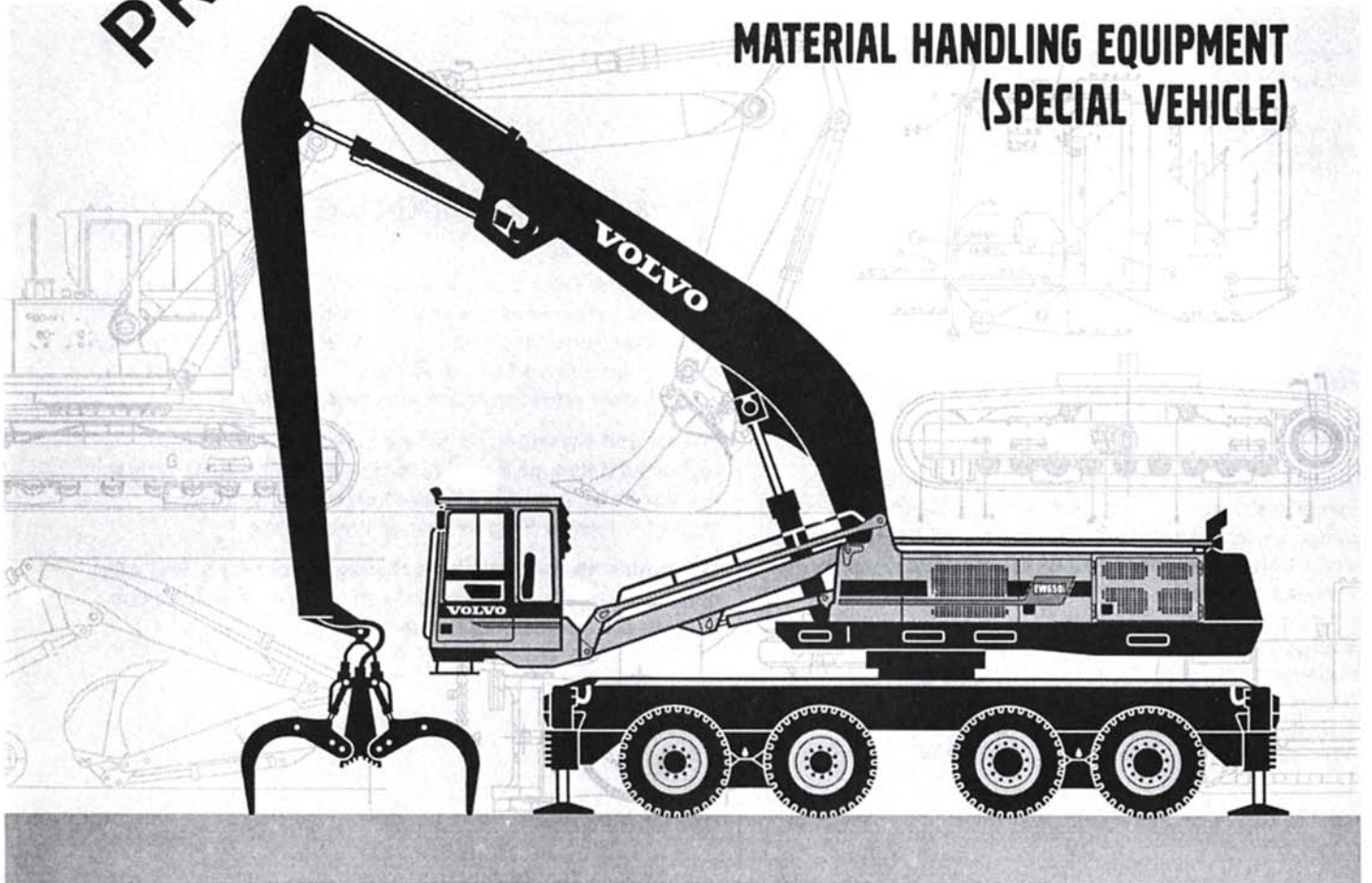


PRELIMINARY

VOLVO EXCAVATOR

EW450i, EW650i

**MATERIAL HANDLING EQUIPMENT
(SPECIAL VEHICLE)**



- Engine power:
EW450 - 227 kW, 309 hp
EW650 - 273 kW, 371 hp
- Operating weight:
EW 450 - 45,0 - 49,0 t
EW 650 - 55,0 - 57,0 t

- Volvo low-emission, turbocharged diesel engine with direct injection and intercooler
- Three-circuit hydraulic system
- Mode Selector and electronically controlled pump regulation SSC (Speed Sensing Control)

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

VOLVO



ENGINE

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

Model	Volvo TD 122 KKE
	Volvo TD 122 KIE**
Power output at	28,0 r/s (1700 r/min)
	30,0 r/s (1800 r/min)**
Net (ISO 9249 / SAE J1349)	227 kW (309 hp)
	273 kW (371 hp)**
Gross (SAE J1349)	237 kW (322 hp)
	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 that were effective for California from 1996 and Europe from 1997.

**EW650



ELECTRICAL SYSTEM

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

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



SLEW SYSTEM

The superstructure is rotated by means of 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.

	EW 450	EW 650
Slew, start to stop*		
90° slew	6,4 s	7,0 s
180° slew	9,0 s	10,5 s
Slew speed	6,0 r/min	5,0 r/min

*Extended equipment, excl. grab and magnet.



UNDERCARRIAGE

Drive train: 4 axles, 2 driving and 2 steering axles, bogie mounted. Drive on both rear axles (tandem mounted) for good passability.

Framework: All-welded robust torsion box frame.

Outriggers: 4 individually adjustable outriggers.

	EW450 / EW650
Max. tractive force	70 kN
Travel speed, road travel	20,0 km/h
Travel speed, site travel	7,0 km/h
Turning radius, front wheels	30 m



CARE CAB

The operator's cab offers a heavy-duty supporting frame structure. Large windows provide excellent 360° visibility. The upper front window slides up under the ceiling, and the lower one can be removed for ventilation. A sliding side window in the cab door provides additional cross ventilation.

Heater and defroster: Air for the operator's cab is recirculated through a unique micro / macro filtration system. A 3-speed fan provides efficient heating and defrosting through 14 vents. Prepared for air-conditioning.

Operator's seat: Adjustable suspension operator's seat with heating, headrest and individually adjustable armrests. Hand controls are conveniently located.



SERVICE REFILL CAPACITIES

Fuel tank	770 l
Hydraulic refuelling pump	60 l/min
Hydraulic system, total	770 l
Hydraulic system, total**	840 l
Diesel engine oil	29 l
Cooling system incl. glycol	72 l
Slew ring	17 l
Slew ring**	25 l

** EW650



HYDRAULIC SYSTEM

All-servo controlled, 3-circuit hydraulic system.

Pumps: P1 is a pressure controlled variable pump with priority to the slew circuit. P2 and P3 are power and pressure controlled variable pumps to the boom, jib, grab and travel circuits.

Valve system: Boom, jib and grab are operated by dual main valves, connected in accordance with our patented priority valve system, to obtain best combination of precision manoeuvrability and minimized fuel consumption. Boom cylinder movement equipped with floating position to increase the speed. Security hose rupture valve on the boom cylinders.

Electronically controlled pump regulation for highest power output. Equipped for material handling.



GROUND PRESSURE

EW450 with 8,6 m boom, 6,5 m jib and 8 500 kg counterweight.

** EW650 with 11,0 m boom, 8,6 m jib and 12 000 kg counterweight.

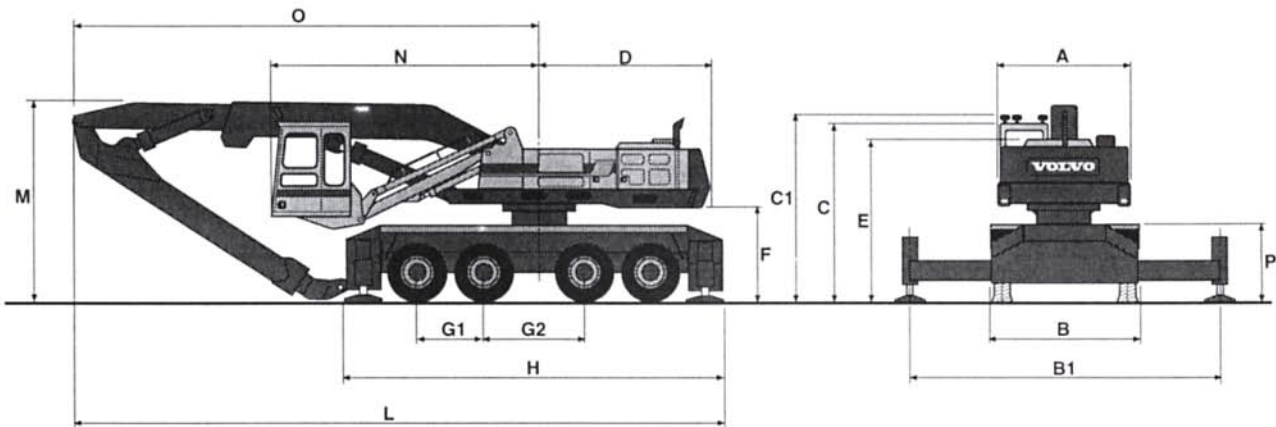
Total machine weight incl. outriggers 47 000 kg 57 000 kg**

Axles load

Front axles 21 800 kg 30 600 kg**

Rear axles 25 200 kg 26 400 kg**

DIMENSIONS

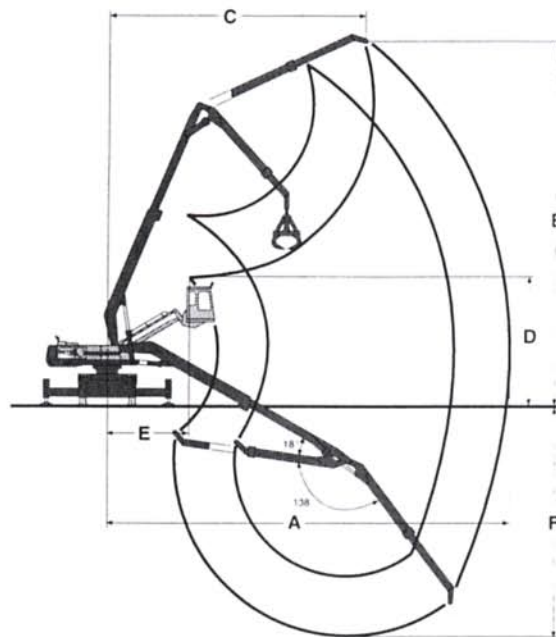


	EW450	EW650		EW450	EW650
A:	mm 2 900	3 030	L:	mm 14 420 (Boom 11,9 m and jib 9,3 m)	18 230 (Boom 13,6 m and jib 11,0 m*)
B:	mm 3 000	3 000	L:	mm 16 720 (Boom 11,9 m and jib 9,0 m)	15 140 (Boom 10,2 m and jib 9,5 m)
B1:	mm 5 400	5 400	L:	mm 14 370 (Boom 9,6 m and jib 9,3 m)	15 850 (Boom 10,2 m and jib 8,6 m*)
C:	mm 3 320	3 320	L:	mm 14 000 (Boom 9,6 m and jib 9,0 m*)	15 860 (Boom 11,0 m and jib 8,6 m, 9,5 m)
C1:	mm 3 460	3 460	L:	mm 14 000 (Boom 8,6 m and jib 9,3 m*)	-
D:	mm 3 770	3 840	L:	mm 13 390 (Boom 8,6 m and jib 9,0 m*)	-
E:	mm 3 280	3 280	L:	mm 13 310 (Boom 8,6 m and jib 6,5 m)	-
F:	mm 1 870	1 870	M:	mm 3 900 (Boom 11,9 m and jib 9,0 m, 9,3 m)	4 150 (Boom 13,6 m and jib 11,0 m*)
G1:	mm 1 600	1 600	M:	mm 4 150 (Boom 9,6 m and jib 9,3 m)	4 420 (Boom 10,2 m and jib 8,6 m*, 9,5 m)
G2:	mm 2 200	2 200	M:	mm 3 320 (Boom 9,6 m and jib 9,0 m*)	3 570 (Boom 11,0 m and jib 9,5 m)
H:	mm 8 680	8 680	M:	mm 3 000 (Boom 8,6 m and jib 9,0 m*, 9,3 m*)	4 420 (Boom 11,0 m and jib 8,6 m)
			M:	mm 4 220 (Boom 8,6 m and jib 6,5 m)	-
			O:	mm 10 230 (Boom 11,9 m and jib 9,3 m)	-
			O:	mm 12 530 (Boom 11,9 m and jib 9,0 m)	14 040 (Boom 13,6 m and jib 11,0 m*)
			O:	mm 10 180 (Boom 9,6 m and jib 9,3 m)	10 950 (Boom 10,2 m and jib 9,5 m)
			O:	mm 9 810 (Boom 9,6 m and jib 9,0 m*)	10 560 (Boom 10,2 m and jib 8,6 m*)
			O:	mm 9 200 (Boom 8,6 m and jib 9,0 m*, 9,3 m*)	11 670 (Boom 11,0 m and jib 9,5 m)
			O:	mm 9 130 (Boom 8,6 m and jib 6,5 m)	11 650 (Boom 11,0 m and jib 8,6 m)

*) Jib dismounted

WORKING RANGES

EW450/650



EW450

Boom	m	11,9*	11,9*	9,6	9,6	8,6	8,6	8,6
Jib	m	9,3**	9,0	9,3**	9,0	9,3**	9,0	6,5
A Max. reach, slewing center – jib top	m	21,2	20,9	18,9	18,6	18,2	17,9	15,4
B Max. height, ground – jib top	m	21,6	21,4	19,3	19,1	20,2	19,9	17,5
C Distance from slewing center – jib top at position B	m	9,1	8,9	8,5	8,3	4,0	3,9	3,1
D Max. height, ground – jib top, boom at maximum lift, jib folded	m	4,9	5,4	2,8	3,1	3,0	3,0	5,4
E Distance from slewing center – jib top at position D	m	3,6	3,6	2,9	2,9	4,4	4,4	3,5
F Max. depth, ground – jib top	m	11,8	11,5	10,7	10,4	9,0	8,7	6,2

*) Extensible boom

***) Extensible jib

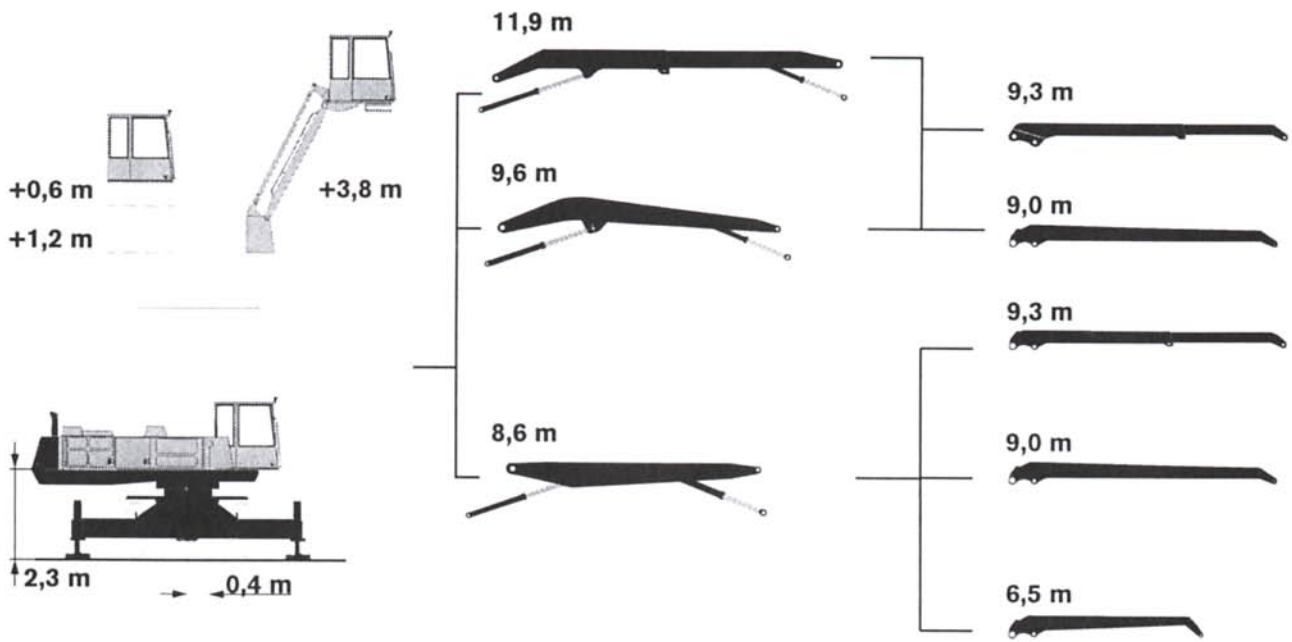
EW650

Boom	m	13,6	10,2	10,2	11,0	11,0
Jib	m	11,0	9,5**	8,6	9,5**	8,6
A Max. reach, slewing center – jib top	m	24,3	19,6	18,7	20,6	19,7
B Max. height, ground – jib top	m	22,1	18,5	17,9	22,0	21,2
C Distance from slewing center – jib top at position B	m	14,4	11,3	10,6	6,5	6,1
D Max. height, ground – jib top, boom at maximum lift, jib folded	m	4,7	3,1	4,0	4,3	5,2
E Distance from slewing center – jib top at position D	m	3,3	2,2	2,3	3,3	3,1
F Max. depth, ground – jib top	m	17,5	13,4	12,4	11,7	10,8

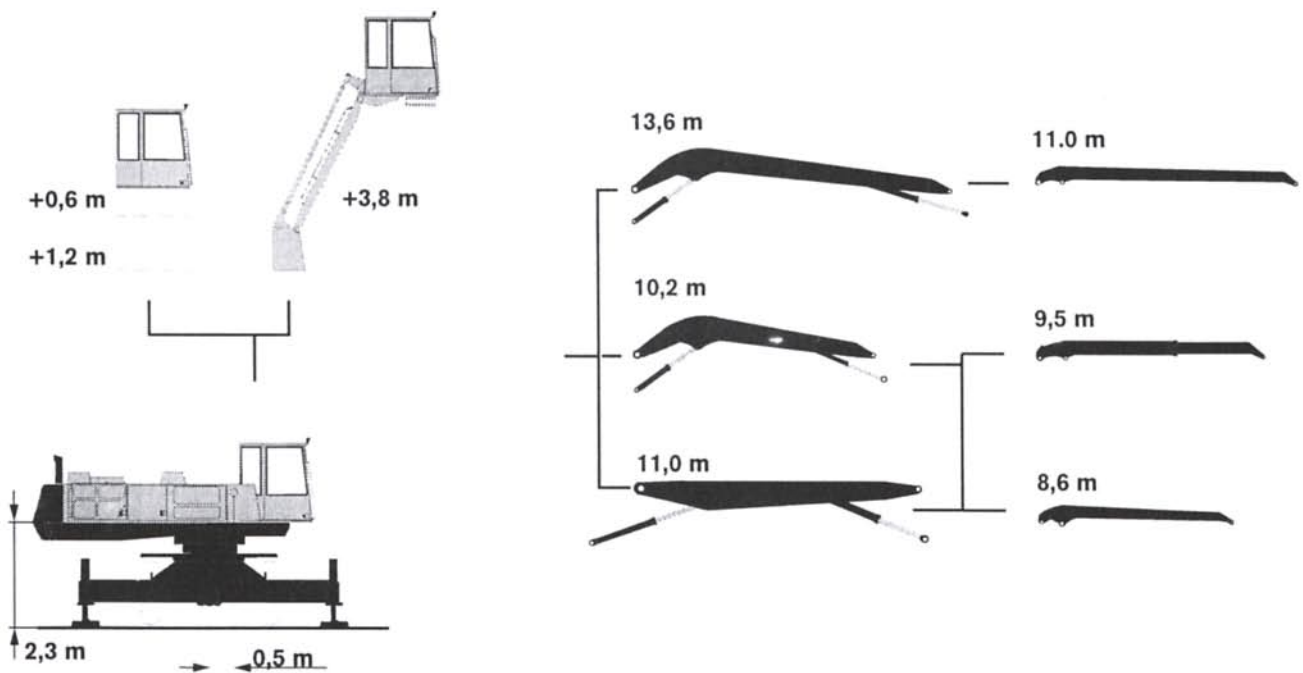
*) Extensible boom

***) Extensible jib


BOOM AND JIB COMBINATIONS EW450



BOOM AND JIB COMBINATIONS EW650




LIFTING CAPACITIES

EW450	Height of jib top m	 Lifting capacity at 360° slew, in the jib top without lifting tool. Unit: tonne = 1 000 kg. Working pressure = 35 MPa (350 bar / 5076 psi)											
		Reach from machine centreline										Max. reach	Max. m
		7,5 m	10,5 m	12,0 m	13,5 m	15,0 m	16,5 m	18,0 m	19,5 m	21,0 m			
8,6 m boom 6,5 m jib	15,0	10,1*										7,2*	9,0
	12,0	9,9*	8,8*	6,4*								5,8*	12,2
Counterweight 8 500 kg	9,0	10,2*	8,8*	8,3*	7,1*							5,5*	14,0
	6,0	11,9*	9,4*	8,0*	7,8*	5,1*						4,8*	15,1
Outriggers down	3,0	14,1*	10,2*	8,9*	7,9*	6,8*						5,3*	15,4
	0	15,0*	10,4*	8,9*	7,6*	6,0*						5,2*	15,2
	-3,0	13,5*	9,4*	7,8*	6,1*							4,6*	14,3
	-6,0	9,4*	6,3*									6,3*	10,5
9,6 m boom 9,0 m jib	15,0			5,8*	4,3*							3,8*	13,8
	12,0			6,2*	6,0*	5,0*						3,5*	16,0
Counterweight 8 500 kg	9,0			6,4*	6,1*	5,9*	4,9*					3,5*	17,4
	6,0		7,5*	7,0*	6,5*	6,1*	5,8*	3,9*				3,3*	18,3
Outriggers down	3,0	11,5*	8,6*	7,7*	7,0*	6,4*	5,9*	4,7*				3,3*	18,6
	0,0	13,7*	9,6*	8,3*	7,4*	6,6*	5,9*	4,6*				3,5*	18,4
	-3,0	14,2*	9,8*	8,4*	7,4*	6,4*	5,5*					4,2*	17,6
	-6,0	12,8*	9,0*	7,7*	6,5*	5,4*						4,2*	16,3
	-9,0	9,6*	6,8*	5,5*	4,1*							3,6*	14,0
9,6 m boom 9,3 m jib	18,0		4,4*									4,2*	10,7
	15,0			5,5*	4,3*							3,3*	14,2
Counterweight 8 500 kg	12,0			5,6*	5,4*	4,8*						3,1*	16,3
	9,0			5,8*	5,5*	5,3*	4,7*					3,0*	17,7
Outriggers down	6,0		6,8*	6,3*	5,9*	5,5*	5,1*	3,9*				2,8*	18,6
	3,0	10,6*	7,9*	7,0*	6,3*	5,8*	5,3*	4,7*				2,8*	18,9
	0,0	12,6*	8,7*	7,6*	6,7*	5,9*	5,3*	4,6*				3,0*	18,7
	-3,0	13,2*	9,0*	7,7*	6,6*	5,8*	5,0*					3,6*	17,9
	-6,0	12,0*	8,3*	7,0*	5,9*	4,9*	3,6*					3,5*	16,7
	-9,0	9,0*	6,2*	5,1*	3,8*							2,8*	14,5
11,9 m boom 9,3 m jib	18,0			5,3*	4,8*							3,6*	14,6
	15,0				4,8*	4,5*	4,2*					3,1*	17,3
Counterweight 8 500 kg	12,0				4,8*	4,5*	4,2*	4,0*				2,9*	19,1
	9,0			5,5*	5,0*	4,6*	4,3*	4,0*	3,7*			2,8*	20,3
Outriggers down	6,0		6,7*	5,9*	5,3*	4,8*	4,4*	4,0*	3,7*	2,7*		2,7*	21,0
	3,0	10,8*	7,4*	6,4*	5,6*	5,0*	4,5*	4,1*	3,7*	3,2*		2,8*	21,3
	0,0	5,7*	7,8*	6,6*	5,8*	5,1*	4,5*	4,0*	3,5*	2,9*		2,9*	21,1
	-3,0	4,9*	7,6*	6,5*	5,7*	4,9*	4,3*	3,8*	3,2*			2,6*	20,5
	-6,0	5,8*	6,8*	5,9*	5,1*	4,4*	3,7*	3,1*				2,3*	19,3
	-9,0	7,0*	5,3*	4,6*	3,9*	3,2*	2,4*					1,7*	17,6

* 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.

LIFTING CAPACITIES

EW650	Height of jib top m	 Lifting capacity at 360° slew, in the jib top without lifting tool. Unit: tonne = 1 000 kg. Working pressure = 34 MPa (340 bar / 4930 psi)										
		Reach from machine centreline										
		10,5 m	13,5 m	15,0 m	16,5 m	18,0 m	19,5 m	21,0 m	22,5 m	24,0 m	Max. reach	Max. m
10,2 m boom	15,0		5,9*	4,1*							4,0*	15,1
9,5 m jib	12,0		5,8*	4,8*							3,6*	17,2
Counterweight	9,0		6,0*	5,9*	5,8*	4,6*					3,6*	18,5
12 000 kg	6,0		6,6*	6,4*	6,1*	5,9					3,5*	19,3
Outriggers	3,0	9,0*	7,5*	7,0*	6,6*	5,7	3,7*				3,6*	19,6
down	0	10,7*	8,4*	7,3	6,3	5,5					3,8*	19,4
	-3,0	11,6	8,1	6,9	6,0	5,3					4,3*	18,7
	-6,0	11,1	7,8	6,7	5,9						5,3*	17,4
	-9,0	10,8*	7,8	6,5*							6,1*	15,5
	-12,0	7,9*									5,5*	12,6
11,0 m boom	18,0	8,0*									5,7*	12,1
8,6 m jib	15,0	8,9*	7,7*	5,3*							4,7*	15,3
Counterweight	12,0	8,9*	7,9*	7,5*	6,2*						4,5*	17,3
12 000 kg	9,0	9,5*	8,2*	7,6*	6,9	5,8					4,4*	18,6
Outriggers	6,0	10,5*	8,6*	7,8	6,7	5,7					4,3*	19,4
down	3,0	11,6*	9,1*	7,4	6,3	5,5	4,8				4,3*	19,7
	0,0	11,6	8,1	7,0	6,0	5,3	4,6*				4,6*	19,5
	-3,0	11,0	7,7	6,7	5,9	5,2					4,9	18,8
	-6,0	10,4*	7,6	6,6*	5,4*						4,2*	17,6
	-9,0	7,6*	5,3*	3,9*							3,2*	15,6
11,0 m boom	18,0	8,0*	4,7*								4,6*	13,6
9,5 m jib	15,0		7,3*	6,2*							4,1*	16,4
Counterweight	12,0		7,3*	6,9*	6,6*	4,4*					3,6*	18,4
12 000 kg	9,0	8,7*	7,5*	7,0*	6,6*	5,8	3,8*				3,6*	19,6
Outriggers	6,0	9,7*	8,0*	7,4*	6,6	5,6	4,8				3,7*	20,3
down	3,0	10,9*	8,5*	7,3	6,2	5,3	4,6				4,2	20,6
	0,0	11,5	7,9	6,8	5,8	5,1	4,4				3,9*	20,4
	-3,0	10,6	7,4	6,4	5,6	4,9	4,4				3,1*	19,8
	-6,0	10,2	7,2	6,2	5,5	4,4*					3,8*	18,6
	-9,0	8,0*	5,8*	4,7*	3,2*						2,9*	16,8
13,6 m boom	18,0				4,2*	4,2*					3,3*	18,8
11,0 m jib	15,0					4,1*	4,1*				3,2*	20,9
Counterweight	12,0				4,2*	4,1*	4,1*	4,0*			3,1*	22,4
12 000 kg	9,0			4,7*	4,5*	4,4*	4,2*	4,1*	4,0*		3,0*	23,5
Outriggers	6,0		5,6*	5,3*	4,9*	4,7*	4,5*	4,3*	3,9	3,1*	3,0*	24,1
down	3,0	8,3*	6,5*	5,9*	5,4*	5,1*	4,8*	4,2	3,7	3,3	3,2*	24,3
	0,0	9,6*	7,2*	6,5*	5,9*	5,2	4,5	4,0	3,6	3,2	3,1	24,2
	-3,0	10,2	7,3	6,3	5,5	4,8	4,3	3,8	3,4		3,2	23,6
	-6,0	9,7	6,9	5,9	5,2	4,6	4,1	3,7	3,4		3,4	22,6
	-9,0	9,5	6,7	5,8	5,1	4,5	4,1	3,7			3,7	21,2
	-12,0	9,3*	6,8	5,9	5,2	4,7					4,2*	19,2
	-15,0	7,5*	5,7*	4,8*							3,9*	16,4

* 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 disconnect and fuel shut-off cock
 Auto idling
 3-step air cleaner:
 precyclone
 main filter
 safety filter
 with electronic service indicator
 Exhaust pipe elbow
 Hour meter
 Tachometer
 Fuel gauge
 Temperature gauge for cooling fluid and hydraulic oil
 Electric preheating element
 24 V electrical system with 2 standard batteries

Undercarriage

4 adjustable outriggers
 4 axles (2 axles for drive)
 Swing circle in oil bath

Safety and Comfort

Safety bar for control levers
 Hose rupture valve on boom cylinder
 Hydraulic refuelling pump, 60 l/min
 Overload indicator
 Lights (halogen):
 5 working lights, front
 1 working light, rear
 Illuminated cab, engine compartment and fuelling compartment
 Rear view mirrors:
 4 exterior, 1 interior
 Cab heating with 14 vents
 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 windshield wipers
 Windshield washers
 Compressor horn

Hydraulics

Float position on boom
 Mode selector
 Three variable axial piston working pumps
 Standard filter cartridges for return, leak oil and breathing filter

Equipment

EW450
 8,6 m boom
 6,5 m jib

EW650
 11,0 m boom
 8,6 m jib

OPTIONAL EQUIPMENT *(Standard on certain markets)*

Engine and Electrical System

Volvo diesel-powered cab and engine heater with digital timer
 Electric engine heater, 220 V
 Oil bath cleaner
 Extra fuel filter
 Coolant filter

Safety and comfort

Protective net for windscreen
 Protective bars for skylight (FOPS 3449-approved)
 Fire extinguisher
 Rotating beacon
 Protection against overfilling fuel
 Extra circulation pump for the heating system
 External sun visor
 Rear window jalousie
 Air conditioning
 Micro filter for the cab
 Radio and cassette player

Hydraulic system

Biodegradable hydraulic oil

Equipment

EW450
Booms
 11,9 m extensible
 9,6 m

Jibs
 9,3 m extensible
 9,0 m

EW650
Booms
 13,6 m
 10,2 m

Jibs
 11,0 m
 9,5 m extensible

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**

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 EXC