredible levels of fuel efficiency.

For your comfort and safety

Whether working inside or on the machine, you can be sure that the highest levels of control, comfort and safety have been considered in every design detail of the EC550E.

Best-in-class visibility

Operators benefit from outstanding visibility thanks to the rearview camera and 10 LED lights positioned throughout the machine, including the rear. Furthermore, the optional Volvo Smart View system gives operators a 360° birds-eye-view of the machine and working area.



Work in confidence

A host of features combine to help operators work with confidence, including the travel alarm which alerts those around the machine when it is moving. Furthermore, a swing lock switch restricts the swing function while the machine is moving, and the hydraulic cut-off lever disables machine controls when lowered. Finally, an accumulator secures smooth boom lowering in case of emergency.



Ultimate control on the job

Welcome to the ultimate in operator control and convenience. The revolutionary new generation electro-hydraulics with IMVT enable a range of intelligent functions including Boom/Swing and Boom/Travel priority, adjustable boom down speed, as well as boom and arm bouncing reduction.



Straightforward servicing

Servicing is made quick and easy by grouped filters and a battery cut-off switch, which ensures complete disengagement of the equipment. Features such as high visibility guardrails and handrails, 3-point right-hand access to the upper structure, bolted anti-slip plates and optional walkway ensure the highest levels of convenience when negotiating the machine.





INDUSTRY-RENOWNED CAB

Step inside the best cab on the market. The ROPS cab exceeds industry standards for this class of machine, thanks to features including a 14 air vent climate control system and ergonomic seat with 9 adjustment settings. Safety is further enhanced by a 3-point seatbelt with a reminder alarm which notifies the operator if they are not buckled up. A seatbelt cutter/hammer assists egress through the emergency exit.

Up to the challenge

The EC550E is ready to rise to the challenge in the most demanding conditions, with a number of features which contribute to reduced maintenance requirements and outstanding reliability. Combined with a range of services, you can count on the EC550E to be available when you need it, shift after shift, day after day.

Uptime you can count on

Hydraulic pilot lines have been removed in the EC550E, reducing the number of couplings required, for increased machine reliability. Electric connectors which exceed Ingress Protection 6K9K water-proofed standards also contribute to long component life.



Engine protection

Keep the engine clean and performing at its best – especially when working in dusty conditions – with the oil bath pre-cleaner. What's more, the delayed engine shutdown helps to keep the turbocharger in top condition by turning the engine off only after the turbocharger has cooled down to the appropriate temperature.



Take on the tropics

Handle the heat with the tropical cooling system, designed to regulate hydraulic oil temperature when working in tropical conditions.



Keeping you moving

Maintain productivity and machine uptime with our range of widely available Genuine Volvo Parts – all backed by Volvo warranty. Your Volvo dealer can help you stay on track, offering flexible maintenance and repair options, as well as planned servicing.





MACHINE MONITORING MADE EASY

Maximize machine uptime and reduce repair costs with the CareTrack telematic system. Choose to keep track of your machine yourself or let us take care of it with the optional ActiveCare. Our Volvo Uptime Center will provide 24/7 machine monitoring, supplying weekly reports and notifying you should preventive maintenance action be required.

Move more for less

For your comfort and safety

- ROPS-certified cab, optional FOG/FOPS
- Ergonomic seat with 9 adjustable setting
- 3-point seat belt with reminder alarm
- 10 LED lights positioned throughout the machine, including the rear
- Rear-view camera, optional Volvo Smart View
- Travel alarm, Swing lock switch
- Accumulator for emergency boom lowering

Ultimate control on the job

- Boom/Swing and Boom/Travel priority
- Adjustable boom down speed
- Boom and arm bouncing reduction
- Creep mode (Option)

Uptime you can count on

- Delayed engine shutdown
- Oil bath pre-cleaner
- Tropical cooling system
- Electric connectors exceeding Ingress Protection 6K9K water-proofed standards

Quick and easy servicing

- Battery cut-off switch
- Grouped filters
- 3-point right-hand side access to the upper structure
- Bolted anti-slip plates, High visibility handrails and guardrails
- Removed hydraulic pilot lines: reduced need for oil and couplings

Volvo Services: boost your profits

- Fuel Efficiency Report
- ActiveCare: 24/7 machine monitoring, weekly reports
- Operator training
- Volvo Site Simulation
- Volvo Attachments
- Genuine Volvo Parts



Up to 35% more productivity

- Optimum-sized buckets
- Digging forces and lifting capacity commonly found in a 60-tonne machine
- Superior swing torque and tractive force
- Large-size undercarriage provides superior stability
- Perfect match to wide-body 38-40t hauling equipment

Big on efficiency

- Up to +22% fuel efficiency thanks to the electro-hydraulic system with Independent Metering Valve Technology
- Engine pump optimization
- Auto engine idle and shutdown



Volvo EC550E in detail

Engine

The Volvo diesel engine uses Volvo Advanced Combustion Technology (V-ACT) to deliver lower emissions, superior performance and fuel efficiency. The engine uses precise, highpressure fuel injectors, turbo charger and intercooler, and electronic engine controls to optimize machine performance.

Air Filter: 3-stage and precleaner

Automatic Idling System: Reduces engine speed to idle when the levers and pedals are not activated resulting in less fuel consumption and low cab noise levels.

Engine	Volvo	D13E
Max power at	r/min	1 600
Net, ISO 9249/SAE J1349	kW	319
	hp	434
Gross, ISO 14396/SAE J1995	kW	320
	hp	435
Max torque	Nm	2 071
at engine speed	r/min	1 350
No. of cylinders		6
Displacement	l	12.8
Bore	mm	131
Stroke	mm	158

Electrical System

High-capacity electrical system that is well protected. Waterproof double-lock harness plugs are used to secure corrosion-free connections. The main relays and solenoid valves are shielded to prevent damage. The master switch is standard.

Voltage	V	24
Batteries	V	2 x 12
Battery capacity	Ah	200
Alternator	V/A	28/80

Hydraulic System

Main pump, Type: 2 x Variable displacement axial piston pumps

Maximum flow	l/min	2 x 416
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Pilot pump, Type: Gear pump

Maximum flow	l/min	1 x 16
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Max. pressure

Implement	MPa	33.8 / 36.3
Travel circuit	MPa	33.8
Slew circuit	MPa	27.9
Pilot circuit	MPa	3.9

Hydraulic Motors

Travel: Variable displacement axial piston motor with mechanical brake

Swing: Fixed displacement piston motor with mechanical brake

Hydraulic Cylinders

Boom		2
Bore x Stroke	ø x mm	175 x 1 590
Arm		1
Bore x Stroke	ø x mm	190 x 1 942
Bucket		1
Bore x Stroke	ø x mm	170 x 1 330
ME Bucket		1
Bore x Stroke	ø x mm	180 x 1 335

Swing System

The swing system uses an axial piston motors, driving a planetary gearbox for maximum torque. An automatic holding brake and anti-rebound valve are standard.

Max. slew speed	r/min	9.4
Max. slew torque	kNm	197

Travel System

Each track is powered by an automatic two-speed shift travel motor. The track brakes are multi-disc, spring-applied and hydraulic released. The travel motor, brake and planetary gears are well protected within the track frame.

Max. drawbar pull	kN	350
Max. travel speed (low)	km/h	3.5
Max. travel speed (high)	km/h	5.4
Gradeability	°	35

Undercarriage

The undercarriage has a robust X-shaped frame. Greased and sealed track chains are standard.

Track shoes		51
Link pitch	mm	229
Shoe width, triple grouser	mm	600
Shoe width, double grouser	mm	600
Bottom rollers		2 x 9
Top rollers		2 x 3

Cab

The operator's cab has easy access via a wide door opening. The cab is supported on hydraulic dampening mounts to reduce shock and vibration levels. These along with sound absorbing lining provide low noise levels. The cab has excellent all-round visibility. The front windshield can easily slide up into the ceiling, and the lower front glass can be removed and stored in the side door.

Integrated air-conditioning and heating system: the pressurized and filtered cab air is supplied by an automatically-controlled fan. The air is distributed throughout the cab from 14 vents.

Ergonomic operator's seat: the adjustable seat and joystick console move independently to accommodate the operator. The seat has nine different adjustments plus a seat belt for the operator's comfort and safety.

Refrigerant of the type R134a is used when this machine is equipped with air conditioning. Contains fluorinated greenhouse gas R134a, Global Warming Potential 1.430 t CO₂-eq.

Sound Level

Sound level in cab according to ISO 6396

L _{pA}	dB	71
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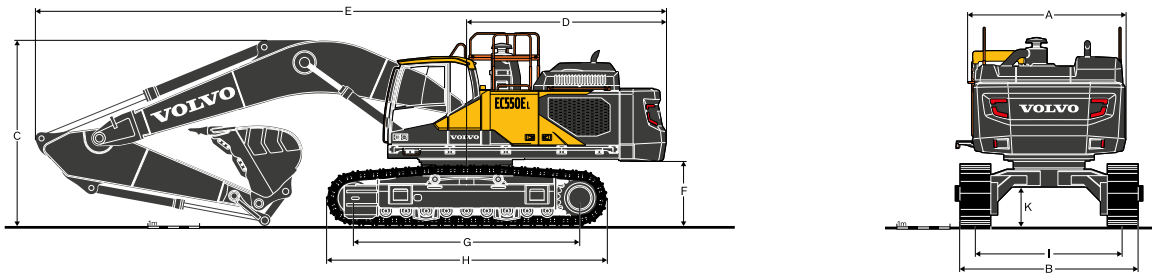
External sound level according to ISO 6395 and EU Noise Directive (2000/14/EC)

L _{WA}	dB	107
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Service Refill

Fuel tank	l	680
Hydraulic system, total	l	590
Hydraulic tank	l	270
Engine oil	l	55
Engine coolant	l	66
Slew reduction unit	l	2 x 6.4
Travel reduction unit	l	2 x 8

Specifications



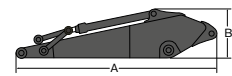
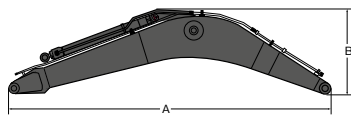
DIMENSIONS

Description	Unit	EC550EL Wide retractable undercarriage
Boom	m	6.5
Arm	m	3.0
A. Overall width of upper structure **	mm	2 990
B. Overall width ***		
Retracted		
600mm shoes	mm	3 400
Extended		
600mm shoes	mm	3 900
C. Overall height *		
Cab	mm	3 415
FOG	mm	3 520
Engine hood	mm	3 290
Handrails, fixed	mm	3 640
With Boom/Arm/Bucket (with hydraulic hoses)	mm	4 340
With Boom/Arm (with hydraulic hoses)	mm	4 145
With Boom (with hydraulic hoses)	mm	3 390
D. Tail swing radius	mm	3 880
E. Overall length		
With Boom/Arm/Bucket	mm	11 760
With Boom/Arm	mm	11 750
With Boom	mm	10 290
F. Counterweight clearance *	mm	1 370
G. Tumbler length	mm	4 515
H. Track length	mm	5 580
I. Track gauge (retracted)	mm	2 800
Track gauge (extended)	mm	3 300
K. Min. ground clearance *	mm	735

* Without shoe grouser

** Exclude walkway, handrail

*** Shoe end to end



DIMENSIONS

Boom			Arm		
Description	Unit		Description	Unit	
Boom	m	6.5 ME	Arm	m	3.0
A	mm	6 780	A	mm	4 270
B	mm	1 910	B	mm	1 260
Width	mm	906	Width	mm	605
Weight	kg	5 140	Weight	kg	2 920

* Includes arm cylinder, piping and pin

Superstructure with boom cylinders, weight

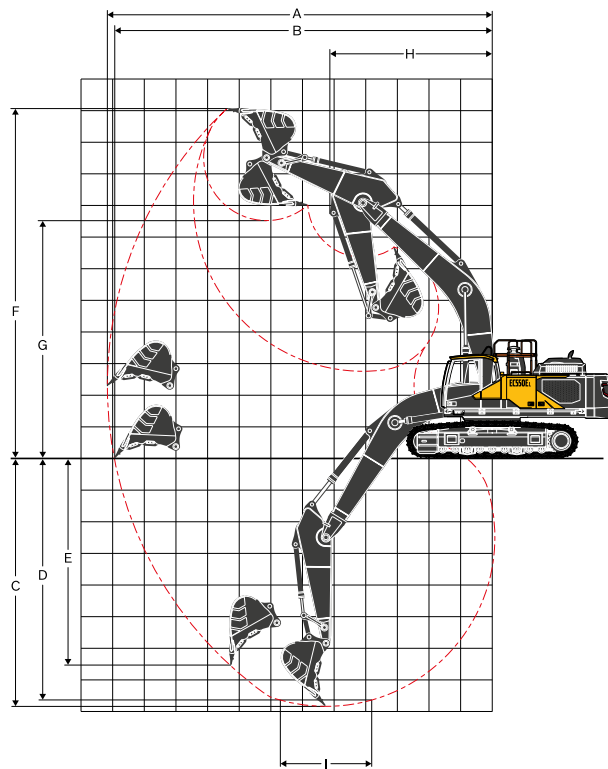
Description	Unit	Superstructure
Weight	kg	13 370

Lower structure, weight

Description	Unit	EC550EL Wide retractable undercarriage
600mm	kg	18 930
750mm	kg	19 730
900mm	kg	20 525
600mm double	kg	18 750



Specifications



WORKING RANGE

Description	Unit	EC550EL* Wide retractable undercarriage
Boom	m	6.5
Arm	m	3.0
A. Max. digging reach	mm	11 410
B. Max. digging reach on ground	mm	11 140
C. Max. digging depth	mm	7 000
D. Max. digging depth (2.44 m level)	mm	6 830
E. Max. vertical wall digging depth	mm	5 830
F. Max. cutting height	mm	10 900
G. Max. dumping height	mm	7 050
H. Min. front slew radius	mm	4 780

DIGGING FORCES WITH DIRECT FIT BUCKET

Breakout force - bucket	Normal SAE J1179	kN	267
	Power boost SAE J1179	kN	287
	Normal ISO 6015	kN	307
	Power boost ISO 6015	kN	329
Tearout force - dipper arm	Normal SAE J1179	kN	227
	Power boost SAE J1179	kN	243
	Normal ISO 6015	kN	233
	Power boost ISO 6015	kN	250
Rotation angle, bucket	°		168

*Machine with pin-on bucket

Specifications

MACHINE WEIGHTS AND GROUND PRESSURE

Description	EC550EL with WIDE RETRACTABLE undercarriage, 6.5 m boom, 3.0 m arm, 3 200 kg bucket, 10 600 kg counterweight			
	Shoe width mm	Operating weight kg	Ground pressure kPa	Overall width mm
Triple grouser	600	54 690	91.4	3 900

BUCKET SELECTION GUIDE

Bucket type	Capacity	Cutting width mm	Weight kg	Teeth EA	EC550EL wide retractable undercarriage 600 mm shoe, 10 600 kg counterweight 6.5 m ME Boom 3.0 m	
					L	C
Direct fit Buckets	General purpose	3 600	2 060	3 197	6	C
	Heavy Duty	3 000	1 920	3 059	5	D
		3 310	1 910	3 110	5	C

Please consult with your Volvo dealer for the proper match of buckets and attachments to suit the application. The recommendations are given as a guide only, based on typical operation conditions. Bucket capacity based on ISO 7451, heaped material with a 1:1 angle of repose.

Maximum material density
 D: 2 100 kg/m³
 C: 1 800 kg/m³
 B: 1 500 kg/m³
 A: 1 200 kg/m³
 X: Not recommended

LIFTING CAPACITY EC550EL Wide retractable undercarriage

Lifting capacity at the arm end without bucket.

For lifting capacity including bucket, simply subtract actual weight of the direct fit bucket or the bucket with quick coupler from the following values.

	Lifting hook related to ground level	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m		9.0 m		10.5 m		Max. reach		m	
		Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC		
Boom : ME 6.5 m Arm : 3.0 m Shoe : 600 mm CWT : 10 600 kg	9.0 m kg																*11 410	*11 410	6.6
	7.5 m kg									*12 870	*12 870						*10 570	*10 570	7.8
	6 m kg									*13 210	*13 210						*10 290	*10 290	8.6
	4.5 m kg					*21 510	*21 510	*16 610	*16 610	*14 260	13 810	*11 970	10 340				*10 400	10 130	9.1
	3 m kg					*26 640	*26 640	*19 080	18 600	*15 540	13 330	*13 620	10 130				*10 850	9 590	9.3
	1.5 m kg					*25 960	*25 960	*21 030	17 860	*16 660	12 920	13 700	9 930				*11 670	9 490	9.3
	0 m kg					*30 000	27 420	*21 960	17 450	*17 270	12 660	*13 240	9 830				*13 090	9 820	9.0
	-1.5 m kg				*21 810	*21 810	*28 870	27 470	*21 720	17 350	*17 020	12 590					*14 580	10 740	8.4
	-3 m kg				*35 110	*35 110	*26 170	*26 170	*19 990	17 540	*15 060	12 820					*14 890	12 720	7.5
	-4.5 m kg						*20 920	*20 920	*15 290	*15 290							*14 610	*14 610	6.2

Notes: 1. Machine in "Fine Mode-F" (Power Boost) for lifting capacities. 2. The above loads are in compliance with SAE J1097 and ISO 10567 Hydraulic Excavator Lifting Capacity Standards. 3. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. 4. Rated loads marked with an asterisk (*) are limited by hydraulic capacity rather than tipping load.

Equipment

STANDARD EQUIPMENT

Engine

Turbocharged, 4 stroke diesel engine with water cooling, direct injection and charged air cooler

Air filter with indicator

Air intake heater

Oil bath pre-cleaner

Fuel filter and combined water separator

Auto engine shutdown

Delayed engine Shutdown

Alternator, 80 A

Electric / Electronic control system

Advanced mode control system

Self-diagnostic system

Machine status indication

Engine speed sensing power control

Automatic idling system

One-touch power boost

Safety stop/start function

Adjustable LCD color monitor

Master electrical disconnect switch

Engine restart prevention circuit

High-capacity LED lights:

Frame-mounted 2

Boom-mounted 2

Extra work lights, LED :

- Cab-mounted 3

- Boom-mounted 2

- Counterweight-mounted 1

Travel alarm

Batteries, 2 x 12 V / 200 Ah

Start motor, 24 V / 7 kW

Frame

3-point right-hand side access

Tool storage area

Service walk way

Punched metal anti-slip plates

Undercover, heavy-duty

Handrail, fixed

Undercarriage

Undercover, heavy-duty

Hydraulic track adjusters

Greased and sealed track link

Track Guard

Mechanically retractable with track gauge

Hydraulic system

New electro-hydraulic system with IMVT

2-pump flow bucket circuit

Swing anti-rebound valves

Multi-stage filtering system

Cylinder cushioning

Cylinder contamination seals

Automatic two-speed travel motors

Boom and arm regeneration valves & ECO mode fuel saving technology

Hydraulic oil, ISO VG 68

Automatic hydraulic oil warm-up

STANDARD EQUIPMENT

Cab and interior

ROPS (ISO12117-2) certified cab

Silicon oil and rubber mounts with spring

Travel pedals and hand levers

Adjustable operator seat and joystick control console

Control joysticks, semi-long

Heater & air-conditioner, automatic

Flexible antenna

Radio with MP3 & USB Jack with bluetooth

Hydraulic safety lock lever

Cab, all-weather sound suppressed, includes:

- Cup holders

- Door locks

- Tinted glass

- Floor mat

- Horn

- Large storage area

- Pull-up type front window

- Removable lower windshield

- 3P seat belt

- Safety glass

- Sun screens, front, roof, rear

- Windshield wiper with intermittent feature

- Rear view camera

- Master key

- Swing lock system

Track shoes

600 mm with triple grousers

Digging equipment

Boom: 6.5 m ME

Arm: 3.0 m

Manual centralized lubrication

Service

Tool kit, full scale

Caretrack

OPTIONAL EQUIPMENT
Engine
Cyclone pre-cleaner
Block heater: 120 V, 240 V
Diesel coolant heater, 10 kW
Water separator with heater
Reversible fan drive
Fuel tank-fast fuel fill preparation
Fuel filler pump: 50 l/min, with automatic shut-off
Electric
Anti-theft system
Green light beacon
Flashing beacon, LED
Jump start connector, NATO
Dig Assist : 2D, In-Field Design and 3D
On-Board Weighing
Volvo Smart View
Frame
Hydraulic removable counterweight
Service walk way, foldable
Cab entrance, foldable
Full height, foldable handrail and guard rail
Side impact protection
Undercarriage
Full track guard
Hydraulic system
Hammer & shear:
- Work tool management system
(up to 32 programmable memories)
- Hammer & shear, 1 and 2 pump flow
- Variable flow and pressure pre-setting
- Additional return filter
Slope & rotator
Grapple
Oil leak (drain) line
Boom float function
Hose rupture valve: Boom, Arm
Overload warning device
Quick coupler piping

OPTIONAL EQUIPMENT
Cab and interior
Fabric seat with heater, air suspension and 3P belt
Delux seat with multiple adjusting arm rest
Joystick pattern change
Joystick options
Comfort Driving Control
Creep travel speed
Opening top hatch
Falling object guard (FOG) :
- Frame-mounted
- Cab-mounted
Cab-mounted falling object protective structure (FOPS)
Smoker kit (ashtray and lighter)
Safety net for front window
Safety net for lower front window
Front Rain shield
Lower wiper with intermittent control
Side view camera
Anti-vandalism kit
One piece front window
High visibility cab
Track shoes
Track shoes 750/900 mm with triple grousers
Track shoes 600 mm with double grousers
Digging equipment
Linkage with lifting eye
Service
Tool kit, daily maintenance
Automatic lubrication system

SELECTION OF VOLVO OPTIONAL EQUIPMENT

Protection package



Reversible cooling fan



Volvo Smart View



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.

V O L V O