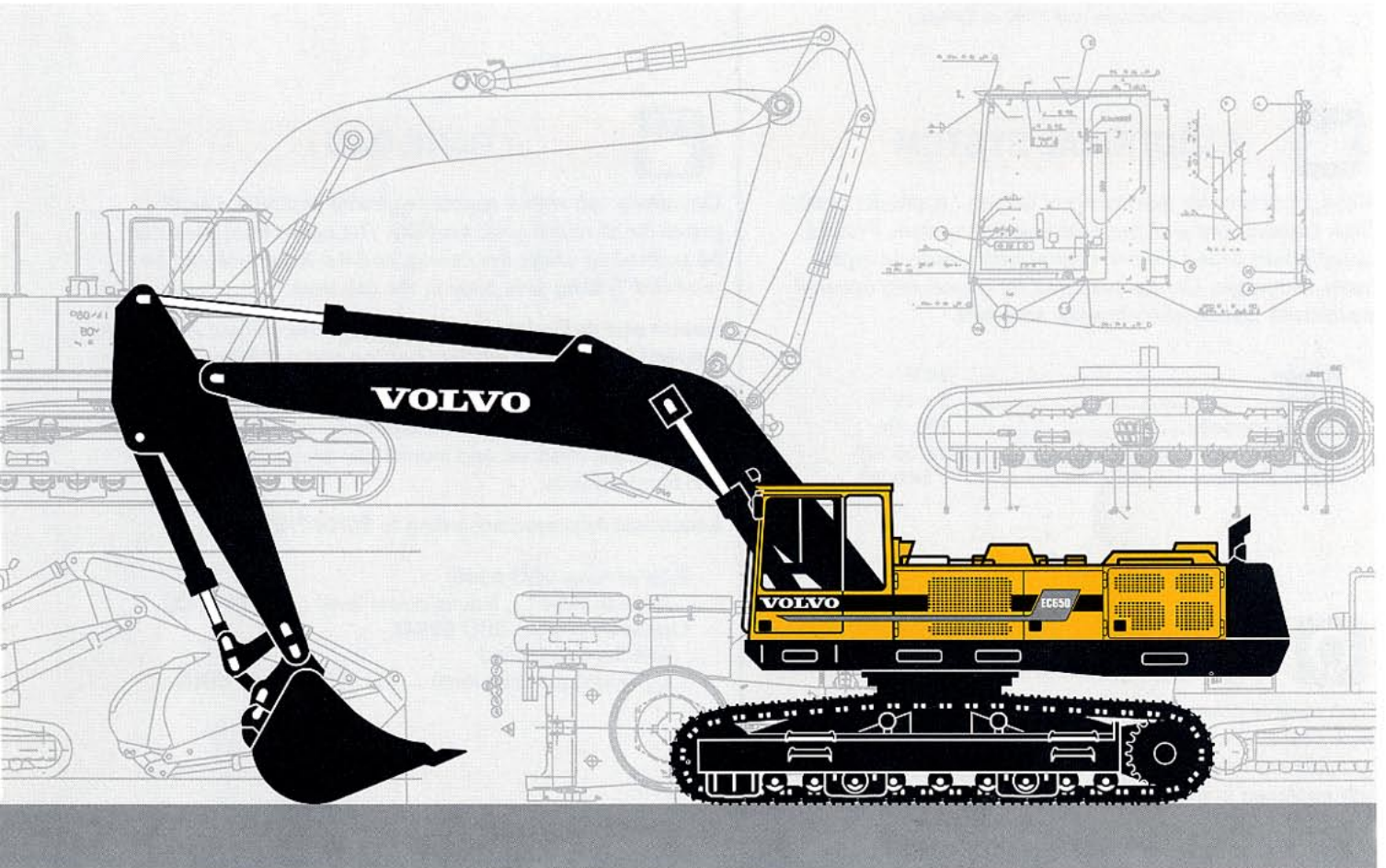


VOLVO EXCAVATOR

EC650



- Engine Power:
284 kW (386 hp)
- Operating Weight:
64,9 – 66,8 t
- Buckets:
3 300 l BE *
- 4 400 l ME *
- Volvo low emission, turbo-charged, diesel engine with direct injection and intercooler
- Three-circuit hydraulic system
- Care cab
 - computerized control and warning system
 - ergonomic environment
 - low sound level
 - filtered air
- Heavy duty equipment with spherical bearings
- Digging and breakout forces for tough conditions
- Long undercarriage for high stability
- Slew ring in oil bath
- Automatic lubrication

* BE = Backhoe Equipment
ME = Mass Excavation Equipment

VOLVO



ENGINE

The engine is a low emission*, turbocharged, 4-stroke diesel engine with water cooling, direct injection and intercooler.

Model	Volvo TD 122 KIE
Output at	30 r/s (1 800 r/min)
Net (ISO 9249/DIN 6271)	273 kW (371 hp)
Gross (SAE J1349)	284 kW (386 hp)
No. of cylinders	6
Displacement, total	11,98 l
Bore	130,17 mm
Stroke	150 mm

* Complies with off-road equipment emission restrictions, effective 1996 in California and 1997 in Europe.



ELECTRICAL SYSTEM

Micro processor for monitoring of engine / hydraulic system. High capacity and well protected electric system. Printed, circuit board based electric central with clearly arranged fuses and relays. Central prepared for connecting optional equipment. Battery disconnecter standard.

Voltage	24 V
Battery	2 x 12 V
Battery capacity	170 Ah
A.C. Generator	28/55 V/A
Alternator rating	1 540 W



DRIVE TRAIN

Each track is powered by an axial piston hydraulic motor. The track brakes are of multidisc type and are spring applied and hydraulically released. Motor, brakes and planetary gears are fully enclosed in the crawler frame.

Max. tractive force	519 kN
Max. travel speed	2,8 km/h
Gradeability, continuously	36,8° (74,7 %)



SERVICE REFILL CAPACITIES

Fuel tank	770 l
Fuel pump capacity	90 l/min
Hydraulic system, total	840 l
Diesel engine oil	29 l
Cooling system (incl. glycol)	72 l
Slew gearbox	25 l



UNDERCARRIAGE

Heavy duty box designed body with solid slew ring support. Lifetime lubricated rollers and front idlers.

Track chain size	D9G
No. of track shoes	2 x 48
Track width	800 mm
alt.	600 mm
No. of bottom rollers	2 x 9
No. of top rollers	2 x 2



CARE CAB

Operator's cab with a supporting frame structure. Large panes for all round good visibility. The upper front pane can be pushed up under the ceiling, and the lower one can be removed. Sliding side pane in the cab door.

Heater and defroster: Pressurized and filtered cab. A 3-speed fan provides efficient heating and defrosting through 14 outlets. Prepared for Air Conditioning.

Operator's seat: Adjustable suspension operator's seat with heating coils, headrest and individually adjustable armrests and hand controls.

Acoustics: Approved according to 86/662/EEC.

Exterior noise (ISO 6393)	
Average value L_{wA} (sound power level)	107 dB(A)
Operators position (ISO 6394)	
with the door closed	
L_{pA} (sound pressure level)	75 dB(A)



SLEWING SYSTEM

The superstructure is slewed by an axial piston motor through a servo released slew brake, into the two-step slew gear giving torque to the inner tooth race of the slew ring. The entire slew ring runs in a dust protected oil bath.

Slew, start to stop*	
90° turn	7,0 s
180° turn	10,5 s
Slew speed	5,0 r/min

* Empty bucket and equipment extended.



HYDRAULIC SYSTEM

3-circuit hydraulic system.

Pumps: P1 is a power and pressure controlled pump with priority to slew circuit – the other 4 pumps to boom, dipper arm, bucket and transport. Pumps P2V and P3V are power and pressure controlled. P2K and P3K have a constant flow.

Mode selector: Three working modes:

HLD = Heavy Lift Device and Power Boost

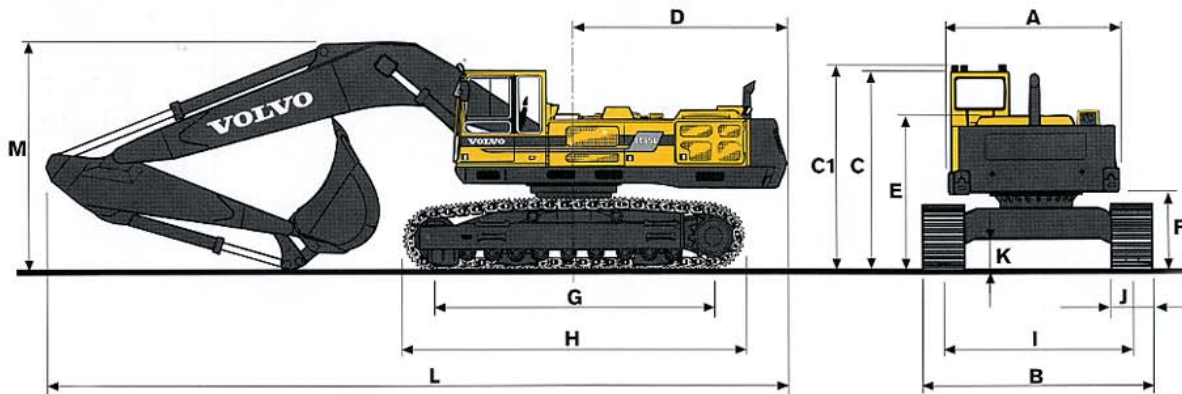
ECO = Economy

CAP = Capacity

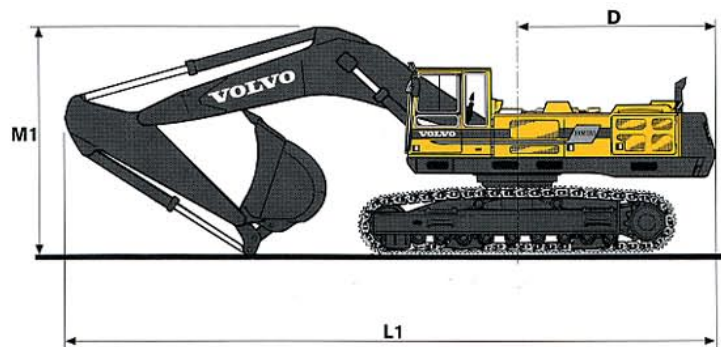
Valve system: Boom, arm and bucket are operated by dual main valves to obtain best combination of precision manoeuvrability and minimized fuel consumption. Boom cylinder movement equipped with floating position to increase the digging speed. Security hose rupture valve on the boom cylinders.

Pump P1	
Max. pressure	29 MPa
Max. flow	180 l/min
Pumps P2V and P3V	
Max. pressure	30 MPa
Power Boost	34 MPa
Max. flow	2 x 173 l/min
Pumps P2K and P3K	
Pressure	30 MPa
Power Boost	34 MPa
Flow	2 x 180 l/min
Servo pump	
Pressure	6,5 MPa
Flow	21 l/min

DIMENSIONS



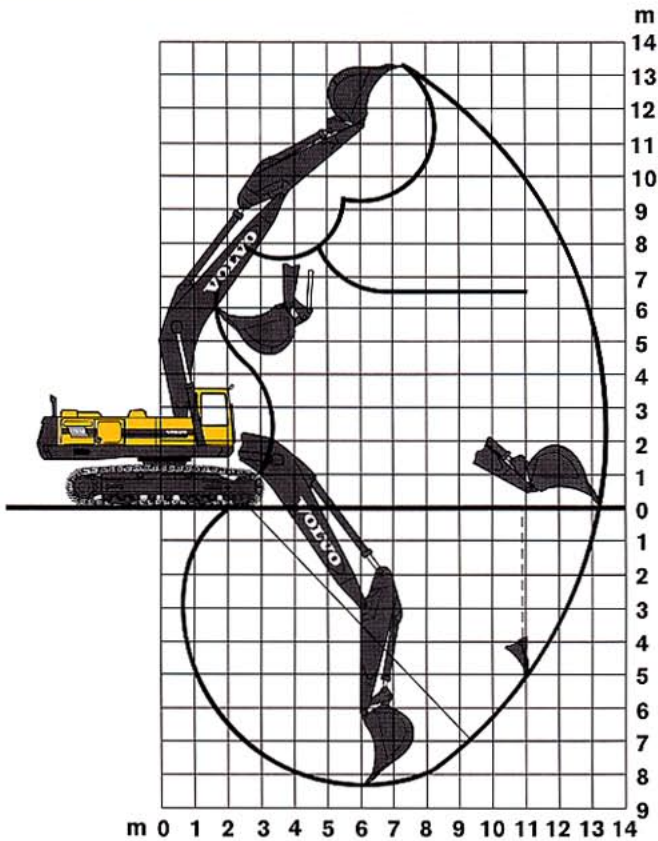
A	3 030 mm
B	4 150 mm
C	3 600 mm
C1	3 740 mm
D	3 840 mm
E	2 850 mm
F	1 440 mm
G	4 730 mm
H	5 980 mm
I	3 350 mm
J	800 mm
K	630 mm
L	13 280 mm
L1	12 490 mm
M	4 150 mm
M	4 000 mm *
M1	4 650 mm
M1	4 390 mm *



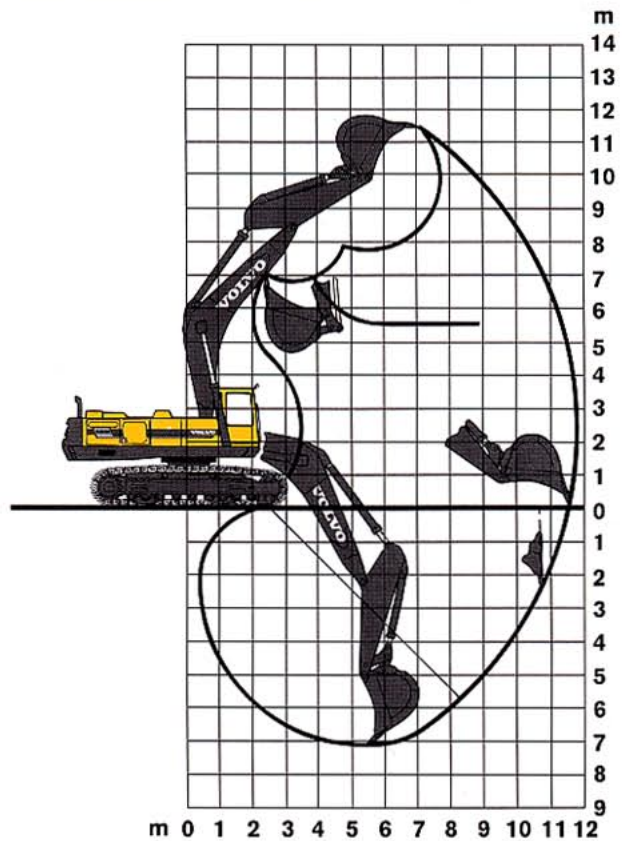
* Without bucket

WORKING RANGES

Backhoe equipment



Mass excavation equipment



	BE	ME
Boom	7,6 m	6,6 m
Arm	3,25 m	2,75 m
Max reach	13,3 m	11,7 m
Max. reach at ground level	13,1 m	11,4 m
Max. digging depth	8,4 m	7,2 m
Max. height, ground		
- tooth tip	13,3 m	11,5 m
Max. dumping height	9,3 m	7,8 m
Max. practical dumping height	6,5 m	5,5 m
Practical digging depth for a material with a 45° angle of repose	6,9 m	5,9 m
Max. vertical digging depth	5,2 m	2,5 m
Min. slewing radius in front	4,8 m	4,7 m

DIGGING FORCE

Bucket digging force*	335 kN BE
Dipper arm force*	249 kN BE
Bucket digging force**	399 kN ME
Dipper arm force**	315 kN ME

* With bucket 3 300 l

** With bucket 4 400 l

BUCKET AND ARM COMBINATIONS

BUCKETS for direct fitting	Volume SAE l	Cutting width mm	Weight kg	Suitable for arm	
				BE 3,25 m	ME 2,75 m
Heavy Duty 2,0 t/m ³ BE	3 300	1 800	3 000	•	
Heavy Duty 1,8 t/m ³ ME	4 400	2 040	3 750		•



WEIGHT AND GROUND PRESSURE

Standard BE-machine with 7,6 m boom, 3,25 m arm, 3 300 l bucket and counterweight 12 000 kg.













Standard ME-machine, 6,6 m boom, 2,75 m arm, 4 400 l bucket and counterweight 12 000 kg.

Track shoes
600 mm
800 mm
800 mm

Operating weight
64 900 kg
66 300 kg BE
66 300 kg ME

Ground pressure
102,6 kPa
78,6 kPa
78,6 kPa

LIFTING CAPACITIES *(In the bucket lifting hook. Unit: 1 000 kg)*

 Across carriage  Along carriage	Lifting hook related to ground level	Reach from machine center										
		6,0 m		7,5 m		9,0 m		10,5 m		Max. reach		Max. m
												
BE 7,6 m boom 3,25 m arm Bucket 3 300 l, 3 000 kg Track shoes 800 mm	9,0 m			9,6*	9,6*	9,2*	9,2*			6,3*	6,3*	10,4
	7,5 m			10,5*	10,5*	9,6*	9,6*	8,9	9,0*	5,9*	5,9*	11,4
	6,0 m	14,2*	14,2*	11,8*	11,8*	10,3*	10,3*	8,7	9,4*	5,5*	5,5*	12,1
	4,5 m	17,8*	17,8*	13,3*	13,3*	10,9	11,2*	8,3	9,8*	5,8*	5,8*	12,5
	3,0 m	19,4	20,6*	13,7	15,1*	10,3	12,0*	7,9	10,3*	5,5	5,8*	12,7
	1,5 m	18,6	22,0*	13,1	16,3*	9,8	12,7*	7,6	10,6*	5,4	5,8*	12,7
	0,0 m	18,4	22,0*	12,8	16,6*	9,5	13,1*	7,4	10,6*	5,5	7,2*	12,4
	-1,5 m	18,4	21,1*	12,7	16,2*	9,4	12,8*	7,3	10,4*	5,8	6,8*	12,0
	-3,0 m	18,5	19,3*	12,7	15,0*	9,4	11,9*	7,4	9,4*	6,6	8,1*	11,2
	-4,5 m	16,3*	16,3*	12,6*	12,6*	9,7	9,8*			7,4*	7,4*	10,2
-6,0 m	11,1*	11,1*	8,1*	8,1*					5,9*	5,9*	8,6	
ME 6,6 m boom 2,75 m arm Bucket 4 400 l, 3 750 kg Track shoes 800 mm	9,0 m			10,5*	10,5*					9,5*	9,5*	8,4
	7,5 m			11,0*	11,0*	10,2*	10,2*			9,1*	9,1*	9,7
	6,0 m	14,2*	14,2*	12,2*	12,2*	11,0*	11,0*	8,3	9,0*	8,3	9,0*	10,5
	4,5 m	16,8*	16,8*	13,6*	13,6*	10,7	11,8*	8,0	9,9*	7,3	9,1*	11,0
	3,0 m	19,5	20,0*	13,7	15,0*	10,1	12,5*	7,7	10,4*	6,8	9,5*	11,2
	1,5 m	18,8	21,8*	13,1	16,2*	9,7	12,9*	7,4	10,6*	6,6	9,7*	11,2
	0,0 m	18,6	22,1*	12,8	16,6*	9,5	13,0*	7,3	10,5*	6,9	9,8*	10,9
	-1,5 m	18,6	21,0*	12,8	15,9*	9,5	12,5*			7,4	9,7*	10,4
	-3,0 m	18,4*	18,4*	12,9	13,9*	9,6	10,6*			8,8	9,4*	9,5
	-4,5 m	13,1*	13,1*	9,6*	9,6*					8,1*	8,1*	8,1

* Limited by hydraulic lifting capacity.

The above loads are in compliance with ISO standard 10567. They do not exceed 87 % of hydraulic lifting capacity or 75 % of tipping load, with the machine on firm and level ground.

Working pressure with HLD = 34 MPa (340 bar)

STANDARD EQUIPMENT

Engine and Electrical System

Computer controlled monitoring system
 Disconnecter for battery and main fuel tap
 Automatic idling speed (Fuel-miser)
 3-step air cleaner incl. exhaust ejector
 Exhaust pipe
 Hour meter
 Revs counter
 Fuel meter
 Temperature meter for cooling fluid and hydraulic oil
 Electric preheating element
 24 volt electrical system with 2 batteries

Undercarriage

Slew ring in oil bath
 800 mm track shoes with double grousers
 Hydraulic track adjuster
 Derailing shields, 3 pcs
 Top rollers, 2 pcs

Safety and Comfort

Safety bar for control levers
 Hose rupture valve on boom cylinder
 Hydraulic refueling pump, 90 l/min
 Over load indicator
 Lights (halogen):
 5 working lights, front
 1 working light, rear
 Instrument lighting
 Illuminated cab, engine compartment and fuel filling compartment
 Rear view mirrors:
 4 exterior, 1 interior
 Cab heating with 14 outlets
 Ergonomically designed and adjustable operator's seat, with heating coils
 Filtered air intake
 Cab skylight
 Sliding window in the cab door
 Emergency exit through rear window
 Tinted windows (clear front)
 Internal sun visor
 Double intermittent windscreen wipers
 Windscreen washers
 Compressor horn
 Radio console

Hydraulics

Float position on boom
 Dual main valve for the travel and equipment functions
 Power boost
 Mode selector, 3 steps
 Three variable and two fixed axial piston working pumps
 Standard filter cartridges for return, leak oil and breathing filter

Backhoe Equipment

7,6 m monobloc boom
 3,25 m dipper arm
 End dampening on all cylinders
 Security lifting hook
 Spherical link bearings in all connections
 Friction welded piston rod eyes
 Automatic lubrication

OR

Mass Excavation Equipment

6,6 m monobloc boom
 2,75 m dipper arm
 End dampening on all cylinders
 Security lifting hook
 Spherical link bearings in all connections
 Friction welded piston rod eyes
 Automatic lubrication

OPTIONAL EQUIPMENT *(Standard on certain markets)*

Engine and Electrical System

Electric over speed protector
 Diesel driven engine and cab heater with digital timer
 Immersion heater, 220 V
 Oil bath cleaner
 Extra fuel filter
 Coolant filter

Undercarriage

600 mm track shoes with double grousers
 Brake valves on crawler motors

Safety and Comfort

Protective grid for front pane/roof pane (FOPS approved)
 Rock guard over drivers cab (FOPS approved)
 Fire extinguisher
 Seat belts
 Rotating beacon
 Protection against overfilling fuel
 Extra circulation pump for the heating system
 Extra hose rupture valves on dipper arm/bucket cylinders
 Exterior glare shields
 Rear window jalousie
 Air conditioning
 Micro filter for the cab
 Radio cassette player

Hydraulics

Biologically degradable oil
 Hydraulic equipment for:
 articulated slope bucket
 hydraulic hammer
 crusher/shears
 grab

Equipment

Extra headlights on the boom

Material Handling Equipment

10,3 m boom
 8,1 m dipper arm

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

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