VOLVO

Volvo Excavators 47.8 - 50.2 t 250 kW

EC500 ELECTRIC

Volvo Construction Equipment

EC500 ELECTRIC

Adapt for the job with a range of options

- Falling Object Protective Structure (FOPS)
- Falling Object Guard (FOG)
- One-piece safety net
- Double grouser track shoes
- Full track guard
- Heavy Duty bucket
- Range of attachments

The full package: Volvo Services

- 24/7 support
- Repair & Maintenance Agreements (RMA)
- Extended warranty
- Equipment as a Service (EaaS)
- Volvo Genuine Parts
- Operator Trainings

The power of electric

A cleaner choice, a smart investment

- Up to 50% lower energy costs
- Up to 30% less maintenance: no engine-related consumables, maintenance-free battery
- New business horizons: noise sensitive areas, indoors, low carbon zones, unsociable hours
- A better work environment

A zero-emission, quiet power source

- 250 kW electric motor
- Electrical grid - AC 380 V
- 360° turning joint for both hydraulic and electric cables, positioned under superstructure for durability

Serviceability

- Maintenance-free electric motor
- Removed engine-related components and related maintenance requirements
- Ground-level service access enabling easy access to pump and cooling module/EDB components
- Newly designed electric control cabinet, positioned 1 step away on the side of upper frame
- Grouped filters

Comfort and safety

- Flat machine hood enhances rear visibility from the cab
- Rearview camera
- LED lights: 2 on deck, 2 at front & 1 at rear of cab, 4 on boom and 1 on counterweight
- ROPS-certified cab
- Ergonomic suspended operator seat
- User-friendly display: easy machine monitoring including motor speed and electric consumption
- Automatic climate controlled cab , retractable seatbelt , bolted / punched anti-slip plates , high visibility handrails / guardrails , accumulator for boom lowering , 3 point contact ,travel alarm, battery cut off switch

Durable superstructure and lower frame

- Triple grouser track shoes
- Track guard
- Full coverage of undercover

Productive performance

- Faster cycle times compared to a conventional diesel machine: more responsive hydraulics due to immediate torque and advanced hydraulic system
- Motor control system featuring proven and reliable motor
- Hydraulic functions of priority, regeneration, power boost, summation & 2 pump flow bucket circuit
- Latest electronic architecture for faster response

Volvo EC500 Electric in detail

Electrical Motor		
Industrial leading electric motor offers constant power. Featuring Volvo common design architecture, it is critical part with hydraulic system, CEA2+ architecture to deliver superior performance and power efficiency with zero emission.		
Max power at	r/min	1 500
Rated power	kW	250
	hp(metric)	340
Max torque	Nm	1 591
at motor speed	r/min	1 500

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. Contronics provides advanced monitoring of machine functions and important diagnostic information.		
Voltage	V	380/24

Hydraulic system

The new electro-hydraulic system and new MCV (main control valve) use intelligent technology to control on-demand flow for highproductivity, high-digging capacity and excellent fuel consumption.
The following important functions are included in the system for optimum performance:
Summation system: Combines the flow of both hydraulic pumps to ensure quick cycle times and high productivity.
Boom priority: Gives priority to the boom operation for faster raising when loading or performing deep excavations.
Arm priority: Gives priority to the arm operation for faster cycle times in leveling and for increased bucket filling when digging.
Swing priority: Gives priority to swing functions for faster simultaneous operations.
Regeneration system: Prevents cavitation and provides flow to other movements during simultaneous operations for maximum productivity.
Power boost: All digging and lifting forces are increased.
Holding valves: Boom and arm holding valves prevent the digging equipment from creeping.

Main pump, Type 2 x variable displacement axial piston pumps		
Maximum flow	l/min	2 x 313
Pilot pump, Type Gear pump		
Maximum flow	l/min	29.7
Max. pressure		
Implement	MPa	32.4 / 35.3
Travel circuit	MPa	32.4
Slew circuit	MPa	25.8
Pilot circuit	MPa	3.9

Hydraulic Motors

Travel: Variable displacement axial piston motor with mechanical brake.
Slew: Fixed displacement axial piston motor with mechanical brake

Hydraulic Cylinders		
Mono boom		2
Bore x Stroke	ø x mm	165 x 1 590
Arm		1
Bore x Stroke	ø x mm	190 x 1 850
ME Bucket		1
Bore x Stroke	ø x mm	175 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	9.3
Max. slew torque	kNm	166

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	333
Max. travel speed (low)	km/h	3.2
Max. travel speed (high)	km/h	5.2
Gradeability	°	35

Undercarriage		
The undercarriage has a robust X-shaped frame. Greased and sealed track chains are standard.		
Track shoes		2 x 53
Link pitch	mm	216
Shoe width, triple grouser	mm	600
Bottom rollers		2 x 9
Top rollers		2 x 2

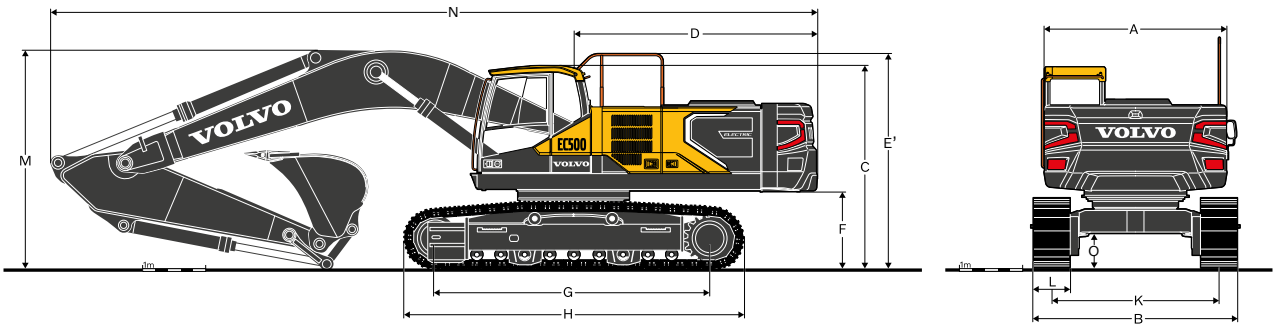
Cab

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 airconditioning: The pressurized and filtered cab air is supplied by an automaticallycontrolled 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 1430 CO_2-eq.

Sound Level		
Sound pressure level in cab according to GB/T 25615		
L_{pA}	dB	75
External sound level according to GB/T 25615		
L_{WA}	dB	107

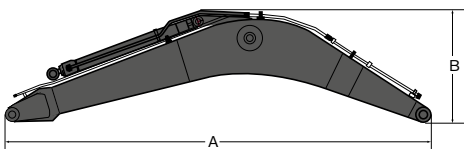
Service Refill		
Hydraulic system, total	l	525
Hydraulic tank	l	270
Slew reduction unit	l	2 x 6
Travel reduction unit	l	2 x 7.5

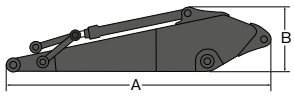
Specifications



DIMENSIONS			
Description		**Unit**	**EC500 fixed undercarriage**
Boom		**m**	**6.5**
Arm		**m**	**2.55**
A	Overall width of upper structure	mm	2 990
B	Overall width	mm	3 440
C	Overall height of cab	mm	3 280
D	Tail swing radius	mm	3 880
E	Overall height of handrail	mm	3 500
E'	Overall height of guardrail (unfolded)	mm	3 745
	Overall height of guardrail (folded)	mm	3 270
F	Counterweight clearance *	mm	1 210
	Removal Counterweight clearance *	mm	1 205
G	Tumbler length	mm	4 470
H	Track length	mm	5 470
K	Track gauge	mm	2 740
L	Shoe width	mm	600
O	Min. ground clearance *	mm	515
M	Overall height of boom	mm	4 055
N	Overall length	mm	11 695

* Without shoe grouser

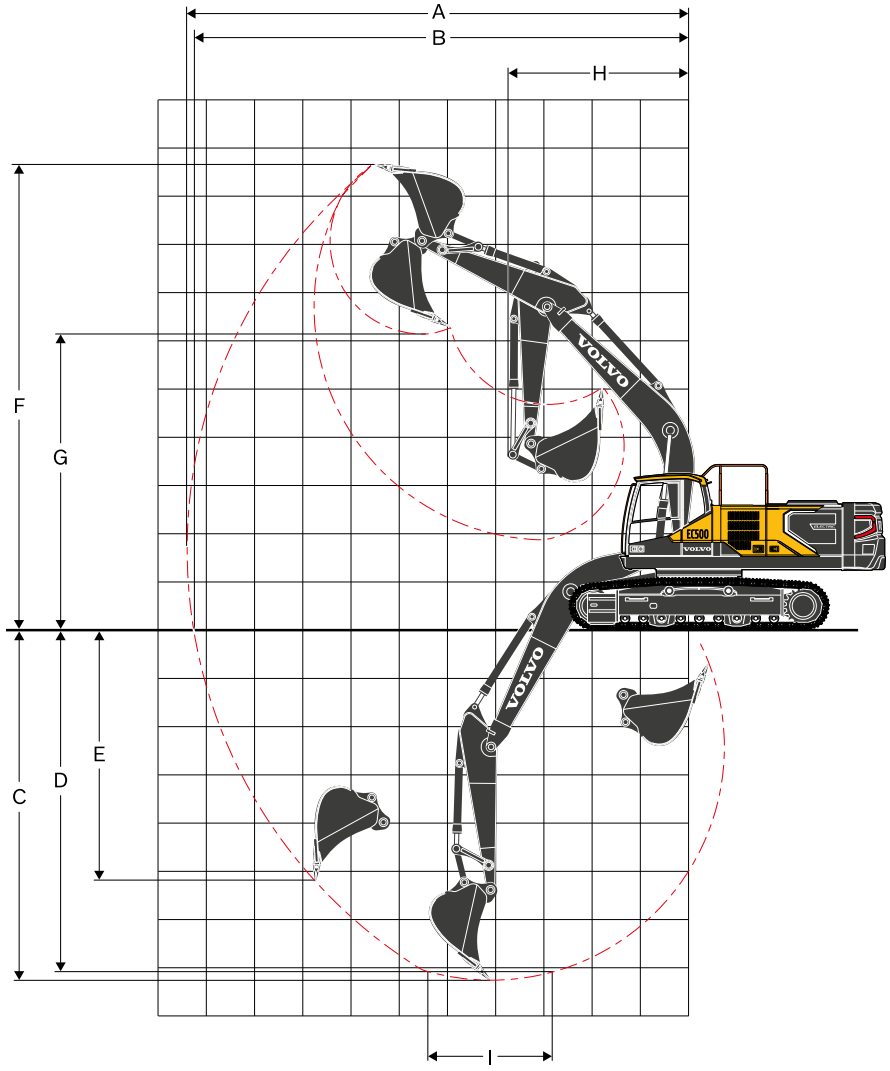




DIMENSIONS					
Boom			**Arm**		
	Unit		**Description**	**Unit**	
Boom	**m**	**6.5 ME**	**Arm**	**m**	**2.55 ME**
A	mm	6 750	A	mm	3 770
B	mm	2 000	B	mm	1 235
Width	mm	960	Width	mm	600
Weight	kg	4 368	Weight	kg	2 416

* Includes arm cylinder, piping and pin

* Includes bucket cylinder, linkage and pin



WORKING RANGE			
Description		**Unit**	**EC500***
Boom		**m**	**6.5**
Arm		**m**	**2.55**
A. Max. digging reach		mm	10 934
B. Max. digging reach on ground		mm	10 690
C . Max. digging depth		mm	6 586
D. Max. digging depth (2.44 m level)		mm	6 418
E. Max. vertical wall digging depth		mm	5 769
F. Max. cutting height		mm	10 584
G. Max. dumping height		mm	6 957
H. Min. front slew radius		mm	4 758
DIGGING FORCES WITH DIRECT FIT BUCKET			
Breakout force - bucket (Normal/Power boost)	SAE J1179	kN	253
	SAE J1179	kN	275
	ISO 6015	kN	285
	ISO 6015	kN	311
Tearout force - dipper arm (Normal/Power boost)	SAE J1179	kN	225
	SAE J1179	kN	244
	ISO 6015	kN	232
	ISO 6015	kN	253

* FIXED UNDERCARRIAGE, Machine with pin-on bucket

Specifications

GROUND PRESSURE

Description	Shoe width	Operating weight	Ground pressure
	mm	kg	kPa
Triple grouser	600	47 846	84.3
		EC500 with FIXED undercarriage, 6.5 m boom, 2.55 m arm, 3.1 m³ / 2 346 kg bucket, 9 750 kg counterweight	

BUCKET SELECTION GUIDE

Bucket type		Capacity	Cutting width	Weight	Teeth	EC500 Fixed undercarriage
						600 mm shoe, 9 750 kg counterweight
						6.5 m Boom, 2.55 m Arm
		L	mm	kg	EA	Material Density (kg/m³)
Direct fit Buckets	General purpose	3 450	1 980	2 573	6	1 600
		3 100	1 960	2 346	6	1 800
	Heavy Duty	2 840	1 940	2 715	5	1 600
		2 450	1 799	2 200	5	1 800

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.

LIFTING CAPACITY EC500

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.

		1 . 5m		3 . 0m		4 . 5m		6 . 0m		7 . 5m		9 . 0m		max.	
		Accross UC	Along UC	Accross UC	Along UC	Accross UC	Along UC	Accross UC	Along UC	Accross UC	Along UC	Accross UC	Along UC	Accross UC	Along UC
Boom : 6.5 m Arm : 2.55 m Shoe : 600 mm CWT : 9 750 kg	9.0 m													*10 690	*10 690
	7.5 m									*10 310	*10 310			*10 420	9 270
	6.0 m									*10 830	*10 830	*10 390	8 090	*10 400	7 910
	4.5 m					*18 800	*18 800	*14 050	*14 050	*11 850	10 490	*10 720	7 940	*10 520	7 150
	3.0 m							*16 260	13 760	*13 040	10 060	*11 310	7 730	10 680	6 760
	1.5 m							*17 970	13 160	*14 080	9 700	*11 860	7 530	10 570	6 650
	0 m					*17 760	*17 760	*18 800	12 840	*14 720	9 470	11 880	7 400	10 870	6 810
	-1.5 m			*13 640	*13 640	*24 770	19 630	*18 730	12 760	*14 760	9 390	11 880	7 400	*11 720	7 310
	-3.0 m			*25 290	*25 290	*22 920	19 870	*17 700	12 880	*13 900	9 480			*12 030	8 360
	-4.5 m			*25 370	*25 370	*19 610	*19 610	*15 190	13 220					*12 080	10 580

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
Electric / Electronic control system
Contronics
Advanced mode control system
Self-diagnostic system
Machine status indication
Safety stop/start function
Adjustable 8inch LCD color monitor
Master electrical disconnect switch
High-capacity LED lights:
Frame-mounted 2
Boom-mounted 4
CAB-mounted 3 (2 front & 1 rear)
Counterweight-mounted 1
Overload protection
Overcurrent protection
Leakage protection
Phase sequence test
Elec control box
Power inlet box
Main motor 250 KW
Air-conditioning motor, 4 KW
Elec tuning joint
Travel alarm
Frame
Access way with handrail
Tool storage area
Punched metal anti-slip plates
Undercover (heavy-duty)
Undercarriage
Undercover (Belly)
Hydraulic track adjusters
Greased and sealed track link
Track Guard (STD)
Hydraulic system
Automatic sensing hydraulic system
2-pump flow bucket circuit
Summation system
Boom priority
Arm priority
Swing priority
Boom, arm and bucket regeneration valves
Swing anti-rebound valves
Boom and arm holding valves
Multi-stage filtering system
Cylinder cushioning
Cylinder contamination seals
Auxiliary hydraulic valve
Automatic two-speed travel motors
Hydraulic oil mineral 68
Counterweight
9 750 kg

STANDARD EQUIPMENT
Cab and interior
ROPS (ISO12117-2) certified cab
Silicon oil and rubber mounts with spring
Travel pedals and hand levers
Adjustable mechanical operator seat with heater and joystick control console
Control joysticks
Heater & air-conditioner, automatic
Flexible antenna
Radio with MP3 & USB Jack with bluetooth, with keypad
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
Seat belt retractable
Safety glass
Sun screens, front, roof, rear
Windshield wiper with intermittent feature
Rear view camera
Master key
Guardrail
Seat-Fabric w/o heat,Mech
Side view mirror
Track shoes
600 mm with Triple grousers
Digging equipment
Boom : 6.5 m
Arm : 2.55 m
Manual centralized lubrication
Service
Tool kit, full scale

OPTIONAL EQUIPMENT
Electric
Anti-theft system
Rotating warning beacon
Undercarriage
Full track guard
Hydraulic System
Hydraulic oil, longlife oil 32
Hydraulic oil, longlife oil 46
Hydraulic oil, longlife oil 68
Counterweight
11 300 kg
10 300 kg FCWT
Cab and interior
Fabric seat with heater and air suspension
Falling object guard (FOG), cab-mounted
Safety net for lower front window
Specific key
Rain shield
Safety net for front window, 1P
Cab-mounted falling object protective structure (FOPS)
Track Shoes
Track shoes 600 mm with double grousers
Digging Equipment
Boom : 7.0 m XD
Arm : 3.0 m HD

VOLVO

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