

LCA/Carbon footprint

VOLVO COMPACT EXCAVATORS

In this document, the LCA/ Carbon footprint results for Volvo Compact Excavators are presented.

In the table below, carbon dioxide emissions from *cradle to gate* (raw materials processing, component manufacturing and machine assembly) for each excavator can be found.

Cradle to gate	Emissions [kg CO2-eq per machine]					
Model [Analysis year]	EC18 [2024]	ECR18 [2024]	EC20 [2024]	ECR25 [2021]	EC27 [2024]	EC37 [2024]
Scope 3 upstream	7 800	7 400	8 400	10 900	12 200	15 300
Scope 1, 2	210	190	220	270	270	350
Total:	8 010	7 590	8 620	11 170	12 470	15 650

In the table below is a summary of *cradle to grave* (all steps from extraction of raw materials to recycling and end of life) emissions per hour used for the same excavator models.

Cradle to grave	Emissions [kg CO2-eq per operating hour]									
Model [Analysis year]	EC18 [2024*]			ECR18 [2024*]			EC20 [2024*]	ECR25 [2021]	EC27 [2024]	EC37 [2024]
Emission factor MK1 diesel (kgCO2e/liter)	3,3			3,3			3,3	3,3	3,3	3,3
Operating hours/year	300	500	700	300	500	700	317	425	657	737
Manufacturing	2,66	1,6	1,14	8,67	5,20	3,71	2,7	2,6	1,9	2,1
Use (incl. outbound & service)	7,15	7,06	7,03	0,39	0,31	0,27	7,3	8	8,8	11,9
End of Life *	0,07	0,04	0,03	0,07	0,04	0,03	0,07*	0,2	0,05*	0,06*
Total:	9,89	8,70	8,20	9,74	8,62	8,14	10,1	10,8	10,7	14,1

Please note that some of the use phase calculations are based on average use scenarios and some is presented in low-medium-high duty operating hours/year. To obtain a site-specific carbon footprint, specific studies on the site are required.

(* Analyses from 2024 has a new End of Life calculation method following the Circular Footprint Formula (CFF))

Comparing life cycle assessment results

There is currently no agreed industry standard methodology for construction equipment LCAs and assessments can be performed in various ways. Methodology choices, such as system boundaries and input data, can differ and influence the results. Therefore, LCAs conducted by different OEMs with different methodologies are not comparable.

For more information

The methodology behind these calculations is presented in the document “*Methodology for Volvo CE’s LCA/carbon footprint calculations*” that can be obtained on our website www.volvoce.com/global. For other information, please contact your Volvo CE representative, who will put you in contact with the Volvo CE LCA team.