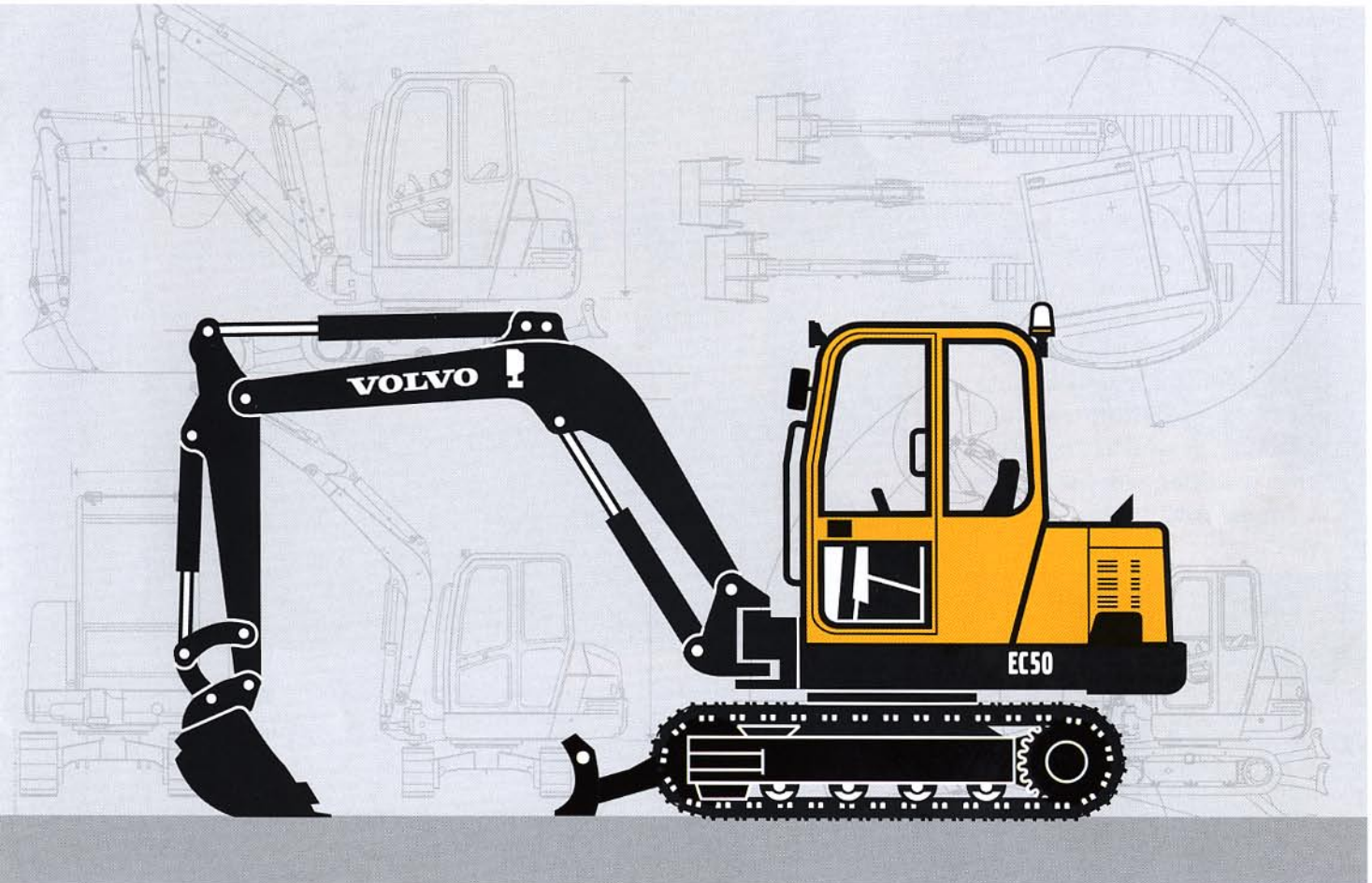


VOLVO COMPACT EXCAVATOR

EC50



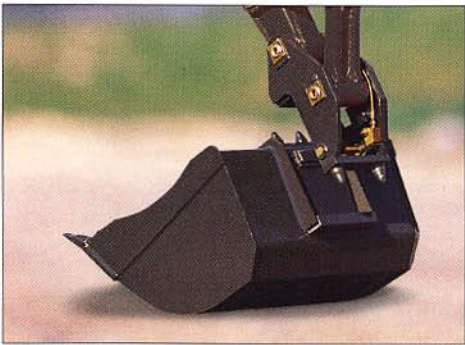
- **Net Power:**
D.80/1269 CEE: 33.7 kW / 45.8 hp
- **Operating Weight:**
4833 - 5210 kg
- **Bucket Capacities:**
70 - 231 l.
- **Maximum Digging Depth:**
3710 - 4110 mm
- **Load Sensing Hydraulic System** for very precise controls under all load conditions.
- **Simultaneous digging movements and high speed operations** for faster cycle times and increased productivity.
- **TOPS and FOPS** cab for a better operator safety.
- **Compact dimensions.** **Wrap-around** counterweight protects the rear compartment against all impacts.
- **Two travel speeds** for higher mobility on job sites.
- **Excellent serviceability** thanks to easy access to the engine and hydraulics compartments.

VOLVO

More power, more profitability

COMPACT EXCAVATOR EC50

Offering high-powered performance even in the worst possible conditions, with its powerful yet extremely quiet engine, this machine is equipped with the load-sensing system to give the operator perfect control when carrying out work. Its performance and reliability, as well as its many other qualities, will never cease to amaze you.



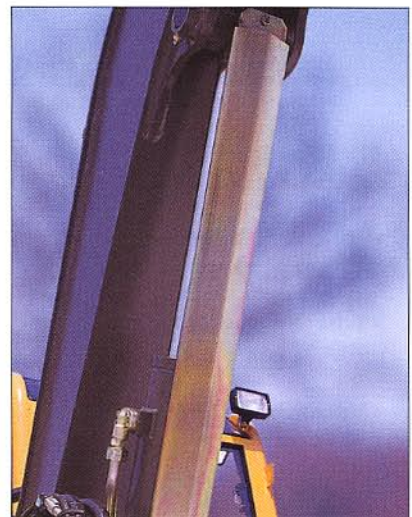
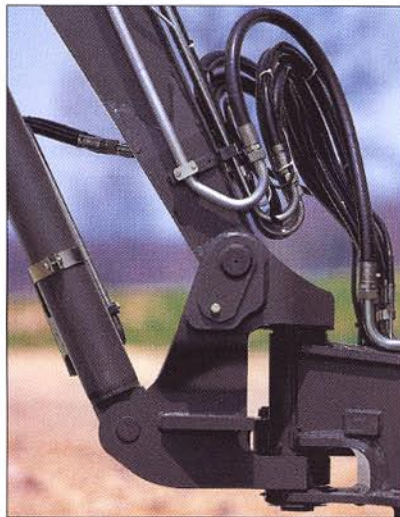
An exclusivity: the quick coupling system available as an option enables bucket or accessory to be changed without the operator leaving the cab. Appreciated by all users, this device saves a lot of time and increases comfort considerably without altering the bucket's performances or sequence of operations.



The EC50 is provided as standard with two travel speeds, including a fast speed to speed up machine travel on the site.



The wrap-around shape of the counterweight protects the back of the machine perfectly and makes it possible to work on the narrowest sites.



All the equipment's hoses are free and sheathed and therefore without friction or wear and are connected at the bottom of the boom for very quick replacement, if necessary. The boom is mounted on a double-swivel articulated pivot which enables a long pin to be mounted and provides greater rigidity in the boom-chassis link. The boom cylinder's rod is fully protected against any knocks by sturdy armoring.



Very effective corrosion protection: all the nuts and bolts, the pins and the hydraulic pipes are zinc-plated and passivated.



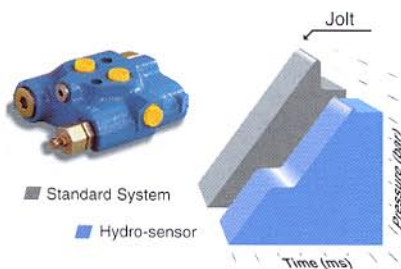
Thanks to its compact dimensions and the boom's hydraulic offset, the EC50 is at ease in all site configurations, even alongside a wall.

Precision and flexibility of the Load-Sensing

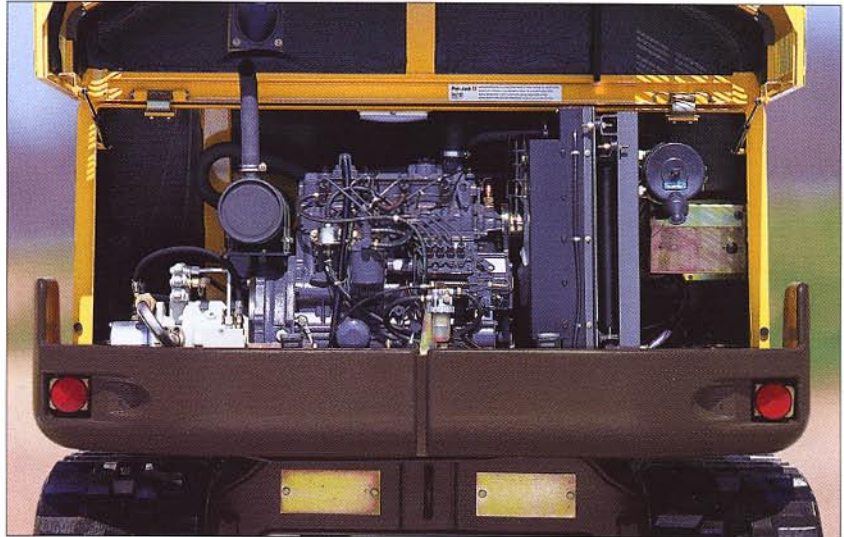
COMPACT EXCAVATOR EC50



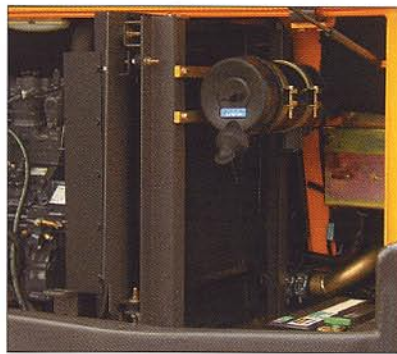
An exclusivity: the radial piston slow slewing motor. This motor has a very high starting torque for flexible manoeuvres, and drives the crown directly without a mechanical reducer. The result is fewer moving parts and therefore less risk of wear. The automatic hydraulic brake integrated in the slewing motor immobilises the turret in all positions and guarantees optimum working safety even on a slope.



The hydrosensor valve on the slewing circuit damps the pressure peaks and hydraulic shocks common on starting and stopping on conventional circuits. The result: a progressive pressure increase, greater flexibility and precision and less stressed and therefore more reliable mechanical parts



The back cover opens completely, giving excellent access to the engine and hydraulic pumps. All maintenance and checking points are conveniently located close to hand.



The radiators of the hydraulic circuit and engine are placed side by side to facilitate their cleaning. The battery and the air filter too are very easily accessible.



- Continuous and immediate load sensing control of the hydraulic pump's flow and pressure to suit the work done by the excavator.
- All hydraulic functions are independent and can be operated simultaneously: more operating comfort and productivity.
- Control valves with closed centre: pump flow zero on standby, no unnecessary oil circulation. No loss of power or deterioration of oil by overheating.
- Hydraulic power continuously adapted to suit the load: optimum use of the engine's power.
- Straight-line travel maintained even when the equipment or the turret are moving: more safety.
- Very great precision of the controls, even with a large load: safety of handling work.
- Speed of movements independent of the bucket's resistant force: simplification of operation.

A very high level of comfort and safety



Operator comfort is a priority for Volvo. The operator's cab is spacious and easily accessible. The hydraulic controls are power-assisted and very progressive for more flexibility and precision. Volvo's new ergonomic manipulators feel good and are complemented by side arm rests which give a natural and very comfortable operating position.

The EC50's cab and canopy have a very high level of safety, guaranteed by the FOPS 1 (Falling Object Protection Structure), and TOPS (Roll and Tip Over Protection Structure) certifications. The seatbelt is part of the standard equipment.



An anti-theft keypad, available as an option, enables machine starting and the main hydraulic functions to be locked.



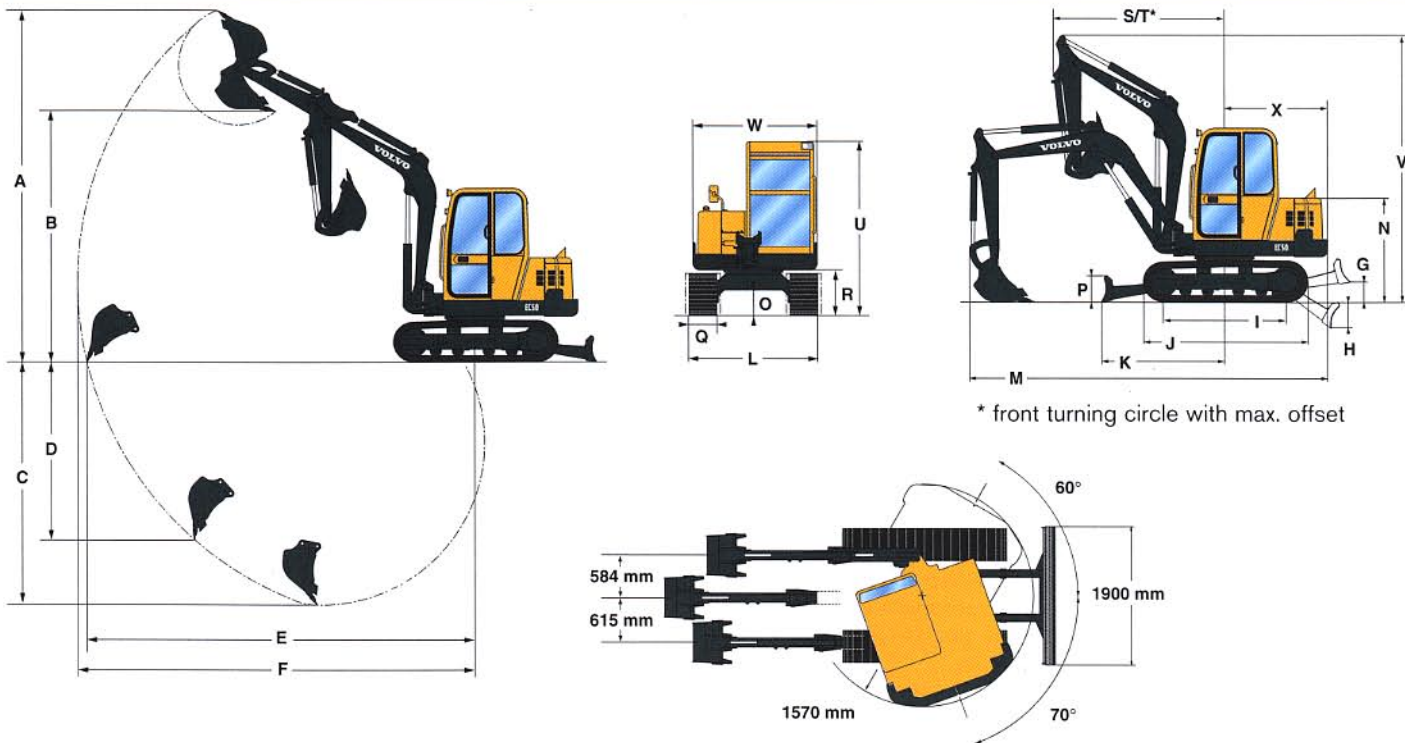
The PUMA system on the EC50 continuously monitors all the machine's vital functions and immediately informs the operator if there is a fault. The operator is therefore free to concentrate fully on operating the machine.

New articulated boom



The articulated boom increases the EC50's versatility. The boom's additional joint reduces the equipment's overall dimensions and makes it possible to position the bucket on a larger ground surface, even in the immediate proximity of the machine.

DIMENSIONS - SINGLE-PIECE BOOM



* front turning circle with max. offset

Buckets	Width	Weight	Capacity
Backhoe buckets	350 mm	85 kg	70 l
	450 mm	97 kg	98 l
	600 mm	118 kg	142 l
	750 mm	138 kg	187 l
	900 mm	163 kg	231 l
Ditch bucket	1500 mm	185 kg	265 l

Dipper	A	B	C*	C	D	E	F
1500 mm	5045	3595	3715	3515	2925	5585	5710
1900 mm	5250	3800	4110	3915	3315	5975	6090

* Dig depth with blade down.

G	H	I	J	K	L	M	N	O
420	415	1780	2390	1770	1850	5155	1445	370

P	Q	R	S	T	U	V	W	X
380	400*	675	248	2090	2505	3860	1790	1480

* Wide steel tracks (500 mm) (optional)

(mm)

TOTAL ROTATION LOAD CAPACITIES - SINGLE-PIECE BOOM

These capacities are given for a machine without a bucket or quick-release coupling and fitted with rubber tracks for a 360° total rotation lifted load.

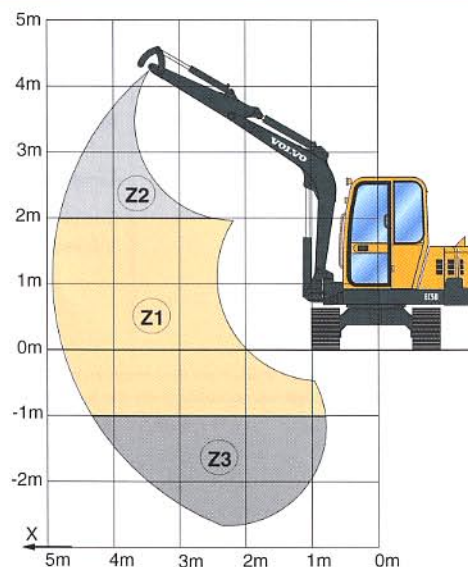
The handling capacity is 75% of the tipping load or 87% of the hydraulic limit.

Caution: the load lifted must not exceed 1000 kg on a machine not fitted with a safety valve on the boom ram, in accordance with EN standard 474-5.

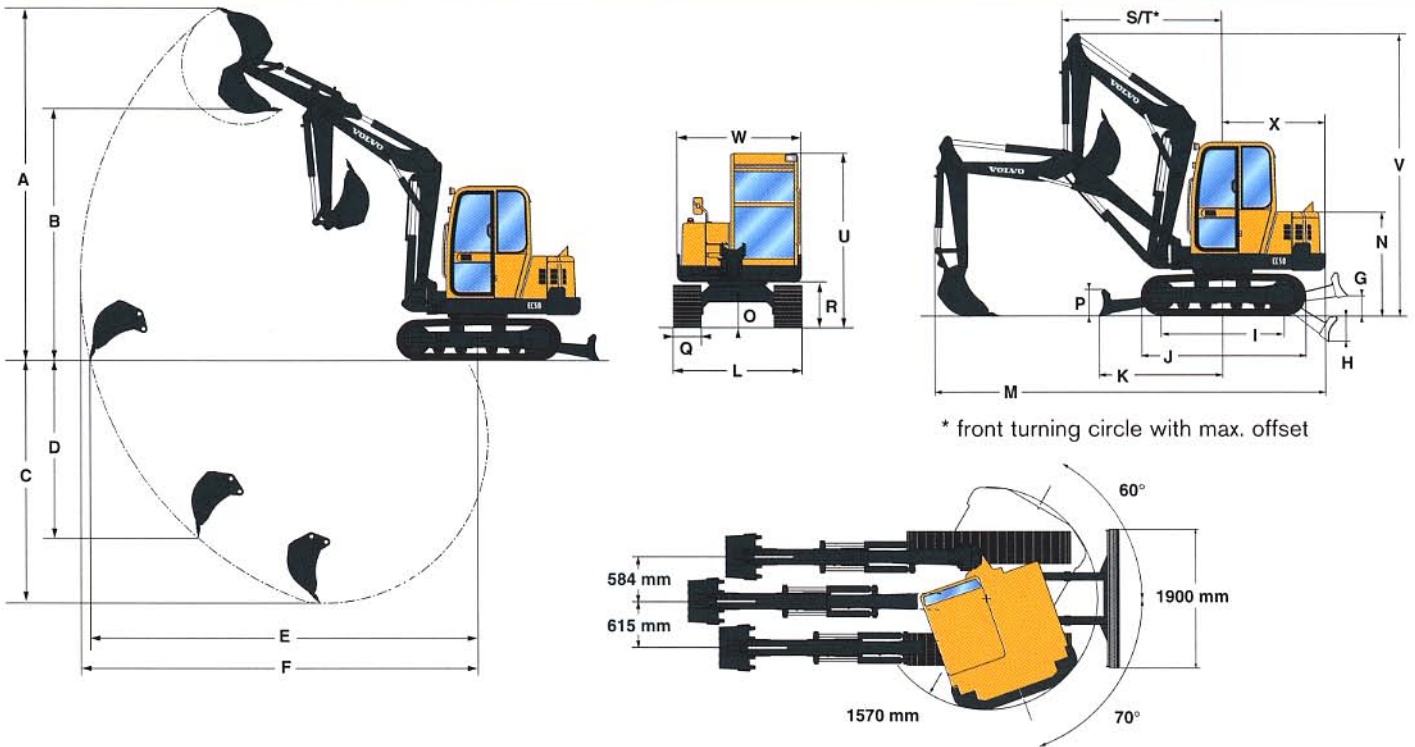
Outreach		2.00 m	3.00 m	4.00 m	Maxi
1500 mm	Z2			835	
	Z1	1965*	1160	780	605
	Z3	2235	1180		
1900 mm	Z2			800*	
	Z1	2910*	1350*	975*	691
	Z3	2680*	1510	1000	

* hydraulic limit

(kg)



DIMENSIONS - ARTICULATED BOOM



Buckets	Width	Weight	Capacity
Backhoe buckets 	350 mm	85 kg	70 l
	450 mm	97 kg	98 l
	600 mm	118 kg	142 l
	750 mm	138 kg	187 l
	900 mm	163 kg	231 l
Ditch bucket 	1500 mm	185 kg	265 l

Dipper	A	B	C	D	E	F
1500 mm	6195	4495	3500	3065	6025	6145
1900 mm	6530	4830	3900	3435	6425	6540

G	H	I	J	K	L	M	N	O
420	415	1780	2390	1770	1850	5545	1445	370

P	Q	R	S	T	U	V	W	X
380	400*	675	2380	1975	2505	4085	1790	1480

* Wide steel tracks (500 mm) (optional)

(mm)

TOTAL ROTATION LOAD CAPACITIES - ARTICULATED BOOM

These capacities are given for a machine without a bucket or quick-release coupling and fitted with rubber tracks for a 360° total rotation lifted load.

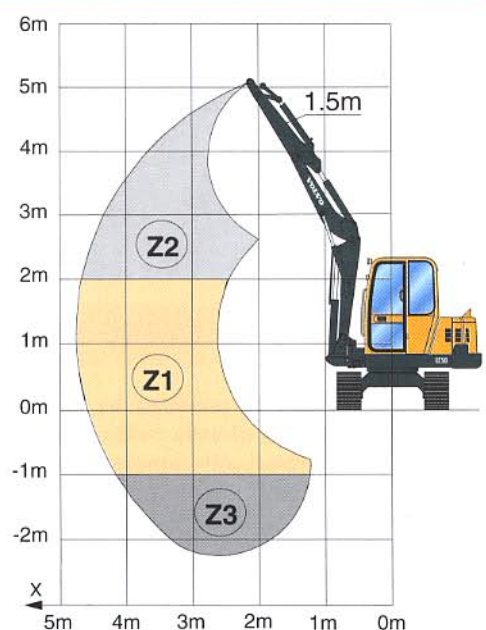
The handling capacity is 75% of the tipping load or 87% of the hydraulic limit.

Caution: the load lifted must not exceed 1000 kg on a machine not fitted with a safety valve on the boom ram, in accordance with EN standard 474-5.

Outreach		2.00 m	3.00 m	4.00 m	5.00 m	Maxi
1500 mm	Z2		1140*	815	565	
	Z1	1870*	1075	720	535	500
	Z3	2030	1075	720		
1900 mm	Z2		1135*	735*	575	
	Z1	1570*	1060	710	525	445
	Z3	1995	1060	710	525	

* hydraulic limit

(kg)





ENGINE

Water-cooled 4-cylinder diesel engine.

Displacement, total2216 cc
Power, installed (ISO 9249)33.7 kW (45.8 hp) at 2500 r/min
Maximum torque (ISO 9249)139 Nm at 2050 r/min
Bore x stroke80 mm x 100 mm



ELECTRICAL SYSTEM

Rated voltage12 V
Battery capacity12 V - 95 Ah
Alternator rating12 V - 55 A
Starter motor output.....12 V - 2 kW



HYDRAULIC SYSTEM

Closed centre Load Sensing hydraulic system providing total independence of each movement.

Controlpower-assisted hydraulic controls

Variable displacement Load Sensing pump for all the equipment and travel circuits:

Maximum flow102.5 l/min
Maximum operating pressure25 MPa (250 bars)

Gear pump for the circuit of the blade and slewing:

Maximum flow40 l/min
Maximum operating pressure25 MPa (250 bars)

Double-acting hydraulic circuit for accessories:

Maximum flow75 l/min
Maximum operating pressure25 MPa (250 bars)

End-of-stroke cushions

On boom ram.....at the end of the rod extension
On dipper ramat the end of the rod retraction



SLEWING SYSTEM

Turntable slewing is provided by a radial piston hydraulic motor which drives directly (without a reduction gear) a ball internal crown wheel with remote lubrication.

Slewing speed10 r/min
Turntable brakingautomatic multi-disc brake
Absorption of hydraulic shocks.....Hydrosensor shockless valve



BUCKET PERFORMANCE

Breakout force3654 daN
Tearout force2733 daN



UNDERCARRIAGE

The rollers and the tensioning wheels are lubricated for life.

Numbers of rollers4
Track width400 mm
Wide steel tracks as an option500 mm
Track tensionby grease piston
Blade (width x height)1900 x 380 mm



TRAVEL SYSTEM

Each track is driven by an axial piston hydraulic motor equipped with two speeds and an epicyclic reduction gear. Braking is performed automatically by an oil bath multiple disc brake on each motor.

Max. speed (low speed/ high speed)2.8 - 5.0 km/h
Max. tractive force.....4800 daN



SERVICE FILL CAPACITIES

Fuel tank80 l
Hydraulic system, total.....70 l
Hydraulic tank106 l
Engine oil8 l
Cooling system8 l



WEIGHT

Operational weight and ground pressure, with cab and 400 mm tracks:

	Rubber Tracks	Steel Tracks
Single-piece boom	4833 kg 0.33 kg/cm ²	5055 kg 0.35 kg/cm ²
Articulated boom	4988 kg 0.34 kg/cm ²	5210 kg 0.36 kg/cm ²



NOISE LEVELS

Results of dynamic measurements:

Noise level exterior (LwA)99 dB(A)
Noise level in the cab (LpA)79 dB(A)

The noise levels conform to directive n° 86/662 EEC and its amendments.

STANDARD EQUIPMENT

Engine

Dry-type air filter.
Electric pre-heating device.
Transparent diesel oil filter, pre-filter and sediment chamber.
Oil sump sheet metal guard.
Continuous adjustment of engine speed.

Electrical system

12 V - 95 Ah battery.
Horn.
12 V power socket for inspection lamp.

Undercarriage

400 mm wide rubber tracks.
Dozer blade.
Towing and anchoring rings.
Remote lubrication of the slewing crown ring.

Hydraulic system

ISO power-assisted hydraulic control.
Additional double-acting hydraulic control valve for an attachment circuit with folding control pedal and circuit for direct return of oil to the hydraulic tank.
Attachment circuit piping (double-acting + return) as far as the bottom of the boom.
Power-assisted control of the hydraulic offset of the boom by the left control lever.
Control of forward movement by two levers coupled to pedals.

Cab

Level 1 FOPS (Falling Objects Protective Structure).
TOPS (Tip-Over Protective Structure).
Multi-adjustable sprung consoles-seat assembly.
Fabric-covered superior comfort seat.
Non-slip floor with two foot rests.
Grab handles for access to the driver's cab.
Seat belt.
Cab mounted on rubber mountings.
Three working lights.
Two-speed heating and ventilation.
Cab heating adjustment.
Windscreen with opening system power-assisted by two gas rams.
Sliding window (right).
Door stops.
Provision for a radio (location for a radio and two speakers, aerial and electric wiring already fitted).
Interior lighting.
Anti-corrosion protection of the cab by electrophoresis.
Windscreen wiper and washer (front).

Instrumentation and monitoring

PUMA on-board message transfer control circuit providing continuous monitoring of the machine.
Monitoring and warning light for the following functions: pre-heating, engine oil pressure, water temperature, hydraulic oil temperature, battery charging, hydraulic filter restriction, air filter restriction.
Fuel gauge with minimum level warning light.
Total elapsed hour meter.
Partial elapsed hour meter with controlled reset.
Rev. counter.
Display of machine's serial number (anti-theft marking).
Device for automatic switching off of engine in the event of overheating or drop in oil pressure.

Handling and earthwork equipment

2700 mm long monobloc boom or articulated boom.
1500 mm dipper.
130° hydraulic boom offset.
Cushions on the boom and dipper rams.
Remote lubrication of the bottom of the offset ram.

Safety

Device for locking the earthwork equipment's controls when the left console is raised to gain access to the driver's cab.
Engine starting safety device: the left console must be raised to operate the starter.
Pressure accumulator on the power assistance circuit in order to be able to put the equipment on the ground if the engine is switched off.
Key-lockable toolbox.

Official approval

Machine conforming to directive n° 98/37 EEC and its amendments.
Soundproofing conforming to directive n° 86/662 EEC and its amendments.
FOPS 1 conforming to ISO standard 3449.
TOPS conforming to ISO standard 12117.
Electromagnetic compatibility (EMC) conforming to directive n° 89/336 EEC and its amendments.

OPTIONAL EQUIPMENT

Working equipment

Long dipper (1900 mm).
Handling device safety valve piloted by the power assistance circuit on the boom ram and overload indicator conforming to EN standard 474-5.
Safety valve on the dipper ram.
Hydraulically-controlled quick-release attachment coupling.

Hydraulic circuits for attachments

Circuit for hydraulic breaker with direct return to the tank.
Hydraulic circuit for double-acting attachments.
Hydraulic circuit for operating a clam-shell bucket (opening/closing and rotation of the bucket).

Undercarriage

Steel tracks (400 mm wide).
Wide steel tracks (500 mm wide).

Lighting

Additional working light on the boom.
Additional rear working light.
Revolving light.

Environmental protection

Bio-degradable hydraulic oil.
Catalytic exhaust.

Comfort and safety

Radio.
Anti-theft system (2 programmable codes).
Electric circuit-breaker.

Service and maintenance

Tool kit.

Miscellaneous

Special customised paint (RAL specifications).

Under our policy of continuous product 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 Group

Ref. No. 21 1 432 1104
Printed in France 1999.12
Volvo Compact Excavators, Belley

English
CSE
2908184