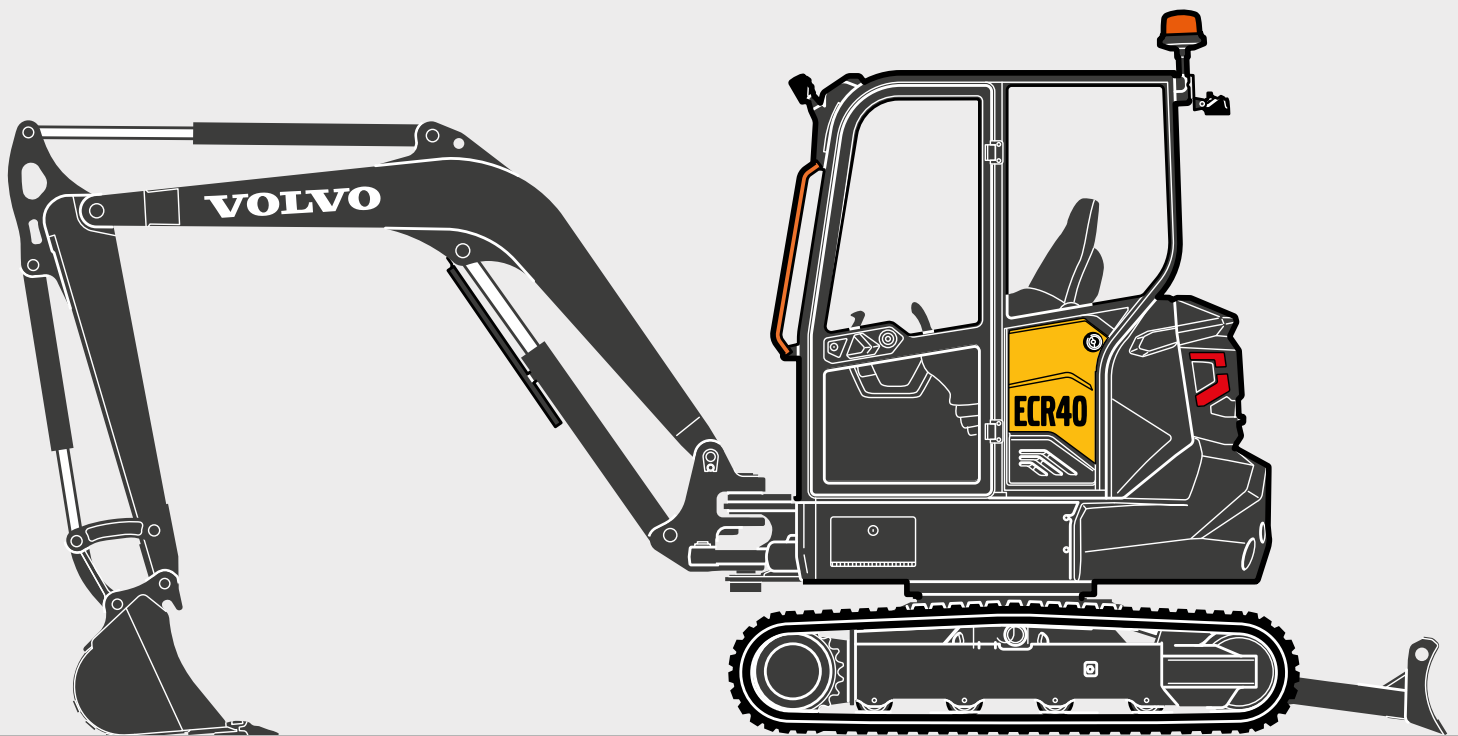


V O L V O

ENVIRONMENTAL DECLARATION

VOLVO COMPACT EXCAVATORS



Environmental Declaration

COMPACT CRAWLER/WHEEL EXCAVATORS

Environmental characteristics below specified by the manufacturer, relate to machines leaving the manufacturers production line.

For other technical specifications, see specification sheet and operator manual for the respective machine.

MANUFACTURER

Volvo Compact Equipment sas
Rue Pierre Pingon - 01300 Belley
France

Volvo Group Korea Co.,Ltd
1, Guehyun-dong, Changwon-si,
Gyeongsangnam-do, Korea 642-430

Model		ECR18E	EC15E	EC18E	EC20E	ECR25D	EC27D	EC37F
Engine type		Volvo	Volvo	Volvo	Volvo	Volvo	Volvo	Volvo
		D0.9A	D0.9A	D0.9A	D0.9A	D1.1A	D1.1A	D1.7A
Emission level according to US EPA & CARB		T4f	T4f	T4f	T4f	T4f	T4f	T4f
Emission level within EU Directive 97/68/EC		Stage V	Stage V	Stage V	Stage V	Stage V	Stage V	Stage V
Engine power, ISO 3046/1, net	kW	11.8	11.8	11.8	11.8	14.8	14.8	18.5
	Metric hp	16	16	16	16	20.1	20.1	25.2
	Imperial hp	15.8	15.8	15.8	15.8	19.8	19.8	24.8
Engine power, ISO 9249, SAE J1349 net	kW							17.5
	Metric hp							23.8
	Imperial hp							23.5
Engine power, ISO14396, SAE J1995 gross	kW	12	12	12	12	15.6	15.6	18.2
	Metric hp	16.3	16.3	16.3	16.3	21.2	21.2	24.7
	Imperial hp	16.1	16.1	16.1	16.1	20.9	20.9	24.4

Model		ECR40F	ECR50F	ECR58F	EC60E	EW60E	ECR88D
Engine type		Volvo	Volvo	Volvo	Volvo	Volvo	Volvo
		D1.7A	D2.4H	D2.6H	D2.6H	D2.6H	D2.6H
Emission level according to US EPA & CARB		T4f	T4f	T4f	T4f	T4f	T4f
Emission level within EU Directive 97/68/EC		Stage V	Stage V	Stage V	Stage V	Stage V	Stage V
Engine power, ISO 3046/1, net	kW	18.5	30.7	35	42.7	45.2	41.4
	Metric hp	25.2	41.7	47.6	58	61	56.3
	Imperial hp	24.8	41.2	46.9	57	61	55.6
Engine power, ISO 9249, SAE J1349 net	kW	17.5			42.7	45.2	41.4
	Metric hp	23.8			58	61	56.3
	Imperial hp	23.5			57	61	55.6
Engine power, ISO14396, SAE J1995 gross	kW	18.2	31.2	35.5	44.3	47.3	43
	Metric hp	24.7	42.4	48.3	60	64	58.5
	Imperial hp	24.4	41.8	47.6	59	63	57.7

CORE VALUES

Quality, safety and environmental care are Volvo's core values. They are designed from the beginning into the product's entire service life. This includes design and engineering, material selection, manufacturing processes, use and recycling.

MANUFACTURERS

The assembly of the complete machines takes place at one of Volvo Construction Equipment's production plants. Our production facilities are all certified according to ISO 14001.

Many of our components and parts are purchased from external suppliers. Volvo Construction Equipment works closely with these suppliers in order to safeguard the environmental requirements for purchased components and parts.

DECLARATIONS

Upholstery and other materials in the cab do not contain mercury.

Plastics and other interior materials are fire-classed according to Volvo standard 104-0001.

Brake pads do not contain cadmium or asbestos.

The complete machine does not contain any mercury, cadmium or asbestos.

Refrigerant of the type R134a is used when this machine is equipped with air conditioning.

Contains fluorinated greenhouse gas R134a, Global Warming Potential 1.430 t CO₂-eq.

PAINT AND SURFACE TREATMENT

In order to reduce solvent emissions, the machines are painted using high solid paints. To reduce consumption of water and chemicals, cleaning and recirculation takes place during the pre-treatment processes in the factories.

Specification of paint

Main components	Paint type	Heavy metals	Chlorine	Pre-treatment
Frame	High solid two components	no	no	Phosphatised
Cab	High solid two components	no	no	Water and alkaline wash
Arm with bushings	High solid two components	no	no	Phosphatised
Boom with equipment	High solid two components	no	no	Phosphatised

Environmental Declaration

ENGINE/EMISSIONS

The engine emission value is meeting with the limit value according to EU Directive 97/68/EC 2010/26/EU, Stage IIIA, Stage IIIB

The engine emission value is meeting with the limit value according to US requirements: US EPA Tier 3, Tier4 and CARB US EPA.

Exhaust emissions are measured as specific emissions in g/ kWh according to ISO 8178-1 and ISO 8178-4, cycle C1.

A family engine (parent engine) is certified within an engine family.

The parent engine is the engine with the highest fuel injection volume at maximum torque. Engines with the same design or similar technology will then belong to this family. Therefore, the values required by law are only given for the parent engine.

*Emission standards are applied to each machine in accordance with the emission requirements.

The Load Sensing-System contributes to lower fuel consumption through a demand-controlled flow of hydraulic oil.

Emission levels	HC+NOx (g/kWh)	PM (g/kWh)	CO (g/kWh)	PN (1/kWh)	Power range (kW)
EU Directive 2010/26/EU, Stage IIIA	7.5	0.6	5.5		19 ≤ P < 37
EU Directive 2010/26/EU, Stage IIIA	4.7	0.4	5		37 ≤ P < 75
EU Stage V	7.5	0.4	6.6		8 ≤ P < 19
EU Stage V	4.7	0.015	5	1x10 ¹²	19 ≤ P < 37
EU Stage V	4.7	0.015	5	1x10 ¹²	37 ≤ P < 56
Emission levels	NMHC+NOx (g/kWh)	PM (g/kWh)	CO (g/kWh)	PN (1/kWh)	Power range (kW)
US EPA Tier 4	7.5	0.4	6.6		8 ≤ P < 19
US EPA Tier 4	4.7	0.03	5.5		19 ≤ P < 37
US EPA Tier 4	4.7	0.03	5		37 ≤ P < 56

SOUND LEVELS

Noise emission of the machine is tested by International Standards.

Model	ECR18E	EC15E	EC18E	EC20E	ECR25D	EC27D	EC37F
External sound power level, dB(A)	93	93	93	93	93	93	94
Internal sound power level, dB(A)	78	78	78	78	78	78	78

Model	ECR40F	ECR50F	ECR58F	EC60E	EW60E	ECR88D
External sound power level, dB(A)	94	96	97	98	98	98
Internal sound power level, dB(A)	78	74	74	78	78	74

OPERATOR'S ENVIRONMENT (ENCLOSED CAB)

Incoming air for the cab first passes through a pre-filter which separates coarser particles, and then through the main filter in to the cab. Up to 90% of all air can be recirculated through the main filter.

This creates an overpressure in the cab, which results in a cleaner work environment.

SERVICE

To facilitate draining and to reduce the risk of spilling engine oil and hydraulic oil, there are special hoses supplied with each machine. For bleeding air from axles, transmission and hydraulic oil tank there is a breather filter to reduce appearance of any oil mist. The hydraulic tank as well as front and rear axle has a protective valve in the breather filter, minimizing leakage in case of machine turn-over/rollover.

The fuel tank cap seals tightly to prevent fuel leaks in case of machine turn-over/rollover.

For service intervals and other maintenance, see applicable operator's manuals for each respective machine model. All engines have a system for cleaning the crankcase ventilation's emissions of oil particles.

OILS AND FLUIDS

Ethylene glycol coolant is filled at the factory.

Biologically degradable oil for the hydraulic system is available as an option. We recommend the following oils; these are also available as options. Besides we refer to the respective operator's manual.

Environmental Declaration

RECYCLING

Volvo Compact Excavators are designed from the beginning for recycling at the end of their useful life cycle. The recycling rate is according to ISO16714:2008. Materials can be reused in new Volvo Construction Equipment or other products. Most of our plastic parts are marked for recycling according to Volvo Standards 5052,41, 5052,411 as well as 5052,412. Materials included in the machine are distributed according to the table below. Weights are approximate. The calculation of the weights is based on defined machines. Variations are caused by different equipment. These material fractions can be recycled (material and energy recycling) where such recycling possibilities are available.

Machine model	Units (rounded)	ECR18E	EC15E	EC18E	EC20E	ECR25D	EC27D	EC37F
Steel and iron	kg	1 318	1 217	1 391	1 546	2 010	2 150	2 997
Lead (batteries)	kg	13	13	13	13	18	18	18
Other non-iron metals	kg	0	0	0	0	0	0	0
Glass	kg	0	0	35	35	35	35	45
Polymer and rubber	kg	34	36	36	36	44	44	42
Tires	kg	0	0	0	0	0	0	0
Oil and fluids	kg	50	48	50	52	66	66	153
Others Non-recyclable	kg	205	156	205	208	163	206	216
Total recyclable material	kg	1 458	1 340	1 568	1 725	2 270	2 444	3 504
Total weight of machine (MUC*)	kg	1 620	1 470	1 730	1 890	2 433	2 650	3 720
Steel and iron	lbs	2,905	2,683	3,066	3,408	4,431	4,740	6,607
Lead (batteries)	lbs	29	29	29	29	40	40	40
Other non-iron metals	lbs	0	0	0	0	0	0	0
Glass	lbs	0	0	77	77	80	77	99
Polymer and rubber	lbs	75	79	79	79	100	97	93
Tires	lbs	0	0	0	0	0	0	0
Oil and fluids	lbs	110	106	110	115	145	145	337
Others Non-recyclable	lbs	452	344	452	459	360	454	476
Total recyclable material	lbs	3,214	2,953	3,456	3,802	5,010	5,388	7,724
Total weight of machine (MUC*)	lbs	3,571	3,241	3,814	4,167	5,364	5,842	8,201
Recycling quota	%	90	91	91	91	93	92	94

* MUC = Most Usual Configuration

Machine model	Units (rounded)	ECR40F	ECR50F	ECR58F	EC60E	EW60E	ECR88D
Steel and iron	kg	3 227	4 127	4 910	4 990	4 976	7 414
Lead (batteries)	kg	18	18	18	25	25	25
Other non-iron metals	kg	0	0	0	63	91	92
Glass	kg	45	45	45	52	53	44
Polymer and rubber	kg	42	44	44	224	353	230
Tires	kg	0	0	0	0	139	0
Oil and fluids	kg	153	158	165	166	166	194
Others Non-recyclable	kg	216	349	349	302	33	380
Total recyclable material	kg	3 704	4 626	5 416	5 521	5 803	7 999
Total weight of machine (MUC*)	kg	3 920	4 975	5 765	5 823	5 836	8 379
Steel and iron	lbs	7,114	9,098	10,825	11,000	10,970	16,350
Lead (batteries)	lbs	40	40	40	60	55	60
Other non-iron metals	lbs	0	0	0	140	201	200
Glass	lbs	99	99	99	110	117	100
Polymer and rubber	lbs	93	0	97	490	778	510
Tires	lbs	0	0	0	0	306	0
Oil and fluids	lbs	337	348	364	370	366	430
Others Non-recyclable	lbs	476	769	769	670	73	840
Total recyclable material	lbs	8,166	10,199	11,940	12,170	12,793	17,640
Total weight of machine (MUC*)	lbs	8,642	10,968	12,710	12,840	12,866	18,480
Recycling quota	%	94	93	94	95	99	95

* MUC = Most Usual Configuration

PRODUCER RESPONSIBILITY

In most countries today, there is a producer responsibility for our products, applicable to components such as batteries, tires etc. There are special regulations for these components. For further information, please contact your dealer.

Machine model

Delivery date

Machine's serial number

Engine's manufacturing number

Place for stamp

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