

V O L V O



Volvo Electric Excavators 23.0-26.1 t

# EC230 ELECTRIC

Volvo Construction Equipment

# EC230 ELECTRIC

An electric machine is a cleaner and quieter choice  
for everyone – ready to play its part in building  
a more sustainable world.



# Quiet, clean and comfortable

The 23-ton EC230 Electric excavator delivers the same performance as its conventional diesel counterpart, but with the added benefit of zero emissions, low noise, low vibrations, better controllability and lower total cost of ownership. Operators report that it has not only been achieving a similar digging force as its diesel equivalent, the Volvo EC220E, but doing so with an even faster cycle time and much less noise.



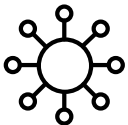
## A clean, smart choice

- Less maintenance: no engine-related consumables, maintenance-free battery
- A zero-emission, quiet power source that can work in low carbon zones
- Ability to work indoor and noise sensitive areas
- Work full shift with a fast charging option
- A quieter site is a better work environment



## Operator comfort

- Machine interfaces are ergonomically positioned and designed for optimum control and efficiency.
- Bluetooth and hands-free functions allows the operator to connect to wireless functions.
- Windshield wipers, cameras, auto-mute or the power max function etc can be assigned a short-cut button on the joystick.



## Volvo Services: boost your profits

- On-Board Weighing, powered by Volvo Co-Pilot (Dig Assist)
- Range of matched Volvo Attachments
- Volvo Site Simulation
- Fuel Efficiency Report
- Operator training
- ActiveCare: 24/7 machine monitoring



## Optimized hydraulics

- Boom float function
- Attachment Management System
- Full size fold-able guard rails
- Volvo Smart View

Get more informations  
on our website



*"The EC230 Electric has proven its sustainable power and is the perfect fit for modern construction sites – fulfilling demanding tasks while being considerate of its surrounding environment."*

**Thomas Bitter,**  
Head of Technology Volvo CE

# Volvo EC230 Electric in detail

Battery		
Battery Type	LI-ION	
Battery Voltage	V	600
Battery capacity (full package)	kWh	264
	Ah	396
Indicative runtime (depending on application)	hours	5
Auxiliary Battery Voltage	V	2X12
Auxiliary Battery capacity	Ah	100

Electrical motor		
Motor type	PMSM	
Motor power (peak)	kW	160
Motor power (continuous)	kW	105
Operating mode max. / Standard	r/min	1 600

Electrical system		
Well protected high-capacity electrical system. Waterproof double-lock harness plugs are used to secure corrosion-free connections. The main relays and solenoid valves are shielded to prevent damage. The master switch is standard.		
Voltage	V	24
Batteries	V	2 x 12
Battery capacity	Ah	100

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

Swing System		
The swing system uses an axial piston motors, driving a planetary gearbox for maximum torque. An automatic holding brake and antirebound valve are standard		
Max. slew speed	r/min	11.1
Max. slew torque	kNm	83

Service Refill		
Hydraulic system, total	l	300
Hydraulic tank	l	140
BTMS Coolant	l	29
HVAC Coolant	l	3
Electric Motor Coolant	l	16
Slew reduction unit	l	6
Travel reduction unit	l	2 x 5.8

Sound Level		
Sound pressure level in cab according to ISO 6396		
L <sub>pA</sub>	dB	67
External sound level according to ISO 6395 and EU Noise Directive 2000/14/EC		
L <sub>WA</sub>	dB	97

Undercarriage			
Robust X-shaped frame with greased and sealed track chains as standard			
Track shoes		2 x 49	
Link pitch	mm	190	
Shoe width, triple grouser	mm	500 / 600 / 700 / 800 / 900	
Shoe width, triple grouser (HD)	mm	600	
Shoe width, double grouser	mm	700	
Shoe width, rubber shoe	mm	600	
Bottom rollers		2 x 8	
Top rollers		2 x 2	

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.	
<b>Integrated air-conditioning and heating system:</b> The pressurized and filtered cab air is supplied by an automatically-controlled fan. The air is distributed throughout the cab from 14 vents.	
<b>Ergonomic operator's seat:</b> The adjustable seat and joystick console move independently to accommodate the operator. The seat has nine different adjustments plus a seat belt for the operator's comfort and safety.	

HVAC System		
Electric A/C compressor for cab		
Max. power	kW	2
Operating RPM	r/min	4 000
Electric heater for cab		
Max. power	kW	10
HV range DC	V	250 ~ 870



#### Hydraulic system

The hydraulics system, combined with the fully electronic control system and advanced ECO mode, has been optimized to work in harmony with engine to match the engine power, reduce power loss and improve controllability and response time.

The following important functions are included in the system:

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

**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: 2 x variable displacement axial piston pumps

Maximum flow	l/min	2 x 208
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Pilot pump: Gear pump

Maximum flow	l/min	1 x 16
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Max. pressure

Implement	MPa	34.3 / 36.3
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Travel circuit	MPa	34
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Slew circuit	MPa	28
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Pilot circuit	MPa	4
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Travel: Variable displacement axial piston motor with mechanical brake

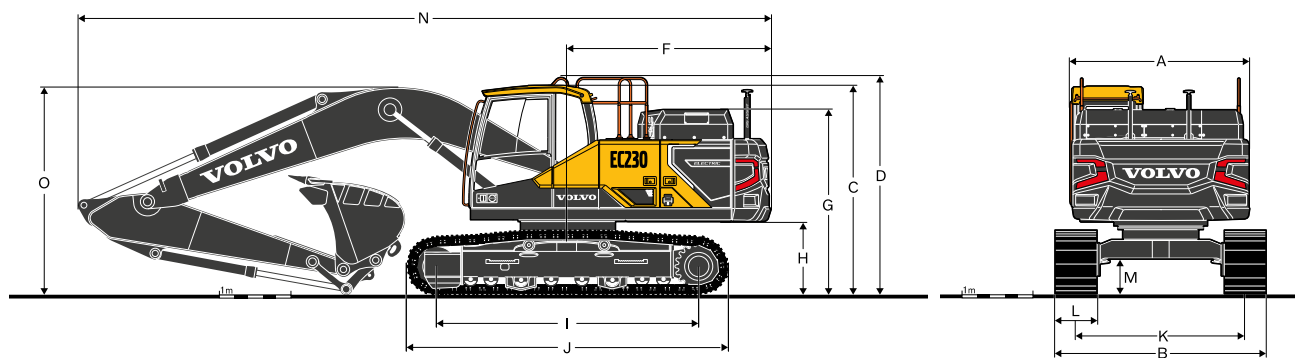
Slew: Fixed displacement axial piston motor with mechanical brake

#### Hydraulic Cylinders

Mono boom		2
Bore x Stroke	ø x mm	125 x 1 235
2 piece boom		1
Bore x Stroke	ø x mm	160 x 1 070
Arm		1
Bore x Stroke	ø x mm	135 x 1 540
Bucket		1
Bore x Stroke	ø x mm	120 x 1 065
Bucket for LR boom		1
Bore x Stroke	ø x mm	100 x 865



# Specifications



## DIMENSIONS

Description	Unit	EC230 Electric		
Boom	m	5.7 mono		
Arm	m	2.5	2.9	3.5
A. Overall width of upper structure	mm	2 500	2 540	2 540
B. Overall width	mm	2 990	2 990	2 990
C. Overall height of cab	mm	2 955	2 955	2 955
D. Overall height of handrail	mm	3 075	3 075	3 075
F. Tail swing radius	mm	2 850	2 850	2 850
G. Overall height of hood	mm	2 600	2 600	2 600
H. Counterweight clearance *	mm	1 025	1 025	1 025
I. Tumbler length	mm	3 660	3 660	3 660
J. Track length	mm	4 460	4 460	4 460
K. Track gauge	mm	2 390	2 390	2 390
L. Shoe width	mm	600	600	600
M. Min. ground clearance *	mm	460	460	460
N. Overall length	mm	9 745	9 690	9 720
O. Overall height of boom	mm	3 080	2 940	3 260

\* Without shoe grouser.

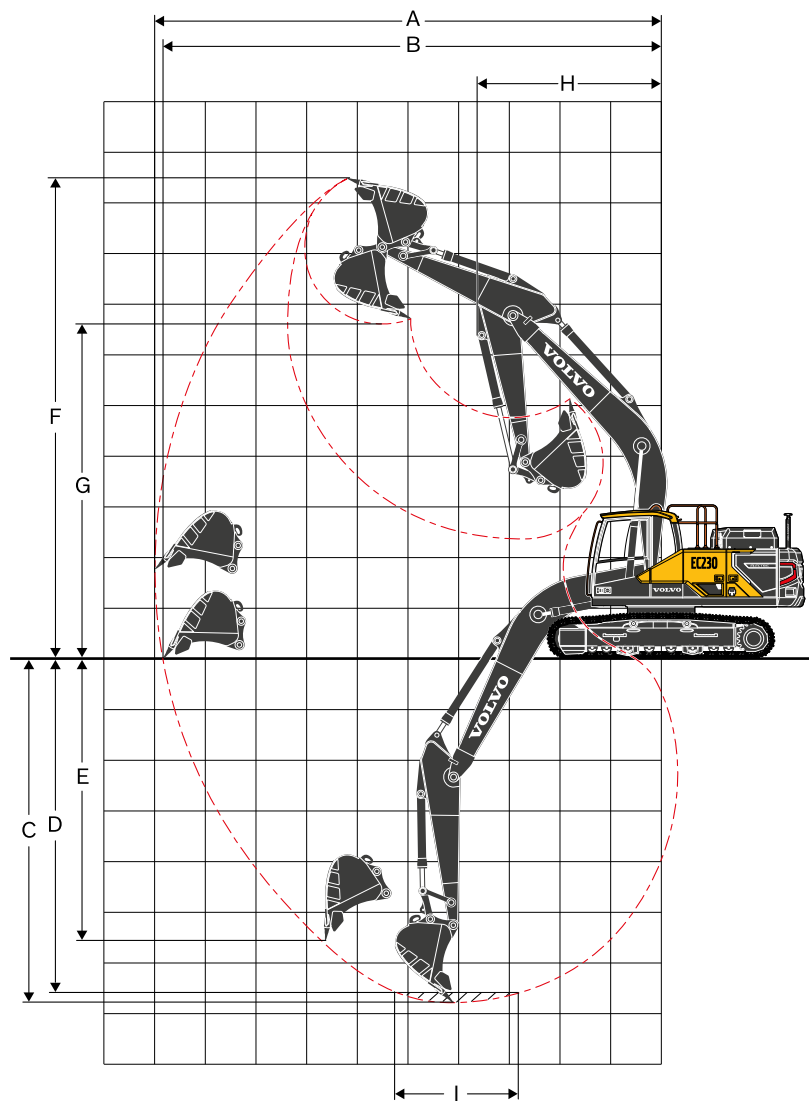
## DIMENSIONS

Boom				Arm					
Description	Unit	mono	mono	Description	Unit				
Boom	m	5.7	5.7 HD	Arm	m	2.5	2.9	2.9 HD	3.5
Length	mm	5 910	5 910	Length	mm	3 525	3 910	3 910	4 540
Height	mm	1 585	1 585	Height	mm	860	860	860	855
Width	mm	670	670	Width	mm	440	440	440	440
Weight	kg	2 006	2 151	Weight	kg	1 133	1 146	1 183	1 226

\* Includes cylinder, piping and pin, excludes boom cylinder pin \* Includes cylinder, linkage and pin

## MACHINE WEIGHTS AND GROUND PRESSURE

Description	Shoe width	Operating weight	Ground pressure	Overall width
	mm	kg	kPa	mm
EC230 Electric				
5.7m boom, 2.9m arm, 909kg / 1.09m <sup>3</sup> bucket, 2 800kg counterweight				
Triple grouser	500	23 589	58.8	2 890
	600	23 718	49.0	2 990
	700	23 943	42.2	3 090
	800	24 085	37.3	3 190
	900	24 226	33.3	3 290
Triple grouser HD	600	23 802	49.0	2 990
Double grouser	700	24 074	43.1	3 090
Single grouser (rubber)	600	24 144	50.0	2 990



#### WORKING RANGES

Description	Unit	EC230 Electric		
Boom	m	5.7 mono		
Arm	m	2.5	2.9	3.5
A. Max. digging reach	mm	9 550	9 930	10 390
B. Max. digging reach on ground	mm	9 380	9 770	10 240
C. Max. digging depth	mm	6 330	6 730	7 330
D. Max. digging depth (2.44 m level)	mm	6 100	6 540	7 130
E. Max. vertical wall digging depth	mm	5 620	6 090	6 470
F. Max. cutting height	mm	9 220	9 460	9 460
G. Max. dumping height	mm	6 430	6 650	6 700
H. Min. front swing radius	mm	3 670	3 640	3 660

#### DIGGING FORCES WITH DIRECT FIT BUCKET

Bucket radius			mm	1 528	1 528	1 528
Breakout force - bucket	Normal	SAE J1179	kN	125	125	125
	Power boost	SAE J1179	kN	132	132	132
	Normal	ISO 6015	kN	141	141	141
	Power boost	ISO 6015	kN	149	149	149
Tearout force - dipper arm	Normal	SAE J1179	kN	117	101	92
	Power boost	SAE J1179	kN	124	107	97
	Normal	ISO 6015	kN	121	104	94
	Power boost	ISO 6015	kN	128	110	99
Rotation angle, bucket			°	175	175	175

# Specifications

## BUCKET SELECTION GUIDE

Bucket type		Capacity	Cutting width	Weight	Teeth	EC230 Electric		
						5.7m Boom		
						600mm shoe, 2 800kg counterweight		
		L	mm	kg	EA	2.5m	2.9m	3.5m
Direct fit Buckets	General purpose	480	600	623	3	C	C	C
		630	800	703	4	C	C	C
		750	900	749	4	C	C	C
		920	1 050	819	4	C	C	C
		1 090	1 200	908	5	C	C	C
		1 270	1 350	995	5	C	C	B
		1 440	1 500	1 085	6	C	B	A

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.

### Maximum material density

A	1 200~1 300 kg/m <sup>3</sup>	Coal, Caliche, Shale
B	1 400~1 600 kg/m <sup>3</sup>	Wet earth and clay, Limestone, Sandstone
C	1 700~1 800 kg/m <sup>3</sup>	Granite, Wet sand, Well blasted rock
D	1 900 kg/m <sup>3</sup> ~	Wet mud, Iron ore

## LIFTING CAPACITY EC230 Electric

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		9.0 m		Max. reach				
		Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	m		
Boom: 5.7 m HD Arm: 2.5 m HD Shoe: 600 mm CWT: 2 800 kg	7.5 m	kg													*5 640	*5 640	5.6	
	6.0 m	kg							*5 470	*5 470					*5 570	4 930	6.9	
	4.5 m	kg						*6 960	*6 960	*5 990	5 980	*5 640	4 220			*5 650	4 130	7.6
	3.0 m	kg						*8 960	8 670	*6 860	5 730	*5 950	4 130			5 700	3 750	8.0
	1.5 m	kg						*10 700	8 170	*7 750	5 480	6 160	4 020			5 530	3 620	8.0
	0 m	kg						*11 480	7 940	*8 330	5 330	6 070	3 940			5 670	3 690	7.9
	-1.5 m	kg				*10 840	*10 840	*11 390	7 910	8 350	5 280					6 230	4 030	7.4
	-3.0 m	kg				*14 640	*14 640	*10 480	8 020	*7 730	5 350					*6 950	4 870	6.5
	-4.5 m	kg				*11 290	*11 290	*8 060	*8 060							*7 090	*7 090	5.0
Boom: 5.7 m HD Arm: 2.9 m HD Shoe: 600 mm CWT: 2 800 kg	7.5 m	kg							*5 130	*5 130					*4 900	*4 900	6.2	
	6.0 m	kg							*5 030	*5 030					*4 570	4 490	7.3	
	4.5 m	kg							*5 600	*5 600	*5 280	4 260			*4 510	3 820	8.0	
	3.0 m	kg						*8 350	*8 350	*6 510	5 770	*5 680	4 150			*4 630	3 490	8.4
	1.5 m	kg						*10 250	8 240	*7 470	5 500	*6 160	4 020			*4 940	3 370	8.5
	0 m	kg				*5 410	*5 410	*11 290	7 940	*8 170	5 320	6 050	3 920			5 270	3 430	8.3
	-1.5 m	kg	*6 260	*6 260	*10 310	*10 310	*11 450	7 860	8 310	5 240	6 020	3 890				5 720	3 710	7.8
	-3.0 m	kg	*11 370	*11 370	*15 470	15 420	*10 790	7 930	*7 980	5 270						*6 570	4 370	6.9
	-4.5 m	kg				*12 570	*12 570	*8 930	8 160							*6 820	6 050	5.6
Boom: 5.7 m GP Arm: 2.9 m GP Shoe: 600 mm CWT: 2 800 kg	7.5 m	kg							*5 180	*5 180					*4 910	*4 910	6.2	
	6.0 m	kg							*5 080	*5 080					*4 580	4 520	7.3	
	4.5 m	kg							*5 660	*5 660	*5 350	4 300			*4 520	3 870	8.0	
	3.0 m	kg						*8 440	*8 440	*6 590	5 820	*5 750	4 190			*4 640	3 540	8.4
	1.5 m	kg						*10 370	8 330	*7 560	5 570	6 210	4 070			*4 950	3 420	8.5
	0 m	kg				*5 420	*5 420	*11 430	8 050	*8 270	5 390	6 110	3 980			5 320	3 490	8.3
	-1.5 m	kg	*6 270	*6 270	*10 320	*10 320	*11 590	7 970	8 380	5 320	6 080	3 950				5 770	3 770	7.8
	-3.0 m	kg	*11 380	*11 380	*15 660	15 600	*10 930	8 030	*8 080	5 350						*6 660	4 430	6.9
	-4.5 m	kg				*12 740	*12 740	*9 050	8 250							*6 920	6 120	5.6
Boom: 5.7 m HD Arm: 3.5 m GP Shoe: 600 mm CWT: 2 800 kg	7.5 m	kg													*4 870	4 750	7.1	
	6.0 m	kg									*4 580	4 390			*4 820	3 810	8.1	
	4.5 m	kg							*4 840	*4 840	*4 720	4 320			*4 860	3 330	8.8	
	3.0 m	kg							*5 700	*5 700	*5 130	4 180	4 760	3 130	4 680	3 070	9.1	
	1.5 m	kg							*6 670	5 550	*5 640	4 030	4 700	3 070	4 560	2 980	9.2	
	0 m	kg							*7 460	5 320	6 040	3 900			4 650	3 020	9.0	
	-1.5 m	kg						*10 670	7 790	*7 880	5 190	5 970	3 830			4 980	3 230	8.6
	-3.0 m	kg				*15 170	15 130	*10 390	7 800	*7 770	5 180	5 990	3 860			*5 660	3 680	7.8
	-4.5 m	kg	*16 720	*16 720	*12 910	*12 910	*9 180	7 960	*6 770	5 310						*5 780	4 700	6.6

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 EQUIPMENT

### Electric / Electronic control system

Contronics
Advanced mode control system
Self-diagnostic system
GSM/GPS Caretrack and 3yr-Caretrack subscription
Machine status indication
Auto electric motor shutdown system
One-touch power boost
Safety stop/start function
Adjustable LCD color monitor
Master electrical disconnect switch
High-capacity LED lights:
Frame-mounted 2
Boom-mounted 1
Batteries, 2 x 12 V / 140 Ah
Volvo Smart View (VSV)

### Frame

Access way with handrail
Punched metal anti-slip plates
Under cover (heavy duty)
Full height counterweight:
2 800 kg Long Crawler (L)

### Undercarriage

Under cover (heavy duty)
Greased and sealed track link
Track Guard
600 mm shoe with triple grousers

### Hydraulic system

Boom hose rupture valve with overload warning device
Automatic sensing hydraulic system
Summation system
Arm priority
Swing priority
Boom, arm and bucket regeneration valves
Swing anti-rebound valves
Boom and arm holding valves
Multi-stage filtering system
Boom cylinders (x2)
Cylinder cushioning
Cylinder contamination seals
Auxiliary hydraulic valve
Automatic two-speed travel motors
Hydraulic oil, longlife oil 46

## STANDARD EQUIPMENT

### Machine control system

Dig assist 2D/In-field/Steelwrist
Volvo Active Control (Semi-autonomous)
Please refer to separate Brochure for more details

### Cab and interior

ROPS (ISO12117-2) certified cab
Silicon oil and rubber mounts with spring
Control lock out lever
Travel pedals and hand levers
Adjustable operator seat with heater and joystick control console
Joystick,L8 multi-function
Heater & air-conditioner
Flexible antenna
Radio with MP3 and USB Jack with bluetooth
Cab, all-weather sound suppressed, includes:
Cup holders
Door locks
Tinted glass
Floor mat
Horn
Large storage area
Pull-up type front window
Removable lower windshield
Seat belt
Safety glass
Sun screens, front, roof, rear
Rain shield
Windshield wiper with intermittent feature
Rear view camera
Master key

### Digging equipment

Boom: monoblock 5.7 m
Arm: 2.9 m
Manual centralized lubrication

### Other

Standard cooling system (40 deg. C)
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## OPTIONAL EQUIPMENT

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### Electric

Extra work lights (LED):

Boom-mounted 1

Cab-mounted 3

Counterweight-mounted 1

Travel alarm

Anti-theft system

Rotating warning beacon

Flashing beacon, LED

### Undercarriage

Full track guard

500/600/600 HD/700/800/900 mm shoe with triple grousers

700 mm shoe with double grousers

600 mm shoe with single grouser

### Hydraulic system

Arm hose rupture valve

Boom float function with HRV

Boom float function without HRV

Hydraulic piping:

Work tool management system (up to 20 programmable memories)

Breaker & shear, 1 and 2 pump flow

Slope & rotator (60lpm)

Extra for slope & rotator

Grapple

Oil leak (drain) line

Quick coupler

Breaker & shear pressure pre-setting

Additional return filter

Volvo hydraulic quick coupler S1, S1 without hook

Volvo hydraulic quick coupler VQC-HD, S70 / VQC-HU, DR22

Hydraulic oil, biodegradable 46

Hydraulic oil, longlife oil 32, 46, 68

### Cab and interior

Fabric seat without heater

Fabric seat with heater and air suspension

Opening top hatch

Smoker kit (ashtray and lighter)

Sunlight protection, roof (steel)

Anti-vandalism kit

Specific key

### Digging equipment

Boom: 5.7 m monoblock, heavy duty

Arm: 2.5 m, 2.9 m, 3.5 m

Linkage with lifting eye

### Service

Tool kit, daily maintenance

Tool kit, full scale

**V O L V O**