

V O L V O



Volvo Electric Wheel Loaders 14.5 - 17.3 t

L90 ELECTRIC

Volvo Construction Equipment

L90 ELECTRIC

Reduce running costs, achieve your sustainability targets and open for new opportunities with the zero-emissions L90 Electric Volvo Wheel Loader.



Zero emissions

- Eliminate tailpipe emissions
- 60-80% energy cost reduction
- Lower noise
- Access jobsites with low carbon and low noise requirements
- Reduced environmental impact



30% reduction in maintenance costs

- Fully electric driveline
- No engine-related consumables
- Maintenance-free electric motors
- 4 000-hour axle and transmission oil change interval
- Quick and easy service access

Zero emissions, lower costs

Introducing the L90 Electric Volvo Wheel Loader – a cleaner and quieter solution with all the power needed to deliver optimum results across a wide range of applications.

With a rated load of 4.5 tonnes, the 15-tonne L90 Electric is the first electric wheel loader in its class. As a zero-exhaust emissions solution, it is perfectly suited for indoor operation and city centers, as well as segments such as industrial material handling, forestry, agriculture and landscaping, quarries and mining, and waste and recycling.



Runtime and charging

- 4-6 hours of operation in medium duty applications or a full working day in lighter applications
- Integrated onboard AC charger powers up the machine overnight in 6-7 hours
- Fast charging from 20%-80% in 55-minutes
- Compatible with a 40 kW DC moveable charger and PU500 Mobile Power Unit
- CCS2 charging interface/Type 2 automotive standard inlet for easy access to common chargers
- Energy recovery function
- My Equipment app



Operator environment

- Low noise and low vibrations
- Outstanding responsiveness
- Ergonomic workspace
- Comfortable operator seat
- Information panel and Contronic display



Operator performance

- Electro-hydraulic lever controls
- Auto bucket levelling function
- Optional Comfort Drive Control
- Rimpull Control
- Load Assist



Powerful performance

- Instant torque
- Faster response, shorter cycle times
- Volvo designed transmission
- Active cooling and heating systems
- TP linkage
- A wide range of Volvo buckets and attachments



Outstanding visibility

- Large expanses of glass
- Redesigned side mirrors
- Rear-view camera
- Optional front camera
- Optional Volvo Smart View with 360°
- Orange handrails and steps
- LED light packages

Electrifying performance

Thanks to the electric power, the Volvo L90 Electric offers instant torque – providing a smooth, powerful performance and contributing towards faster response and shorter cycle times. This boosts productivity as the machine can respond quickly and efficiently to heavy loads and complex tasks, improving overall worksite efficiency.

Do more with one charge

Deliver 4-6 hours of operation in medium duty applications – or a full working day in lighter applications – supported by a number of AC and DC charging options.

Enhanced operator experience

A more comfortable work environment is guaranteed thanks to less noise, lower vibrations and outstanding responsiveness as a result of the wheel loader's electric operation. A quieter jobsite facilitates improved communication for those inside and outside the machine, for a safer and more productive working day.

Integrated Volvo Co-Pilot

Featuring a 12.8" display with full HD resolution and combined with the new 8" dynamic instrument cluster in front of the steering wheel. The new system brings integrated functions such as machine information, climate and media control.



A cleaner, smarter choice

Thanks to zero exhaust emissions, the L90 Electric wheel loader joins the ever-growing portfolio of Volvo electric machines to help you move closer to achieving your fossil-free ambitions. The L90 Electric also creates unique business opportunities with a 60-80% energy cost reduction and 30% less maintenance requirements.



Volvo L90 Electric in detail

Electric / Electronic control system

600 V system.

Total 180 kWh.

Electric motor		PMSM*
Nominal power	kW	140
Battery type		Lithium Ion (NCA)
Battery voltage	V	600
Battery capacity	kWh	180
Usable battery energy	kWh	153
AC Charging capacity	kW	22
DC Charging capacity	kW	120 **

*Permanent Magnet Synchronous Motor

**Compatible with 150 kW chargers, the charging speed can vary depending on SoC levels

Electrical system

24 volt system

Contronic electrical system with central warning light and buzzer for following functions:

- Brake system
- Steering system
- Hydraulic system
- Electrical 600 volt system (electrical motors, batteries, etc.)
- Electrical 24 volt system
- Driveline system

24 Volt System	V	24
Batteries	V	2 x 12
Battery capacity	Ah	2 x 110

Drivetrain

Transmission: Volvo countershaft transmission with single lever control. Fast and smooth shifting of gears with Pulse Width Modulation (PWM) valve.

Transmission: Volvo Automatic Power Shift (APS) gear shifting system with fully automatic shifting 1-3 and mode selector with two different gear shifting programs, MANUAL and AUTO mode. Also equipped with Rimpull control to avoid wheel spin and optimize bucket filling.

Axles: Volvo fully floating axle shafts with planetary hub reductions and cast steel axle housing. Fixed front axle and oscillating rear axle. 100% differential lock on the front axle.

Transmission	Volvo	ET143 (Electrical transmission 140 kW 3 speed)
--------------	-------	--

Maximum speed, forward/reverse		
1st gear	km/h	10
2nd gear	km/h	19
3rd gear	km/h	48
Front axle/rear axle		AWB 25/ AWB 20
Rear axle oscillation	± °	13
Ground clearance	mm	470
at oscillation	°	13

Steering system

System supply: The steering system has priority feed from a load-sensing axial piston pump with variable displacement.

Steering cylinders: Two double-acting cylinders.

Steering cylinders		2
Cylinder bore	mm	80
Rod diameter	mm	50
Stroke	mm	345
Working pressure	MPa	21
Maximum flow	l/min	60
Maximum articulation	± °	40

Cab

Instrumentation: All important information is centrally located in the operator's field of vision. Display for Contronic monitoring system. Heater and defroster: Heater coil with filtered fresh air and fan with auto and manual settings (11 speeds). Defroster vents for all window areas. The primary 8" display, positioned directly in front of the operator, serves as a central hub for monitoring vital machine functions, displaying information in a clear and organized manner. The 12.8" secondary display complements this by enhancing situational awareness. The information presented on these displays is carefully curated to deliver the most pertinent data, alerts, and notifications, enabling operators to make informed decisions swiftly and accurately.

Operator's seat: Operator's seat with adjustable air 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.

Standards: The cab is tested and approved according to ROPS (ISO 3471, SAE J1040), FOPS (ISO 3449). The cab meets with requirements according to SAE J386 ("Operator Restraint System").

Emergency exit: Use emergency hammer to break window

Ventilation	m ³ /min	9
Heating capacity (cab / battery)	kW	10 / 10
Air conditioning	kW	7

Sound Level

Sound pressure level in cab according to ISO 6396

L _{pA}	dB	62
External sound level according to ISO 6395		
L _{WA}	dB	103

Service Refill

Service accessibility: Large, electrically operated easy-to-open hood covering whole compartment. Fluid filters and component breather air filters are located from ground level access and promote long service intervals. Machine contronics have possibility to monitor, log and analyze data to facilitate troubleshooting. A quick-fit adapter on the hydraulic tank provides faster hydraulic oil fill.

Coolant Cab & Electrical system	l	40
Hydraulic oil tank	l	90
Transmission oil	l	22.9
Axle oil front	l	35
Axle oil rear	l	27



Hydraulic system

Closed center load sensing hydraulic system with non pressurised hydraulic tank and pilot operated control valves.

System supply: Variable displacement axial piston pump supply the hydraulic system.

Valves: The central valve distributes pressure and flow out to the steering, brake, pilot and hydraulic system. Steering system gets priority over others.

Lift function: The valve has four positions; raise, hold, lower and float position. Automatic boom kickout position can be set to any position between maximum reach and full lifting height.

Tilt function: The valve has three functions; rollback, hold and dump. Automatic tilt out/tilt in 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	31
Flow	l/min	171
at	MPa	10
pump speed	r/min	1 700
Working pressure maximum, pump 2 for steering-, brake-, pilot- and working hydraulic system	MPa	21
Flow	l/min	50
at	MPa	10
pump speed	r/min	1 800
Pilot system, working pressure	MPa	3.5
Cycle times		
Lift	s	5.7
Tilt	s	2.3
Lower, empty	s	4
Total cycle time	s	12

Lift Arm System

Torque parallel linkage (TP-linkage) with high breakout torque and parallel lift-arm action.

Lift cylinders		2
Cylinder bore	mm	120
Piston rod diameter	mm	70
Stroke	mm	744
Tilt cylinder		1
Cylinder bore	mm	180
Piston rod diameter	mm	90
Stroke	mm	430

Brake system

Service brake: Volvo dual-circuit system with outboard mounted, hydraulically operated, fully sealed and circulating oil cooled wet disc brakes.

Parking brake: Dry disc brake mounted on the transmission output shaft. Applied by spring force, electro-hydraulically released with a switch on the instrument panel.

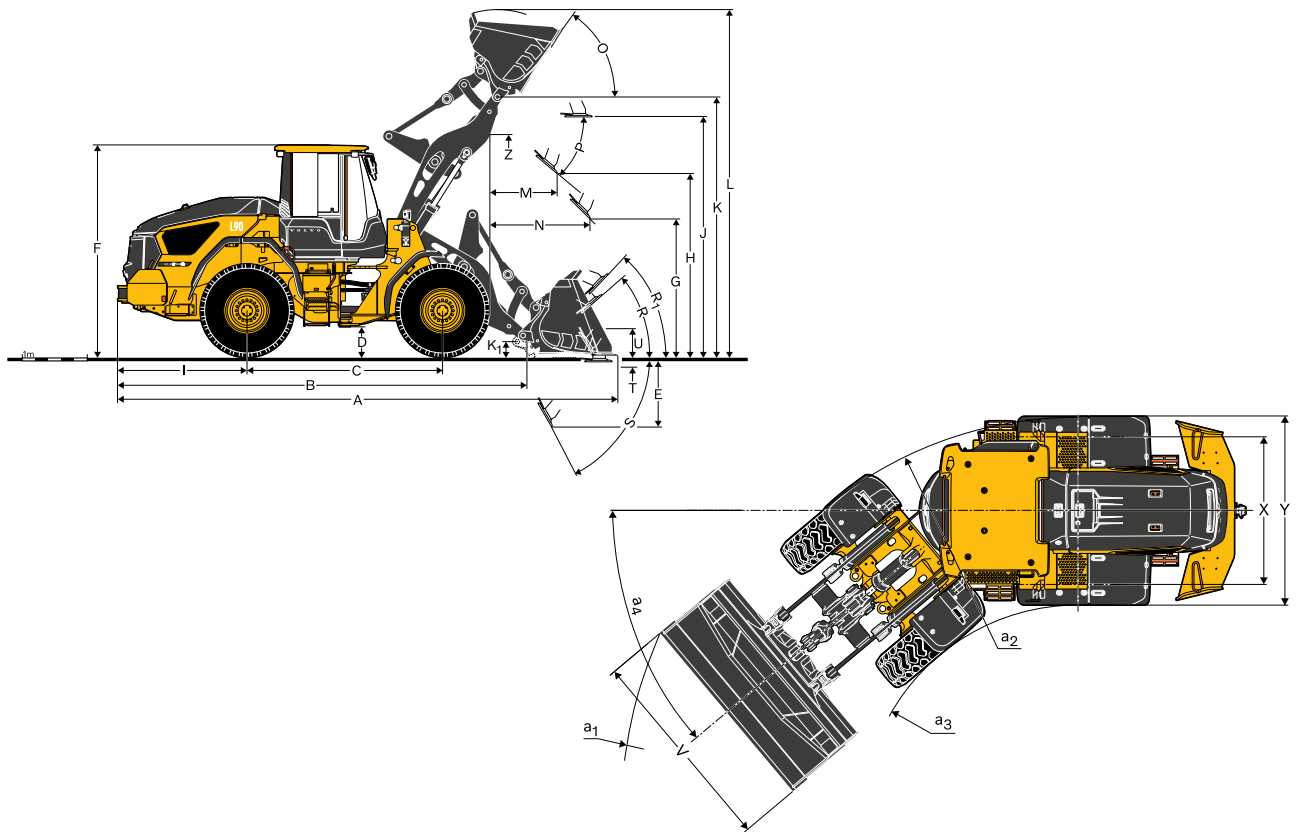
Secondary brake: Dual brake circuits with rechargeable accumulators.

Standard: The brake system complies with the requirements of ISO 3450, 71/320/EEC

Number of brake discs per wheel		1
Accumulators	l	2 x 0.5 + 1 x 1.0
Accumulators for parking brake	l	1 x 1.0



Specifications



DIMENSIONS

Tires 20.5 R25 L3

		L90 Electric	
		Standard boom	Long Boom
B	mm	6 290	6 720
C	mm	3 050	3 050
D	mm	450	440
F	mm	3 280	3 280
G	mm	2 132	2 132
I	mm	2 020	2 020
J	mm	3 730	4 150
K	mm	4 040	4 460
O	°	57	57
P _{max}	°	45	45
R	°	44	47
R ₁ *	°	47	51
S	°	67	66
T	mm	112	108
U	mm	410	500
X	mm	1 960	1 960
Y	mm	2 490	2 490
Z	mm	3 460	3 460
a ₂	mm	5 430	5 430
a ₃	mm	2 950	2 950
a ₄	±°	40	40

* Carry position SAE

Standard boom spec acc to 2.6 m³ (3.4 yd³) STE H BOE

Long boom spec acc to 2.3 m³ (3.0 yd³) STE H BOE

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

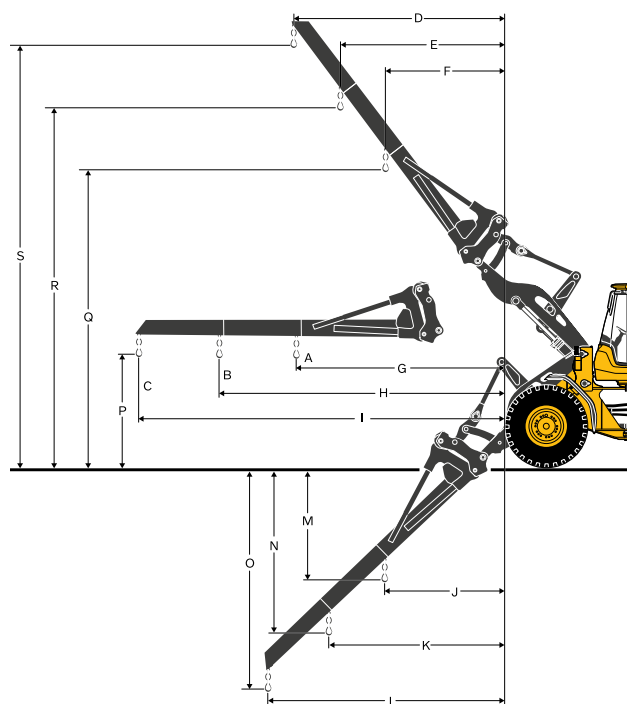
DIMENSIONS

Tires 20.5 R25 L3

		L90 Electric	
		Standard boom	Long Boom
Material handling arm sales code		92008	
A*	kg	2 760	2 760
B*	kg	2 130	2 130
C*	kg	1 740	1 740
Static tipping load, straight	kg	4 210	3 890
35° Turn	kg	3 780	3 480
at full turn	kg	3 660	3 360
D	mm	2 480	2 380
E	mm	1 890	1 800
F	mm	1 300	1 210
G	mm	3 250	3 570
H	mm	4 380	4 700
I	mm	5 520	5 840
J	mm	1 340	1 810
K	mm	1 890	2 390
L	mm	2 430	2 960
M	mm	2 040	2 020
N	mm	3 030	2 990
O	mm	4 020	3 970
P	mm	1 530	1 530
Q	mm	5 420	5 850
R	mm	6 380	6 820
S	mm	7 350	7 790
Operating weight without load	kg	15 100	15 380

* Rated load at full turn + tipping position

Tipping loads calculated for max. arm length

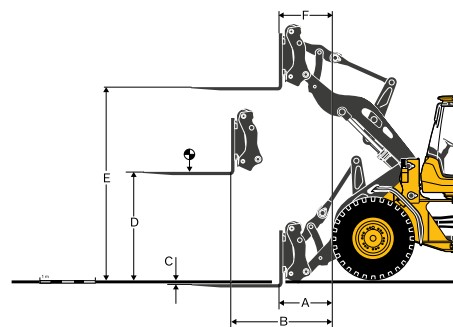


DIMENSIONS

Tires 20.5 R25 L3

		L90 Electric	
		Standard boom	Long Boom
Fork frame sales code		83770	
Fork tines sales code (R/L)		80106/80107	
Static tipping load, straight	kg	8 740	7 640
35° Turn	kg	7 830	6 820
at full turn	kg	7 560	6 570
at load center distance*	mm	600	600
A	mm	930	1 360
B	mm	1 670	1 990
C	mm	-7	-1
D	mm	1 800	1 800
E	mm	3 840	4 270
F	mm	640	570
Operating weight without load	kg	15 200	15 470

* Firm and level ground



Specifications

L90 Electric

Tires 20.5 R25 L3		GENERAL PURPOSE						GRADING	LIGHT MATERIAL		LONG BOOM
											
		WLA86299	WLA86301	WLA86304	WLA86314	WLA86318	WLA86320	WLA85404	WLA92687	WLA92683	
		2.3 m³ STE H T	2.5 m³ STE H BOE	2.8 m³ STE H BOE	2.5 m³ STE P BOE	2.6 m³ STE P BOE	2.8 m³ STE P BOE	2.8 m³ GRB H BOE	4.1 m³ LM H BOE	7 m³ LM H BOE	
Volume, heaped ISO/SAE	m³	2.2	2.5	2.8	2.5	2.6	2.8	2.8	4.1	7	-
Volume at 110% fill factor	m³	2.4	2.8	3.1	2.8	2.9	3.1	3.1	4.5	7.7	-
Static tipping load, straight	kg	11 570	11 220	11 110	11 840	11 800	11 710	9 070	10 600	10 320	-1 880
at 35° turn	kg	10 330	10 000	9 890	10 570	10 540	10 450	8 060	9 410	9 100	-1 720
at full turn	kg	9 960	9 640	9 530	10 200	10 170	10 080	7 760	9 050	8 740	-1 680
Breakout force	kN	146.6	133.1	126.6	145.5	142.9	137.8	92.2	100.7	87.1	1.7
A Overall length	mm	7 840	7 760	7 840	7 850	7 660	7 750	8 300	8 190	8 490	410
E Digging depth, max dump (S)	mm	1 290	1 220	1 280	1 110	1 140	1 180	1 770	1 600	1 860	0
H ⁽¹⁾ Dump clearance	mm	2 830	2 880	2 830	2 960	2 930	2 900	2 400	2 600	2 400	410
L Overall operating height	mm	5 300	5 360	5 450	5 300	5 320	5 380	4 890	5 630	5 830	420
M ⁽¹⁾ Dump reach	mm	1 070	1 020	1 070	940	940	990	1 210	1 350	1 550	-80
N ⁽¹⁾ Reach at 45° discharge, pos. G	mm	1 700	1 680	1 690	1 640	1 640	1 660	1 520	1 710	1 700	360
V Bucket width	mm	2 750	2 750	2 750	2 750	2 750	2 750	2 880	2 750	3 000	0
a ₁ Outer clearance circle (diameter)	mm	12 290	12 240	12 290	12 200	12 210	12 240	12 980	12 500	12 920	340
Operating weight without load	kg	15 650	15 800	15 860	15 560	15 580	15 630	15 970	16 120	16 550	280

⁽¹⁾ Measured to the tip of the bucket teeth or bolt-on edge. Dump height to bucket edge measured at 45° dump angle.

Note: This only applies to genuine Volvo attachments.

Bucket Selection Chart

The chosen bucket is determined by the density of the material and the expected bucket fill factor. The actual bucket volume is often larger than the rated capacity, due to the features of the TP linkage, including an open bucket design, good rollback angles in all positions and good bucket filling performance. The example represents a standard boom configuration. Example: Sand and gravel. Fill factor ~ 105%. Density 1.65 t/m³. Result: The 1.9 m³ bucket carries 2.0 m³. For optimal stability always consult the bucket selection chart.

Material	Bucket fill, %	Material density, t/m³	ISO/SAE bucket volume, m³	Actual volume, m³
Earth/Clay	~ 110	~ 1.55	2.1	2.3
		~ 1.45	2.3	2.5
		~ 1.4	2.4	2.6
Sand/Gravel	~ 105	~ 1.6	2.1	2.2
		~ 1.5	2.3	2.4
		~ 1.45	2.4	2.5
Aggregate	~ 100	~ 1.8	2.1	2.1
		~ 1.7	2.3	2.3
		~ 1.6	2.4	2.4
Rock	≤100	~ 1.7	1.6	1.6

Supplemental Operating Data		L90 Electric			
		Standard boom		Long boom	
		20.5 R25 L2 *	650/65 R25 L3	20.5 R25 L2 *	650/65 R25 L3
Width over tires	mm	2 490	2 660	2 490	2 660
Ground clearance	mm	430	460	430	460
Tipping load, full turn	kg	+ 90	+ 440	+ 80	+ 400
Operating weight	kg	+ 100	+ 710	+ 100	+ 720

Calculated with 2.3 m³ STE H BOE

* Snow tires



Equipment

STANDARD EQUIPMENT

Wheels and tires

20.5R25

Drivetrain

Automatic Power Shift

Fully automatic gear shifting, 1-3

PWM-controlled gear shifting

Forward and reverse switch by hydraulic lever console

Rimpull control

Indicator glass for transmission oil level

Differentials: Front, 100% hydraulic diff lock. Rear, conventional

Electrical system

24 V, pre-wired for optional accessories

Battery disconnect switch

Maintenance-free batteries

Battery box, steel

USB-C (2.0)

Rear view camera

State of charge

Electric horn

Instrument cluster:

Transmission temperature

Coolant temperature

Instrument lighting

Lighting:

Parking lights

Double brake and tail lights

Turn signals with flashing hazard light function

STANDARD EQUIPMENT

Contronic monitoring system

Contronic display

Energy consumption

Ambient temperature

Clock

Test function for warning and indicator lights

Brake test

Warning and indicator lights:

Battery charging 24 V

Parking brake

Warning and display message:

Coolant temperature

Transmission oil temperature

Transmission oil pressure

Hydraulic oil temperature

Brake pressure

Parking brake applied

Brake charging

Overspeed at direction change

Axle oil temperature

Steering pressure

Attachment lock open

Level warnings:

Battery state of charge level

Coolant level

Transmission oil level

Hydraulic oil level

Washer fluid level

Torque reduction in case of malfunction indication:

High battery temperature

Slip in transmission clutches

Start interlock when gear is engaged

Hydraulic System

Main valve, double acting 2-spool with hydraulic pilots

Variable displacement axial piston pumps (2) for:

Working hydraulics, pilot hydraulics, steering system, brakes

Hydraulic control levers

Mechanical hydraulic lever lock

Automatic boom kick-out

Automatic bucket positioner

Double acting hydraulic cylinders

Indicator glass for hydraulic oil level

Hydraulic oil cooler

STANDARD EQUIPMENT
Brake system
Dual brake circuits
Dual brake pedals
Axle oil cooling
Axle oil filter
Secondary brake system
Parking brake, electrical-hydraulic
Brake wear indicators
Outboard mounted circulating oil cooled wet disc brakes on all four wheels
Cab
ROPS (ISO 3471), FOPS (ISO 3449)
Single key kit door/start
Acoustic inner lining
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
Dual interior lights
Dynamic instrument cluster and integrated Co-Pilot
Interior rearview mirrors
Dual exterior rearview mirrors
Sliding window, right side
Tinted safety glass
Retractable seatbelt (SAE J386)
Adjustable steering wheel
Storage compartment
Document pocket
Sun visor
Beverage holder
Windshield washer front and rear
Windshield wipers front and rear
Interval function for front and rear wipers
Foot step, left side (toolbox lockable included)

STANDARD EQUIPMENT
Service and Maintenance
Quick fit transmission oil drain valve
Easy access for hydraulic oil cooler and AC-condenser
Lubrication manifolds, ground accessible
Pressure test ports: transmission and hydraulic
Service platforms with anti-slip surfaces
Quick-fit hydraulic oil fill
CareTrack
Telematics, 6 -year subscription
Toolbox, lockable
External equipment
Full fenders front and rear
Viscous cab mounts
Rubber, battery and transmission mounts
Hood, electronically openable
Frame, joint lock
Vandalism lock for hood compartment
Lifting eyes
Tie down eyes
Tow hitch
Counterweight

Equipment

OPTIONAL EQUIPMENT

Cab/Operator envioment

Additional windshield washer nozzles
Automatic Climate Control (ACC)
Handsfree
ISRI Premium Comfort seat with 2 point seat belt
ISRI Premium Comfort seat with 3 point seat belt
Radio
Rear view mirrors, electrically adjusted and heated
Remote door opener
Seat belt indicator, external
Steering wheel knob
Subwoofer
Sun blinds, rear windows
Sun blinds, side windows
Window, sliding, door

Electrical motors / Power transmission

CAN-BUS interface, Advanced
Hand throttle control
Speed limiter, max 20 km/h
Speed limiter, max 40 km/h

General

CE marking
Insp.-Registration (SE market)
Kit, Germany
Sign, slow moving vehicle
Sign, 50 km/h

Electric

Anti-theft device
Collision Mitigation System (CMS)
Emergency Stop
On-Board Weighing Hardware
On-Board Weighing Software
Radar detect system
Front Camera
Volvo Smart View with 360°
Reverse alarm, White noise
Satellite connectivity
Tire Pressure Monitoring System

Frame

Boom Suspension System, BSS
Cover plates, rear frame
Footsteps front frame
Towing Hitch

Hydraulics

Hydraulic 4 functions, standard boom
Hydraulic 4 functions, long boom
Max boom height
Separate attachment locking, standard boom
Separate attachment locking, long boom
Volvo hydraulic fluid, biodegradable
Hydraulic fluid, fire resistant
Hydraulic fluid, for hot climate

OPTIONAL EQUIPMENT

Lights

Headlights, assym. Left LED
Headlights, assym. Right LED
LED Power Package
License plate holder, lighting
License plate holder, lighting, left side
Reverse warning light, strobe lightning
Side marker lamps
Warning flasher, LED beacon
Working lights, Attachment LED
Working lights, reverse gear activated

Steering

Comfort Drive Control, CDC
Steering, secondary

Brake system

Parking brake, audible

Loading equipment

Long Boom
Single acting lifting function

Service and Maintenance

Lube system for attachment bracket
Lube system, long boom
Lube system, standard boom
Refill pump for grease to lube system
Tool kit
Wheel nut wrench kit

Miscellaneous

Bracket for fire extinguisher, two pieces
Bucket teeth protection
Footstep, right-hand side
Fire extinguisher, two pieces
Fire Suppression System
Mudflap kit front/rear for plastic/steel fr mudguards for 65-series tires
Mudflap kit front/rear for plastic/steel front mudguards for 80-series tires
Mudguards, full cover, front/rear, plastic/sheet metal for 65-series tires
Mudguards, full cover, rear for 80-series tires

Tires and Rims

20.5R25* BR VSW
650/65R25 BR VTS
650/65R25 MI XLD
20.5R25* MI XHA2 L3
600/65R25* BR VSW L2
20,5R25 GY GP3E*L3
Rims for 20.5/600/65 tires
Rims for 650/65 tires

Attachments

Att.bracket VAB-STD cast.

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