



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

E190P/Ø125/700 Roof Fan / P-, C- and S-series Roof Fans 52W
VILPE Oy



EPD HUB, EPD number HUB-4235

Published on 24.10.2025, last updated on 24.10.2025, valid until 24.10.2030

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	VILPE Oy
Address	Kauppatie 9, FI-65610 Mustasaari
Contact details	sales@vilpe.com
Website	https://www.vilpe.com/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Manufactured product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-B7, and modules C1-C4, D
EPD author	Milja Sarapaa, VILPE Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Imane Uald Lamkaddam as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	E190P/Ø125/700 Roof Fan
Additional labels	-
Product reference	73591, 73592, 73594, 73596, 73597, 73598, 73599, 7359D
Place(s) of raw material origin	Finland, EU, Turkey, China
Place of production	Mustasaari, Finland
Place(s) of installation and use	Finland, Poland, Russia, Sweden, Hungary, Ukraine
Period for data	01/01/2024-31/12/2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
A1-A3 Specific data (%)	6,75

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit
Declared unit mass	5,811 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	2,61E+01
GWP-total, A1-A3 (kgCO ₂ e)	2,40E+01
Secondary material, inputs (%)	11
Secondary material, outputs (%)	96,5
Total energy use, A1-A3 (kWh)	108
Net freshwater use, A1-A3 (m ³)	0,27

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

VILPE Oy is a Finnish family-owned company that develops and manufactures ventilation and roofing solutions for the construction industry. The company's operations are based on customer-oriented and innovative product development.

quality, energy efficiency and longevity of structures to all spaces and thus improve people's quality of life. VILPE represents safe construction and living, which reinforces the company's commitment to quality and reliability.

PRODUCT DESCRIPTION

The P-series roof fans can be led watertightly with a pass-through set through a roof. VILPE pass-through sets can be installed on any roofs with the most common pitches. The pass-through set is always selected according to the roofing material of the roof. All the roof fans in the P-series are compatible with all pass-through set types. Using P-series XL roof fans and XL exhaust ventilation pipes requires an XL pass-through.

C-series roof fans are used, like the P-series products, in solutions where the duct is to be routed through the roof and a cone. The difference is that the C-series roof fans are installed on top of a sheet metal cone made by a sheet metal worker for the roof. The top of the cone must be \varnothing 170 mm, 230 mm, or 315 mm, depending on the size of the extractor or exhaust duct.

The S-series roof fans are designed to be installed in the ventilation shaft, onto a silencer or in or other horizontal surface. The S-roof fans are used, for example, in blocks of flats and terraced houses, when flat-specific ventilation is required. The S-series roof fan can also be used for modifying an old natural ventilation system into a mechanical one during renovation.

E190S/ \varnothing 125 Roof Fan 300 x 300: Roof fan with an AC motor, installed onto a ventilation duct, chimney, or silencer. Controlled with, for example, the VILPE

Controller AC. When installing on a horizontal flat surface, the S installation kit included in the package is required.

Duct size \varnothing 125 mm; installation set 300 x 300 mm, installation area must be at least the same size.

E190C/ \varnothing 125/400 Roof Fan: Insulated roof fan with an AC motor. The inner pipe is made of galvanized sheet steel. Controlled with, for example, the VILPE Controller AC. Installed onto a sheet metal cone made by a tinsmith, with an upper diameter of 230 mm.

Dimensions: Duct size \varnothing 125 mm, external \varnothing 225 mm, height 400 mm.

E190P/ \varnothing 125/500 Roof Fan: Insulated roof fan with an AC motor. The inner pipe is made of galvanized sheet steel with a lip seal. Controlled with, for example, the VILPE Controller AC. In addition to the fan, a VILPE roof pass-through suitable for the roofing material is required.

Duct size \varnothing 125 mm, external \varnothing 225 mm, height above roof approx. 500 mm.

E190P/ \varnothing 125/700 Roof Fan: Insulated roof fan with an AC motor. The inner pipe is made of galvanized sheet steel with a lip seal. Controlled with, for example, the VILPE Controller AC. In addition to the fan, a VILPE roof pass-through suitable for the roofing material is required.

Duct size \varnothing 125 mm, external \varnothing 225 mm, height above roof approx. 700 mm.

Further information can be found at:

<https://www.vilpe.com/>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	42,51 %	Finland, EU, China
Minerals	-	-
Fossil materials	57,49 %	Finland, EU, Turkey
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0,5571

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit
Mass per declared unit	5,811 kg
Functional unit	This roof fan provides mechanical exhaust ventilation with a nominal power of 52W
Reference service life	20 years

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
X	X	X	X	X	ND	ND	ND	ND	ND	X	ND	X	X	X	X	X		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = ND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.

Roof fans of VILPE Oy are manufactured at the Mustasaari site in Finland. The production process consists of raw material delivery, injection molding, quality inspection, and packaging. During injection molding, the raw material is plasticized, injected into the mold, cooled, and removed from the mold. Some assembly is automated. Each roof fan is tested for functionality after assembly before packaging. Production requires electricity, heat, and water. Slightly less than 10% of the electricity comes from the production facility's own solar power plant, and the rest is from nuclear electricity. The waste heat from the machines is directed to a heat recovery center and used for building heating. The cooling water is in a closed loop. The material requirement and generated waste vary depending on the size of the product. Production waste is recycled in the process for other products.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The average distribution distance is calculated as a weighted average of the significant sales volumes. Products are transported in full pallets. During installation, the disposal of packaging material is included in the estimate. Roof fans are packed in cardboard boxes. The amount of packaging material varies slightly depending on the type and size of the roof fan. After installation, the packaging material is transported by truck to a recycling facility. The average distance to a recycling facility in Finland has been used. Scenario estimates have employed average recycling methods and practices. There is no material waste during installation. The energy consumption during installation, mainly consisting of the use of a drill, has been excluded

from the calculations as it is assumed to be insignificant per examined product unit.

PRODUCT USE AND MAINTENANCE (B1-B7)

The product consume electricity during use phase and the scenario in this study is based on; Electricity, Finland, 2022 (One Click LCA), Electricity Poland, Electricity, Russia, 2022 (One Click LCA), Electricity Sweden, Electricity, Hungary, 2022 (One Click LCA) and Electricity, Ukraine, 2022 (One Click LCA). This EPD follows additional requirements for products using energy in module B6 of the use stage and permanently installed into building or infrastructure (defined by the manufacturer).

The nominal power of the product is 52W. Roof fans have technical warranty of 20 years, which has been selected as the reference service life. Roof fans operate at the desired rotation speed depending on the application. AC fans can be controlled either with a manual VILPE AC controller or with a controller from another manufacturer, such as a cooker hood.

The calculations and product comparisons have been carried out using nominal power, to ensure that the result reflects the maximum possible scenario in line with the precautionary principle. However, for the representative product, a B-module scenario has also been calculated using average power. The estimate is based on expert judgment, and deviations may occur depending on the application and environment.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The end-of-life stage consists of the following modules:

C1: Deconstruction of the product

C2: Transportation of the discarded product

C3: Waste processing

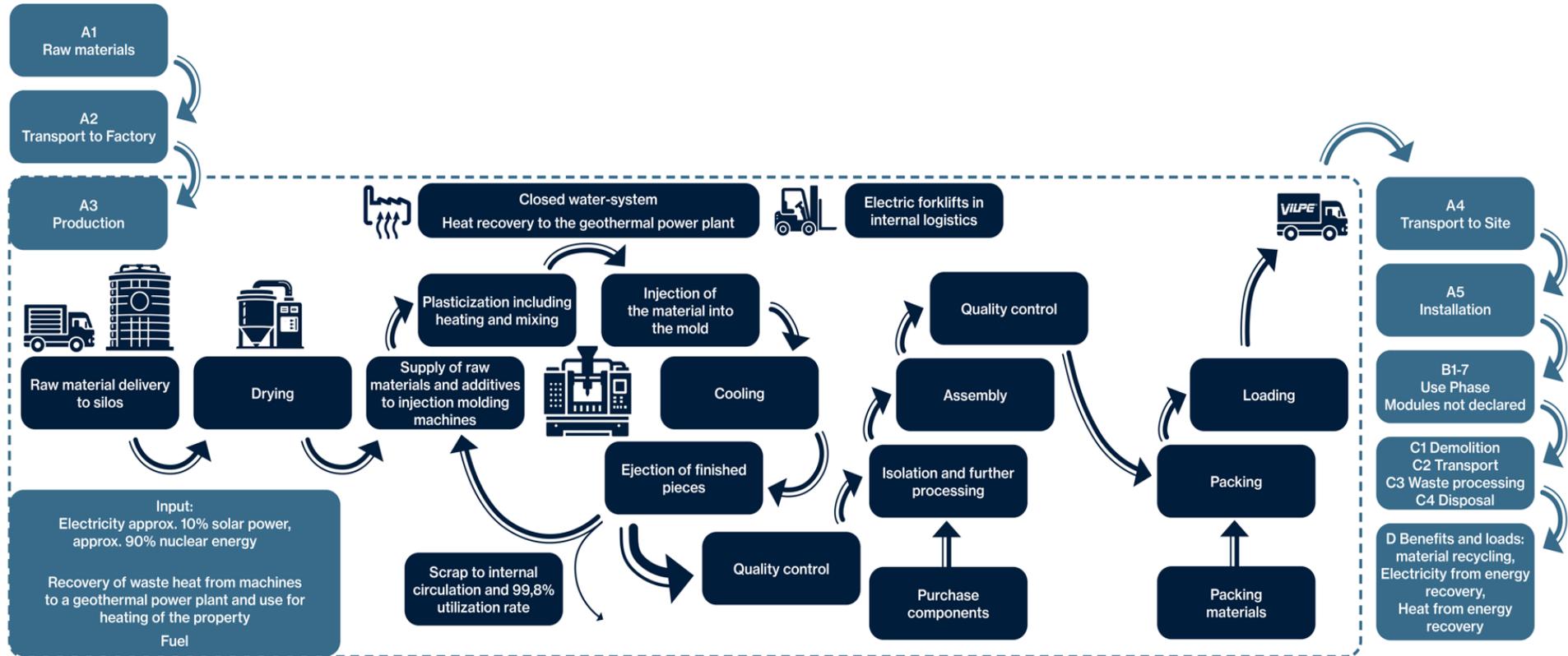
C4: Disposal

The EOL-scenario represents the most probable option in Finland and is based on local waste management scenarios. The average distance to waste treatment facilities in Finland has been used for waste transportation distance. At the end of its service life, the product can be dismantled from its installation environment. It is assumed in the calculation that the product is further disassembled into parts and the different waste fractions are processed separately. It is assumed that plastic waste (PP, TPE, EPDM, PA, rubber, PE) ends up entirely in incineration (100%). For components made of steel, a treatment method of 95% recycling and 5% landfill is assumed (source: World Stainless 2024). For aluminum components in electronics, it is assumed that 70% are recycled and 30% go to landfill (Recycling rates are considered according to EN 50693). For copper components in electronics, it is assumed that 60% are recycled and 40% end up in landfill (Recycling rates are considered according to EN 50693). Other smaller fractions of electronic components are also assumed to be treated as electronic waste, with copper-based metals being recovered.

The benefits and loads of incineration and recycling are included in Module D. This covers loads from the incineration of plastics (PP, TPE, EPDM, PA, rubber, PE) as well as benefits in the form of heat and electricity generated from incineration. For steel, loads include the recycling process. The benefit of steel recycling is avoiding primary steel production (recycled). The use of secondary material (0.2 kg/kg) is not included in the calculations. For cardboard, loads include the recycling process (use of secondary materials: 0.98 kg/kg is not included in the calculations) and the incineration process. Benefits include the use of secondary materials and heat and electricity from incineration. For wooden pallets, loads include the recycling process (use of secondary materials: 1.17 kg/unit, or 4.68%, is not included in the

calculations) and the incineration process. Benefits include the use of secondary materials and heat and electricity from incineration. All assumptions follow current recycling practices in Finland.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

Manufacturing waste is not included to calculations because total amount of plastic which goes to energy waste is only 400kg per year and less than 1% of plastic production. Since the combined amount of ancillary materials including added water to the closed system is less than 1% and no REACH chemicals have been used, they have been excluded from the calculation. More details in attachments. Energy consumption during the installation is very small (drilling machine) that it is not included to the calculations.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN

15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	Partly allocated by mass or volume
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	-

The calculation has been carried out for one representative product, selected from the product group based on the highest sales volume. The calculation uses nominal power, but a scenario for probable average power consumption

has also been calculated. At the end, in the scaling table, the products presented are comparable in terms of nominal power. For these, only product-specific GWP values for stages A1–A3 have been calculated.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2’.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	2,37E+01	1,15E+00	-8,69E-01	2,40E+01	4,82E-01	2,08E+00	ND	ND	ND	ND	ND	3,16E+03	ND	0,00E+00	4,00E-02	8,35E+00	0,00E+00	-3,42E+00
GWP – fossil	kg CO ₂ e	2,38E+01	1,15E+00	1,13E+00	2,61E+01	4,82E-01	4,41E-02	ND	ND	ND	ND	ND	2,06E+03	ND	0,00E+00	4,00E-02	8,35E+00	0,00E+00	-3,75E+00
GWP – biogenic	kg CO ₂ e	-8,73E-02	1,84E-04	-2,04E+00	-2,13E+00	1,09E-04	2,04E+00	ND	ND	ND	ND	ND	1,10E+03	ND	0,00E+00	8,88E-06	5,51E-03	0,00E+00	3,34E-01
GWP – LULUC	kg CO ₂ e	2,04E-02	4,31E-04	4,51E-02	6,59E-02	2,16E-04	1,66E-05	ND	ND	ND	ND	ND	3,84E-01	ND	0,00E+00	1,78E-05	1,38E-04	0,00E+00	-4,15E-03
Ozone depletion pot.	kg CFC ₋₁₁ e	2,37E-06	2,20E-08	3,09E-08	2,42E-06	7,11E-09	3,28E-10	ND	ND	ND	ND	ND	8,74E-05	ND	0,00E+00	5,73E-10	2,89E-09	0,00E+00	-7,51E-08
Acidification potential	mol H ⁺ e	3,09E-01	6,37E-03	5,46E-03	3,21E-01	1,67E-03	1,62E-04	ND	ND	ND	ND	ND	2,28E+01	ND	0,00E+00	1,35E-04	2,03E-03	0,00E+00	-7,06E-02
EP-freshwater ²⁾	kg Pe	2,57E+00	7,31E-05	6,03E-04	2,57E+00	3,75E-05	6,27E-06	ND	ND	ND	ND	ND	7,09E-01	ND	0,00E+00	3,11E-06	5,27E-05	0,00E+00	-3,29E-03
EP-marine	kg Ne	2,93E-02	1,87E-03	2,74E-03	3,40E-02	5,46E-04	2,19E-04	ND	ND	ND	ND	ND	2,51E+00	ND	0,00E+00	4,39E-05	7,52E-04	0,00E+00	-9,97E-03
EP-terrestrial	mol Ne	6,58E-01	2,05E-02	1,85E-02	6,97E-01	5,94E-03	5,58E-04	ND	ND	ND	ND	ND	5,32E+01	ND	0,00E+00	4,78E-04	7,82E-03	0,00E+00	-1,06E-01
POCP (“smog”) ³⁾	kg NMVOCe	1,19E-01	7,43E-03	4,94E-03	1,32E-01	2,44E-03	2,08E-04	ND	ND	ND	ND	ND	7,18E+00	ND	0,00E+00	1,92E-04	2,14E-03	0,00E+00	-3,61E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,61E-02	3,49E-06	6,04E-06	1,62E-02	1,34E-06	2,42E-07	ND	ND	ND	ND	ND	7,36E-03	ND	0,00E+00	1,23E-07	4,12E-06	0,00E+00	-2,93E-05
ADP-fossil resources	MJ	4,10E+02	1,60E+01	3,29E+01	4,59E+02	6,99E+00	3,26E-01	ND	ND	ND	ND	ND	6,43E+04	ND	0,00E+00	5,69E-01	2,44E+00	0,00E+00	-1,18E+02
Water use ⁵⁾	m ³ e depr.	7,88E+00	7,57E-02	8,37E-01	8,79E+00	3,45E-02	1,92E-02	ND	ND	ND	ND	ND	1,86E+04	ND	0,00E+00	2,72E-03	2,63E-01	0,00E+00	-6,45E-01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1,99E-06	8,64E-08	6,36E-08	2,14E-06	4,82E-08	2,49E-09	ND	ND	ND	ND	ND	8,06E-05	ND	0,00E+00	3,53E-09	1,59E-08	0,00E+00	-1,25E-06
Ionizing radiation ⁶⁾	kBq I1235e	1,14E+00	1,90E-02	1,01E+00	2,17E+00	6,08E-03	2,02E-03	ND	ND	ND	ND	ND	2,73E+03	ND	0,00E+00	4,76E-04	8,77E-03	0,00E+00	-3,20E-03
Ecotoxicity (freshwater)	CTUe	5,31E+02	2,03E+00	1,04E+01	5,44E+02	9,88E-01	4,41E+00	ND	ND	ND	ND	ND	2,86E+04	ND	0,00E+00	8,60E-02	8,04E+00	0,00E+00	-1,97E+01
Human toxicity, cancer	CTUh	5,50E-08	2,00E-10	9,17E-10	5,61E-08	7,96E-11	2,41E-11	ND	ND	ND	ND	ND	4,51E-07	ND	0,00E+00	6,72E-12	1,02E-09	0,00E+00	-1,61E-10
Human tox. non-cancer	CTUh	1,65E-06	9,55E-09	9,45E-09	1,67E-06	4,52E-09	1,41E-09	ND	ND	ND	ND	ND	1,78E-05	ND	0,00E+00	3,62E-10	2,00E-08	0,00E+00	-4,65E-08
SQP ⁷⁾	-	1,20E+02	9,18E+00	9,71E+01	2,26E+02	7,03E+00	3,53E-01	ND	ND	ND	ND	ND	2,82E+03	ND	0,00E+00	4,41E-01	1,85E+00	0,00E+00	-7,21E+01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	3,04E+01	2,60E-01	-3,26E+00	2,74E+01	9,57E-02	-2,09E+01	ND	ND	ND	ND	ND	1,28E+04	ND	0,00E+00	7,81E-03	2,05E-01	0,00E+00	-1,45E+01
Renew. PER as material	MJ	1,10E+00	0,00E+00	1,75E+01	1,86E+01	0,00E+00	-1,75E+01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-1,10E+00	0,00E+00	2,10E+00
Total use of renew. PER	MJ	3,15E+01	2,60E-01	1,43E+01	4,60E+01	9,57E-02	-3,84E+01	ND	ND	ND	ND	ND	1,28E+04	ND	0,00E+00	7,81E-03	-8,97E-01	0,00E+00	-1,24E+01
Non-re. PER as energy	MJ	3,12E+02	1,60E+01	3,29E+01	3,61E+02	6,99E+00	3,26E-01	ND	ND	ND	ND	ND	6,79E+04	ND	0,00E+00	5,70E-01	-1,18E+02	0,00E+00	-2,38E+02
Non-re. PER as material	MJ	9,78E+01	0,00E+00	2,96E-01	9,81E+01	0,00E+00	-2,96E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-9,78E+01	0,00E+00	1,21E+02
Total use of non-re. PER	MJ	4,10E+02	1,60E+01	3,32E+01	4,59E+02	6,99E+00	2,95E-02	ND	ND	ND	ND	ND	6,79E+04	ND	0,00E+00	5,70E-01	-2,16E+02	0,00E+00	-1,18E+02
Secondary materials	kg	6,38E-01	7,31E-03	1,07E+00	1,71E+00	2,98E-03	6,05E-04	ND	ND	ND	ND	ND	1,55E-03	ND	0,00E+00	2,50E-04	2,29E-03	0,00E+00	1,41E+00
Renew. secondary fuels	MJ	4,04E-02	8,59E-05	2,00E-01	2,40E-01	3,77E-05	3,61E-06	ND	ND	ND	ND	ND	4,01E-07	ND	0,00E+00	3,18E-06	1,05E-04	0,00E+00	-6,96E-03
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	2,51E-01	2,07E-03	1,96E-02	2,72E-01	1,03E-03	-4,64E-04	ND	ND	ND	ND	ND	6,13E+01	ND	0,00E+00	7,92E-05	2,84E-03	0,00E+00	-1,87E-02

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3,88E+00	2,30E-02	7,33E-02	3,98E+00	1,18E-02	4,94E-03	ND	ND	ND	ND	ND	9,05E+01	ND	0,00E+00	9,81E-04	2,94E-01	0,00E+00	-1,26E+00
Non-hazardous waste	kg	1,06E+02	4,68E-01	1,89E+00	1,08E+02	2,19E-01	1,31E+00	ND	ND	ND	ND	ND	3,56E+03	ND	0,00E+00	1,83E-02	3,64E+00	0,00E+00	-1,38E+01
Radioactive waste	kg	6,72E-04	4,70E-06	2,43E-04	9,19E-04	1,49E-06	4,72E-07	ND	ND	ND	ND	ND	8,93E-01	ND	0,00E+00	1,17E-07	2,21E-06	0,00E+00	-3,28E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,71E-01	ND	ND	ND	ND	ND	2,86E-08	ND	0,00E+00	0,00E+00	2,47E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	6,57E-03	0,00E+00	0,00E+00	6,57E-03	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	1,50E-16	ND	0,00E+00	0,00E+00	3,14E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,42E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	7,25E+01	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,13E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	1,09E+01	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,20E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	6,16E+01	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	2,36E+01	1,14E+00	1,19E+00	2,59E+01	4,79E-01	1,80E-01	ND	ND	ND	ND	ND	2,15E+03	ND	0,00E+00	3,98E-02	8,35E+00	0,00E+00	-3,69E+00
Ozone depletion Pot.	kg CFC ₋₁₁ e	1,73E-06	1,75E-08	2,55E-08	1,78E-06	5,68E-09	2,72E-10	ND	ND	ND	ND	ND	9,20E-05	ND	0,00E+00	4,57E-10	2,40E-09	0,00E+00	-6,31E-08
Acidification	kg SO ₂ e	2,39E-01	4,96E-03	3,95E-03	2,47E-01	1,28E-03	1,22E-04	ND	ND	ND	ND	ND	1,77E+01	ND	0,00E+00	1,03E-04	1,52E-03	0,00E+00	-6,00E-02
Eutrophication	kg PO ₄ ³ e	2,87E-01	9,03E-04	4,72E-03	2,93E-01	3,08E-04	1,47E-04	ND	ND	ND	ND	ND	4,06E+00	ND	0,00E+00	2,51E-05	3,64E-04	0,00E+00	-7,77E-03
POCP (“smog”)	kg C ₂ H ₄ e	1,45E-02	3,59E-04	3,73E-04	1,52E-02	1,13E-04	3,85E-05	ND	ND	ND	ND	ND	6,78E-01	ND	0,00E+00	9,21E-06	1,15E-04	0,00E+00	-4,45E-03
ADP-elements	kg Sbe	1,61E-02	3,41E-06	6,12E-06	1,62E-02	1,31E-06	2,36E-07	ND	ND	ND	ND	ND	7,36E-03	ND	0,00E+00	1,20E-07	4,05E-06	0,00E+00	-2,92E-05
ADP-fossil	MJ	3,90E+02	1,56E+01	1,44E+01	4,20E+02	6,89E+00	2,93E-01	ND	ND	ND	ND	ND	6,43E+04	ND	0,00E+00	5,62E-01	2,29E+00	0,00E+00	-1,17E+02

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	2,38E+01	1,15E+00	1,17E+00	2,61E+01	4,82E-01	4,41E-02	ND	ND	ND	ND	ND	2,06E+03	ND	0,00E+00	4,00E-02	8,35E+00	0,00E+00	-3,76E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO₂ is set to zero.

SCENARIO OF DIFFERENT B-MODULE: E190P/Ø125/700 ROOF FAN'S AVERAGE POWER 28W

Impact category	Unit	B1	B2	B3	B4	B5	B6	B7
GWP – total ¹⁾	kg CO ₂ e	ND	ND	ND	ND	ND	1,76E+03	ND
GWP – fossil	kg CO ₂ e	ND	ND	ND	ND	ND	1,15E+03	ND
GWP – biogenic	kg CO ₂ e	ND	ND	ND	ND	ND	6,13E+02	ND
GWP – LULUC	kg CO ₂ e	ND	ND	ND	ND	ND	2,14E-01	ND

1) GWP = Global Warming Potential.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, nuclear, pressure water reactor (Reference product: electricity, high voltage)
Electricity CO ₂ e / kWh	0,0071 CO ₂ e / kWh
District heating data source and quality	Heat production, light fuel oil, at boiler 100kW condensing, non-modulating (Reference product: heat, central or small-scale, other than natural gas)
District heating CO ₂ e / kWh	0,0969 CO ₂ e / kWh

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Market for transport, freight, lorry >32 metric ton, EURO5 and Transport, freight, sea, container ship
Average transport distance, km	553km
Capacity utilization (including empty return) %	50%
Bulk density of transported products	-
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	-
Water use / m ³	-
Other resource use / kg	-
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0,018kWh
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	Paperboard 1,07kg, EUR-Flat pallet/Wood 0,303kg
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	Cardboard: 82% recycling, 9% incineration, 9% landfill Wood: 31% recycling, 31% incineration, 38% landfill
Direct emissions to ambient air, soil and water / kg	-

Use stages scenario documentation - B2 Maintenance

Scenario information	Value
Maintenance process / Description or source where description can be found	-
Maintenance cycle / Number per RSL or year <i>(Not applicable if only B2 is declared)</i>	-
Ancillary materials for maintenance, e.g. cleaning agent, specify materials / kg / cycle	-
Waste material resulting from maintenance (specify materials) / kg	-
Net fresh water consumption during maintenance / m ³	-
Energy input during maintenance, e.g. vacuum cleaning, energy carrier type, e.g. electricity, and amount, if applicable and relevant / kWh	-

Use stages scenario documentation - B3 Repair

Scenario information	Value
Repair process / Description or source where description can be found	-
Inspection Process / Description or source where description can be found	-
Repair cycle / Number per RSL or year	-
Ancillary materials, e.g., lubricant (specify materials) / kg or kg/cycle	-
Waste material resulting from repair (specify materials) / kg	-
Net fresh water consumption during repair / m ³	-
Energy input during repair, e.g., crane activity, energy carrier type, e.g., electricity, and amount / kWh/RSL, kWh/cycle	-

Use stages scenario documentation - B4 Replacement

Scenario information	Value
Replacement cycle / Number per RSL or year	-
Energy input during replacement, e.g., crane activity, energy carrier type, e.g., electricity and amount (if applicable and relevant) / kWh	-
Exchange of worn parts during the product's life cycle, e.g., zinc galvanized steel sheet (specify materials) / kg	-

Use stages scenario documentation - B5 Refurbishment

Scenario information	Value
Refurbishment process / Description or source where description can be found	-
Refurbishment cycle / Number per RSL or year	-
Energy input during refurbishment, e.g., crane activity, energy carrier type, e.g., electricity, and amount (if applicable and relevant) / kWh	-
Material input for refurbishment, e.g., bricks, including ancillary materials for the refurbishment process, e.g., lubricant (specify materials) / kg or kg/cycle	-
Waste material resulting from refurbishment (specify materials) / kg	-
Further assumptions for scenario development, e.g., frequency and time period of use, number of occupants / Units as appropriate	-

Use stages scenario documentation - B6-B7 Use of energy and use of water

Scenario information	Value
Ancillary materials specified by material / kg or units as appropriate	-
Net fresh water consumption / m ³	-
Type of energy carrier, e.g., electricity, natural gas, district heating / kWh	Type of energy carrier is electricity in all datapoints; Electricity, Finland, 2022 (One Click LCA) 7399kWh, Electricity Poland 528kWh, Electricity, Russia, 2022 (One Click LCA) 402kWh, Electricity Sweden 344kWh, Electricity, Hungary, 2022 (One Click LCA) 262kWh, Electricity, Ukraine, 2022 (One Click LCA) 176kWh
Power output of equipment / kW	52W
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc.	The rotation speed of the roof fan adjusts automatically according to demand. For the representative product, a B-module scenario has also been calculated using average power 29W.
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants	Finland: 81,21%*83W*24h*365d*20years Poland: 5,79%*83W*24h*365d*20years Russia: 4,41%*83W*24h*365d*20years Sweden: 3,78%*83W*24h*365d*20years

	Hungary: 2,88%*83W*24h*365d*20years Ukraine: 1,93%*83W*24h*365d*20years
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End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	-
Collection process – kg collected with mixed waste	5,881kg
Recovery process – kg for re-use	-
Recovery process – kg for recycling	2,471kg
Recovery process – kg for energy recovery	3,136kg
Disposal (total) – kg for final deposition	0,243kg
Scenario assumptions e.g. transportation	Transported 50km by lorry “Market for transport, freight, lorry >32 metric ton, EURO5

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15802+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited
24.10.2025



APPENDIX

SCALING TABLE

Impact category		Unit	A1-A3	A1-A3	A1-A3
			E190P/Ø125/500	E190C/Ø125/400 Roof Fan	E190S/Ø125 Roof Fan 300 x 300
Product Weight		kg/DU	5,489	5,138	4,086
EN 15804+A2	GWP* - total	kg CO ₂ e	2,33E+01	2,09E+01	1,91E+01
	GWP - fossil	kg CO ₂ e	2,50E+01	2,37E+01	2,04E+01
	GWP - biogenic	kg CO ₂ e	-1,75E+00	-2,86E+00	-1,40E+00
	GWP - LULUC	kg CO ₂ e	5,32E-02	6,49E-02	3,60E-02