

V O L V O



Volvo Wheel Loaders 18.5-20.5 t

L120 ELECTRIC

Volvo Construction Equipment

L120 ELECTRIC

**The first electric Volvo wheel loader in its size class.
All the power and performance of its diesel equivalent,
but with the added benefits of being electric.**



More power for less energy

L120 Electric is the first fully electric Volvo in the L120 size class, ready to be applied in cement- and rehandling plants, refineries, harbours or sawmills. It can meet the performance of its diesel equivalent with the added benefit of zero emissions, lower Total Cost of Ownership and a 65% energy cost reduction. No engine related parts mean longer service intervals and more uptime which will improve your productivity.



Performance at a glance

- Tipping load of 13 tons
- Active cooling for high voltage battery- use machine in any climate
- High speed electric motor
- Energy recuperation function integrated into acceleration pedal - reuse braking energy to charge the battery.



Full days work

- Autonomy 5-9 hours, depending on application
- Charging time less than 1 hour from 10-95%
- DC charger-charge power up to 282 kW



Energy recovery function

- Three settings: Low, Med and Heavy
- Can be personalized for each operator
- Higher energy recover-higher brake force
- Less energy recover- lower brake force
- Single pedal mode



Serviceability

- Maintenance-free electric motor
- No engine-related components and maintenance requirements
- Ground-level service access



A clean, smart choice

- No engine-related consumables
- A zero-emission, quiet power source that can work in low carbon zones
- Ability to work indoor and noise sensitive areas
- Work a full shift with thanks to fast charging time

Volvo L120 Electric in detail

Electric / Electronic control system

600 V system. 282 kWh battery pack.		
Electric motor		PMSM*
Nominal power	kW	228
Battery type		Lithium Iron Phosphate (LFP)
Battery voltage	V	618
Battery capacity	kWh	282
	Ah	456
DC Charging capacity	kW	282

*Permanent Magnet Synchronous Motor

Electrical System

24 V Electrical system. Central warning system: Contronic electrical system with central warning light and buzzer for following functions: - Serious high voltage system fault - Low steering system pressure - Low transmission oil pressure - High transmission oil temperature - Low brake pressure - Engaged parking brake - Fault on brake charging - High hydraulic oil temperature - Overspeeding in engaged gear - High axle oil temperature front and rear axles - High inverter temperature - High electric motor temperature - Low traction battery SOC - Traction battery discharge warning.		
24 Volt System	V	24
Batteries	V	2 x 12
Battery capacity	Ah	2 x 80

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) with fully automatic shifting 1-4.

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

Transmission	Volvo E-TM EHT220	
Maximum speed, forward/reverse		
1st gear	km/h	8
2nd gear	km/h	18
3rd gear	km/h	37
4th gear	km/h	40
Note: 4th gear limited by ECU		
Measured with tires		23.5R25
Front axle/rear axle		AWB 31 / AWB 30
Rear axle oscillation	± °	13
Ground clearance	mm	436
at oscillation	°	13

Steering System

Steering system: Load-sensing hydrostatic articulated steering. 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	75
Rod diameter	mm	50
Stroke	mm	486
Working pressure	MPa	24.5
Maximum flow	l/min	74.5
Maximum articulation	± °	38

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 (11 speed) setting. 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, SAE J1040), FOPS (ISO 3449). The cab meets with requirements according to ISO 6055 (Operator overhead protection - Industrial trucks) and SAE J386 ("Operator Restraint System").
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.

Emergency exit: Use emergency hammer to break window

Ventilation	m ³ /min	9
Heating capacity	kW	6
Air conditioning	kW	5.3

Service Refill

Service accessibility: Electrically openable hood with large opening angle giving excellent access to the electric powertrain compartment. A quick-fit adapter on the hydraulic tank provides faster hydraulic oil drainage. Possibility to monitor, log and analyze data to facilitate troubleshooting.		
Hydraulic oil tank	l	133
Transmission oil	l	39
Axle oil front	l	36
Axle oil rear	l	41



Hydraulic system

System supply: Two load-sensing axial piston pumps with variable displacement. The steering system always has priority.

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

Lift function: The valve has four positions; raise, hold, lower and floating 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	29
Flow	l/min	128
at	MPa	10
pump speed	r/min	1 900
Working pressure maximum, pump 2 for steering-, brake-, pilot- and working hydraulic system	MPa	31
Flow	l/min	128
at	MPa	10
pump speed	r/min	1 900
Working pressure maximum, pump 3 for brake- and cooling fan system	MPa	21
Flow	l/min	32
at	MPa	10
pump speed	r/min	1 900
Pilot system, working pressure	MPa	3.5

Cycle times

Lift	s	5.2
Tilt	s	1.5
Lower, empty	s	3.8
Total cycle time	s	10.5

Lift Arm System

Z-bar linkage with high breakout force for strong, powerful digging.

Lift cylinders		2
Cylinder bore	mm	150
Piston rod diameter	mm	80
Stroke	mm	676
Tilt cylinder		1
Cylinder bore	mm	160
Piston rod diameter	mm	100
Stroke	mm	546

Brake system

Service brake: Volvo dual-circuit system with nitrogen charged accumulators. Outboard mounted hydraulically operated, fully sealed oil circulation 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 pane.

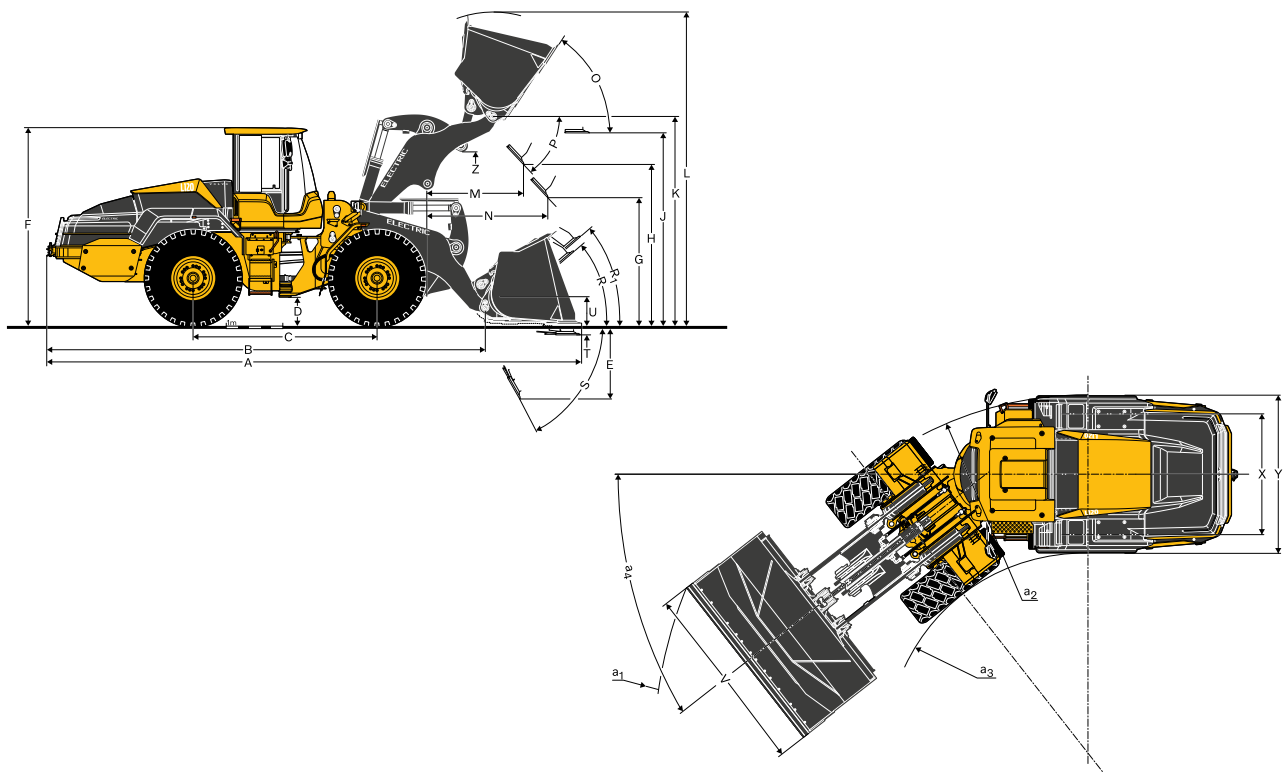
Secondary brake: Dual brake circuits with rechargeable accumulators. One circuit or the parking brake fulfills all safety requirements.

Standard: The brake system complies with the requirements of ISO 3450.

Number of brake discs per wheel front		1
Accumulators	l	3 x 1



Specifications



DIMENSIONS

		L120 Electric	
Tires 23.5 R25 L3			
		Standard boom	Long boom
B	mm	7 049	7 493
C	mm	3 200	3 200
D	mm	436	436
F	mm	3 368	3 368
G	mm	2 134	2 134
J	mm	3 766	4 240
K	mm	4 031	4 502
O	°	58	57.5
P _{max}	°	48.5	48.5
R	°	44.4	45.1
R ₁ *	°	50.8	52.3
S	°	64	63
T	mm	102	102
U	mm	468	599
X	mm	2 064	2 064
Y	mm	2 685	2 685
Z	mm	3 616	4 004
a ₂	mm	5 964	5 964
a ₃	mm	3 270	3 270
a ₄	±°	38	38

Standard boom with 3.5 m³ STE P BOE bucket

Long boom with 3.5 m³ STE P BOE bucket

* Carry position SAE

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

L120 Electric

Tires 23.5R25 Aelous L3		GENERAL PURPOSE							REHAND- LING	LIGHT MATERIAL	LONG BOOM	
												
		3.1 m³ STE H BOE	3.1 m³ STE P T	3.2 m³ STE P BOE	3.3 m³ STE P T	3.4 m³ STE P BOE	3.5 m³ STE P T	3.6 m³ STE P BOE	3.5 m³ RH STE P BOE	5.2 m³ LM P BOE	3.2 m³ STE P BOE	3.6 m³ STE P BOE
Volume, heaped ISO/SAE	m³	3.1	3.1	3.2	3.3	3.4	3.5	3.6	3.5	5.2	3.2	3.6
Volume at 110% fill factor	m³	3.4	3.4	3.5	3.6	3.7	3.9	4	3.9	5.7	3.5	4
Static tipping load, straight	kg	15 363	15 711	15 799	15 523	15 665	15 508	15 597	15 570	15 146	13 097	12 930
at 35° turn	kg	13 695	13 975	14 062	13 797	13 935	13 782	13 871	13 841	13 432	11 599	11 440
at full turn	kg	13 408	13 675	13 763	13 499	13 637	13 485	13 573	13 543	13 137	11 341	11 183
Breakout force	kN	170	193	195	184	185	179	180	185	150	186	172
A	mm	8 577	8 564	8 392	8 680	8 454	8 662	8 491	8 454	8 754	8 840	8 938
E	mm	1 336	1 315	1 175	1 426	1 230	1 403	1 262	1 231	1 495	1 174	1 261
H	mm	2 826	2 824	2 951	2 755	2 910	2 759	2 885	2 909	2 708	3 418	3 353
L	mm	5 473	5 542	5 543	5 649	5 601	5 649	5 649	5 676	5 861	6 010	6 117
M	mm	1 263	1 207	1 146	1 323	1 190	1 275	1 214	1 190	1 389	1 128	1 196
N	mm	1 840	1 782	1 791	1 857	1 814	1 811	1 824	1 813	1 893	2 191	2 229
V	mm	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 200	3 000	3 000
a, clearance circle	mm	13 499	13 500	13 399	13 557	13 431	13 554	13 450	13 432	13 776	13 758	13 811
Operating weight	kg	19 111	19 070	19 006	19 124	19 060	19 155	19 091	19 146	19 376	19 255	19 340

Bucket Selection Chart

The volume handled varies with the bucket fill and is often greater than indicated by the bucket's ISO/SAE volume. The table shows optimum bucket choice with regard to the material density.

Material	Bucket fill, %		Material density, t/m³	ISO/SAE bucket volume, m³	Actual volume, m³
Earth/Clay	~ 110		1.8 1.6	3.3 3.6	3.6 3.9
Sand/Gravel	~ 105		1.8 1.6	3.3 3.6	3.5 3.8
Aggregate	~ 100		1.8 1.6	3.8	3.8
Rock	≤100		1.7	3.0	3.0

The size of rock buckets is optimized for optimal penetration and filling capability rather than the density of the material.

Type of boom	Type of bucket	ISO/SAE Bucket volume	L120 Electric		Material density (t/m³)						
			0.8	1.0	1.2	1.4	1.6	1.8	2.0		
Standard boom	General purpose	H 3.1 m³									
		P 3.1 m³									
		P 3.2 m³									
		P 3.3 m³									
		P 3.4 m³									
		P 3.5 m³									
		P 3.6 m³									
	Rehandling	P 3.5 m³									
	Light material	P 5.2 m³									
Long boom	General purpose	P 3.2 m³									
		P 3.6 m³									
	Rehandling	H 3.5 m³									
	Light material	P 5.2 m³									
Bucket fill 110% 105% 100% 95%											
			P=Pin-on H=Hook-on								

How to read bucket fill factor

Equipment

STANDARD EQUIPMENT

Traction voltage system

Energy recuperation function with 3 adjustable levels
Motor brake
Hill slow down function
Off board fast DC charging
HVIL function (Traction voltage Interlock Loop)
High charging power with dual charging plugs
Active cooling for traction batteries
Preheating of Traction Voltage battery

Wheels and tires

23.5-25
Brake system
Dual brake circuits
Single brake pedal
Secondary brake system
Parking brake, electrical-hydraulic
Brake wear indicators
Wet disc brakes on all four wheels

Drivetrain

Electrical transmission without torque converter
Automatic Power Shift
Fully automatic gear shifting, 1-4
PWM-controlled gear shifting
Forward and reverse switch by hydraulic lever console
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 with removable key
Battery box, steel
Electric horn
Electric fan
Emergency Stop
Reverse alarm
Rear view camera incl. monitor, colour
Instrument cluster:
SOC level
Traction battery temperature
Energy recuperation level
Transmission oil temperature
Hydraulic oil temperature
Coolant temperature
Instrument lighting
Lighting:
Twin LED front headlights with high and low beams
Parking lights
Double brake and tail lights
Turn signals with flashing hazard light function
LED work lights (2 front and 2 rear)
Headlights, assym. Right

STANDARD EQUIPMENT

Contronic monitoring system

Monitoring and logging of machine data
Contronic display
Ambient temperature
Clock
Test function for warning and indicator lights
Brake test
Warning and indicator lights:
24V Battery charging
Parking brake
Warning and display message:
Traction battery temperature
Transmission oil temperature
Transmission oil pressure
Hydraulic oil temperature
Brake pressure
Parking brake applied
Brake accumulator charging
Overspeed at direction change
Axle oil temperature
Level warnings:
SOC level
Coolant level
Transmission oil level
Hydraulic oil level

Hydraulic System

Main valve, double acting 2-spool with hydraulic pilots
Variable displacement axial piston pumps (3) for:
Working hydraulics
Working hydraulics, pilot hydraulics, steering system, brakes
Hydraulic control levers
Mechanical level lock
Boom kick-out, automatic
Bucket positioner with position indicator, automatic
Double acting hydraulic cylinders
Indicator glass for hydraulic oil level
Secondary steering

STANDARD EQUIPMENT

Cab

ROPS (ISO 3471), FOPS (ISO 3449)

Acoustic inner lining

Ashtray

Lockable door

Floor mat

Single interior lights

Single interior rear view mirrors

Sliding window, right side

Tinted safety glass

Retractable seatbelt (SAE J386)

Adjustable steering wheel

Storage compartment

Document pocket

Sun blinds, front windows

Beverage holder

Windshield washer front and rear

Foot step, left side (toolbox lockable included)
--

A/C as standard

Cab heating with fresh air inlet and defroster
--

Fresh air inlet with two filters

Manual heat control

Service and Maintenance

Lubrication manifolds, ground accessible
--

Pressure test ports: transmission and hydraulic, quick connects

Service platforms with anti-slip surfaces

Telematics system

Toolbox, lockable

External equipment

Basic fenders, front and rear

Viscous cab mounts

Rubber transmission mounts

Frame, joint lock

Electrical hood opening

Lifting eyes

Tie down eyes

Equipment

OPTIONAL EQUIPMENT

Electrical system

Extra emergency Stop
Working lights, front on cab, 2 LED lamps
Headlights, assym. left LED
Headlights, assym. right LED
Warning beacon (flasher), LED
Reverse alarm, audible
Reverse alarm, audible, multi-frequency (white noise)

Hydraulic System

Hydraulic 2 functions
Hydraulic 3 functions
Separate attachment locking, Std boom
Boom Suspension System, BSS
Mineral hydraulic fluid, std
Mineral oil for cold climate
Hydraulic fluid, for hot climate

Cab

Left side door, std
Left side door, with Sliding window
12 V outlet, right side A-pillar
Rearview mirrors, std arm, L&R
Rearview mirrors, heated, std arm, L&R
Rearview mirrors, long arm, L&R
Rearview mirrors, heated long arm, L&R
Sun blinds, rear windows
Foot step, right side
Operator's seat, Volvo air susp, heavy-duty, high back, headrest
Operator's seat, Volvo air susp, heavy-duty, high back, heat, headrest
Operator's seat, ISRI, high back
Radio installation kit without radio
Radio with MP3
Universal door/ignition key USA
Universal door/ignition key, std
Steering wheel knob
Rear wiper
Rear wiper kit without rear wiper
Bracket, for fire extinguisher inside cab

Service and Maintenance

Manual Lubrication System
Auto Lubrication System
Tool kit
Wheel nut wrench kit

OPTIONAL EQUIPMENT

Wheel/Tires

Rims 25-19.5/2.5 3 _piece wood (Rims for 23.5R25)
Rims for Bias tire (for 23.5-25)
Rims for Radial tire 25-19.5/2.5 (for 23.5R25)
Tires Advance 23.5R25 GLR02-M3+ *, L3
Tires Advance 23.5R25 GLR08, L5
Tires Aeolus 23.5R25 AL36**, L3
Tires Aeolus 23.5R25 AL59, L5
Tires Bridgestone 23.5R25 VJT*, L3
Tires Bridgestone 23.5R25 VSDL*, L5
Tires Michelin 23.5R25 XHA2*, L3
Tires Michelin 23.5R25 XLDN*, L3
Tires Triangle 23.5R25 TL528, L3
Tires Triangle 23.5R25 TL538S**, L5
Tires Triangle 23.5-25/16 TL612. Tube Tire (TT), L3
Tires Yokohama 23.5R25 RB31*, L3

Protective equipment

Cover Plates, rear frame
Guards for headlights, front, grating
Guards for headlights, front, no grating
Footsteps front frame
Grill guard for traction battery
Cover plate at CTW, without towing pin
Cover plate, for front frame

Other equipment

Standard boom
Long boom
Pin plate in Chinese
Pin plate in English
Towing hitch
Fast DC charger

Attachments

Buckets:
General purpose (Straight)
Rock Straight (or spade nose)
Rehandling
Light material
Wear parts:
Bolt-on edge
Bolt-on or weld-on bucket teeth
Segments
Fork equipment
Attachment Bracket VAB L weld



reddot winner 2025

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.



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