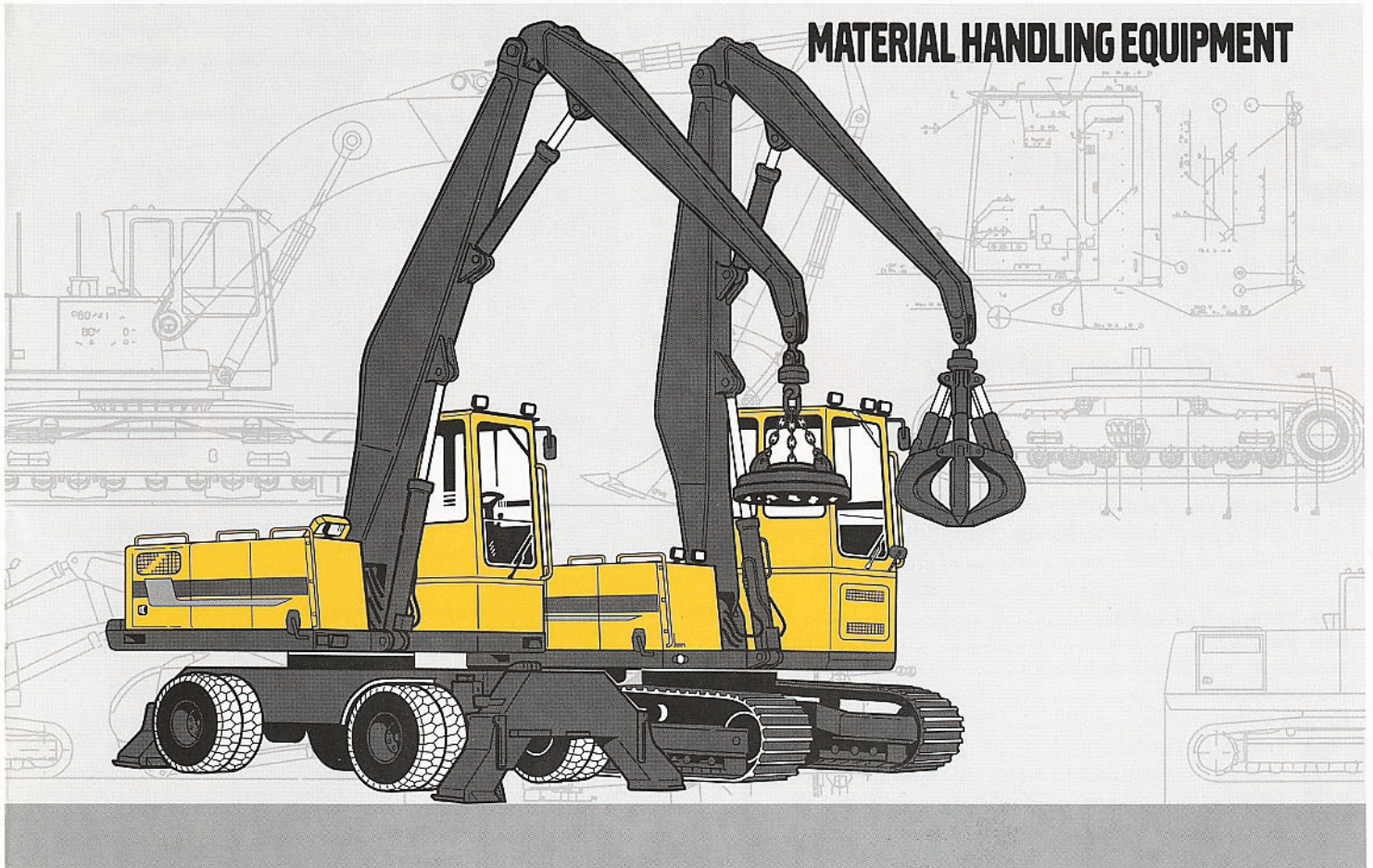


EW230B, EC230B, EC280*, EC450, EC650

MATERIAL HANDLING EQUIPMENT



- Operating weights:
EW230B – 19,2 - 19,4 t
EC230B – 21,1 - 21,4 t
EC280* –
EC450 – 42,2 t
EC650 – 62,1 t

- Turbocharged Volvo diesel engine with direct injection
- High capacity hydraulic system.

- Care Cab
 - computerized control and warning system
 - ergonomic environment
 - low sound level
 - filtered air

- Permanent 4-wheel drive.
Travel speed – max. 30 km/h (EW230B)

- Four outriggers. (EW230B)

* Coming model



ENGINE

The engines are turbocharged, 4-stroke diesel engines with water cooling, direct injection and intercooler (not EC230B - EW230B). The machines can work at low engine speeds, contributing to good fuel economy, less wear and longer life.

	EW230B	EC230B	EC280	EC450	EC650
Volvo engine model	TD61GE	TD61GE	TD73KHE	TD122KKE	TD122KIE
Output at r/min	2100	2100	1700	1700	1800
Net (ISO 9249 / DIN 6271) kW (hp)	122 (166)	122 (166)	145 (197)	227 (309)	273 (371)
Gross (SAE J1349) kW (hp)			155 (211)	237 (322)	284 (386)
Cylinder diameter mm	98,43	98,43	104,77	130,17	130,17
Piston stroke mm	120	120	130	150	150
Stroke volume dm ³	5,48	5,48	6,73	11,98	11,98



ELECTRICAL SYSTEM

A.C. Generator V/A	28/55	28/55	28/55	28/55	28/55
Battery qty. (V)	4 (12)	4 (12)	2 (12)	2 (12)	2 (12)
Battery capacity Ah	2 x 60	2 x 60	140	170	170

UNDERCARRIAGE



Travel - Tracks

Each track is powered by an axial piston hydraulic motor. The track brakes are of multiple-plate type and are activated by spring power and hydraulically released. Travel motor, brakes and planetary gears are well protected in the track frame.

Max. tractive effort (gross) kN		222	247	374	519
Max. travel speed km/h		5,2	5,0	3,7	2,8
Number of track shoes each side qty.		50	51	51	48
Standard track width mm		600		700	800
Rollers each side bottom (top)		9 (2)	9 (2)	9 (2)	9 (2)



Travel - Wheels

One big variable piston motor mounted on a two step gearbox powers front and rear axle with hub reductions.

Max. tractive effort kN	148
Travel speed, high speed km/h	0 - 30
Travel speed, low speed km/h	0 - 8
Twin wheels (standard)	10.00-20PR16



SLEW SYSTEM

The superstructure is slewed by an axial piston motor. Cab lock, slew gearbox and slew drive shaft are geared between the slew motor and the inner tooth race of the slew ring. Slewing ring runs in sealed oil bath.

Slew, start to stop	
90° slew s	6,2
180° slew s	8,2

	EW230B	EC230B	EC280	EC450	EC650
90° slew s	6,2	5,2	5,5	6,4	7,0
180° slew s	8,2	7,1	7,2	9,0	10,5



SERVICE REFILL CAPACITIES

Fuel tank l	340	340	550	770	770
Fuel pump capacity l/min	90	90		90	90
Hydraulic system, total l	400	400	405	770	840
Diesel engine oil l	22	22	20	29	29
Cooling system incl. glycol l	32	32	46	72	72



CARE CAB

Easily accessible cab with wide door opening. Lined with sound-absorbent material. The cab mountings are vibration-inhibiting. Large glazed surfaces all around. The upper windshield pane can be slid up into the ceiling and the lower one can be removed. Sliding side window in the cab door.

Cab heater and defroster: Pressurized and filtered cab air is supplied by a 3-speed fan underneath the operator's seat. The air passes through the cab heater and can be distributed via 14 nozzles. Prepared for air conditioning.

Ergonomic operator's seat: Electrically heated operator's seat with adjustable suspension and headrest. The fore/aft position, height and angle of the seat are adjustable, as is the lumbar support. Individually adjustable armrests and control levers.

Sound level: Approved according to Directive 86/662/EEC.

Exterior noise (ISO 6393)

mean value of L_{WA} (sound power level) dB(A)

Operator's position (ISO 6394)

with the door closed

mean value of L_{pA} (sound pressure level) dB(A)

EW230B

EC230B

EC280

EC450

EC650

108

108

108

105

107

76

77

74

73

75



HYDRAULIC SYSTEM

The hydraulic system, is designed for high capacity, high manoeuvring precision and good fuel economy.

The working pumps are power- and/or pressure controlled, and each can be directed to its own particular equipment movement for precision work. One pump is prioritized to the slew movement.

The following important functions are included in the system:

Power Booster (HLD) – All lifting and tractive forces are increased

Float position – For more efficient grab work and better operator comfort and fuel economy

Slew priority (EC280) – Power distribution between boom lift and slew movement to obtain best performance

Decelerator (EC280) – For more efficient material handling and better operator comfort and fuel economy

Automatic Decelerator and Speed Sensing Control are also included for optimum utilization of the engine. Hose rupture valves on the boom cylinders are standard.

Pump P1

Max. pressure MPa

Max. flow l/min

26

26

31

29

29

88

88

174

151

180

Pumps P2 and P3

Max. pressure MPa

Max. pressure with HLD MPa

Max. flow l/min

28

28

31

30

30

32

32

35

-

-

284

284

408

490

706

Servo pump

Pressure MPa

Flow l/min

6,5

6,5

6,5

6,5

6,5

28

20

19

20,5

21

Steering pump

Pressure MPa

Flow l/min

14

-

-

-

-

34

-

-

-

-



WEIGHTS

Base machine incl. counterweight	kg
Counterweight	kg
Compl. weight of equipment	kg
* = Optional equipment	

Total weight tonnes
(excl. gen. set, lifting device and cab extension)

	EW230B	EC230B	EC280	EC450	EC650
Base machine incl. counterweight	16 700	18 600		36 400	53 100
Counterweight	3 000	3 500		8 500	12 000
Compl. weight of equipment	2 500	2 500		5 830	9 000
* = Optional equipment	2 750*	2 750*			
Total weight	19,2 – 19,4	21,1 – 21,4		42,2	62,1



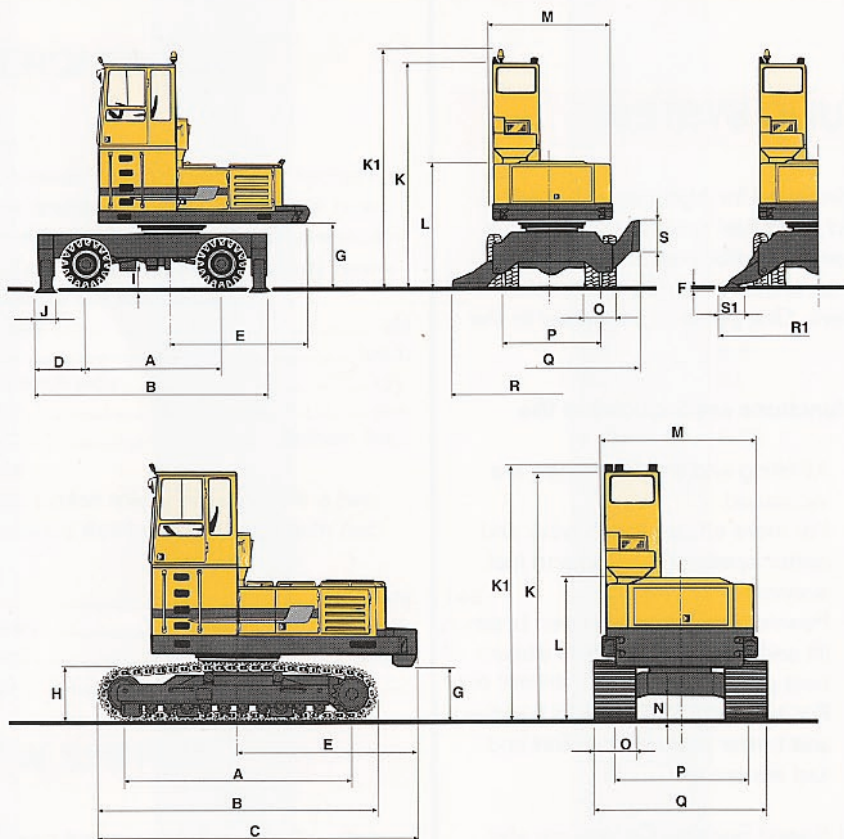
EQUIPMENT

Sealed spheric hardened steel link bearings. Hose rupture valve standard on boom lowering motion.

Boom length	m
Dipper arm length	m
* = Optional equipment	

	EW230B	EC230B	EC280	EC450	EC650
Boom length	6,0 6,75*	6,0 6,75*		8,6	10,3
Dipper arm length	4,4 5,15*	4,4 5,15*		6,5	8,1

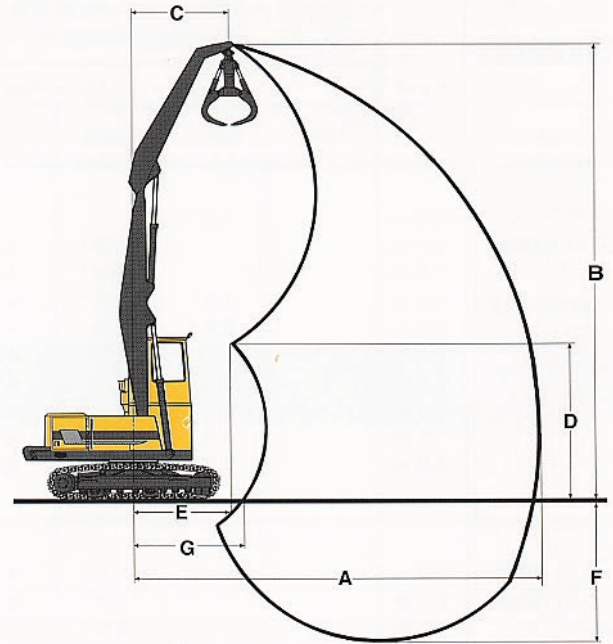
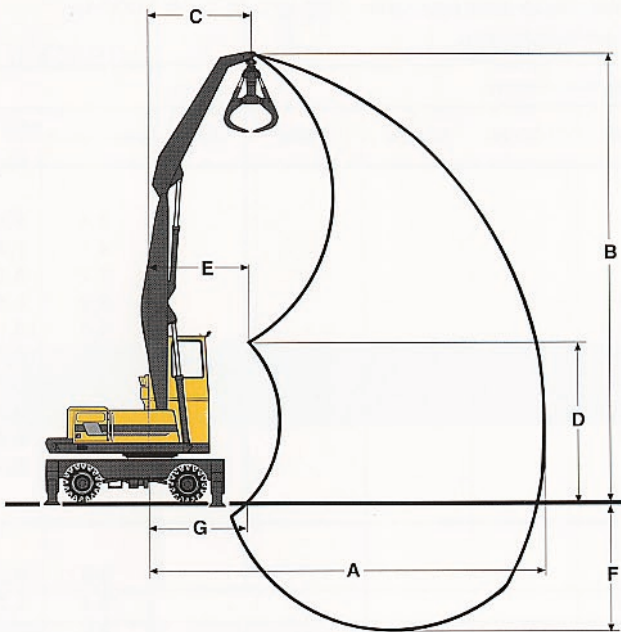
DIMENSIONS



	EW230B	EC230B	EC280	EC450	EC650
A	2,78 m	3,73 m		4,26 m	4,73 m
B	4,98 m	4,54 m		5,26 m	5,98 m
C	-	5,14 m		6,40 m	6,83 m
D	1,16 m	-		-	-
E	2,87 m	2,87 m		3,77 m	3,84 m
F	0,11 m	-		-	-
G	1,27 m	1,03 m		1,19 m	1,44 m
H	-	0,81 m		1,02 m	1,25 m
I	0,44 m	-		-	-
J	0,45 m	-		-	-
K	4,48 m	4,23 m		4,57 m	4,82 m

	EW230B	EC230B	EC280	EC450	EC650
K1	4,75 m	4,37 m		4,71 m	4,96 m
L	2,46 m	2,22 m		2,60 m	2,85 m
M	2,49 m	2,49 m		2,90 m	3,03 m
N	0,33 m	0,47 m		0,49 m	0,63 m
O	0,60 m	0,60 m		0,70 m	0,80 m
P	1,90 m	2,40 m		2,90 m	3,35 m
Q	2,97 m	3,00 m		3,60 m	4,15 m
R	3,83 m	-		-	-
R1	3,85 m	-		-	-
S	0,53 m	-		-	-
S1	0,46 m	-		-	-

WORKING RANGES



	EW230B	EC230B	EC280	EC450	EC650
Boom..... m	6,0	6,75	6,0	8,6	10,3
Dipper arm..... m	4,4	5,15	4,4	6,5	8,1
A Max. reach, slewing centre-dipper pin m	10,4	11,7	10,4	15,1	18,3
A' Max. reach with grab open* m	11,4	12,7	11,4	16,5	19,8
B Max. height, ground-dipper pin m	11,8	13,1	11,5	16,5	19,7
C Distance from slewing centre-dipper pin at position B m	2,6	3,3	2,6	4,4	4,7
D Max. height, ground-dipper pin, boom at maximum lift, dipper folded m	4,2	4,3	4,0	5,3	5,6
E Distance from slewing centre-dipper pin at position D m	2,5	2,5	2,5	4,2	4,6
F Max. depth, ground-dipper pin m	3,3	3,5	3,5	6,6	6,0
F' Max. depth with grab open* m	5,2	5,4	5,4	8,6	8,0
G Min. reach, slewing centre-dipper pin at ground level..... m	2,6	2,5	2,8	4,6	5,2
* Standard grab for normal use (1,8 t/m ³) Peiner HMG is used as an example	500	400		1000.10-So	1200.10-So

LIFTING CAPACITIES


EW230B	Height of dipper arm top	Lifting capacity at 360° swing, in the dipper arm top without lifting tool. Unit: 1000 kg. Working pressure with HLD = 32 MPa (320 bar)										
		Reach from machine centre										
		3,0 m	4,5 m	6,0 m	7,5 m	9,0 m	10,5 m	12,0 m	13,5 m	15,0 m	Max. reach	Max. m
6,0 m boom 4,4 m dipper arm Counterweight 3 000 kg 4 outriggers down	10,5 m		7,2 *								5,4 *	5,9
	9,0 m			6,3 *	4,7						4,7	7,6
	7,5 m			6,2 *	4,8						3,7	8,8
	6,0 m		7,6 *	6,5 *	4,8	3,6					3,2	9,6
	4,5 m		8,6 *	6,6	4,7	3,5					3,0	10,1
	3,0 m		10,0 *	6,3	4,5	3,5					2,8	10,4
	1,5 m		9,5	6,1	4,4	3,4					2,8	10,4
	0,0 m		9,2	5,9	4,3	3,3					2,8	10,2
-1,5 m		9,0	5,8	4,2	3,3					3,0	9,7	
-3,0 m		7,2 *	5,7 *	4,2						3,6 *	8,3	
6,75 m boom 5,15 m dipper arm Counterweight 3 000 kg 4 outriggers down	10,5 m			5,6 *	4,4 *						3,8 *	8,0
	9,0 m			5,6 *	4,9	3,6					3,4	9,3
	7,5 m			5,6 *	4,8	3,6					2,9	10,3
	6,0 m			6,0 *	4,8	3,5	2,8				2,6	11,0
	4,5 m		8,2 *	6,6	4,6	3,5	2,7				2,4	11,4
	3,0 m		9,6 *	6,2	4,4	3,4	2,7				2,3	11,7
	1,5 m		9,2	5,9	4,2	3,3	2,6				2,2	11,7
	0,0 m		6,5 *	5,6	4,1	3,2	2,6				2,3	11,5
-1,5 m		6,0 *	5,5	4,0	3,1	2,5				2,4	11,1	
-3,0 m		6,5 *	5,5	4,0	3,1	2,6				2,6	10,5	


EC230B	Height of dipper arm top	Lifting capacity at 360° swing, in the dipper arm top without lifting tool. Unit: 1000 kg. Working pressure with HLD = 32 MPa (320 bar)										
		Reach from machine centre										
		3,0 m	4,5 m	6,0 m	7,5 m	9,0 m	10,5 m	12,0 m	13,5 m	15,0 m	Max. reach	Max. m
6,0 m boom 4,4 m dipper arm Counterweight 3 500 kg 600 mm track shoes	12,0 m											
	10,5 m		7,0 *								5,6 *	5,5
	9,0 m			5,4							3,9	7,4
	7,5 m			5,4	3,9						3,0	8,7
	6,0 m			5,4	3,8	2,9					2,7	9,5
	4,5 m		8,1	5,2	3,7	2,8					2,4	10,0
	3,0 m		7,6	5,0	3,6	2,8					2,3	10,3
	1,5 m		7,1	4,8	3,5	2,7					2,2	10,4
0,0 m		6,8	4,6	3,4	2,7					2,3	10,2	
-1,5 m	3,5 *	6,6	4,5	3,3	2,6					2,4	9,8	
-3,0 m		6,6	4,4	3,3						2,8	8,7	
6,75 m boom 5,15 m dipper arm Counterweight 3 500 kg 600 mm track shoes	12,0 m		5,6 *								4,8 *	5,4
	10,5 m			5,5	3,8						3,7	7,7
	9,0 m			5,6	3,9	2,9					2,8	9,2
	7,5 m			5,5	3,9	2,9					2,3	10,2
	6,0 m			5,4	3,8	2,9	2,2				2,1	10,9
	4,5 m		8,0 *	5,2	3,7	2,8	2,2				1,9	11,4
	3,0 m		7,5	4,9	3,5	2,7	2,1				1,8	11,6
	1,5 m		6,8	4,6	3,4	2,6	2,1				1,8	11,7
0,0 m		6,4	4,3	3,2	2,5	2,0				1,8	11,5	
-1,5 m		2,8 *	6,0 *	4,2	3,1	2,5	2,0			1,9	11,2	
-3,0 m			6,2	4,1	3,1	2,4	2,0			2,0	10,6	
-4,5 m				4,2	3,1					2,8	8,2	


* Load capacity limited by machine's hydraulic lifting capacity.

The above values have been calculated 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, level ground.

LIFTING CAPACITIES

EC280	Height of dipper arm top	 Lifting capacity at 360° swing, in the dipper arm top without lifting tool. Unit: 1000 kg. Working pressure with HLD = 35 MPa (350 bar)										
		Reach from machine centre										
		3,0 m	4,5 m	6,0 m	7,5 m	9,0 m	10,5 m	12,0 m	13,5 m	15,0 m	Max. reach	Max. m

EC450	Height of dipper arm top	 Lifting capacity at 360° swing, in the dipper arm top without lifting tool. Unit: 1000 kg. Working pressure = 30 MPa (300 bar)											
		Reach from machine centre											
		4,5 m	6,0 m	7,5 m	9,0 m	10,5 m	12,0 m	13,5 m	15,0 m	16,5 m	Max. reach	Max. m	
8,6 m boom	15,0 m			7,3 *								6,5 *	8,0
6,5 m dipper arm	13,5 m			8,5 *	7,3 *							5,6 *	10,1
Counterweight 8 500 kg 700 mm track shoes	12,0 m			8,4 *	7,9 *	6,8						5,1 *	11,6
	10,5 m				7,8 *	6,8	5,5					4,9 *	12,7
	9,0 m			8,6 *	7,9 *	6,8	5,5	4,6				4,5	13,6
	7,5 m			9,1 *	8,2 *	6,7	5,5	4,6				4,2	14,3
	6,0 m		10,4 *	9,8 *	8,2	6,6	5,4	4,5				4,0	14,7
	4,5 m		13,0 *	10,3	8,0	6,4	5,3	4,5	3,8			3,8	15,0
	3,0 m		13,5	9,9	7,7	6,2	5,2	4,4	3,8			3,7	15,2
	1,5 m		12,9	9,5	7,5	6,1	5,1	4,3	3,8			3,7	15,2
	0,0 m		11,7 *	9,2	7,3	6,0	5,0	4,3	3,8			3,8	15,0
	-1,5 m	4,8 *	10,2 *	9,0	7,1	5,9	4,9	4,3				3,9	14,7
	-3,0 m	6,1 *	10,7 *	9,0	7,1	5,8	4,9	4,3				4,1	14,2
	-4,5 m	7,5 *	11,9 *	9,0	7,1	5,8	5,0	4,0 *				4,0 *	13,5
-6,0 m		9,9 *	8,4 *	7,0 *	5,7 *						4,7 *	11,5	

EC650	Height of dipper arm top	 Lifting capacity at 360° swing, in the dipper arm top without lifting tool. Unit: 1000 kg. Working pressure = 30 MPa (300 bar)											
		Reach from machine centre											
		6,0 m	7,5 m	9,0 m	10,5 m	12,0 m	13,5 m	15,0 m	16,5 m	18,0 m	Max. reach	Max. m	
10,3 m boom	16,5 m			9,2 *	7,7 *							6,6 *	11,3
8,1 m dipper arm Counterweight 12 000 kg 800 mm track shoes	15,0 m			9,9 *	9,0 *	7,6 *						5,9 *	13,1
	13,5 m			10,3 *	9,7 *	8,7 *	7,1 *					5,6 *	14,4
	12,0 m			10,6 *	10,1 *	9,2 *	8,1	6,3 *				5,4 *	15,5
	10,5 m			11,0 *	10,2 *	9,3 *	8,1	6,7				5,1 *	16,4
	9,0 m			11,6 *	10,4 *	9,4 *	8,0	6,7	5,7			5,3 *	17,0
	7,5 m		11,9 *	12,1 *	10,6 *	9,4	7,8	6,6	5,6			5,0 *	17,6
	6,0 m	12,3 *	14,2 *	12,6 *	10,9 *	9,2	7,7	6,5	5,6	4,8		4,8	18,0
	4,5 m	19,7 *	15,7 *	13,1 *	10,8	8,9	7,5	6,4	5,5	4,8		4,7	18,2
	3,0 m	21,1 *	16,4 *	12,9	10,4	8,6	7,3	6,2	5,4	4,7		4,6	18,3
	1,5 m	11,6 *	15,7	12,3	10,0	8,3	7,1	6,1	5,3	4,7		4,6	18,3
	0,0 m	7,3 *	15,0	11,8	9,6	8,1	6,9	6,0	5,2	4,6		4,5 *	18,2
	-1,5 m	6,8 *	14,3 *	11,4	9,4	7,9	6,7	5,9	5,2			4,0 *	17,9
-3,0 m	7,2 *	12,8 *	11,2	9,2	7,7	6,6	5,8	4,6 *			4,0 *	17,1	
-4,5 m		11,6 *	10,1 *	8,6 *	7,3 *	6,1 *	4,9 *				4,4 *	15,6	

* Load capacity limited by machine's hydraulic lifting capacity.

The above values have been calculated 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, level ground.

STANDARD EQUIPMENT

Engine and electrical system

Computer controlled monitoring system
 Battery disconnecter and main fuel cock
 Air filter with indicator
 Hour meter
 Tachometer
 Fuel level gauge
 Temperature gauge for coolant and hydraulic oil
 Electric preheating coil
 24 V electrical system
 Cranked exhaust pipe

Undercarriage – crawler

Slew ring in oil bath
 Triple grouser track shoes with mud holes (EC230B – EC450)
 Hydraulic track tensioner
 Derailing shields, 3 per side
 Top rollers

Undercarriage – wheel

Slew ring in oil bath
 Twin wheels 10.00 – 20PR16
 4-wheel drive
 Four outriggers, fixed plates
 Oscillating front axle $\pm 7^\circ$
 Axles with hub reduction
 2-circuit travel brakes

Safety and comfort

Safety bar for control levers
 Hose rupture valve on boom cylinder
 Hydraulic refueling pump 90 l/min
 Overload alarm
 Lights (crawler):
 5 working lights, front, halogen
 1 working light, rear, halogen
 Lights (wheel):
 headlights, full and dipped beam asymmetrical, halogen
 3 working lights, front, halogen
 1 working light, rear, halogen
 Brakelights (EW230B)
 Rear lights (EW230B)
 Direction indicators (EW230B)
 Rotating beacon (EW230B)
 Instrument lighting
 Interior lighting in cab, engine compartment and fuel filling compartment
 Rear-view mirrors: 1 interior, 4 exterior
 Cab heating and filtered air intake
 Ergonomic, electrically heated operator's seat
 Skylight of special plastic
 Sliding side window in cab door
 Emergency exit through rear window
 Tinted window glass (clear forward)
 Interior sun visor

Upper and lower windscreen wipers with intermittent function
 Windscreen washer
 Air horn
 Radio console

Hydraulic system

Float position on boom
 Three variable axial piston pumps (EC/EW230B – EC450)
 Three variable and two fixed axial piston pumps (EC650)
 Mode selector, three steps (EC/EW230B)
 Mode selector, two steps (EC450 – EC650)
 Standard filter cartridges for return, leak oil and respiration filter systems
 Swing-out oil cooler (EC/EW230B)
 Dual main valve for the travel (EW230B) and equipment functions

Equipment

6,0 m boom (EC/EW230B)
 8,6 m boom (EC450)
 10,3 m boom (EC650)
 4,4 m dipper arm (EC/EW230B)
 6,5 m dipper arm (EC450)
 8,1 m dipper arm (EC650)
 End dampening on all cylinders
 Spherical link bearings in all connections
 Friction welded piston rod eyes

OPTIONAL EQUIPMENT *(Standard on certain markets)*

Engine and electrical system

Electric over speed protector
 Diesel-powered cab and engine heater with digital timer
 Electric engine heater, 220 V
 Precyclone and exhaust ejector

Undercarriage – crawler

Alternative track shoes
 Skid rails (EC230B – EC450)

Undercarriage – wheel

Solid rubber tyres
 Wide base tyres
 Mud guards
 Stone protection rings
 Widening rings 2 x 50 mm
 Articulated outrigger plates
 Tool box

Safety and comfort

Protective net for windscreen
 Protective bars for skylight (FOPS 3449-approved)
 Protective cab roof (FOGS ISO 10262-approved)
 Fire extinguisher
 Seat belt
 Protection against overfilling fuel
 Extra circulation pump for the heating system
 Extra hose rupture valve on dipper arm cylinder
 Exterior glare shields
 Rear window jalousie
 Air conditioning
 Microfilter for the cab
 1220 mm cab extension
 1830 mm cab extension (EC450/EC650)
 Radio cassette player

Hydraulic system

Biodegradable hydraulic oil
 Installation of a 4th working pump (EC/EW230B – EC450)
 Hydraulic equipment for: rotating grab/clamshell generator (magnet)

Equipment

6,75 m boom (EC/EW230B)
 5,15 m dipper arm (EC/EW230B)

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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