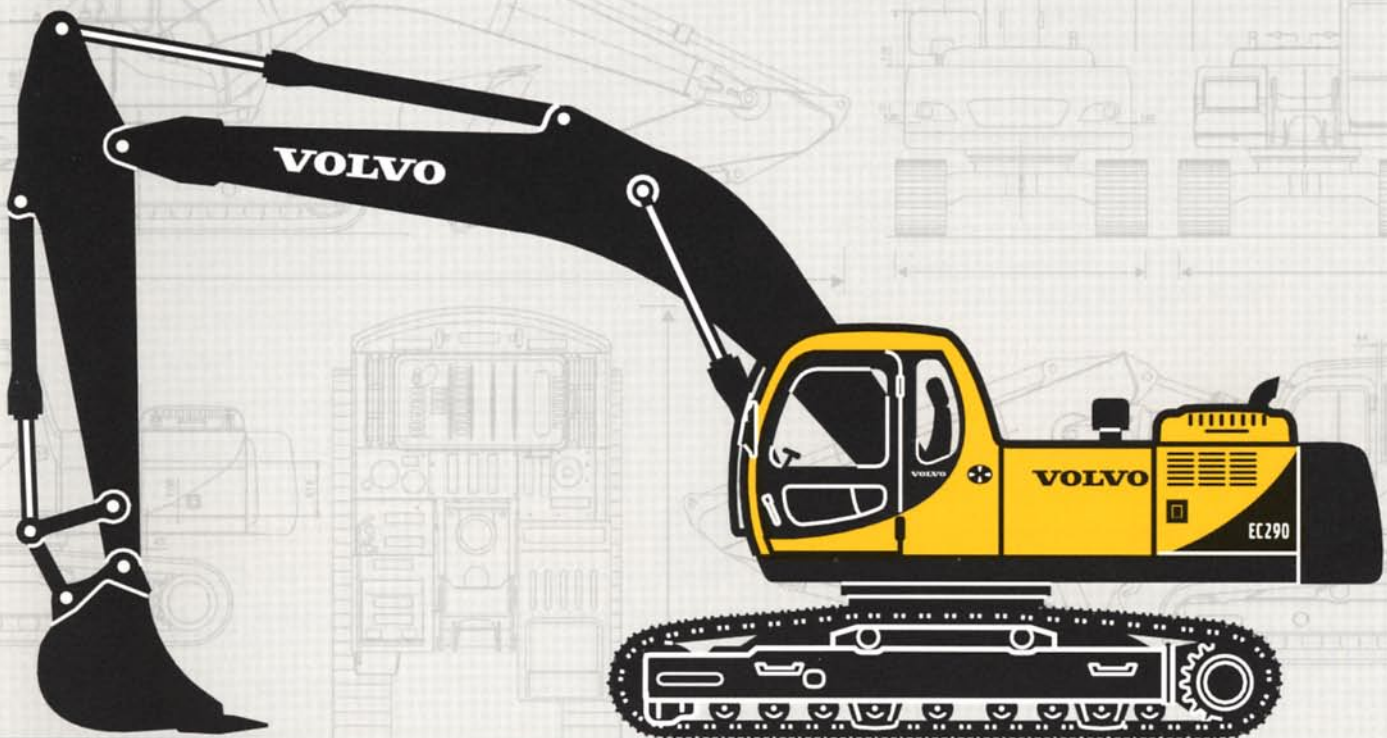


VOLVO EXCAVATOR

EC290



- **Engine power, gross:**
160 kW 215 hp
- **Operating weight:**
27.8 ~ 29.1 t
61300 ~ 64230 lb
- **Buckets (SAE):**
1075 ~ 1975 l
1.41 ~ 2.58 yd³
- Low-emission, turbocharged Cummins diesel engine with direct injection
- Integrated mode selection system and electronically controlled system (ACS)
- 2 variable displacement axial piston pumps. Independent and simultaneous movements of the digging equipment are controlled by the "Automatic sensing work mode."
- Cab
 - Ergonomic environment
 - Low sound level
 - Filtered air
 - Hydraulic dampening mounts
- Strong attachment, produced by robotic welding
- High lifting, breakout and tearout forces for tough digging conditions
- Long undercarriage for good stability
- Hammer/shear and Volvo quick coupler piping as standard equipment
- Prepared for a number of optional items

VOLVO



ENGINE

The engine is a low-emission, turbocharged, 4-stroke diesel engine with water cooling, direct injection and aftercooler, especially developed for excavator use.

The machine can work at any job site, contributing to good fuel economy, low sound level, less wear and a longer life.

Air filter: 3-stage, includes pre-cleaner

Automatic idling system: Reduces the engine speed to an idling speed when levers and pedals are not activated.

Maker	CUMMINS	
Model	C8.3-C	
Power output at	32 r/s	1900 rpm
Net (ISO 9249/DIN 6271) ...	147 kW	197 hp
Gross (SAE J1349)	160 kW	215 hp
Max. torque	873 N·m at 1500 rpm	
	644 lb-ft at 1500 rpm	
No. of cylinders	6	
Displacement	8.27 l	505 cu.in
Bore	114 mm	4.49"
Stroke	135 mm	5.31"



ELECTRICAL SYSTEM

Well-protected electrical system with high capacity.

Double lock harness plugs are waterproof to ensure secure connections and prevent corrosion.

The relays and solenoid valves are shielded to prevent accidental damage or terminal contact.

The master switch, for disconnecting the battery, is standard.

ACS system, providing integrated mode selection functions and self-diagnostic mode, is standard.

Voltage	24 V
Batteries	2 x 12 V
Battery capacity	200 Ah
Alternator	24 V / 50 A



SERVICE REFILL CAPACITIES

Fuel tank	470 l	124 gal
Hydraulic system, total	400 l	106 gal
Hydraulic tank	200 l	53 gal
Engine oil	27 l	7 gal
Engine coolant	32.9 l	9 gal
Swing reduction unit	11 l	3 gal
Travel reduction units	2 x 5.5 l	2 x 1.5 gal



SWING SYSTEM

The superstructure is swung by the means of an axial piston motor and a planetary reduction unit. Automatic swing holding brake and anti-rebound valve are standard.

Max. swing speed 10.8 rpm



UNDERCARRIAGE

The undercarriage has an X-shaped frame.

The greased and sealed track chain is standard.

No. of track pads	2 x 50	
Link pitch	203 mm	8.0"
Shoe width, triple grouser	600 / 700 / 800 (Std.) / 900 mm	
	24" / 28" / 32" (Std.) / 36"	
Shoe width, swamp	900 mm	36"
No. of lower track rollers	2 x 9	
No. of upper rollers	2 x 2	



DRIVE

Each track is powered by an automatic two-speed travel motor.

The track brakes are multi-disc, spring-applied and hydraulic-released.

The travel motors, brake and planetary gears are well-protected in the track frame.

Max. tractive effort	230.4 kN	51820 lb
Max. travel speed(1st/2nd)	3.3/5.2 km/h	2.1/3.2 mph
Gradeability	35°	70%



HYDRAULIC SYSTEM

The hydraulic system, named "Automatic Sensing Work Mode", is designed for high productivity, high digging capacity, high maneuvering precision and good fuel economy.

The summation system, boom priority, arm priority, swing priority, and regeneration system of the boom and arm flows are provided for the best operation.

The following important functions are included in the system.

Summation system: Providing full use of the pump oil flow.

Boom priority: Providing priority to the boom operation for fast raising during loading or deep excavation.

Arm priority: Providing priority to the arm operation for faster cycle times during leveling and for increased bucket filling factors while digging.

Swing priority: Providing priority to the swing operation for faster swing during simultaneous operations.

Regeneration system: Enhancing the cylinder life cycle, preventing cavitation and providing priority to other movements during simultaneous operations.

Power boost: All digging and lifting forces are increased.

Holding valves: Boom and arm holding valves are standard.

Power Max: All function speeds are increased.

Pumps

Main pumps:

Type 2 x variable displacement axial piston pumps

Maximum flow 2 x 250 l/min **2 x 66 gpm**

Pilot pump:

Type Gear pump

Maximum flow 19 l/min **5.0 gpm**

Hydraulic motors

Travel 2 x variable displacement axial piston motors

Swing Fixed displacement piston motor with mechanical brake

Relief valve setting

Attachment 31.4/34.3 MPa **4550/4980 psi**

Travel circuit 34.3 MPa **4980 psi**

Swing circuit 26.5 MPa **3840 psi**

Pilot circuit 3.9 MPa **570 psi**

Hydraulic cylinders

Boom 2

bore x stroke Ø 140 mm x 1480 mm
Ø 5.5" x 58.3"

Arm 1

bore x stroke Ø 150 mm x 1745 mm
Ø 5.9" x 68.7"

Bucket 1

bore x stroke Ø 140 mm x 1140 mm
Ø 5.5" x 44.9"



CAB

Easily accessible cab with a wide door and lined with sound-absorbing material.

The cab, which is supported by hydraulic dampening mounts to reduce shock and vibration, has all-around visibility.

The front windshield can slide up into the ceiling, and the lower front glass can be removed.

Integrated air-conditioning and heating system:

The pressurized and filtered cab air is supplied by a 4-speed fan. The air is distributed via 8 vents.

Ergonomic operator's seat: The adjustable seat and control consoles move independently to accommodate the operator well. The seat has eight different adjustments and a seat belt to meet any operator's requirement.

Sound level (preliminary):

 According to the Directive 86/662/EEC.

Exterior noise (ISO 6395)

mean value of L_{WA} (sound power level) 104 dB(A)

Operator's position (ISO 6396)

with the door closed

mean value of L_{PA} (sound pressure level) 75 dB(A)

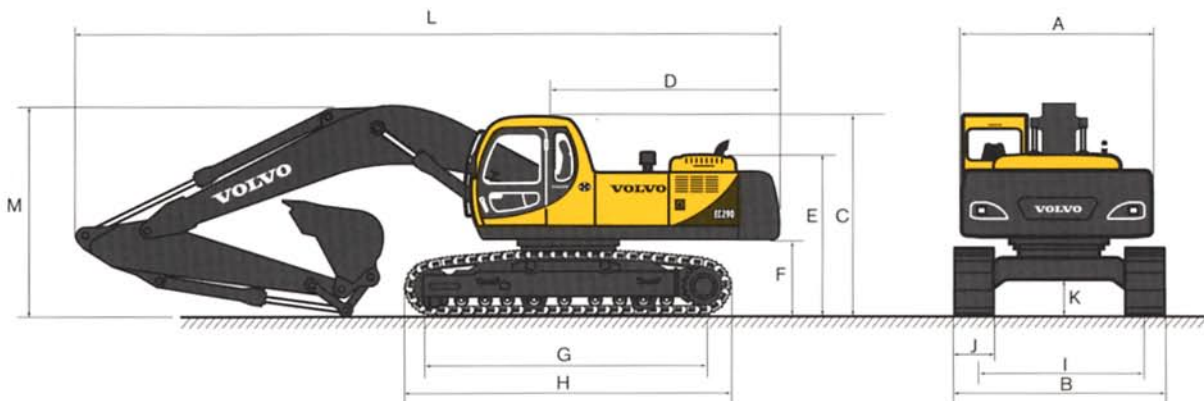


GROUND PRESSURE

• Machine with Std. 6.2 m, 20' 4" boom, Std. 3.05 m, 10' 0" arm, 975 kg, 2,150 lb bucket and 4800 kg, 10,580 lb counterweight.

Description	Shoe width	Operating weight	Ground pressure	Overall width
Triple grouser	600 mm 24"	27800 kg 61,300 lb	52.0 kPa 7.5 psi	3190 mm 10' 6"
	700 mm 28"	28410 kg 62,640 lb	46.1 kPa 6.7 psi	3290 mm 10' 10"
	Std. 800 mm Std. 32"	28750 kg 63,390 lb	40.2 kPa 5.8 psi	3390 mm 11' 1"
	900 mm 36"	29130 kg 64,230 lb	36.3 kPa 5.3 psi	3490 mm 11' 5"
Swamp shoe	900 mm 36"	28800 kg 63,500 lb	36.3 kPa 5.3 psi	3490 mm 11' 5"

DIMENSIONS



Boom	unit	Std. 6.2 m, 20' 4"		
Arm		2.55 m, 8' 4"	Std. 3.05 m, 10' 0"	4.0 m, 13' 1"
A. Overall width of upper structure	mm, ft-in	2890, 9' 6"	2890, 9' 6"	2890, 9' 6"
B. Overall width	mm, ft-in	3390, 11' 1"	3390, 11' 1"	3390, 11' 1"
C. Overall height of cab	mm, ft-in	3030, 9' 11"	3030, 9' 11"	3030, 9' 11"
D. Tail swing radius	mm, ft-in	3150, 10' 4"	3150, 10' 4"	3150, 10' 4"
E. Overall height of engine hood	mm, ft-in	2435, 8' 0"	2435, 8' 0"	2435, 8' 0"
F. Counterweight clearance*	mm, ft-in	1125, 3' 8"	1125, 3' 8"	1125, 3' 8"
G. Tumbler length	mm, ft-in	4015, 13' 2"	4015, 13' 2"	4015, 13' 2"
H. Track length	mm, ft-in	4870, 16' 0"	4870, 16' 0"	4870, 16' 0"
I. Track gauge	mm, ft-in	2590, 8' 6"	2590, 8' 6"	2590, 8' 6"
J. Shoe width-Std.	mm, in	800, 32"	800, 32"	800, 32"
K. Min. ground clearance*	mm, ft-in	480, 1' 7"	480, 1' 7"	480, 1' 7"
L. Overall length	mm, ft-in	10760, 35' 4"	10660, 35' 0"	10710, 35' 2"
M. Overall height of boom	mm, ft-in	3370, 11' 1"	3200, 10' 6"	3620, 11' 11"

* Without shoe grouser

DIMENSIONS

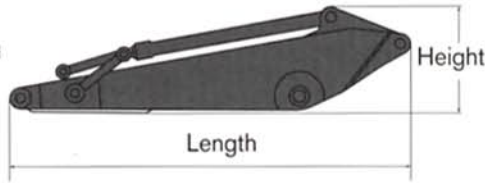
• Boom



Description	6.2 m, 20' 4"	
	Std.	Heavy duty
Length	6430 mm, 21' 1"	6430 mm, 21' 1"
Height	1680 mm, 5' 6"	1680 mm, 5' 6"
Width	770 mm, 2' 6"	770 mm, 2' 6"
Weight *	2470 kg, 5,450 lb	2590 kg, 5,710 lb

* Includes cylinder, piping and pin

• Arm



Description	2.55 m, 8' 4"	3.05 m, 10' 0"		4.0 m, 13' 1"
		Std.	Heavy duty	
Length	3710 mm, 12' 2"	4150 mm, 13' 7"	4150 mm, 13' 7"	5100 mm, 16' 9"
Height	965 mm, 3' 2"	965 mm, 3' 2"	965 mm, 3' 2"	1025 mm, 3' 4"
Width	545 mm, 1' 9"	545 mm, 1' 9"	545 mm, 1' 9"	545 mm, 1' 9"
Weight *	1415 kg, 3,120 lb	1490 kg, 3,290 lb	1520 kg, 3,350 lb	1710 kg, 3,770 lb

* Includes cylinder, linkage and pins

BUCKET & ARM COMBINATION

Note: Bucket size based on SAE-J296, heaped material with a 1:1 angle of repose.

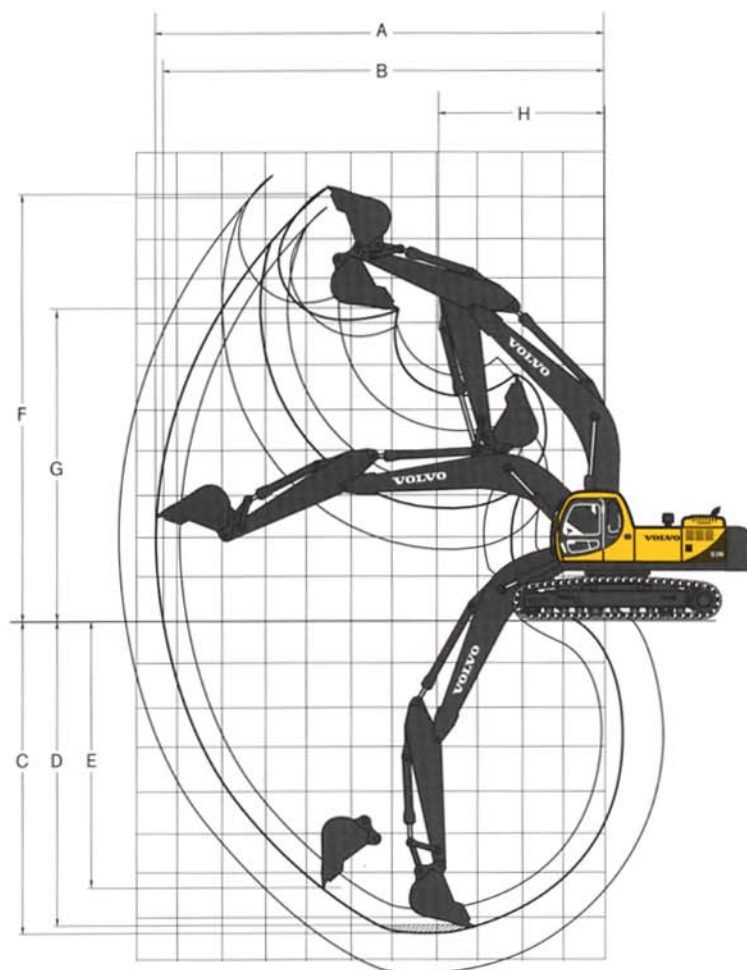
- Max. permitted sizes for pin on buckets:
Counterweight: 4800 kg, 10,580 lb

Description	unit	2.55 m, 8' 4" Arm	Std. 3.05 m, 10' 0" Arm	4.0 m, 13' 1" Arm
GP bucket 1.5 t/m ³ , 2,530 lb/yd ³	l, yd ³	1,975, 2.58	1,800, 2.35	1,525, 1.99
GP bucket 1.8 t/m ³ , 3,030 lb/yd ³	l, yd ³	1,725, 2.26	1,575, 2.06	1,350, 1.77
RB bucket 1.8 t/m ³ , 3,030 lb/yd ³	l, yd ³	1,600, 2.09	1,450, 1.90	1,225, 1.60
RB bucket 2.0 t/m ³ , 3,370 lb/yd ³	l, yd ³	1,475, 1.93	1,350, 1.77	1,150, 1.50

- Max. permitted sizes for hook on buckets:
Counterweight: 4800 kg, 10,580 lb

Description	unit	2.55 m, 8' 4" Arm	Std. 3.05 m, 10' 0" Arm	4.0 m, 13' 1" Arm
GP bucket 1.5 t/m ³ , 2,530 lb/yd ³	l, yd ³	1,875, 2.45	1,700, 2.22	1,425, 1.86
GP bucket 1.8 t/m ³ , 3,030 lb/yd ³	l, yd ³	1,650, 2.16	1,475, 1.93	1,250, 1.64
RB bucket 1.8 t/m ³ , 3,030 lb/yd ³	l, yd ³	1,525, 1.99	1,375, 1.80	1,150, 1.50
RB bucket 2.0 t/m ³ , 3,370 lb/yd ³	l, yd ³	1,400, 1.83	1,275, 1.67	1,075, 1.41

WORKING RANGES



• Std. 6.2 m, 20' 4" boom with pin on bucket









Arm	unit	2.55 m, 8' 4"	Std. 3.05 m, 10' 0"	4.0 m, 13' 1"
A. Max. digging reach	mm, ft-in	10160, 33' 4"	10690, 35' 1"	11575, 38' 0"
B. Max. digging reach on ground	mm, ft-in	9955, 32' 8"	10495, 34' 5"	11400, 37' 5"
C. Max. digging depth	mm, ft-in	6850, 22' 6"	7350, 24' 1"	8300, 27' 3"
D. Max. digging depth (8° level)	mm, ft-in	6605, 21' 8"	7160, 23' 6"	8150, 26' 9"
E. Max. vertical wall digging depth	mm, ft-in	5350, 17' 7"	6255, 20' 6"	7025, 23' 1"
F. Max. cutting height	mm, ft-in	9610, 31' 6"	10020, 32' 10"	10445, 34' 3"
G. Max. dumping height	mm, ft-in	6670, 21' 11"	7030, 23' 1"	7450, 24' 5"
H. Min. front swing radius	mm, ft-in	4170, 13' 8"	4130, 13' 7"	4245, 13' 11"

Digging forces with pin on bucket:		unit	2.55 m, 8' 4"	Std. 3.05 m, 10' 0"	4.0 m, 13' 1"
Bucket tip radius		mm, in	1600, 63"	1600, 63"	1600, 63"
Breakout force-bucket (Normal / Power boost)	SAE	kN	157.8 / 172.6	157.8 / 172.6	157.8 / 172.6
		lb	35,480 / 38,810	35,480 / 38,810	35,480 / 38,810
Tearout force-arm (Normal / Power boost)	SAE	kN	145.0 / 158.7	123.4 / 134.9	102.3 / 111.9
		lb	32,610 / 35,680	27,740 / 30,340	23,000 / 25,160
Rotation angle, bucket		°	179°	179°	179°

LIFTING CAPACITY (At the arm end without bucket)

Note: For lift capacity including bucket, simply subtract actual weight of the pin on bucket or the bucket with quick coupler from the following values.

EC290 (Std. shoe 800 mm, 32", counterweight 4800 kg, 10,580 lb)

 Across undercarriage  Along undercarriage	Lifting hook related to ground level m / ft	4.5 m, 15'		6 m, 20'		7.5 m, 25'		9 m, 30'		Max.reach					
														Max. m / ft	
		t	lb	t	lb	t	lb	t	lb	t	lb	t	lb		
Boom 6.2 m 20' 4" + Arm 2.55 m 8' 4"	7.5 25'				*7.4 *16,390	*7.4 *16,390							6.8 15,450	*7.5 *16,620	6.5 / 20.9
	6 20'				*7.7 16,570	*7.7 *16,780							5.3 11,800	*7.5 *16,570	7.5 / 24.6
	4.5 15'	*10.8 *23,180	*10.8 *23,180	7.4 15,920	*8.7 *18,910	5.2 11,260	*7.8 *17,060						4.5 10,080	7.2 15,990	8.2 / 26.7
	3 10'	10.6 22,810	*13.8 *29,620	7.0 15,100	*10.1 *21,800	5.1 10,890	8.1 17,450						4.2 9,220	6.7 14,750	8.5 / 27.9
	1.5 5'	10.0 21,490	*15.9 *34,250	6.7 14,390	11.1 23,920	4.9 10,530	7.9 17,050						4.1 8,930	6.5 14,380	8.5 / 28.0
	0 0'	9.8 21,020	*16.5 *35,660	6.5 13,960	10.9 23,430	4.8 10,290	7.8 16,780						4.1 9,140	6.7 14,800	8.3 / 27.3
	-1.5 -5'	9.8 21,010	*16.1 *34,850	6.4 13,840	10.8 23,290	4.7 10,250	7.8 16,740						4.5 9,980	7.4 16,250	7.8 / 25.5
	-3 -10'	9.9 21,320	*14.8 *31,980	6.5 14,020	10.9 23,500								5.4 11,970	8.9 19,670	6.9 / 22.6
-4.5 -15'	10.2 22,070	*12.0 *25,530										7.7 17,370	*9.6 *21,070	5.5 / 17.7	
Boom 6.2 m 20' 4" + Arm 3.05 m 10' 0"	7.5 25'												*5.8 *12,850	*5.8 *12,850	7.2 / 23.3
	6 20'						5.4 11,600	*6.9 *15,110					4.7 10,440	*5.6 *12,250	8.1 / 26.5
	4.5 15'			7.5 16,090	*8.1 *17,510	5.3 11,330	*7.3 *15,940						4.1 9,060	*5.5 *12,210	8.7 / 28.6
	3 10'	10.8 23,260	*12.7 *27,320	7.1 15,220	*9.5 *20,550	5.1 10,910	*8.0 *17,430						3.8 8,360	*5.7 *12,590	9.0 / 29.6
	1.5 5'	10.1 21,680	*15.2 *32,690	6.7 14,420	*10.8 *23,450	4.9 10,500	7.9 17,030						3.7 8,100	5.9 13,090	9.1 / 29.8
	0 0'	9.7 20,940	*16.2 *35,160	6.4 13,890	10.9 23,380	4.7 10,190	7.8 16,690						3.7 8,250	6.1 13,410	8.9 / 29.1
	-1.5 -5'	9.7 20,770	*16.2 *35,200	6.3 13,670	10.8 23,130	4.7 10,060	7.7 16,550						4.0 8,900	6.6 14,520	8.4 / 27.4
	-3 -10'	9.7 20,970	*15.3 *33,140	6.4 13,750	10.8 23,220								4.7 10,390	7.7 17,030	7.6 / 24.7
-4.5 -15'	10.0 21,560	*13.1 *28,140	6.6 14,260	*9.6 *20,290								6.2 13,940	*8.9 *19,680	6.3 / 20.4	
Boom 6.2 m 20' 4" + Arm 4.0 m 13' 1"	7.5 25'						5.6 11,980	*5.6 *12,100					*4.1 *9,120	*4.1 *9,120	8.3 / 26.9
	6 20'						5.5 11,870	*5.8 *12,640					3.9 8,660	*4.0 *8,760	9.1 / 29.8
	4.5 15'						5.4 11,510	*6.3 *13,810	3.9 8,440	*5.9 *12,300			3.5 7,660	*4.0 *8,720	9.6 / 31.6
	3 10'	*10.6 *22,730	*10.6 *22,730	7.2 15,540	*8.3 *17,920	5.1 11,010	*7.1 *15,550	3.8 8,200	6.1 13,170	3.2 7,120	*4.1 *8,950		3.2 7,120	*4.1 *8,950	9.9 / 32.5
	1.5 5'	10.3 22,200	*13.5 *29,130	6.8 14,580	*9.8 *21,270	4.9 10,490	7.9 17,060	3.7 7,920	6.0 12,870	3.1 6,900	*4.3 *9,460		3.1 6,900	*4.3 *9,460	10.0 / 32.7
	0 0'	9.7 20,950	*15.4 *33,290	6.4 13,840	10.9 23,370	4.7 10,060	7.7 16,590	3.6 7,700	5.9 12,630	3.2 6,970	*4.7 *10,360		3.2 6,970	*4.7 *10,360	9.8 / 32.1
	-1.5 -5'	9.5 20,420	*16.1 *34,920	6.2 13,420	10.6 22,880	4.5 9,800	7.6 16,290	3.5 7,590	5.8 12,510	3.4 7,400	*5.4 *11,830		3.4 7,400	*5.4 *11,830	9.3 / 30.6
	-3 -10'	9.5 20,370	*15.9 *34,360	6.2 13,310	10.6 22,760	4.5 9,750	7.5 16,240						3.8 8,340	6.2 13,750	8.6 / 28.2
-4.5 -15'	9.6 20,720	*14.6 *31,420	6.3 13,530	10.7 23,010								4.6 10,330	7.6 17,080	7.5 / 24.5	
-6 -20'	10.0 21,580	*11.6 *24,450										6.8 15,620	*8.3 *18,380	5.9 / 18.8	

- Notes :
- Machine in "Fine Mode-F" (Power Boost), for lift capacities.
 - The above loads are in compliance with SAE and ISO Hydraulic Excavator Lift Capacity Standards.
 - Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping load.
 - Rated loads marked with an asterisk (*) are limited by hydraulic capacity rather than tipping load
 - Contains metric and U.S. measurement charts.

STANDARD EQUIPMENT

Engine

Low-emission engine with air heater, complying with EPA (Environment Protection Association, USA) emission standards

2-stage air filter with indicator
Pre-cleaner

Electric engine shut-off
Fuel filter and water separator
Alternator, 50 AMP

Electronic control system

Advanced control system (ACS)
Integrated mode selection system
Self-diagnostic system
Machine status indication
Engine speed sensing power control
"Power Max" mode system
Automatic idling system
One-touch power boost
Automatic engine warm-up
Safety stop/start function
Adjustable monitor
Master disconnect switch
Engine restart prevention circuit

Powerful halogen lights:

- Frame mounted 2
 - Boom mounted 2
- Batteries, 2 x 12V/200Ah
Start motor, 24V/7.5kW
Travel alarm
Pump flow control for hammer & shear

Hydraulic system

Automatic sensing work mode

- Summation system
- Boom priority
- Arm priority
- Swing priority

Boom and arm flow regeneration
Swing anti-rebound valve
Boom and arm holding valves
Pilot-operated, wrist control joysticks, with 3 switches ea.
Multi-stage filtering system
Cylinder cushions
Cylinder contamination seals
Auxiliary hydraulic valve
Straight travel circuit
Volvo quick coupler piping
Hammer/shear piping, with 1 pump flow

Automatic two-speed travel motors
Hydraulic oil ISO VG 46

Superstructure

Access way with handrail
Full height counterweight
- 4800 kg, **10,580 lbs**
Tool storage area
Punched metal anti-slip plates

Cab and interior

Air-conditioner
Heater
Hydraulic dampening cab mounts
Adjustable operator seat and control consoles
Flexible antenna
Hydraulic safety lock lever
Cab, all-weather sound suppressed, includes:

- Ashtray
- Cigar lighter
- Clear tinted roof hatch
- Door locks
- Fabric seat with heater
- Floor mat
- Horn

- Large storage area
 - Pull-up type front window
 - Removable lower windshield
 - Seat belt
 - Safety glass
 - Sliding rear window
 - Sun shield, front
 - Windshield wiper with intermittent feature
- Master ignition key
Stereo cassette radio (AM/FM)
Vandal guard preparation

Undercarriage

Hydraulic track adjusters
Greased and sealed track chain
Track guides

Track shoes

Std. track shoes 800 mm, **32"**
with triple grousers

Attachment

Std. boom: 6.2 m, **20' 4"**
Std. arm: 3.05 m, **10' 0"**

OPTIONAL EQUIPMENT

Engine

Alternator, 70 AMP
Block and oil pan heater, 120V
Fuel warmer
Tropical kit
Fuel filler pump: 50 lpm (13.2 gpm), with automatic shut-off

Electronic control system

Extra work lights-(4):

- Cab mounted-3, (front 2, rear 1)
- Counterweight mounted-1

Rotating warning beacon

Hydraulic system

Hydraulic piping

- Hammer & shear:
 - 2 pump flow
 - Extra piping for slope & rotator
 - Additional return filter
- Slope & rotator
- Grapple
- Oil leak line

Volvo hydraulic quick coupler-S2 size
Hydraulic oil, ISO VG 32
Hydraulic oil, ISO VG 68

Superstructure

Undercover (heavy duty), 4.5 mm, (.18")

Cab and interior

Fabric seat
Fabric seat, with heater and air suspension
Control joysticks, with 5 switches ea.
Falling object guard (FOG)
Cab mounted falling object protective structures (FOPS)
Rain shield, front
Safety screen for front window
Vandalism kit

Undercarriage

Full track guides
Undercover (heavy duty), 10 mm, (.39")

Track shoes

600 mm / 700 mm / 900 mm
24" / 28" / 36"
track shoes with triple grousers
900 mm, **36"** swamp shoes

Attachment

Boom: 6.2 m, **20' 4"** heavy duty
Arms: 2.55 m / 4.0 m
8' 4" / 13' 1"
3.05 m, **10' 0"** heavy duty

Service

Tool kit

*Specifications may vary by the region without notice.

*All materials contained within are confidential to Volvo Construction Equipment Korea Ltd. and may not be copied without the pre-approval of Volvo CE NA.

*Materials and specifications are subject to change without notice.

*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

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