ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

VERSO R Pro 10-40 Air Handling Unit

Komfovent, UAB

EPD HUB, HUB-6173

Published on 04.05.2026, last updated on 04.05.2026, valid until 04.05.2031

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.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Komfovent, UAB
Address	Lentvario str. 146, LT-25132, Vilnius, Lithuania
Contact details	info@komfovent.com
Website	https://www.komfovent.com/en/

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	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	Not applicable
Scope of the EPD	Cradle to gate with options, A4-A5, B2, B4, B6, and modules C1-C4, D
EPD author	Rita Šiaudvytė, Rita.Siaudvyte@komfovent.com
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Yazan Badour 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	VERSO R Pro 10-40 Air Handling Unit
Additional labels	-
Product reference	-
Place(s) of raw material origin	Europe
Place of production	Vilnius, Lithuania
Place(s) of installation and use	Europe
Period for data	01/01/2023-31/12/2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	-36,8% / +13,6 %
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	25,9

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit of VERSO R Pro 30
Declared unit mass	655 kg
Mass of packaging	47,74 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	2 720
GWP-total, A1-A3 ($kgCO_2e$)	2 610
Secondary material, inputs (%)	39,9
Secondary material, outputs (%)	73,3
Total energy use, A1-A3 (kWh)	11 400
Net freshwater use, A1-A3 (m^3)	35,8

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

KOMFOVENT brand unites a group of 11 companies operating in Lithuania and other European countries, employing over 1000 people who develop ventilation system products, produce them, and present them to the market. In particular, it offers a large assortment of efficient air handling units.

KOMFOVENT also manufactures other components for ventilation systems – from air ducts to VAV (Variable Air Volume) dampers. KOMFOVENT products not only guarantee people's comfort by supplying fresh air to premises but also help ensure safety in case of fire – reliable fire and smoke dampers, smoke ducts, and other accessories produced by the company. Investing in the latest technology allows the company to offer the market a wide range of products – equipment for large industrial enterprises and production facilities, offices, cafes, hotels, as well as individual apartments and homes.

The company is ISO certified for both ISO 9001:2015 (Quality Management Standard) and ISO 14001:2015 (Environmental Management Standard).

PRODUCT DESCRIPTION

Product group description: Komfovent Verso R Pro series air handling unit with a rotary heat exchanger is a mechanically assembled ventilation device designed to provide controlled air exchange and high energy efficiency in commercial buildings. Eurovent certified casing with T2/TB2/L1/D1/F9 classes according to the EN 1886 standard.

The unit extracts indoor air containing CO_2, dust and other pollutants and supplies filtered outdoor air. A rotary heat exchanger (rotor) recovers thermal energy from the exhaust air and transfers it to the supply air stream. The recovered heat or cooling capacity is regulated by controlling the rotor speed. When heat recovery is not required, the rotor is stopped.

The Komfovent Verso R Pro units are intended for a wide range of applications, including business centres, retail spaces, educational buildings, offices, hotels, cafés, and other commercial premises. The units are designed for installation in mechanical ventilation systems under indoor conditions.

The integrated intelligent control system allows extensive monitoring and operational adjustment to ensure optimal indoor air quality and comfort. The units are available in project-based, customised configurations.

This EPD covers a group of products within the VERSO R Pro series, ranging from size 10 to size 40, corresponding to an air flow range of approximately 1000 – 10000 m^3/h. The unit weight depends on the selected accessories, configuration and size. The declared configuration includes a rotary heat recovery section and a coil section, in addition to standard filter and fan sections.

The EPD is based on a representative reference product. Environmental impacts for other unit sizes and configurations within the declared range are calculated using a scaling approach. The applicable scaling factors and the calculation methodology are provided in Annex (Scaling table).

The product does not contain any REACH SVHC substances above 0,1 %.

The declared service life (RSL) of the product is 20 years, based on manufacturer data and typical service life of HVAC equipment.

Product application areas: Komfovent Verso R Pro units are intended for a wide range of applications, including business centres, retail spaces, educational buildings, offices, hotels, cafés, and other commercial premises. The integrated intelligent control system allows extensive monitoring and operational adjustment to ensure optimal indoor air quality and comfort.

Further information can be found at: https://www.komfovent.com/en/

UN CPC code: 43912 – Air-conditioning machines

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	93,27	Europe
Minerals	3,14	Europe
Fossil materials	3,59	Europe
Bio-based materials	0	Europe

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	40,65

Note. 1 kg biogenic carbon is equivalent to the uptake of 44/12 kg of CO_2

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit of VERSO R Pro 30
Mass per declared unit	655 kg
Functional unit	Provision of 1 m³ of conditioned supply air over a 20-year service life (12 h/day, 7 days/week)
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	x	ND	x	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

Not declared = ND.

PRODUCT STAGE (A1-A3)

A1 – Raw material supply: Raw materials are sourced from European suppliers. This module considers the extraction and processing of raw materials.

A2 – Transport: Transport of raw materials to the manufacturing plant is modelled using lorry and ship transport. Transport distances and transport modes are based on supplier-specific data provided by the manufacturer, reflecting actual distances between suppliers and the production site.

A3 – Manufacturing: This module includes the manufacture of products, packaging materials, and ancillary materials. It covers energy consumption,

fuels used by machinery, and waste generated at the production plant. Material losses during manufacturing (e.g. cutting, welding, assembly) and electricity transmission losses are included.

Energy use consists of electricity (Lithuanian residual mix and on-site photovoltaic electricity), natural gas for thermal energy, and diesel for mobile equipment. Electricity consumption is allocated based on total site consumption using mass-based allocation.

Packaging materials include wood, plastic, cardboard, and metal components.

Manufacturing waste is treated according to typical European waste management practices, including recycling, incineration, and landfill depending on material type. Transport of manufacturing waste to treatment facilities is assumed to be based on typical regional distances (e.g. 50–100 km by lorry).

Manufacturing process: The air handling unit is manufactured in a controlled industrial environment using defined raw materials and standardized process steps. The production process typically includes the following stages:

1. **Raw material selection and preparation:** Primary materials are sourced according to quality specifications and prepared for processing.

2. **Casing preparation:** The AHU casing manufacturing process involves precision cutting of metal sheets, welding into frame structures, milling to ensure accurate fitment, and painting for protection and durability.

3. **Component installation:** Functional components, such as rotary wheels, fans, motors, coils, and filters, are installed. All components are mounted securely and connected to power and control circuits.

4. **Quality control and testing:** The product is inspected and tested in accordance with relevant quality criteria to ensure consistency and compliance with specifications.

5. **Packaging and storage:** Air handling units are packaged, labelled, and stored under appropriate conditions for transport and delivery. Protective wrapping, corner guards and wooden pallets are used to prevent damage during transportation.

TRANSPORT AND INSTALLATION (A4-A5)

A4 – Transport: Transportation impacts occurred from final products delivery to construction site cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions. Vehicle capacity utilization volume factor is assumed to be 1 which means full load. It may vary but as the role of transportation emission in total results is small and so the variety in load is assumed to be negligible. Empty returns are not considered as it is assumed that the return trip is used by the transportation company to serve the needs of other clients.

A5 – Installation: Environmental impacts associated with the installation stage include product installation losses, energy-related emissions, and waste generation at the construction site. The installation of the Air Handling Unit requires a mobile crane (4 hours per unit, assuming 20 l/h of diesel consumption) and small equipment such as a cordless screwdriver (5 kWh per unit). Additional auxiliary materials include fasteners, screws and an tools. However, these materials are considered negligible in mass compared to the declared product and are included under cut-off criteria in accordance with EN 15804+A2. Packaging waste generated from raw materials (cardboard, plastic, wood, and metal) is collected and subsequently recycled, incinerated, or disposed of in landfill, depending on the waste type and local treatment practices.

PRODUCT USE AND MAINTENANCE (B1-B7)

The use stage (modules B1–B7) covers all impacts occurring during the operation of the product throughout its reference service life.

B1 – Use: No emissions, material use or resource inputs occur during normal operation of the air-handling unit. The product does not release substances into indoor air and therefore this module is not relevant.

B2 – Maintenance: Regular maintenance includes cleaning of drip trays, cleaning of the impeller, belt inspection/adjustment and drum cleaning. These actions require small amounts of fresh water and electricity and generate minor waste (e.g., a small piece of belt). All other inspections are visual only and do not involve material, energy or water consumption.

B3 – Repair: No repair activities beyond routine maintenance are expected during the reference service life. Therefore, this module is not relevant.

B4 – Replacement: Replacement occurs for consumable components with a shorter lifetime than the AHU. Air filters are replaced twice per year, and rotor brushes are replaced every two years. The production, transport and end-of-life treatment of these replacement components are included in this module.

B5 – Refurbishment: No major refurbishment actions are expected for this product during its service life. This module is not relevant.

B6 – Operational energy use: Operational energy use includes the electricity consumption of the supply and exhaust fans, the rotary heat exchanger drive and the control system. Electricity use is calculated based on the operating profile (12 hours per day, 7 days per week), resulting in annual consumption of 10 731 kWh.

B7 – Operational water use: No water is required during normal operation of the air-handling unit. This module is not relevant.

PRODUCT END OF LIFE (C1-C4, D)

C1 – Deconstruction, dismantling, demolition: At the end of the product's service life, the air handling unit (AHU) is dismantled on site. Dismantling is performed mechanically and manually, following standard HVAC equipment removal procedures. No significant energy consumption is assumed during the dismantling stage, as components are removed using handheld tools and onsite equipment already available in the building (assumed 1,1 kWh/tonne). The unit remains intact during removal and is not disassembled into material fractions at the building site.

C2 – Transport of discarded product to waste treatment: No mass loss is assumed during use; therefore, the unit's end-of-life mass is equal to its declared product mass. All waste fractions are transported to the nearest available waste treatment or recycling facilities. A transport distance of 80 km is assumed for all material flows. Transport is modelled using a EURO 5 lorry, representing typical regional conditions.

C3 – Waste processing for reuse, recovery, and/or recycling: The AHU consists of a large share of recyclable metals and smaller shares of plastics, electronics, mineral wool, and mixed components. Waste processing is modelled according to material-specific European recycling rates (EN 50693 for electronics and metals; typical market data for insulation and plastics):

1. Steel and ferrous metals: 80% of steel scrap is routed to recycling (sorting and pressing of iron scrap). The remaining 20% is sent to landfill;
2. Aluminium: 70% is assumed to be recycled (treatment of aluminium scrap, post-consumer). The remaining 30% goes to landfill;
3. Copper/brass: 60% of copper waste is sorted and sent to recycling. The remaining 40% is disposed of in landfill;
4. Plastics (PP, PVC, PA, PE foams): Plastics are assumed to be non-recyclable in this product system at end-of-life; mixed plastic waste is treated as municipal solid waste and allocated to incineration or landfill depending on the fraction (treatment of waste plastic, mixed; treatment of waste plastic, industrial);
5. Electronics (controllers, frequency converter, modules, sensors): Electronic components are treated in WEEE processes (shredding and separation). Metal-containing fractions are routed to downstream

metal-recovery processes; non-recoverable residues and plastics are sent to landfill or incineration;
6. Cables: Cables undergo post-consumer copper recovery where feasible; remaining components are disposed of;
7. Mineral wool: Treated as inert construction waste and disposed of in controlled landfill.

All recyclable fractions reaching end-of-waste status are accounted for in Module D.

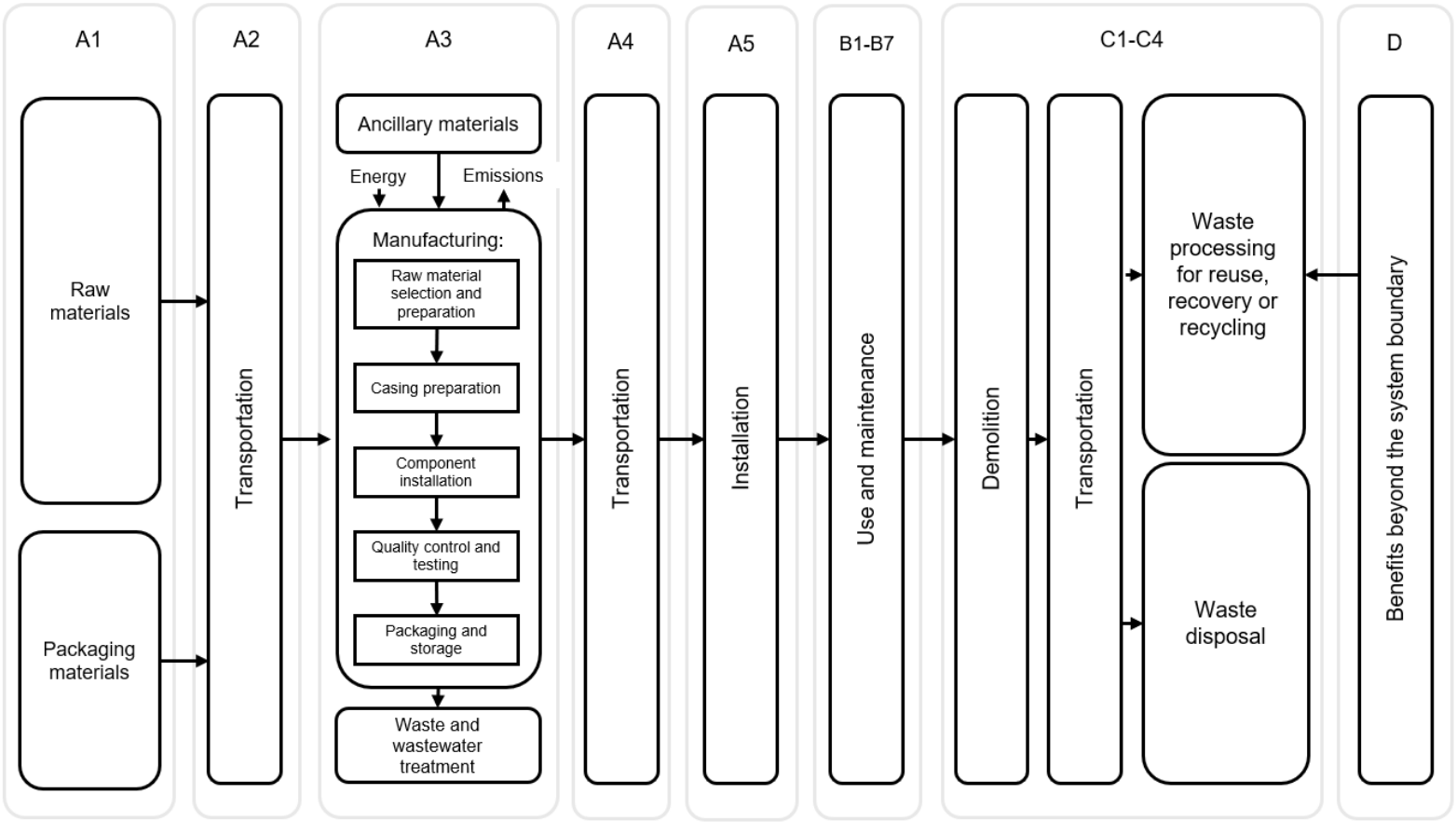
C4 – Disposal: Material fractions that do not meet recovery or recycling criteria are disposed of through controlled landfill or incineration. These include:

1. Non-recyclable plastics;
2. Insulation residues (mineral wool, PU foam, PE foam);
3. Non-recoverable electronic residues after WEEE processing;
4. Remaining aluminium/copper/steel fractions not captured during sorting;
5. Process fines and mixed waste fractions.

Landfilling is modelled using inert or sanitary landfill datasets corresponding to the material type.

Module D – Benefits and loads beyond the system boundary: Recycled fractions of steel, aluminium, and copper provide avoided burdens that are reported as benefits in Module D. These benefits are calculated using substitution-by-system-expansion, where secondary metals replace primary production. No benefits are included for plastic waste, as plastics used in this product are assumed not to substitute virgin material at end of life.

SYSTEM BOUNDARY



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. Minor auxiliary materials and installation-related inputs (e.g. fasteners, screws and tools) that are negligible in mass have been included under this cut-off approach. 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.

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.

DATA QUALITY

The EPD covers products manufactured in one factory in Vilnius (Lithuania) which provided data for the period January – December 2023. The data collection has been done internally and thoroughly. The data is based on yearly production amounts and extrapolations of measurements on specific machines and plants. The EPD covers raw material supply, transport, product production, product transportation to customers, product installation, use stage and end-of-life in European scale. The production process includes raw material selection and preparation, casing preparation, component installation, quality control and testing, finishing with product packaging and storage until distribution. The site is powered by residual mix, as well as solar energy sourced from solar panels. Additionally for thermal energy natural gas is used, and diesel for mobile machinery. Background data was sourced from the Ecoinvent v.3.11, One Click LCA and IDEMAT databases. No poor or very poor data was found during the assessment of relevant data using PEF method (EN 15804:2012+A2:2019, Annex E, only E.2). The data quality assessment is done in accordance with EN 15941:2024. Overall, the data quality can be described as good. The EN 15804 reference package used is based on 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	No allocation
Packaging material	No allocation
Ancillary materials	Allocated by mass
Manufacturing energy and waste	Allocated by mass

Reason for allocation: only measured on factory level.

The methodological choices for allocation for reuse, recycling and recovery have been set according to the polluter pays principle (PPP).

Scenarios included in the LCA are based on realistic scenarios which are currently in use and are representative for one of the most likely scenario alternatives.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	-36,8% / +13,6 %

The EPD is a multi-product EPD based on a representative product. The grouping covers VERSO R Pro series units with configurations that include a rotary heat exchanger and a coil section across sizes 10-40, with total product weights depending on the selected accessories, components and size.

The EPD results are based on a representative reference product and two boundary cases that reflect the variability within the product group.

The reference product is the VERSO R Pro 30 unit with a total weight of 655 kg and a GWP-fossil of 2,72E+03 kg CO_2e. This unit was selected as the reference product because its weight is the most representative within the declared range, as it is closest to the average of the available configurations and avoids the extreme (lightest/heaviest) cases.

The lower and upper boundaries of the grouping are represented by size 10 and size 40 units, respectively. The calculated GWP-fossil results range from approximately 1,72E+03 kg CO_2e for size 10 to 3,09E+03 kg CO_2e for size 40.

Compared with the reference unit (size 30), the GWP-fossil is approximately 36,8% lower for the smallest configuration (size 10) and approximately 13,6% higher for the largest configuration (size 40).

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.4. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent 3.11, IDEMAT and One Click LCA databases as sources of environmental data. Allocation rules 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.

The results are presented for 1 unit of VERSO R Pro Air Handling Unit size 30 (representative product).

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_2e	2,53E+03	1,10E+02	-3,14E+01	2,61E+03	9,22E+01	4,46E+02	ND	2,29E+00	ND	1,37E+03	ND	4,13E+03	ND	2,45E-01	5,37E+00	3,59E+01	5,14E+01	-9,62E+02
GWP – fossil	kg CO_2e	2,49E+03	1,10E+02	1,18E+02	2,72E+03	9,21E+01	2,96E+02	ND	2,28E+00	ND	1,36E+03	ND	4,10E+03	ND	2,36E-01	5,37E+00	3,56E+01	5,14E+01	-9,55E+02
GWP – biogenic	kg CO_2e	2,48E+01	2,40E-02	-1,50E+02	-1,25E+02	2,09E-02	1,49E+02	ND	1,05E-02	ND	8,94E+00	ND	3,02E+01	ND	8,02E-03	1,22E-03	2,24E-01	8,52E-03	0,00E+00
GWP – LULUC	kg CO_2e	1,43E+01	4,68E-02	4,03E-01	1,48E+01	4,12E-02	3,29E-02	ND	1,09E-03	ND	1,75E+00	ND	3,07E+00	ND	7,03E-04	2,40E-03	4,10E-02	2,02E-03	-7,92E+00
Ozone depletion pot.	kg CFC-$_{11}$e	1,38E-04	1,78E-06	4,30E-05	1,83E-04	1,36E-06	4,33E-06	ND	6,95E-08	ND	5,93E-04	ND	3,51E-04	ND	3,94E-09	7,92E-08	6,79E-07	5,59E-08	-6,66E-06
Acidification potential	mol H^+e	3,83E+01	4,15E-01	5,98E-01	3,94E+01	3,18E-01	2,61E+00	ND	5,08E-03	ND	3,07E+01	ND	1,91E+01	ND	1,17E-03	1,83E-02	5,94E-01	2,38E-02	-4,59E+00
EP-freshwater[2)]	kg Pe	3,49E+01	8,17E-03	3,94E-02	3,49E+01	7,17E-03	1,15E-02	ND	2,65E-04	ND	7,36E-01	ND	5,36E-01	ND	2,17E-04	4,18E-04	4,42E-02	5,99E-04	-2,06E+01
EP-marine	kg Ne	3,18E+00	1,33E-01	1,21E-01	3,44E+00	1,04E-01	1,22E+00	ND	9,87E-04	ND	2,18E+00	ND	3,51E+00	ND	2,07E-04	6,01E-03	6,04E-02	2,22E-02	-8,56E-01
EP-terrestrial	mol Ne	1,29E+02	1,45E+00	1,12E+00	1,32E+02	1,13E+00	1,33E+01	ND	1,01E-02	ND	1,21E+02	ND	3,65E+01	ND	1,78E-03	6,54E-02	7,21E-01	1,06E-01	-8,74E+00
POCP ("smog")[3)]	kg NMVOCe	9,44E+00	5,81E-01	3,96E-01	1,04E+01	4,66E-01	3,97E+00	ND	2,91E-03	ND	5,01E+00	ND	1,01E+01	ND	5,69E-04	2,70E-02	2,19E-01	3,11E-02	-3,24E+00
ADP-minerals & metals[4)]	kg Sbe	3,73E+00	3,18E-04	5,33E-03	3,73E+00	2,57E-04	1,11E-04	ND	1,97E-06	ND	1,04E-01	ND	2,36E-03	ND	5,22E-07	1,50E-05	5,90E-03	6,96E-06	-9,67E-03
ADP-fossil resources	MJ	3,26E+04	1,58E+03	1,72E+03	3,59E+04	1,34E+03	3,84E+03	ND	1,47E+01	ND	1,96E+04	ND	5,35E+04	ND	5,52E+00	7,79E+01	5,07E+02	4,41E+01	-1,08E+04
Water use[5)]	m^3e depr.	1,11E+03	7,76E+00	3,50E+01	1,15E+03	6,60E+00	1,06E+01	ND	3,60E+01	ND	6,70E+02	ND	1,92E+05	ND	1,46E-01	3,85E-01	1,29E+01	4,35E+00	-7,72E+02

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	2,98E-04	1,03E-05	5,46E-06	3,14E-04	9,22E-06	7,43E-05	ND	2,77E-08	ND	3,36E-04	ND	5,87E-05	ND	4,04E-09	5,37E-07	3,27E-06	2,77E-07	-7,15E-05
Ionizing radiation[6)]	kBq U235e	2,02E+07	1,53E+00	1,07E+01	2,02E+07	1,16E+00	1,74E+00	ND	8,26E-01	ND	1,88E+02	ND	3,93E+03	ND	1,56E-01	6,78E-02	4,01E+00	9,06E-02	-6,12E+01
Ecotoxicity (freshwater)	CTUe	1,18E+05	2,18E+02	4,54E+03	1,23E+05	1,89E+02	2,20E+03	ND	1,12E+01	ND	9,30E+04	ND	6,38E+03	ND	5,79E+00	1,10E+01	4,60E+03	2,02E+05	-3,71E+04
Human toxicity, cancer	CTUh	5,46E-06	1,84E-08	6,96E-08	5,55E-06	1,52E-08	3,05E-08	ND	3,59E-10	ND	1,78E-06	ND	2,02E-07	ND	3,93E-11	8,86E-10	5,66E-08	9,40E-09	-8,27E-07
Human tox. non-cancer	CTUh	1,00E-04	1,01E-06	3,49E-06	1,05E-04	8,65E-07	5,11E-07	ND	1,74E-08	ND	3,38E-05	ND	1,62E-05	ND	1,78E-09	5,04E-08	4,90E-06	6,59E-07	-7,70E-06
SQP[7)]	-	6,30E+03	1,41E+03	3,86E+02	8,09E+03	1,34E+03	2,74E+02	ND	1,77E+00	ND	5,89E+03	ND	3,76E+03	ND	7,86E-01	7,84E+01	5,45E+02	6,03E+01	-2,27E+03

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	4,43E+03	2,30E+01	5,90E+02	5,05E+03	1,83E+01	-6,22E+02	ND	4,83E+00	ND	2,14E+03	ND	2,17E+04	ND	1,25E+00	1,07E+00	8,91E+01	1,41E+00	-2,59E+03
Renew. PER as material	MJ	5,68E+01	0,00E+00	1,37E+03	1,43E+03	0,00E+00	-1,37E+03	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	-5,68E+01	0,00E+00
Total use of renew. PER	MJ	4,49E+03	2,30E+01	1,96E+03	6,47E+03	1,83E+01	-1,99E+03	ND	4,83E+00	ND	2,14E+03	ND	2,17E+04	ND	1,25E+00	1,07E+00	8,91E+01	-5,54E+01	-2,59E+03
Non-re. PER as energy	MJ	3,28E+04	1,58E+03	1,58E+03	3,60E+04	1,34E+03	3,79E+03	ND	8,54E+00	ND	1,93E+04	ND	7,88E+04	ND	5,52E+00	7,79E+01	5,09E+02	-7,19E+02	-1,08E+04
Non-re. PER as material	MJ	4,24E+02	0,00E+00	5,22E+01	4,76E+02	0,00E+00	-5,22E+01	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	-4,24E+02	0,00E+00
Total use of non-re. PER	MJ	3,32E+04	1,58E+03	1,64E+03	3,64E+04	1,34E+03	3,74E+03	ND	8,54E+00	ND	1,93E+04	ND	7,88E+04	ND	5,52E+00	7,79E+01	5,09E+02	-1,14E+03	-1,08E+04
Secondary materials	kg	2,62E+02	6,88E-01	3,08E+00	2,65E+02	5,69E-01	1,59E+00	ND	1,74E-02	ND	8,98E+01	ND	4,78E-01	ND	5,68E-04	3,31E-02	5,61E+01	1,76E-02	3,55E+02
Renew. secondary fuels	MJ	3,88E-01	8,61E-03	6,46E-02	4,61E-01	7,22E-03	4,31E-03	ND	1,66E-05	ND	1,53E-01	ND	1,24E-04	ND	2,43E-06	4,21E-04	1,12E-02	5,41E-04	-7,21E-02
Non-ren. secondary fuels	MJ	7,36E-05	0,00E+00	0,00E+00	7,36E-05	0,00E+00	0,00E+00	ND	0,00E+00	ND	0,00E+00	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	3,37E+01	2,27E-01	1,86E+00	3,58E+01	1,97E-01	1,96E-01	ND	8,52E-01	ND	1,41E+01	ND	4,68E+01	ND	3,40E-03	1,15E-02	8,51E-01	-1,92E-03	-1,62E+01

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	3,90E+02	2,57E+00	9,66E+00	4,02E+02	2,26E+00	4,58E+00	ND	6,67E-02	ND	2,17E+02	ND	5,01E-01	ND	1,19E-02	1,32E-01	3,73E+00	1,17E+00	-2,98E+02
Non-hazardous waste	kg	7,05E+03	4,89E+01	1,03E+03	8,12E+03	4,19E+01	1,18E+02	ND	8,85E+00	ND	4,15E+03	ND	2,71E+02	ND	1,07E+00	2,44E+00	1,86E+02	9,73E+01	-3,36E+03
Radioactive waste	kg	2,22E-01	3,77E-04	3,19E-03	2,26E-01	2,85E-04	4,77E-04	ND	9,96E-05	ND	4,81E-02	ND	4,05E-01	ND	4,01E-05	1,66E-05	1,02E-03	2,23E-05	-1,79E-02

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	1,59E-03	0,00E+00	0,00E+00	1,59E-03	0,00E+00	0,00E+00	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,29E+00	0,00E+00	8,45E+01	8,78E+01	0,00E+00	1,86E+01	ND	1,65E-09	ND	2,90E+02	ND	8,84E-06	ND	0,00E+00	0,00E+00	4,80E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	2,70E-17	0,00E+00	3,24E+00	3,24E+00	0,00E+00	0,00E+00	ND	8,62E-18	ND	5,08E+00	ND	4,63E-14	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	1,45E+00	0,00E+00	0,00E+00	1,45E+00	0,00E+00	7,80E+01	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	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	2,60E+01	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	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	5,20E+01	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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_2e	2,51E+03	1,10E+02	1,18E+02	2,74E+03	9,22E+01	2,96E+02	ND	2,28E+00	ND	1,36E+03	ND	4,10E+03	ND	2,36E-01	5,37E+00	3,57E+01	5,14E+01	-9,62E+02

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 DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value	Source
Electricity, medium voltage, residual mix	0,73 kgCO2e/kWh	Data sources: ecoinvent 3.11 Country: Lithuania
Electricity production, photovoltaic	0,11 kgCO2e/kWh	Data sources: ecoinvent 3.11 Country: Lithuania
Heat and power co-generation (electricity, high voltage), natural gas	0,78 kgCO2e/kWh	Data sources: ecoinvent 3.11 Country: Lithuania
Heat and power co-generation (Heat, district or industrial), natural gas	0,15 kgCO2e/kWh	Data sources: ecoinvent 3.11 Country: Lithuania

Transport scenario documentation A4

Scenario parameter	Value	
Vehicle type used for transport	EURO 5 truck with a trailer with an average load of >32t	Sea, container ship
Distance, km	1862	360
Capacity utilization (inc. empty return), %	100	
Bulk density of transported products, kg/unit	655	
Volume capacity utilization factor	1	

Installation scenario documentation - A5 (Installation resources)

Scenario parameter	Value
Ancillary materials for installation, kg	Diesel consumption for mobile crane (4 hours per unit, assuming 20 l/h)
Water use, m3	-
Other resource use, kg	-

Scenario parameter	Value	
Quantitative description of energy type (regional mix) and consumption during the installation process, kWh	Small equipment such as a cordless screwdriver (5 kWh per unit, electricity, low voltage)	
Waste materials on the building site before waste processing, generated by the product's installation, kg		
Plastic packaging	1,24 kg	
Paper and cardboard packaging	0,10 kg	
Wood packaging	45,53 kg	
Metal packaging	0,869 kg	
Output materials as result of waste processing at the building site, kg		
Plastic packaging	Collection for recycling	42%
	Collection for energy recovery	35%
	Collection for disposal	23%
Paper and cardboard packaging	Collection for recycling	87%
	Collection for energy recovery	8%
	Collection for disposal	5%
Wood packaging	Collection for recycling	38%
	Collection for energy recovery	30%
	Collection for disposal	32%
Metal packaging	Collection for recycling	77%
	Collection for disposal	23%
Direct emissions to ambient air, soil, and water, kg	-	

Use stages scenario documentation - B2 (Maintenance data source)

Scenario parameter	Value
Maintenance process	Cleaning of drip trays
	Cleaning of the impeller
	Drum cleaning

Scenario parameter	Value
	Belt inspection or adjustment
Maintenance cycle	drip trays = 2×/year
	impeller = 1×/year
	drum = 1×/year
	belt = 2×/year
Ancillary materials for maintenance	-
Waste material resulting from maintenance	Treatment of waste rubber, unspecified, municipal incineration: 0,40 kg
Net freshwater consumption during maintenance	840 kg
Energy input during maintenance	Electricity, Europe, 2023, One Click LCA, 2,0 kWh

Use stages scenario documentation - B4

Scenario parameter	Value
Replacement cycle	Filters: 2x/year
	Rotor brushes: 1x/2years
Energy input during replacement	-
Exchange of worn part during the product's life cycle	Air filter: 290,56 kg
	Synthetic rubber rotor brush: 5,08 kg

Use stages scenario documentation - B6 (Energy data source)

Scenario parameter	Value
Ancillary materials, kg	-
Net freshwater consumption, m^3	-
Type of energy carrier	Electricity, Europe, 2023, Europe, One Click LCA
Power output equipment, kW	-
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc	Operational energy use based on 12 h/day, 7 days/week. Annual electricity use: 10 731 kWh
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants	-

End-of-life scenario documentation - C1-C4

Scenario parameter	Value
Collection process – kg collected separately	655,00
Collection process – kg collected with mixed waste	-
Recovery process – kg for re-use	-
Recovery process – kg for recycling	480,33
Recovery process – kg for energy recovery	-
Disposal (total) – kg for final deposition	174,67
Scenario assumptions e.g. transportation	80 km, lorry >32 tonne, EURO5

Note. Yield factor = 0,9 (assuming 10% of material is lost in the recycling process)

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 is 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 15804+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

Yazan Badour as an authorized verifier for EPD Hub Limited 04.05.2026

VERIFIED ISO 14025

ANNEX

Scaling table

This scaling table presents the variation of product weight and GWP indicators (A1–A3) for different product sizes within the declared product range.

The results are calculated proportionally based on the reference unit results and are applicable only within the declared dimensional and mass range.

The variation between the representative product and the minimum/maximum configurations does not exceed ±50%, in accordance with Annex I of the applicable General Programme Instructions (GPI).

Impact category	**Unit**	**A1-A3**	**A1-A3**	**A1-A3**
Air Handling Unit	**Series number**	**10**	**20**	**40**
Product weight	**kg/DU**	**446**	**583**	**795**
EN 15804+A2	GWP – total	1,61E+03	2,00E+03	2,97E+03
	GWP – fossil	1,72E+03	2,13E+03	3,09E+03
	GWP – biogenic	−1,22E+02	−1,40E+02	−1,32E+02
	GWP – LULUC	9,76E+00	1,07E+01	1,69E+01

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SERTIFIKATAS

Nr. ZE 9585-2025

Šiuo sertifikatu patvirtiname, kad

UAB "KOMFOVENT"

savo veikloje naudoja iš atsinaujinančių energijos išteklių (AEI) pagamintą elektros energiją.

Naudodamas tokią elektros energiją, klientas skatina energijos gamybos iš AEI plėtrą, mažina savo poveikį aplinkai ir prisideda prie klimato kaitos švelninimo.

Sertifikatas galioja iki 2026-12-31

„Ignitis“ vadovas
Artūras Bortkevičius

ignitis | green energy

CERTIFICATE

No. ZE 9585-2025

This is to certify that

UAB "KOMFOVENT"

consumes electricity generated from Lithuanian renewable energy sources (RES).

By consuming green energy, customer actively contributes to RES development in Lithuania, reduces its climate impact and contributes to climate change mitigation efforts.

The certificate is valid until 2026-12-31

Ignitis CEO
Artūras Bortkevičius