



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

OPTIVENT® ULTRA-ULDA insulated VAV damper, FläktGroup AB

EPD of a product with a scaling table for similar products and sizes.

Included products: OPTIVENT ULTRA ULDA size Ø100-630, EMSD size Ø100-630, EHSD size Ø100-630 and EMPD size Ø100-630



EPD HUB, HUB-4930

Published on 02.02.2026, last updated on 02.02.2026, valid until 01.02.2031

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

FläktGroup

GENERAL INFORMATION

MANUFACTURER

Manufacturer	FläktGroup AB
Address	Slovanská 781, 463 12 Liberec - Vesec, Czech Republic
Contact details	info-cz@flaktgroup.com
Website	www.flaktgroup.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	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options A4, A5, B6 and modules C1-C4, D
EPD author	Doubravka Šimánová, FläktGroup
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Yazan Badour, as authorized verifier acting for EPD HUB Limited

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	OPTIVENT® ULTRA-ULDA insulated VAV damper
Product reference	ULDA-7-250-1; ULDA-8-250-1
Place(s) of raw material origin	Europe, Asia
Place of production	Liberec, Czech republic
Place(s) of installation and use	Europe
Period for data	calendar year 2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	8595736323025
A1-A3 Specific data (%)	20

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit of ULTRA ULDA-7-250-1
Declared unit mass	8,1 kg
Mass of packaging	2,95 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	35,1
GWP-total, A1-A3 (kgCO ₂ e)	32
Secondary material, inputs (%)	29,3
Secondary material, outputs (%)	73,8
Total energy use, A1-A3 (kWh)	144
Net freshwater use, A1-A3 (m ³)	0,72

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

ABOUT FLÄKTGROUP

FläktGroup designs and manufactures ventilation and air treatment products for use in commercial and industrial buildings. The company is headquartered in Germany and operates production facilities in Europe, Asia and the United States.

FOR WELLBEING, SAFETY, AND ENVIRONMENT

Today, we spend more than 90% of our time indoors, and the air we breathe has a big impact on our performance, well-being, and comfort. Our buildings need mechanical ventilation and air treatment to deliver safe and comfortable building spaces. At the same time, buildings account for up to 40% the energy consumption, where ventilation systems play a big part. With this in mind, FläktGroup aims to approach ventilation and air

treatment with consideration for indoor environments, energy use, and environmental aspects throughout the building lifecycle.

PRODUCT DESCRIPTION

Dampers are used to regulate and control airflow for both supply and extract air. They are highly versatile and can be employed to manage room temperature, air quality, and more. This EPD includes a scaling table for the Optivent® series of air volume dampers with insulation: ULDA, EMSD, EHSD, and pressure control damper EMPD. All are available in sizes Ø100-630.

The declared product, OPTIVENT® ULTRA ULDA, offers all the benefits of VAV dampers, with the added advantage of ultrasound technology, enabling precise airflow measurement, and excellent resilience to dust while maintaining low sound levels. It can be connected to Modbus or BACnet, depending on the selected specification.

It is equipped with an UltraSound technology air flow measuring sensor, a damper blade, stable bearings made of nylon, and its shaft is mounted in maintenance free nylon headings. Control equipment is installed on the apparatus casing. Connection dimensions are 100 - 630 mm. Casing air leakage is according to EN 1751:2014 class B. All duct connections have spigot dimensions and are equipped with sealing rings made of rubber. The damper casing and blade are insulated with glass wool mat to provide thermal and acoustic insulation.

PRODUCTS INCLUDED IN THE SCALING TABLE:

EMSD and EHSD are variable air volume dampers for the OPTIVENT system. EHSD is intended for applications requiring higher duct velocities (e.g. renovation projects). Both dampers can be used for variable or constant airflow. EMPD is a compact pressure control damper for the OPTIVENT system, designed for use in duct systems where constant pressure is required. Unlike the ULDA model, which includes an ultrasonic sensor, the EMSD, EHSD, and EMPD models use separate measurement nozzles connected to the regulator through PVC tubes.

Each damper features an insulated casing and is made of galvanized steel (C3 corrosivity class), but EMSS and EHSS models can be supplied in a stainless-steel version, with all air-contacting components made of acid-proof steel AISI 316 (corrosivity class C4). The difference in environmental impact can be seen in Annex II, where the EMSS-250 models made from different materials are compared.

Further information can be found at:
www.flaktgroup.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	80	Europe, Asia
Minerals	9	Europe
Fossil materials	11	Europe
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,0164
Biogenic carbon content in packaging, kg C	0,856

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit of ULTRA ULDA-7-250-1
Mass per declared unit	8,1 kg
Functional unit	Air volume control from one ULDA 250 with 327VMZ-MB controller during 25 years of use in standby mode, assuming continuous operation.
Reference service life	25

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

Not declared = ND.

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.

The VAV damper is made of galvanized steel sheets, which are cut and formed to create the body and the damper blade. Between the two layers of the galvanized steel body, a glass wool mat is inserted to provide thermal and acoustic insulation. The body is then fitted with supplied components, including nylon bearings, a maintenance-free shaft system, ultrasound-based airflow measuring sensor and an electric actuator. The damper blade is equipped with EPDM rubber for tight sealing, meeting EN 1751:2014, Class 3 for air leakage.

All materials in contact with ventilation air comply with C3 corrosivity standards (EN-ISO 12944-2).

Unlike the ULDA model, which includes an ultrasonic sensor, the EMSD, EHSD, and EMPD models use separate measurement nozzles connected to the regulator through PVC tubes.

Waste from the manufacturing process includes steel scrap, copper welding wire and glass wool insulation, all of which are sent for material recycling. After production, the damper is carefully packaged in a cardboard box, cushioned with reused cardboard pieces, and placed on a custom-made wooden pallet for shipping.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), 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 transport distance is calculated based on a weighted average of sales, ensuring a representative distribution of transportation impacts.

The product is supplied ready for installation (A5), with no raw material waste generated during the installation process. Installation is performed manually, without the need for additional energy consumption. Packaging

materials used for transport, such as cardboard and wooden pallets, are sent to waste treatment and managed according to the average end-of-life scenario in the EU.

Based on EUROSTAT data from 2021, 32% of wooden pallets are recycled, 30% are incinerated with energy recovery, and the remaining 38% are landfilled. For cardboard waste, 83% is recycled, 8% is incinerated, and the remaining 9% is landfilled.

PRODUCT USE AND MAINTENANCE (B1-B7)

The product can be mechanically cleaned with a nylon brush during the ductwork cleaning. No further maintenance is required. Replacement of components or parts is not included.

Electricity consumption during the use phase is calculated over 25 years, based on measured data from the OPTIVENT ULTRA's controller in stand-by mode. The electricity mix used in the scenario reflects a weighted average based on 2024 sales.

The use phase may vary based on individual usage habits. The module B6 results shown in this EPD represent only a specific scenario. Therefore, it is recommended to evaluate the environmental impact of the use phase separately for each project. Replacement of components or parts has not been included in this assessment.

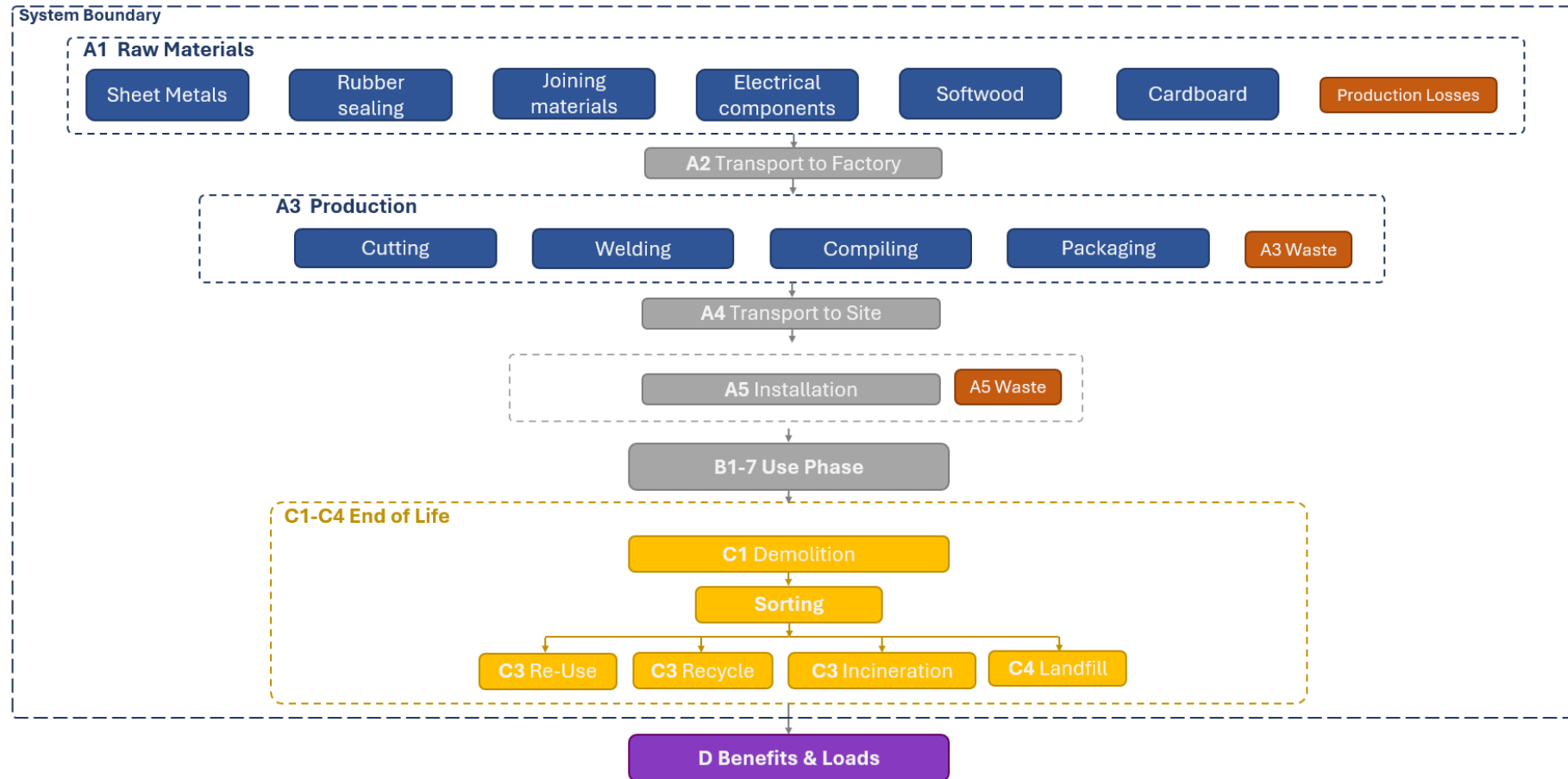
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

At the end of its life, the OPTIVENT ULTRA damper is assumed to be dismantled with electrical tool (deconstruction energy is negligible) and then transported 50 km to a local recycling facility. 50km is used because the real-life scenario is unknown and highly dependent on the location in which the unit is placed (C2). Waste processing (C3) and disposal (C4) are modelled with consideration of the markets where the VaV Damper was mostly sold in 2024, and pre-made groups for EOL by OneClick were used. The recycling rates for each material are based on the following sources: data for steel is

from the World Steel Association (85% recycling rate), aluminium (76%) from the International Aluminium Institute (IAI), copper (40%) from the International Copper Association and electronic parts (39%) from European Environment Agency. Recycled materials are then credited in module D.

SYSTEM DIAGRAM



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, 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.

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.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.3. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

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 or volume
Manufacturing energy and waste	Allocated by mass or volume

The waste scenario is modelled with consideration of the markets where the VaV Damper was mostly sold in 2024, and pre-made groups for EOL by OneClick were used.

For installation is no source of energy needed. The damper is simply pushed onto a functional pipe system and connected to electricity cables by clamps.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	-
Variation in GWP-fossil for A1-A3, %	-

This EPD is product and factory specific and does not contain average calculations. The environmental impact data presented are specific for the product OPTIVENT ULTRA ULDA 250.

The calculated GWP-GHG for other included Circular insulated dampers and all sizes for modules A1-A3 is shown in the Scaling table in Annex 1.

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 based on the functional unit.

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	2,97E+01	8,91E-01	1,44E+00	3,20E+01	1,61E+00	3,24E+00	ND	ND	ND	ND	ND	4,84E+01	ND	1,66E-01	9,38E-02	1,80E+00	1,58E-01	-9,88E+00
GWP – fossil	kg CO ₂ e	2,97E+01	8,90E-01	4,51E+00	3,51E+01	1,61E+00	1,02E-01	ND	ND	ND	ND	ND	4,77E+01	ND	1,66E-01	9,37E-02	1,80E+00	1,58E-01	-1,01E+01
GWP – biogenic	kg CO ₂ e	-6,27E-02	1,82E-04	-3,12E+00	-3,18E+00	3,51E-04	3,14E+00	ND	ND	ND	ND	ND	1,27E-01	ND	-9,12E-06	2,01E-05	-4,57E-04	-3,04E-05	2,21E-01
GWP – LULUC	kg CO ₂ e	3,74E-02	3,28E-04	5,12E-02	8,89E-02	6,27E-04	1,23E-04	ND	ND	ND	ND	ND	5,12E-01	ND	1,60E-05	3,99E-05	1,95E-04	5,32E-06	-1,58E-02
Ozone depletion pot.	kg CFC-11e	3,92E-05	1,77E-08	1,42E-07	3,94E-05	3,35E-08	1,46E-09	ND	ND	ND	ND	ND	9,00E-07	ND	1,76E-10	1,43E-09	3,39E-09	1,76E-10	-4,31E-08
Acidification potential	mol H ⁺ e	6,74E-01	2,19E-03	1,68E-02	6,93E-01	3,93E-03	4,86E-04	ND	ND	ND	ND	ND	2,28E-01	ND	1,21E-04	3,08E-04	3,05E-03	6,69E-05	-5,95E-02
EP-freshwater ²⁾	kg Pe	3,23E-02	6,10E-05	4,10E-03	3,65E-02	1,12E-04	2,58E-05	ND	ND	ND	ND	ND	2,36E-02	ND	4,01E-06	7,08E-06	9,58E-05	2,50E-06	-1,04E-02
EP-marine	kg Ne	4,88E-02	6,16E-04	5,44E-03	5,48E-02	1,03E-03	6,11E-04	ND	ND	ND	ND	ND	4,00E-02	ND	3,98E-05	1,00E-04	2,06E-03	4,08E-03	-1,16E-02
EP-terrestrial	mol Ne	2,56E+00	6,67E-03	4,15E-02	2,60E+00	1,11E-02	1,80E-03	ND	ND	ND	ND	ND	4,02E-01	ND	4,61E-04	1,09E-03	1,19E-02	2,63E-04	-1,34E-01
POCP (“smog”) ³⁾	kg NMVOCe	1,32E-01	3,61E-03	1,42E-02	1,50E-01	6,69E-03	6,31E-04	ND	ND	ND	ND	ND	1,43E-01	ND	1,02E-04	4,40E-04	3,11E-03	8,41E-05	-3,95E-02
ADP-minerals & metals ⁴⁾	kg Sbe	7,94E-02	2,77E-06	8,45E-06	7,94E-02	4,59E-06	4,06E-07	ND	ND	ND	ND	ND	7,71E-04	ND	1,39E-07	3,05E-07	9,63E-06	2,06E-08	-6,33E-04
ADP-fossil resources	MJ	3,90E+02	1,28E+01	7,32E+01	4,76E+02	2,41E+01	1,28E+00	ND	ND	ND	ND	ND	1,28E+03	ND	1,69E-01	1,32E+00	2,81E+00	1,42E-01	-9,92E+01
Water use ⁵⁾	m ³ e depr.	1,26E+02	6,42E-02	1,68E+00	1,28E+02	1,23E-01	3,47E-02	ND	ND	ND	ND	ND	3,23E+01	ND	9,34E-03	6,20E-03	1,81E-01	7,34E-03	-2,70E+00

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	5,24E-06	7,14E-08	1,12E-07	5,43E-06	1,56E-07	8,40E-09	ND	ND	ND	ND	ND	1,35E-06	ND	1,35E-09	7,51E-09	4,73E-08	9,84E-10	-7,61E-07
Ionizing radiation ⁶⁾	kBq 11235e	1,66E+00	1,73E-02	1,19E+00	2,87E+00	2,90E-02	4,58E-03	ND	ND	ND	ND	ND	4,93E+01	ND	5,18E-04	1,19E-03	1,60E-02	2,55E-04	-3,75E-02
Ecotoxicity (freshwater)	CTUe	1,46E+04	1,72E+00	3,39E+02	1,50E+04	2,84E+00	1,43E+00	ND	ND	ND	ND	ND	1,63E+02	ND	1,87E+00	2,00E-01	6,64E+00	1,32E+00	-2,14E+02
Human toxicity, cancer	CTUh	8,98E-05	1,45E-10	4,03E-09	8,98E-05	2,68E-10	5,79E-11	ND	ND	ND	ND	ND	1,79E-08	ND	6,23E-11	1,59E-11	4,02E-10	6,56E-12	-4,82E-09
Human tox. non-cancer	CTUh	2,02E-05	7,92E-09	2,83E-08	2,02E-05	1,56E-08	3,14E-09	ND	ND	ND	ND	ND	8,62E-07	ND	4,15E-09	8,27E-10	1,32E-08	7,95E-10	-1,54E-07
SQP ⁷⁾	-	1,55E+02	9,72E+00	2,73E+02	4,38E+02	2,42E+01	1,14E+00	ND	ND	ND	ND	ND	3,90E+02	ND	2,49E-01	8,12E-01	4,03E+00	2,72E-01	-3,97E+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	3,95E+01	2,29E-01	1,45E+01	5,42E+01	3,92E-01	-4,45E+01	ND	ND	ND	ND	ND	4,17E+02	ND	2,27E-02	1,90E-02	3,57E-01	3,76E-03	-7,73E+00
Renew. PER as material	MJ	1,48E-02	0,00E+00	3,73E+01	3,73E+01	0,00E+00	-3,73E+01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-1,20E-02	-2,82E-03	1,78E+00
Total use of renew. PER	MJ	3,95E+01	2,29E-01	5,18E+01	9,15E+01	3,92E-01	-8,18E+01	ND	ND	ND	ND	ND	4,17E+02	ND	2,27E-02	1,90E-02	3,45E-01	9,39E-04	-5,96E+00
Non-re. PER as energy	MJ	3,78E+02	1,28E+01	7,05E+01	4,62E+02	2,41E+01	1,28E+00	ND	ND	ND	ND	ND	1,28E+03	ND	1,69E-01	1,32E+00	-2,18E+01	-1,31E+01	-9,92E+01
Non-re. PER as material	MJ	1,17E+01	0,00E+00	1,70E+00	1,34E+01	0,00E+00	-1,70E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-7,79E+00	-3,86E+00	5,40E-01
Total use of non-re. PER	MJ	3,90E+02	1,28E+01	7,22E+01	4,75E+02	2,41E+01	-4,20E-01	ND	ND	ND	ND	ND	1,28E+03	ND	1,69E-01	1,32E+00	-2,96E+01	-1,69E+01	-9,86E+01
Secondary materials	kg	2,37E+00	5,63E-03	1,03E+00	3,41E+00	1,04E-02	1,16E-03	ND	ND	ND	ND	ND	3,02E-01	ND	2,00E-04	5,93E-04	2,81E-03	6,15E-05	4,26E+00
Renew. secondary fuels	MJ	5,63E-02	6,42E-05	9,37E-01	9,93E-01	1,31E-04	9,45E-06	ND	ND	ND	ND	ND	1,12E-03	ND	9,95E-05	7,53E-06	1,19E-04	1,39E-06	-1,34E-03
Non-ren. secondary fuels	MJ	9,03E-03	0,00E+00	1,77E-05	9,04E-03	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	6,73E-01	1,83E-03	4,45E-02	7,19E-01	3,56E-03	-2,71E-03	ND	ND	ND	ND	ND	1,07E+00	ND	2,04E-04	1,76E-04	4,08E-03	-1,49E-03	-5,96E-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	5,63E+00	1,80E-02	1,56E-01	5,81E+00	3,49E-02	1,14E-02	ND	ND	ND	ND	ND	2,62E+00	ND	1,55E-02	2,21E-03	4,94E-02	3,81E-03	-2,59E+00
Non-hazardous waste	kg	8,87E+01	3,88E-01	1,99E+01	1,09E+02	6,98E-01	5,04E+00	ND	ND	ND	ND	ND	1,17E+02	ND	7,04E-02	4,23E-02	1,29E+00	2,23E+00	-2,20E+01
Radioactive waste	kg	1,40E-03	4,30E-06	2,90E-04	1,69E-03	7,19E-06	1,15E-06	ND	ND	ND	ND	ND	1,09E-02	ND	1,28E-07	2,94E-07	4,08E-06	6,33E-08	-7,38E-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	1,02E-03	0,00E+00	3,73E-06	1,02E-03	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	1,39E-02	0,00E+00	4,16E-05	1,40E-02	0,00E+00	1,43E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	5,98E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	1,02E-01	0,00E+00	3,29E-05	1,02E-01	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	2,76E-02	0,00E+00
Exported energy	MJ	9,74E-01	0,00E+00	2,22E-04	9,74E-01	0,00E+00	3,55E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	7,07E+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	1,49E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	2,98E+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	2,06E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	4,09E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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	2,63E+01	8,85E-01	4,56E+00	3,17E+01	1,60E+00	2,41E-01	ND	ND	ND	ND	ND	4,80E+01	ND	1,66E-01	9,32E-02	1,80E+00	1,56E-01	-1,00E+01
Ozone depletion Pot.	kg CFC ₁₁ e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Acidification	kg SO ₂ e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Eutrophication	kg PO ₄ ³ e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
POCP ("smog")	kg C ₂ H ₄ e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADP-elements	kg Sbe	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADP-fossil	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	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 ₂ e	2,97E+01	8,91E-01	4,56E+00	3,52E+01	1,61E+00	1,02E-01	ND	ND	ND	ND	ND	4,82E+01	ND	1,66E-01	9,38E-02	1,80E+00	1,58E-01	-1,01E+01

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.

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 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 authorized verifier acting for EPD HUB Limited

02.02.2026




ANNEX I:

This is a scaling table of multiple Circular Volume Control Dampers, based on the results of a product OPTIVENT ULTRA ULDA 250. The following table shows the calculated GWP-GHG results for the climate impact in modules A1-A3 (Cradle-to-gate) for all included products and sizes. It was modelled in OneClick LCA software for each product and size.

Product Name	Size	Code	Mass	A1-A3, EN 15804+A1	A1-A3, EN 15804+A2			Scaling coefficient A1-A3 GWP-total (kg CO2e)
				GWP (kg CO2e)	GWP-total (kg CO2e)	GWP-fossil (kg CO2e)	GWP-biogenic (kg CO2e)	
OPTIVENT ULTRA ULDA (size 250 reference product) 	100	ULDA-7-100-1 ULDA-8-100-1	3,3 kg	11,85	11,66	13,82	-2,19	0,36
	125	ULDA-7-125-1 ULDA-8-125-1	4 kg	16,10	16,10	18,27	-2,18	0,50
	160	ULDA-7-160-1 ULDA-8-160-1	4,9 kg	20,30	19,78	22,71	-2,98	0,62
	200	ULDA-7-200-1 ULDA-8-200-1	6,2 kg	24,88	24,78	27,72	-2,99	0,77
	250	ULDA-7-250-1 ULDA-8-250-1	8,1 kg	31,74	32,00	35,09	-3,18	1,00
	315	ULDA-7-315-1 ULDA-8-315-1	12,2 kg	48,77	48,77	53,30	-4,64	1,52
	400	ULDA-7-400-1 ULDA-8-400-1	22 kg	97,39	98,34	103,23	-5,14	3,07
	500	ULDA-7-500-1 ULDA-8-500-1	28,7 kg	127,31	124,59	133,92	-9,66	3,89
	630	ULDA-7-630-1 ULDA-8-630-1	41,3 kg	178,20	177,97	187,23	-9,67	5,56

Product Name	Size	Code	Mass	A1-A3, EN 15804+A1	A1-A3, EN 15804+A2			Scaling coefficient A1-A3 GWP- total (kg CO2e)
				GWP (kg CO2e)	GWP-total (kg CO2e)	GWP-fossil (kg CO2e)	GWP-biogenic (kg CO2e)	
EMSD 	100	EMSD-7-100-1-2	2,5 kg	9,96	9,57	11,74	-2,19	0,30
	125	EMSD-7-125-1-2	2,9 kg	11,92	11,66	13,83	-2,19	0,36
	160	EMSD-7-160-1-2	3,4 kg	14,00	13,12	16,06	-2,97	0,41
	200	EMSD-7-200-1-2	4 kg	15,88	15,15	18,10	-2,98	0,47
	250	EMSD-7-250-1-2	6,5 kg	26,35	26,15	29,24	-3,17	0,82
	315	EMSD-7-315-1-2	8 kg	33,70	32,39	36,90	-4,60	1,01
	400	EMSD-7-400-1-2	12 kg	55,60	54,73	59,72	-5,18	1,71
	500	EMSD-7-500-1-2	19 kg	87,02	83,63	93,15	-9,80	2,61
	630	EMSD-7-630-1-2	24,5 kg	112,03	110,04	119,58	-9,84	3,44
EHSD 	100	EHSD-7-100-1-2	2,5 kg	9,95	9,56	11,73	-2,19	0,30
	125	EHSD-7-125-1-2	2,9 kg	11,89	11,64	13,81	-2,19	0,36
	160	EHSD-7-160-1-2	3,4 kg	13,94	13,06	16,00	-2,97	0,41
	200	EHSD-7-200-1-2	4 kg	15,77	15,05	17,99	-2,98	0,47
	250	EHSD-7-250-1-2	6,5 kg	26,20	25,99	29,08	-3,17	0,81
	315	EHSD-7-315-1-2	8 kg	33,44	32,13	36,65	-4,60	1,00
	400	EHSD-7-400-1-2	11,9 kg	55,21	54,34	59,33	-5,18	1,70
	500	EHSD-7-500-1-2	19 kg	86,43	83,04	92,57	-9,80	2,60
	630	EHSD-7-630-1-2	24,3 kg	111,15	109,15	118,70	-9,85	3,41
EMPD 	100	EMPD-7-100	2,5 kg	9,88	9,49	11,66	-2,19	0,30
	125	EMPD-7-125	2,9 kg	11,82	11,56	13,73	-2,19	0,36
	160	EMPD-7-160	3,4 kg	13,85	12,97	15,91	-2,98	0,41
	200	EMPD-7-200	4 kg	15,66	14,93	17,88	-2,98	0,47
	250	EMPD-7-250	6,4 kg	26,03	25,83	28,90	-3,17	0,81
	315	EMPD-7-315	7,9 kg	33,24	31,93	36,44	-4,60	1,00
	400	EMPD-7-400	11,8 kg	54,94	54,07	59,06	-5,18	1,69
	500	EMPD-7-500	18,8 kg	86,00	82,60	92,14	-9,80	2,58
	630	EMPD-7-630	24 kg	113,82	111,85	121,40	-9,85	3,50

ANNEX II:

All products are originally manufactured from galvanized steel (corrosivity class C3). However, EMSD and EHSD models can also be produced in a stainless-steel version, with all air-contacting components made of acid-proof steel AISI 316 (corrosivity class C4). The table below presents the values of key environmental impact indicators for modules A1–A3, comparing the representative product OPTIVENT ULTRA ULDA.

Product Name	Mass	A1-A3, EN 15804+A1	A1-A3, EN 15804+A2		
		GWP (kg CO ₂ e)	GWP ^{-total} (kg CO ₂ e)	GWP ^{-fossil} (kg CO ₂ e)	GWP ^{-biogenic} (kg CO ₂ e)
EMSD-7-250-1-2 (Corrosivity class C3, galvanized sheet steel)	6,5 kg	26,31	26,38	29,24	-2,9
ULDA-7-250-1 - reference product (Corrosivity class C3, galvanized sheet steel)	8,1 kg	31,74	32,00	35,09	-3,18
EMSD-7-250-2-2 (Corrosivity class C4, acid-proof steel (AISI 316))	6,3 kg	14,79	26,04	28,63	-2,63