

**VOLVO COMPACT EXCAVATORS**

# **EC35, EC45 PRO**



**VOLVO**

# PERFORMANCE ON DEMAND.

Get in and get to work. The day is long and so is the job list. With the Volvo EC35 and EC45 Pro, you're ready. Fast, easy service, fatigue-free comfort and efficient operation that makes ownership more profitable. The jobs are demanding, but Volvo performance and quality answers every time.

## Built in performance

The Volvo Models EC35 and EC45 Pro feature an efficient load-sensing hydraulic circuit. The speed of the hydraulic movements depends only on the control lever position, not the load or number of movements. This offers independence of movements, smoothness and precision. To optimize use of engine power, a variable displacement pump continuously adapts oil flow to the force required. The result is superior performance efficiency: high forces developed at the bucket without the engine labouring.

## Ready, offset, go

The hydraulic offset boom reduces the excavator dimensions, making it easy to work on narrow sites or along a wall. Maximum offset of 80° to the left ensures perfect trench visibility. The offset cylinder is equipped with a locking valve to hold the boom in the chosen position, even during long, difficult work.

## The power to move mountains

Dig into your work with class-leading excavation and breakout forces. The powerful digging forces drive the bucket into hard ground with ease. High breakout forces improve cycle times by helping you pull out of the pile with no hesitation while powerful tractive forces make backfilling quick and easy. Two travel speeds provide quicker travel time.

## Tools of your trade

The Volvo bucket is the perfect production tool. Large bucket rotation of 200° provides a good attack and square excavations at all depths. The bucket stays closed to retain more material - even at maximum height. The dig depth and reach at ground level are amongst the best on the market, while the high tipping height lets you load trucks directly. The blade is well forward to provide stability and prevent earth deposits. The blade height clearance provides better negotiation of obstacles and a larger angle of attack.

## Quality you can depend on

High-quality electrical connections are waterproof. Every protective plate and hydraulic pipe is zinc-coated for a rust-protected finish. All parts are painted before they are fitted to protect hidden parts. O-Ring Face Seal hydraulic connectors provide leak-proof resistance to pressure peaks, vibrations and twisting. These measures ensure maximum reliability and residual value.



- Durable, high quality Volvo bucket.



- Optimum load-sensing efficiency.



- Larger buckets for more productivity.





- Offset boom for close wall digging.
- Large range of movement: over 200°.
- Powerful breakout/tearout performance.





# MAINTAINING STRENGTH.

Machines built strong and sturdy last longer, standing up to conditions of all types. Add ease of service and long maintenance intervals and you've got something: the Model EC35 and EC45 Pro. Maximum uptime, lower operating costs and reliability you can count on. It runs in the Volvo family.

## As sturdy as they get

The entire undercarriage is robot-welded for high-quality, uniform welds, while the centre of the undercarriage is X-shaped, just like on heavier excavators. The result is superior strength, load distribution and long life. To help maintain a clean machine, the top part of the side members slope, limiting the build-up of earth. The durable wrap-around counterweight is positioned high to protect the rear of the machine from all impacts. All covers are made from Telene, an impact and rustproof polymer resin, which unlike metal, keeps its shape even after impact. A thick steel sheet keeps the hydraulic connectors well protected on the cylinders and work light. The breaker kit is fitted as far to the end of the dipper as possible, using shorter hoses that resist damage. It's all built Volvo tough to ensure higher residual value.

## Easy to maintain - inside ...

Inside the cab, the easy-to-read instrument panel perfectly places all the important gauges right where you want them. The instrument panel is equipped with a monitoring system that automatically stops the engine if there is a fault, before it suffers irreversible damage. This allows you to concentrate on your work while the machine continuously monitors important gauges such as engine oil pressure and coolant temperature.

## ... and outside

The large opening engine cover offers direct and easy access. Perform fast daily maintenance with all the main checkpoints grouped under the engine cover: engine oil level, air filter, coolant level and more. The exclusive Volvo opening rear counterweight permits excellent service accessibility of the engine compartment. Easily remove the screws to open the side counterweight, mounted on a vertical hinge for effortless, safe opening. For maximum uptime you get complete service access on all sides of the machine.

The control valves and all of the hydraulic components are located in a side compartment for fast, easy access. Check the hydraulic oil level on the at-a-glance sight glass visible from the outside. A hydraulic motor drives the crown gear directly, without a reduction gear, for less noise when slewing and no wear or play.



- Easy access for maintenance and service.



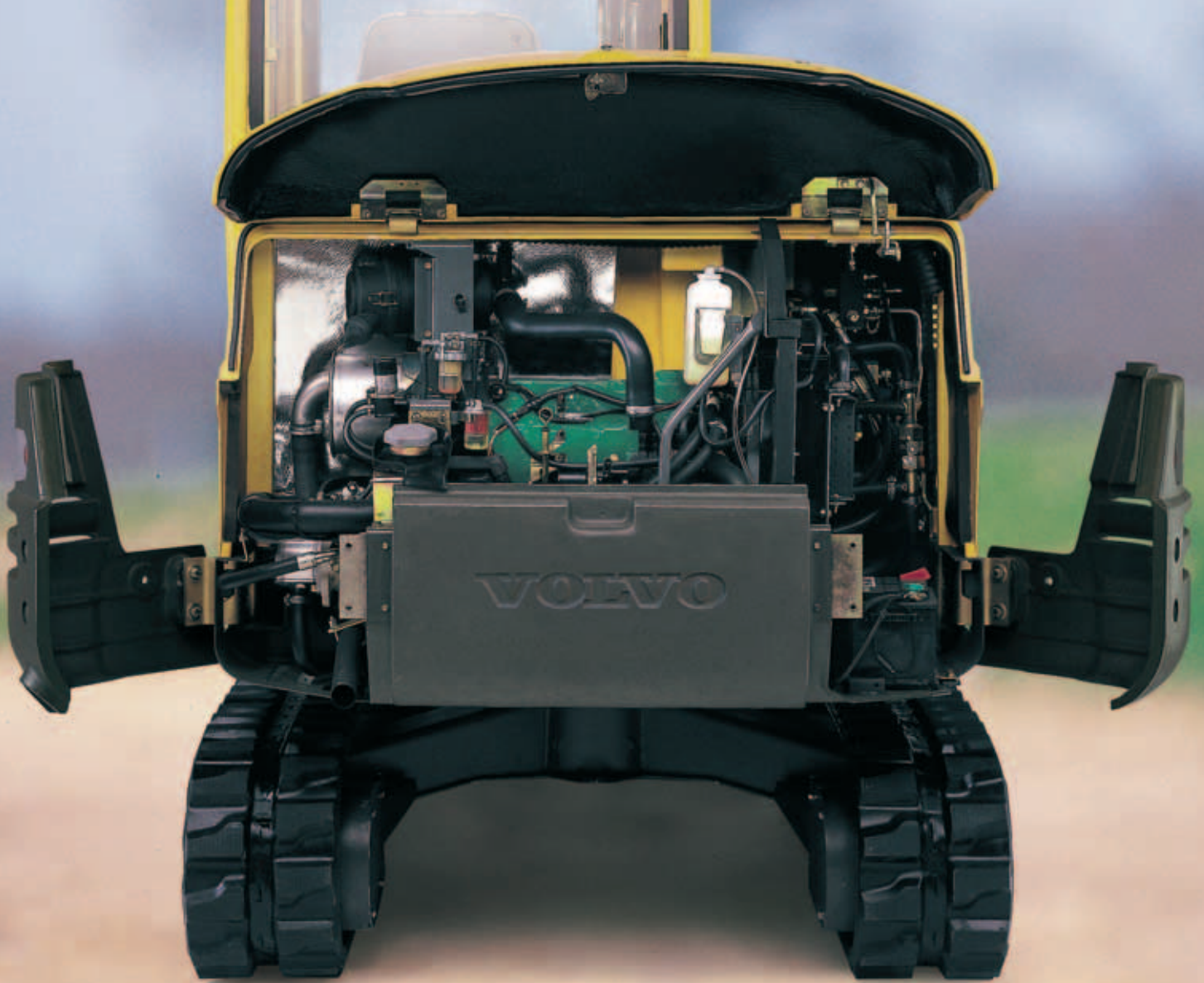
- Sturdy, rigid X-shaped chassis.



- On solid ground with a long carriage.



- Long-life sturdy top chassis.
- Counterweight positioned for stability & protection.
- Swinging counterweight for easy access.



- Long undercarriage provides great stability.



# RELAX. IT'S A VOLVO.

You've got enough to worry about on the jobsite. In the Volvo Models EC35 and EC45 Pro, you're surrounded in features that make operation safer and more comfortable. That means you can concentrate on the job at hand, not the strain on your mind and body.

## Designs on your comfort

Cushions on the boom, dipper and offset cylinders hydraulically slow the cylinder at the end of the stroke, eliminating a jolt and providing greater material retention. In addition, a shockless valve reduces pressure peaks for less sudden stops, gentler slewing and more comfort.

## A comfortable work environment

The spacious Volvo EC35 and EC45 Pro cabs fit operators of all sizes. The suspension seat is adjustable for weight/height, forward/rearward and seat back. The console controls are mounted on the same suspension as the seat, retaining the same operating position regardless of position. The floor is flat and spacious. The cab is rubber mounted for less noise and vibration.

## Controlling fatigue

For ease of operation there are two controls: a pushbutton on the blade lever and a switch on the right console. The operator can keep one hand on the forward travel levers and one hand on the blade lever to adjust the height. The blade control lever is ideally located near the operator's right hand, while the blade lever button makes it easy to change speed without taking one's hands off the levers. Travel levers are also equipped with ergonomically designed foot control pedals. The forearms rest comfortably on the ergonomic armrests. Short, responsive control levers reduce fatiguing movements. Power-assisted controls make delicate jobs smooth and precise. Do finishing work and dig around obstacles quickly and safely.

## You're safe with Volvo

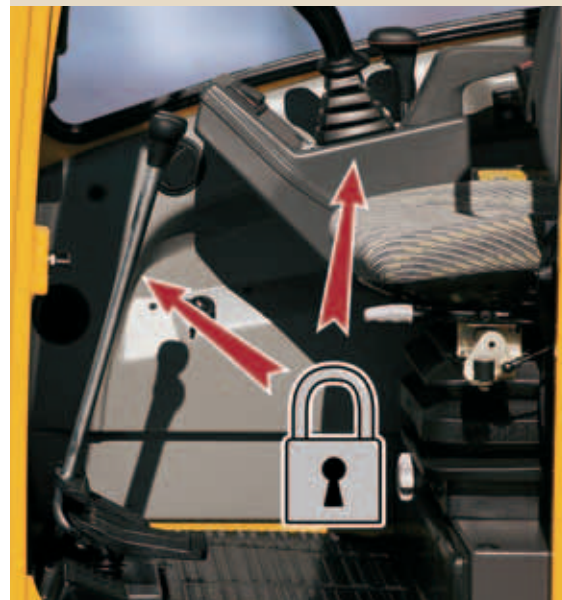
Entering the Volvo cab is safe and easy with a wide handle, non-slip step and floor and a wide opening. The seat is fitted with a seatbelt, helping you maintain a safe operating position inside the standard ROPS, TOPS, FOPS safety-certified Volvo cab and canopy. The engine can only be started if a console is raised. While raised, all hydraulic movements are disabled to avoid accidental movements.

## Safe operation: safe jobsite

Straight-line machine travel is maintained even when the equipment is in operation. Enjoy 360° visibility with a large glazed area and a curved rear engine cover. For extra safety, fully automatic disc travel and swing brakes immobilize the machine when working on a slope, even with a full load.



- Spacious and comfortable cab.



- Active locking of all controls.



- Instrument panel keeps you informed.



- Safe ROPS/TOPS/FOPS certified cabs.
- Comfortable ergonomic armrest controls.
- Easy in, easy out cab access.





# SPECIFICATIONS

## Engine

Water-cooled Volvo 4-cylinder diesel engine.

<b>Model</b>	<b>D2.2</b>
<b>Gross power, rated (ISO 9249)</b>	27.1 kW (36.3 hp) at 2200 r/min
<b>Power, installed (ISO 9249)</b>	26 kW (34.9 hp) at 2200 r/min
<b>Maximum torque (ISO 9249)</b>	1140 Nm @ 1100 rpm ± 100rpm
<b>Bore x stroke</b>	88 mm x 90 mm

## Electrical system

<b>Rated voltage</b>	12 V
<b>Battery capacity</b>	12 V - 74 Ah
<b>Alternator rating</b>	12 V - 55 A
<b>Starter motor output</b>	12 V - 2.3 kW

## Hydraulic system

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

<b>Control</b>	power-assisted hydraulic controls
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Variable displacement Load Sensing pump for all the equipment and travel circuits:

<b>Maximum flow</b>	105 l/min
<b>Maximum operating pressure</b>	<b>EC35:</b> 23 MPa (230 bars) <b>EC45 Pro:</b> 26 MPa (260 bars)

Double-acting hydraulic circuit for accessories:

<b>Maximum flow</b>	60 l/min
<b>Maximum operating pressure</b>	<b>EC35:</b> 23 MPa (230 bars) <b>EC45 Pro:</b> 26 MPa (260 bars)

End-of-stroke cushions

<b>On the boom ram</b>	at the end of the rod extension
<b>On dipper ram</b>	at the end of the rod retraction
<b>On offset ram</b>	on both sides

## Offset ram lock

The equipment's offset ram is equipped with a balancing valve which holds the boom offset angle in the position chosen by the operator in all working conditions.

## 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.

<b>Slewing speed</b>	10 r/min
<b>Turntable braking</b>	Automatic multi-disc brake
<b>Absorption of hydraulic shocks</b>	Shockless valve

## Bucket performance

<b>Breakout force</b>	<b>EC35:</b> 2920 daN <b>EC45 Pro:</b> 3360 daN
<b>Tearout force</b>	<b>EC35:</b> 2190 daN <b>EC45 Pro:</b> 2420 daN

## Undercarriage

The undercarriage is made up of an "X" box fabricated centre part for more rigidity and of sloping side members for a better clearance of materials. The rollers and the tensioning wheels are lubricated for life.

<b>Bottom/top rollers per side</b>	4/1
<b>Track width</b>	300 mm
<b>Track tension</b>	by grease piston
<b>Blade (width x height)</b>	1650 x 370 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.

<b>Max. speed (low/high speed)</b>	<b>EC35:</b> 2.8 km/h / 4.3 km/h <b>EC45 Pro:</b> 3 km/h / 4.4 km/h
<b>Max. tractive force</b>	<b>EC35:</b> 3630 daN <b>EC45 Pro:</b> 4080 daN

The forward movement control is automatically locked when the operator raises the left console.

## Service fill capacities

<b>Fuel tank</b>	66 l
<b>Hydraulic system, total</b>	62 l
<b>Hydraulic tank</b>	37 l
<b>Engine oil</b>	8.6 l
<b>Cooling system</b>	6 l

## Weight

<b>EC35</b>	<b>Rubber Tracks</b>	<b>Steel Tracks</b>
<b>Operational weight</b>		
<b>Cab version</b>	3540 kg	3582 kg
<b>Canopy version</b>	3422 kg	3464 kg

<b>Ground pressure</b>	<b>Rubber Tracks</b>	<b>Steel Tracks</b>
<b>Cab version</b>	0,33 kg/cm <sup>2</sup>	0,34 kg/cm <sup>2</sup>
<b>Canopy version</b>	0,31 kg/cm <sup>2</sup>	0,32 kg/cm <sup>2</sup>

<b>EC45 Pro</b>	<b>Rubber Tracks</b>	<b>Steel Tracks</b>
<b>Operational weight</b>		
<b>Cab version</b>	4550 kg	4687 kg
<b>Canopy version</b>	4413 kg	4550 kg

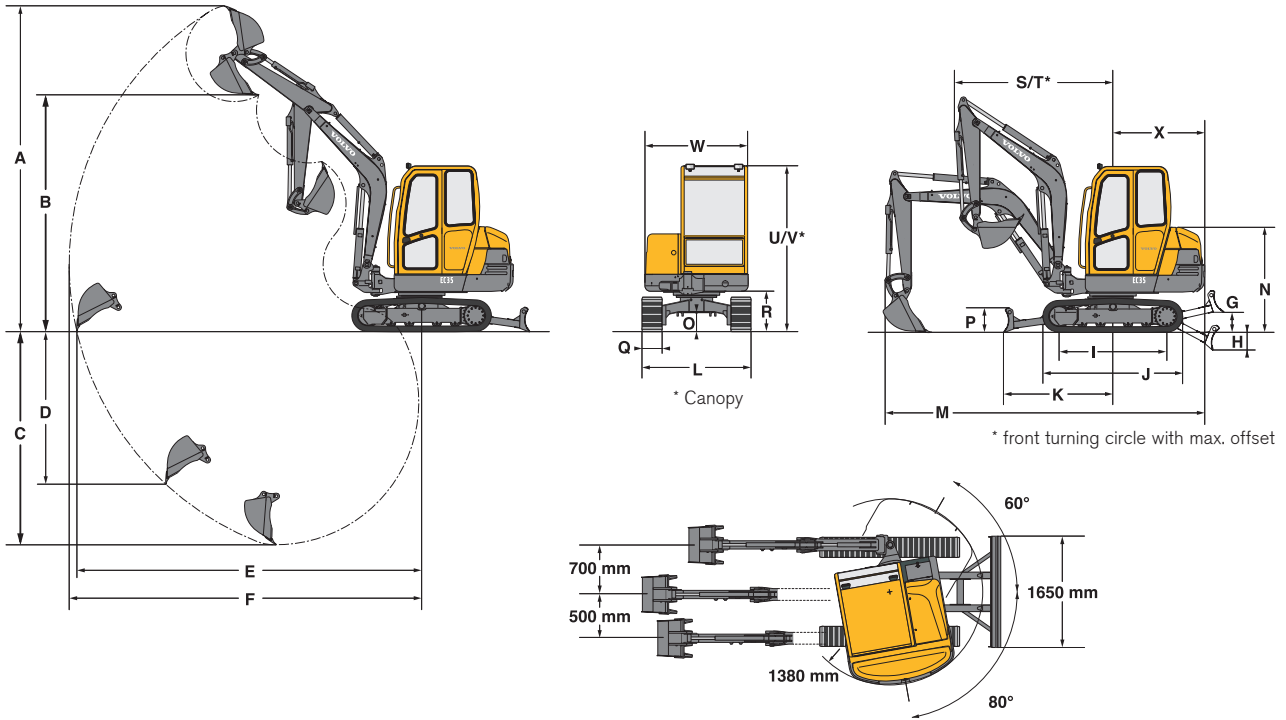
<b>Ground pressure</b>	<b>Rubber Tracks</b>	<b>Steel Tracks</b>
<b>Cab version</b>	0,25 kg/cm <sup>2</sup>	0,26 kg/cm <sup>2</sup>
<b>Canopy version</b>	0,24 kg/cm <sup>2</sup>	0,25 kg/cm <sup>2</sup>

## Noise levels

The EC35 and EC45 Pro conform to the 2006 European Machine Directive Noise Level (2000/14/CE) of 96 dB(A) for this class of machine.



# SPECIFICATIONS EC35



Buckets			
	Width	Weight	Capacity
Backhoe	300 mm	56 kg	46 l
	450 mm	68 kg	80 l
	600 mm	86 kg	115 l
	750 mm	111 kg	151 l
Ditch	1300 mm	125 kg	175 l

Dipper	A	B	C*	C	D	E	F
1400 mm	4840	3530	3420	3170	2200	5130	5240
1700 mm	5020	3720	3710	3470	2500	5420	5530

\* Dig depth with the blade down.

G	H	I	J	K	L	M	N	O
380	510	1600	2070	1620	1620	4750	1560	290

P	Q	R	S	T	U	V	W	X
370	300	600	2040	1570	2460	2350	1570	1360

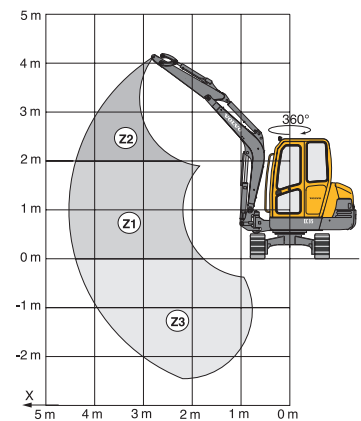
These capacities are given for a machine without a bucket or quick-release coupling and fitted with rubber tracks for a 360° total rotation lifted load.

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

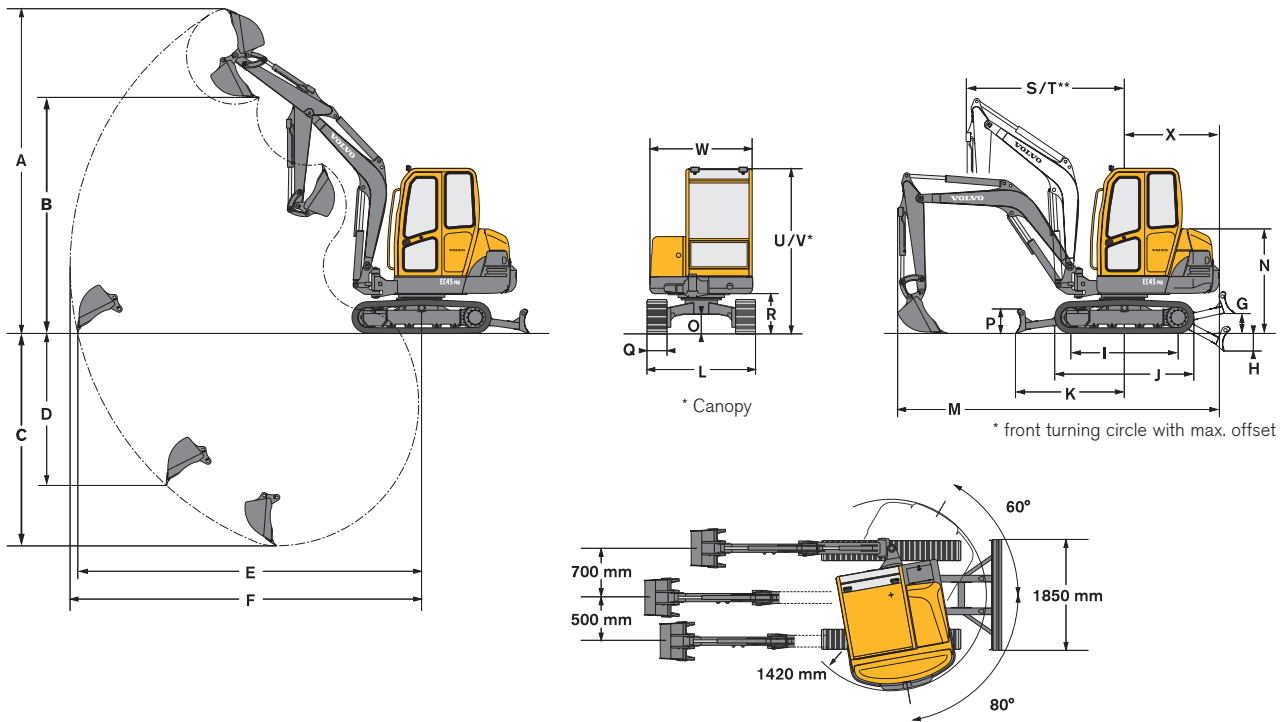
Caution : In accordance with standard EN 474-5, the machine must be equipped with a safety valve on the boom ram and an overload indicator (available as options) to carry out handling operations.




Outreach		1,50 m	2,00 m	2,50 m	3,00 m	3,50 m	4,00 m	4,50 m	4,80 m	
	1400 mm	Z2		955	720	570	465			
		Z1	1555*	1190	845	655	530	445	380	
		Z3	2040*	1215	855	660	535			
	1700 mm	Z2			730	575	465	385		
		Z1	1395*	1175	835	645	520	435	370	340
		Z3	1945*	1190	840	645	520	435		

\* hydraulic limit



# SPECIFICATIONS EC45 PRO



Buckets			
	Width	Weight	Capacity
Backhoe	300 mm	85 kg	70 l
	450 mm	97 kg	98 l
	600 mm	118 kg	142 l
	750 mm	138 kg	187 l
Ditch	1300 mm	125 kg	175 l

Dipper	A	B	C*	C	D	E	F
1400 mm	4930	3520	3620	3450	1990	5380	5500
1700 mm	5080	3670	3910	3750	2270	5670	5780

\* Dig depth with the blade down.




G	H	I	J	K	L	M	N	O
410	480	1770	2280	1620	1800	5020	1610	320

P	Q	R	S	T	U	V	W	X
370	400	650	2380	1910	2540	3860	1570	1410

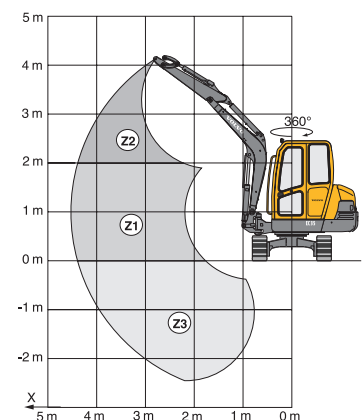
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Caution : In accordance with standard EN 474-5, the machine must be equipped with a safety valve on the boom ram and an overload indicator (available as options) to carry out handling operations.

Outreach		1,50 m	2,00 m	2,50 m	3,00 m	3,50 m	4,00 m	4,5 m	
	1400 mm 	Z2		1165*	805*	735*	700	595	
		Z1	1690*	1825	1290	1000	815	680	585
		Z3	2515	1840	1305	1005	815	690	
	1700 mm 	Z2			1320*	830*	625*	675*	590
		Z1	1530*	1650*	1275	985	800	670	575
		Z3	2150*	1805	1280	985	800	670	

\* hydraulic limit





## STANDARD EQUIPMENT

### Engine

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

### Electrical system

12 V - 74 Ah battery.  
Horn.  
12 V power socket for inspection lamp.

### Undercarriage

300 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).  
ROPS (Roll-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.  
Two working lights.  
Two-speed heating and ventilation.  
Cab heating adjustment.  
Windscreen with opening system power-assisted by two gas rams.  
Quickly removable front bottom window, and window fixing support behind the seat.  
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).  
Emergency exit via the front window.

### Instrumentation and monitoring

PUMA 2 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.  
EC35: 2450 mm long monobloc boom.  
EC45 Pro: 2600 mm long monobloc boom.  
1400 mm dipper.  
140° hydraulic boom offset.  
Non-return valve on the offset ram.  
Cushions on the boom, dipper and offset rams.  
Remote lubrication of the bottom of the offset ram.  
EC45 Pro: 5 tons bucket interface compatible with EC55B.

### Safety

Device for locking the earthwork equipment's controls and the travel levers 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.  
Handling device conforming to EN standard 474-5.  
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 (1700 mm).  
Safety valve piloted by the power assistance circuit on the boom ram with overload indicator (for handling loads over 1000 kg).  
Safety valve on the dipper ram.  
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

300 mm wide steel tracks.

### 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.

## Miscellaneous

Special customised paint (RAL specifications).



Volvo Construction Equipment is different. It's designed, built and supported in a different way. That difference comes from an engineering heritage of over 170 years. A heritage of thinking first about the people who actually use the machines. About how to help them be safer, more comfortable, more productive. About the environment we all share. The result of that thinking is a growing range of machines and a global support network dedicated to helping you do more. People around the world are proud to use Volvo. And we're proud of what makes Volvo different – **More care. Built in.**



*All products are not 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.*

# **VOLVO**

**Construction Equipment**

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