

**V O L V O**



Volvo Excavators 21.3-23.8 t 123 kW

**EC220**

Volvo Construction Equipment

# EC220

A trusted partner for heavy lifting. The new generation of Volvo EC220 will meet the most demanding tasks, while lowering your Total Cost of Ownership.



# Work more. Consume less.

Volvo EC220 was designed to perform the most demanding jobs, but optimized to only consume the necessary energy, improving efficiencies in your operation. Intelligent monitoring and optimized key components will lower the Total Cost of Ownership, protecting your investment.



## Productivity

- A powerful D6 engine, matched with the new posicon hydraulics
- HD boom, arm and 600 mm\* track shoe
- Faster cycle times



## Fuel Efficiency

- Up to 10% improvement
- New Posicon MCV
- Improved ECO mode and work modes



## Serviceability

- Ground level access for service
- Longer service intervals - up to 6000-hours hydraulic oil change
- Grouped filters and lubrication points
- Swing out condenser



## Safety

- Increased onsite safety for the operator
- 8" HD resolution display
- 3-point side access
- Counterweight embedded with Rear view Camera and LED lights



## Operator comfort

- More precise controls
- Quieter cab
- ROPS cab as standard
- New Human-Machine Interface
- Improved operator environment



## Performance Enablers\*

- Powered by new Volvo Co-Pilot
- Dig Assist with On-Board Weighing
- Breaker and X3 piping\*

\*Please contact your local dealership for more information

## Fuel efficiency

In the new generation of Volvo excavators, our new posi-con hydraulic system regulates the hydraulic flow rate based on the task at hand and reduces hydraulic losses. This ensures that only the necessary amount of energy is used while performing the most demanding jobs. The result is improved fuel efficiency and reduced Total Cost of Ownership.

## Outstanding performance

The optimized work modes and ECO mode on the new generation of Volvo excavators help the operator to adapt to the most demanding job conditions, while keeping high performance at lower rpm, further increasing fuel efficiency. A host of additional optional features, including Dig Assist and many more, also help to make your working day more efficient.

## New hydraulic system

At the heart of the fuel efficiency improvements is the new hydraulic system with enhanced main control valve (MCV). The intelligent technology uses electronic sensors to monitor the operator's movements, as well as the working pressure. Signals are sent to the machine's on-board computer (ECU), which processes the information and sends commands to the main hydraulic pump. The result is smooth and precise movement of the excavator's boom, bucket, and other hydraulic functions allowing for more accurate digging and loading.

## Reliable and durable

No matter the segment, EC220 will excel across all applications including mass excavation and heavy digging, thanks to the proven Volvo D6E engine, and a robust machine design. Get to know this true heavy-duty excavator, a long-lasting partner for your business.

## Productivity

Experience productivity in mass excavation and heavy digging applications in the EC220 like never before thanks to the powerful D6 engine, matched hydraulics with bigger buckets and faster cycle times.



## Serviceability

Minimizing downtime is key to protecting your Total Cost of Ownership. Features including swing out condenser, easy service access, 6000-hour intervals for hydraulic oil change, along with 3000-hour filter change, all combine to drive down your maintenance costs and increase machine availability. A fuel shut-off valve also facilitates fuel filter changes, avoiding fuel spillage and further reducing costs.



# Volvo EC220 in detail

Engine		
Engine	Volvo	D6E
Max power at	r/min	1 800
Net, ISO 9249/SAE J1349	kW	115
	hp	156
Gross, ISO 14396/SAE J1995	kW	123
	hp	167
Max torque	Nm	730
at engine speed	r/min	1 350
No. of cylinders		6
Displacement	l	5.7
Bore	mm	98
Stroke	mm	126
Electrical system		
Voltage	V	24
Batteries	V	2 x 12
Battery capacity	Ah	140
Alternator	V/A	28 / 80
Start motor	V - kW	24 - 5.5

Undercarriage and structures		
The undercarriage has a robust X-shaped frame. Greased and sealed track chains are standard.		
Track shoes		2 x 46
Link pitch	mm	190
Shoe width, triple grouser	mm	700 / 800
Shoe width, triple grouser (HD)	mm	600
Bottom rollers		2 x 7
Top rollers		2 x 2
Swing system		
The swing system uses an axial piston motor, driving a planetary gearbox for maximum torque. An automatic holding brake and antirebound valve are standard.		
Max. slew speed	r/min	12
Max. slew torque	kNm	76.7
Travel System		
Each track is powered by an automatic two-speed shift travel motor. The track brakes are multi-disc, spring-applied and hydraulic released. The travel motor, brake and planetary gears are well protected within the track frame.		
Max. drawbar pull	kN	183
Max. travel speed (low)	km/h	3.5
Max. travel speed (high)	km/h	5.7
Gradeability	°	35

## Cab

The operator's cab has easy access via a wide door opening. The cab is supported on hydraulic dampening mounts to reduce shock and vibration levels. These along with sound absorbing lining provide low noise levels. The cab has excellent all-round visibility. The front windshield can easily slide up into the ceiling, and the lower front glass can be removed and stored in the side door.

**Integrated airconditioning and heating system:** The pressurized and filtered cab air is supplied by an automatically controlled fan. The air is distributed throughout the cab from 14 vents.

**Ergonomic operator's seat:** The adjustable seat and joystick console move independently to accommodate the operator. The seat has up to 12 different adjustments depending on market configuration, plus a seat belt for the operator's comfort and safety.

Refrigerant of the type R134a is used when this machine is equipped with air conditioning. Contains fluorinated greenhouse gas R134a, Global Warming Potential 1430 CO<sub>2</sub>-eq.

## Sound Level

Sound pressure level in cab according to ISO 6396

L <sub>pA</sub>	dB	71
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External sound level according to ISO 6395 and EU Noise Directive 2000/14/EC

L <sub>WA</sub>	dB	104
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## Service Refill

Fuel tank	l	390
Hydraulic system, total	l	275
Hydraulic tank	l	120
Engine oil	l	25
Engine coolant	l	21
Slew reduction unit	l	5
Travel reduction unit	l	2 x 3.5

## Hydraulic system

The new hydraulic system and new MCV (main control valve) use intelligent technology to control on-demand flow for high productivity, high-digging capacity and excellent fuel consumption.

The following important functions are included in the system for optimum performance:

**Summation system:** Combines the flow of both hydraulic pumps to ensure quick cycle times and high productivity.

**Boom priority:** Gives priority to the boom operation for faster raising when loading or performing deep excavations.

**Arm priority:** Gives priority to the arm operation for faster cycle times in leveling and for increased bucket filling when digging.

**Swing priority:** Gives priority to swing functions for faster simultaneous operations.

**Regeneration system:** Prevents cavitation and provides flow to other movements during simultaneous operations for maximum productivity.

**Power boost:** All digging and lifting forces are increased.

**Holding valves:** Boom and arm holding valves prevent the digging equipment from creeping.

## Main pump: Type 2 x variable displacement axial piston pumps

Maximum flow	l/min	2 x 207
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## Pilot pump: Type Gear pump

Maximum flow	l/min	18
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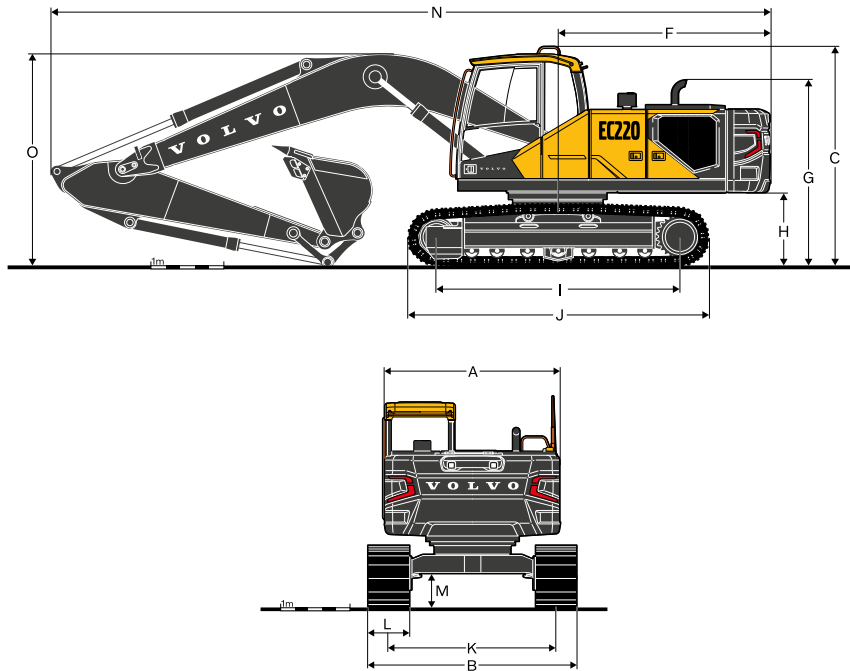
## Max. pressure

Implement	MPa	32.4 / 34.3
Travel circuit	MPa	34.3
Slew circuit	MPa	27.9
Pilot circuit	MPa	3.9

## Hydraulic Cylinders

Mono boom		2
Bore x Stroke	ø x mm	125 x 1 235
Arm		1
Bore x Stroke	ø x mm	135 x 1 540
Bucket		1
Bore x Stroke	ø x mm	120 x 1 065

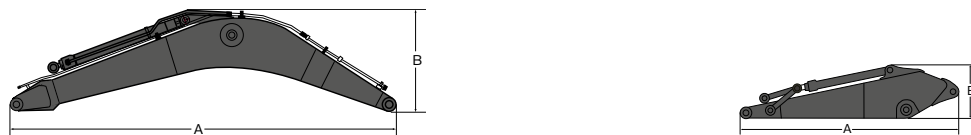
# Specifications



## DIMENSIONS

	Unit	EC220F	EC220F L	EC220F LR
<b>Boom</b>	<b>m</b>	<b>5.7</b>		<b>8.85</b>
<b>Arm</b>	<b>m</b>	<b>2.9</b>		<b>6.25</b>
A. Overall width of upper structure	mm	2 500		
B. Overall width	mm	2 800	2 990	3 190
C. Overall height of cab	mm	2 915		
D. Overall height of handrail	mm	3 032		
F. Tail swing radius	mm	2 850		
G. Overall height of engine hood	mm	2 230		
H. Counterweight clearance *	mm	1 011		
I. Tumbler length	mm	3 370	3 660	
J. Track length	mm	4 160	4 460	
K. Track gauge	mm	2 200	2 390	
L. Shoe width	mm	600		
M. Min. ground clearance *	mm	460		
N. Overall length	mm	9 690	12 880	
O. Overall height of boom	mm	2 926	3 041	

\* Without shoe grouser

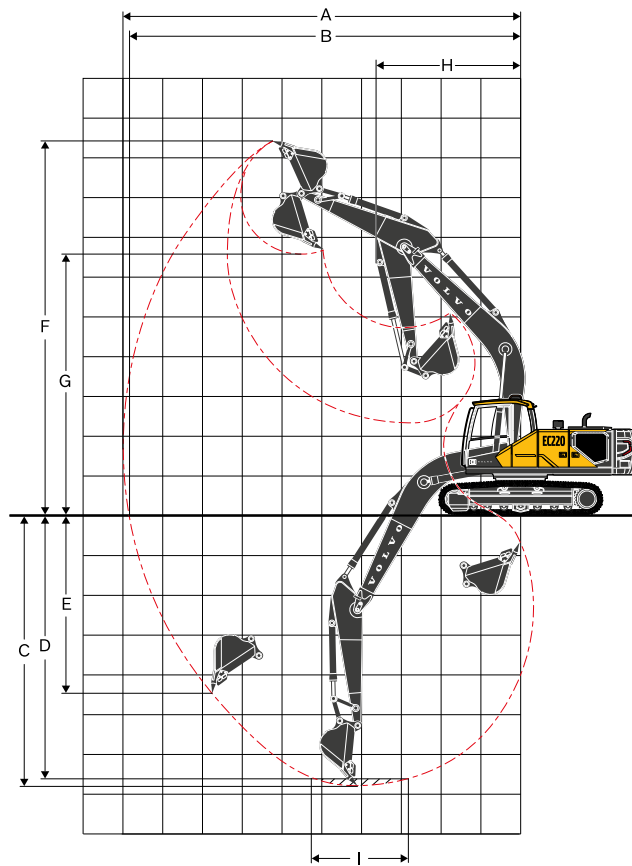


## DIMENSIONS

Description	Unit	Boom	Description	Unit	Arm
	m	5.7 HD		m	2.9 HD
A. Length	mm	5 910	A. Length	mm	3 910
B. Height	mm	1 585	B. Height	mm	860
Width	mm	670	Width	mm	440
Weight	kg	1 621	Weight	kg	783
Weight*	kg	2 130	Weight*	kg	1 150

\* Includes arm cylinder, piping and pin

\* Includes bucket cylinder, linkage and pin



#### WORKING RANGES WITH DIRECT FIT BUCKET

Description	Unit	EC220F, L
<b>Boom</b>	<b>m</b>	<b>5.7</b>
<b>Arm</b>	<b>m</b>	<b>2.9</b>
A. Max. digging reach	mm	9 930
B. Max. digging reach on ground	mm	9 770
C. Max. digging depth	mm	6 730
D. Max. digging depth (l=2.44 m level)	mm	6 540
E. Max. vertical wall digging depth	mm	6 090
F. Max. cutting height	mm	9 460
G. Max. dumping height	mm	6 650
H. Min. front swing radius	mm	3 640

#### DIGGING FORCES WITH DIRECT FIT BUCKET

Breakout force (bucket)	Normal	SAE J1179	kN	123
	Power boost	SAE J1179	kN	130
	Normal	ISO 6015	kN	136
	Power boost	ISO 6015	kN	144
Tearout force (arm)	Normal	SAE J1179	kN	96
	Power boost	SAE J1179	kN	102
	Normal	ISO 6015	kN	99
	Power boost	ISO 6015	kN	105

# Specifications

## GROUND PRESSURE

### EC220F

Description	Shoe width	Operating weight	Ground pressure	Overall width	Operating weight	Ground pressure	Overall width	
	mm	kg	kPa	mm	kg	kPa	mm	
Triple grouser	600 (HD)	21 130	44.7	2 800	21 330	45.1	2 800	
	700	21 392	38.8	2 900	21 592	39.1	2 900	
	800	21 654	34.3	3 000	21 854	34.6	3 000	
					EC220F, 5.7 m HD boom, 2.9 m HD arm, 856 kg bucket, 4 000 kg counterweight		EC220F, 5.7 m HD boom, 2.9 m HD arm, 856 kg bucket, 4 200 kg counterweight	

### EC220F L

Description	Shoe width	Operating weight	Ground pressure	Overall width	Operating weight	Ground pressure	Overall width	
	mm	kg	kPa	mm	kg	kPa	mm	
Triple grouser	600 (HD)	21 880	46.2	2 990	22 080	46.7	2 990	
	700	22 140	40.1	3 090	22 340	40.5	3 090	
	800	22 430	35.6	3 190	22 630	35.9	3 190	
					EC220F L, 5.7 m HD boom, 2.9 m HD arm, 1 000 kg bucket, 4 000 kg counterweight		EC220F L, 5.7 m HD boom, 2.9 m HD arm, 1 000 kg bucket, 4 200 kg counterweight	

### EC220F LR

Description	Shoe width	Operating weight	Ground pressure	Overall width
	mm	kg	kPa	mm
Triple grouser	600 (HD)	23 240	49.1	2 990
	700	23 500	42.6	3 090
	800	23 790	37.7	3 190
EC220F LR, 8.85 m LR boom, 6.25 m LR arm, 453 kg bucket, 4 900 kg counterweight				

**BUCKET SELECTION GUIDE**

**EC220F L with 600 mm shoe, 4 000 kg counterweight**

Bucket Type			Capacity	Cutting width	Weight	Recommended maximum material density (kg/m <sup>3</sup> )	
						5.7 m HD Boom	
			L	mm	kg	HD2.9 m Arm	
Direct fit Buckets	V1	GP	1.1	1 235	876	1 800	
			1.2	1 335	930	1 800	
			1.25	1 340	929	1 800	
	V2	GP	0.95	1 150	740	1 800	
			1.0	1 210	846	1 800	
			0.92	1 230	825	1 800	
			1.05	1 250	774	1 800	
			1.1	1 320	857	1 800	
			1.22	1 505	889	1 800	
			0.92	1 240	958	2 000	
		HD	0.92	1 240	958	2 000	
	V4	FD	0.95	1 500	725	1 600	
			1.03	1 600	761	1 600	
		GP	0.92	1 090	812	1 800	
			1.09	1 240	950	1 800	
			1.27	1 380	1 035	1 800	
			1.44	1 540	1 089	1 600	
			0.75	900	809	2 100	
		HD	0.92	1 090	955	2 100	
			1.09	1 240	1 054	2 000	
1.27			1 380	1 129	1 800		
1.27			1 380	1 129	1 800		

Please consult with your Volvo dealer for the proper match of buckets and attachments to suit the application.

The recommendations are given as a guide only, based on typical operation conditions.

Bucket capacity based on ISO 7451, heaped material with a 1:1 angle of repose.

# Specifications

## LIFTING CAPACITY EC220F

Lifting capacity at the arm end without bucket.

For lifting capacity including bucket, simply subtract actual weight of the direct fit bucket or the bucket with quick coupler from the following values.

	Lifting hook related to ground level	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m		Max. reach		Max. m
		Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	
Boom : 5.7 m HD Arm : 2.9 m HD Shoe : 600 mm CWT : 4 200 kg UC : Standard	7.5 m kg							*4 400	*4 400			*4 410	*4 410	6.2
	6 m kg							*4 310	*4 310			*4 110	3 300	7.3
	4.5 m kg							*4 780	4 520	*4 490	3 110	*4 050	2 750	8.0
	3.0 m kg					*7 140	6 490	*5 550	4 230	4 610	2 990	3 840	2 470	8.4
	1.5 m kg					*8 740	5 900	6 250	3 950	4 460	2 850	3 710	2 360	8.5
	0 m kg			*4 890	*4 890	9 390	5 580	6 020	3 750	4 350	2 740	3 770	2 390	8.3
	-1.5 m kg	*5 650	*5 650	*9 340	*9 340	9 290	5 500	5 930	3 660	4 310	2 710	4 100	2 580	7.8
	-3.0 m kg	*10 300	*10 300	*13 160	10 740	*9 170	5 570	5 980	3 710			4 880	3 070	6.9
-4.5 m kg			*10 630	*10 630	*7 550	5 820					*5 750	4 330	5.6	
Boom : 5.7 m HD Arm : 2.9 m HD Shoe : 600 mm CWT : 4 200 kg UC : Long	7.5 m kg							*4 400	*4 400			*4 420	*4 420	6.2
	6 m kg							*4 310	*4 310			*4 110	3 700	7.3
	4.5 m kg							*4 780	*4 780	*4 490	3 490	*4 060	3 100	8.0
	3.0 m kg					*7 140	*7 140	*5 550	4 760	*4 820	3 370	*4 170	2 800	8.4
	1.5 m kg					*8 740	6 720	*6 350	4 470	5 070	3 230	4 210	2 680	8.5
	0 m kg			*4 880	*4 880	*9 620	6 400	6 910	4 270	4 950	3 120	4 300	2 720	8.3
	-1.5 m kg	*5 650	*5 650	*9 340	*9 340	*9 740	6 310	6 810	4 180	4 920	3 090	4 670	2 940	7.8
	-3.0 m kg	*10 300	*10 300	*13 160	12 560	*9 170	6 390	*6 770	4 220			*5 560	3 490	6.9
-4.5 m kg			*10 630	*10 630	*7 550	6 640					*5 750	4 920	5.6	

Notes: 1. Machine in "Fine Mode-F" (Power Boost) for lifting capacities. 2. The above loads are in compliance with SAE J1097 and ISO 10567 Hydraulic Excavator Lifting Capacity Standards. 3. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. 4. Rated loads marked with an asterisk (\*) are limited by hydraulic capacity rather than tipping load.



# Equipment

## STANDARD AND OPTIONAL EQUIPMENT

• = Standard / o = Optional

### Engine

Turbocharged, 4 stroke diesel engine with water cooling, direct injection and charged air cooler that meets T3 requirements	•
Cooling system by Hydraulic Fan	o
Cooling system by Direct Fan	•
Air filter with indicator	•
Oil bath	o
Cyclone pre-cleaner	•
Fuel shut off valve	•
Engine block heater	o
Coolant heater by diesel	o
Automatic engine shutdown	•
Delayed engine shutdown	•
Water separator with heater	o
Fuel filter and water separator	•
Extra water separator	•

### Electric / Electronic control system

Anti-theft with code lock system	o
Automatic idling system	•
Standard LED light	•
Extra LED light	•
Master electrical disconnect switch	•
Engine restart prevention circuit	•
Caretrack GSM	o
Caretrack GSM+SAT	o

## STANDARD AND OPTIONAL EQUIPMENT

• = Standard / o = Optional

### Undercarriage and structures

3-point side access	•
Guardrail, GNSS	o
Lower frame, LC	o
Lower frame, STD	•
Link 700 / 800 mm triple grouser shoe	o
Link 600 mm triple grouser shoe, HD	•
Dual toolbox	•
Undercover STD	•
Undercover HD	o

### Hydraulic System

Pilot-Hydraulic control system	•
One touch power boost	•
Joystick, Semi-long / 4 switch / 3 switch & 1 proportional / L8	o
Hydraulic oil mineral 32 / 46 / 68	o
Longlife hyd oil mineral 32 / 46 / 68	•
Hose rupture valve for boom	o
Hose rupture valve for arm	o

Not all products are 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.

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**STANDARD AND OPTIONAL EQUIPMENT**

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• = Standard / o = Optional

**Cab and interior**

ROPS certified cab	•
FOG (Falling Object Guard)	o
FOPS (Falling Object Protection Structure)	o
8" HD display	•
Mechanical sus	•
Air sus seat	o
Seat belt, 2 inch 2 point	•
3 inch 2 point / 3 inch 3 point	o
Front rain shield	o
Sun screens, front, roof, rear	•
Lower wiper	o
Sun shield, roof hatch	•
Safety net	o
Travel pedals and hand levers	•
Adjustable operator seat and joystick control console	•
Heater & air-conditioner, automatic	o
Air-conditioner, no heater	•
AM / FM / USB / Bluetooth stereo with Keypad	•
Large storage area	•
Pull-up type front window	•
Removable lower windshield	•

**Digging equipment**

Boom: 5.7 m HD monoblock	•
Arm: 2.9 m HD	•

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**STANDARD AND OPTIONAL EQUIPMENT**

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• = Standard / o = Optional

**Machine controls**

Kinematic sensor package	o
Volvo Co-Pilot 2nd display, 12.8" touchable Full HD	o
Dig Assist, Start	o
Dig Assist, 2D	o
Dig Assist, Infield-Design	o
Dig Assist, Topcon 3D-MC	o
Dig Assist, On-Board Weighing	o
Dig Assist, Laser Receiver	o

**Service and Maintenance**

Swing out A/C condenser	•
Fuel filler pump	•
Jump start connector	o
Tool kit	o

**Safety and security**

Travel alarm, white noise	o
Travel alarm, beep	•
Flashing beacon, LED	•
Rear view camera	•
Side view camera	o
HD VSV (Volvo Smart View)	o

**V O L V O**