epddanmark

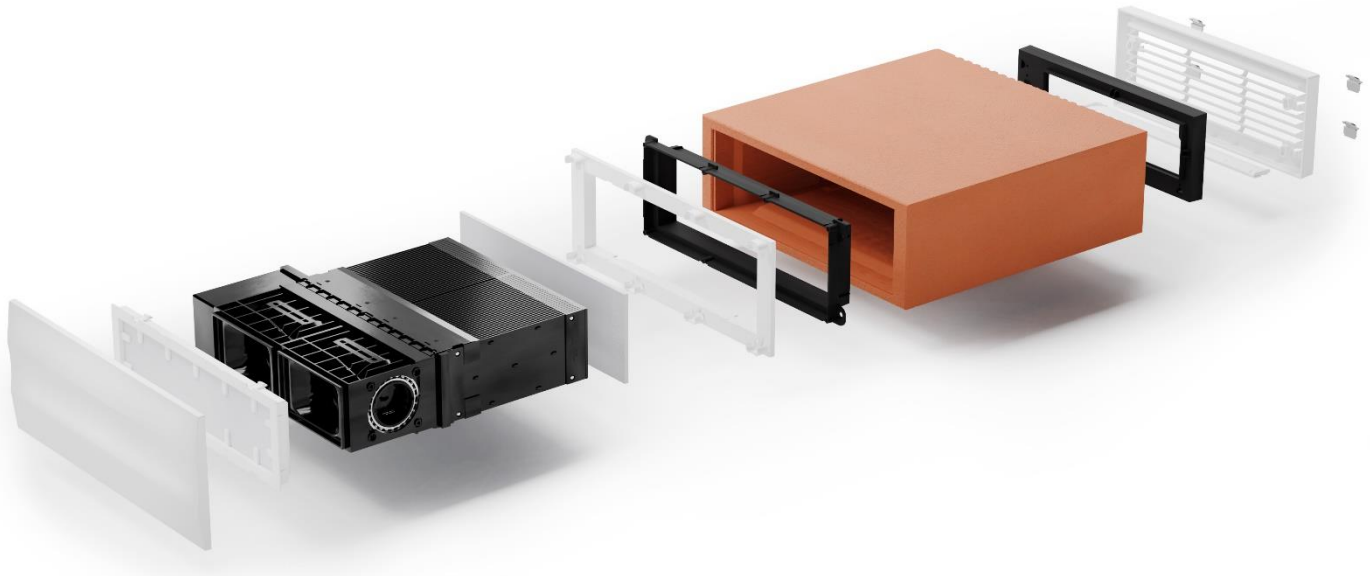
ECO PLATFORM EPD VERIFIED

Owner: Maico Nordic A/S
No.: MD-24123-EN
Issued: 26-09-2024
Valid to: 26-09-2029

3rd PARTY **VERIFIED**

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | **ISO 14025 & EN 15804**



Owner of declaration
Maico Nordic A/S
Orionvej 2, 7430 Ikast
Denmark
CVR no.: 32 44 68 09

Programme
EPD Danmark
www.epddanmark.dk

☐ Industry EPD
☒ Product EPD

Declared product(s)
RotationVent RV2

Number of declared datasets/product variations: 1

Production site
Maico Nordic A/S
Orionvej 2, 7430 Ikast
Denmark

Use of Guarantees of Origin
☒ No certificates used
☐ Electricity covered by GoO
☐ Biogas covered by GoO

Declared/ functional unit
Declared unit: 1 piece of decentralized air handling unit.

Year of production site data (A3)
2023

EPD version
Version 1

Issued: 26-09-2024
Valid to: 26-09-2029

Basis of calculation
This EPD is developed and verified in accordance with the European standard EN 15804+A2.

Comparability
EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity
This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use
The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

EPD type
☐Cradle-to-gate with modules C1-C4 and D
☒Cradle-to-gate with options, modules C1-C4 and D
☐Cradle-to-grave and module D
☐Cradle-to-gate
☐Cradle-to-gate with options

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

☐ internal ☒ external

Third party verifier:

Guangli Du

Martha Katrine Sørensen
EPD Danmark

Life cycle stages and modules (MND = module not declared)																
Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	X	X	X	X	X	X	X	X	X	X	X	X

Product information

Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
	RV2
Plastics	69%
Electronics	24%
Steel	7%

Product packaging:

The composition of the sales- and transport packaging of the product is shown in the table below. The packaging materials in A3 is the same for all the declared products.

Material	Weight of packaging material (kg)	Weight-% of packaging
Plastic foil, LDPE	0.0423	1.0%
Plastic strip, PP	0.00932	0.2%
Cardboard	0.205	5.0%
EU-pallet	3.81	93.7%
Total	**4.07**	**100%**

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of RV2 on the production site located in Ikast, Denmark. Product specific data are based on average values collected in the period January 2023 to December 2023. Managed LCA Content (MLC) database from Sphera (version 2024.1) and Ecoinvent database version 3.10 and the data is less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

Hazardous substances

The declared products MicroVent and Add-on Steel Screens does not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

(http://echa.europa.eu/candidate-list-table)

Maico Nordic A/S is a "downstream user" according to REACH Art. 3 No. 13. The products are considered "articles" and not "substances" and are therefore not subject to registration. Maico Nordic A/S hereby confirm that all substances used in the manufacture of the declared products and supplied by them are either not subject to registration or have been or will be registered by their upstream suppliers.

Product(s) use

RotationVent RV2 is a decentralized ventilation system integrated in the building façade. The principle of a micro-ventilation system is that at least two micro-ventilation units work together to exchange the air in a room. The units are coordinated in such a way that when one unit removes air, another unit will supply air to the room. RV2 comes complete with internal and external cover plates and filter. RV2 can be used in most buildings and is particularly suitable for renovation projects due to its simple installation process.

Essential characteristics

The air handling units follow the standards: EN 13141-7 / EN 13141-8.

The declared products are used for demand-controlled balanced, comfort ventilation with heat recovery in residential, office, institutional, and other occupancy and residential spaces.

The product complies with applicable legal requirements for specific energy consumption (SEL value) and heat recovery.

The products comply with Danish Building regulations BR 2018 and BK2020, Ecodesign and DS447.

The products are tested and comply with the regulations according to DS/EN 13141-8 for one AHU unit:

- Temperature efficiency

The temperature efficiency test is according to DS/EN 13141-8: 8.1 General calculations and DS/EN 13141-8: 5.4.7.3 Thermal test and DS/EN

13141-8: 8.2 Special calculations for alternating exchangers.

- w of the internal leakage (not measured)
- x of the outdoor mixing (not measured)
- y of the indoor mixing (not measured)
- v of the air flow sensitivity (not measured)

Delivery reservation (delimitation / limitation): This test was carried out according to DS/EN 13141 – 8.

Further technical information can be obtained by contacting the manufacturer or on the manufacturers website:

https://maico-nordic.dk/

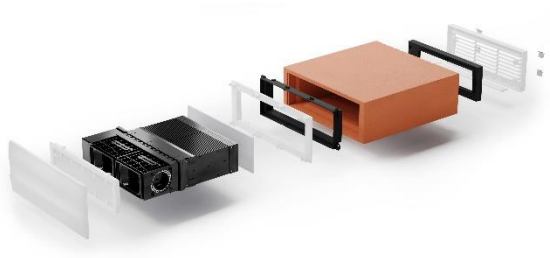
Reference Service Life (RSL)

The reference service life is 20 years, which is informed by the manufacturer. A life span of 20 years for air handling units is a commonly accepted standard in the industry.

The operational energy in B6 is calculated for the RSL of 20 years.

Picture of product(s)

RotationVent V2



LCA background

Declared unit

The LCI and LCIA results in this EPD relates to the declared unit of 1 piece of air handling unit, RV2 for the German market.

RV2	Value	Unit
Declared unit	1	Piece
Weight per piece	3.02	kg/piece
Conversion factor to 1 kg	0.33	-

Functional unit

Not defined.

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804:2012+A2:2019, which serves as the core PCR. As a cPCR the NPCR 030 version 1.1 – Part B for ventilation components from EPD Norway is applied. This EPD follows additional requirements for construction products considered as Electronic or Electric Equipment (EEE).

Energy modelling principles

Foreground system:

The product is produced using a mix of Danish residual electricity mix from 2022 (76.12%) and electricity from solar panels on-site (23.88%) from 2023 in the production. Remaining energy processes is modelled using national electricity mixes from Managed LCA Content (MLC) database.

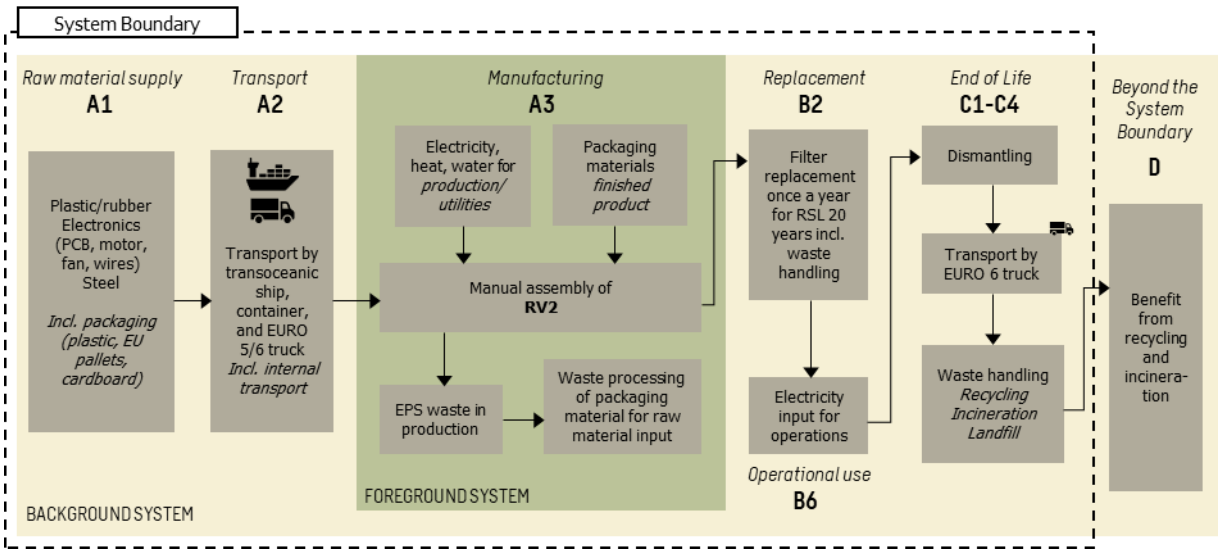
Information about the energy mix in the foreground system:

Dataset	EF	Unit
Danish Residual grid mix, DK, ref. year 2022	0.564	kg CO_2e/kWh
Danish electricity from photovoltaic, DK, ref. year 2020	0.0333	kg CO_2e/kWh
Mix of electricity for foreground system, DK (76.12% residual mix and 23.88% photovoltaic)	0.437	kg CO_2e/kWh
District heating mix, DK, ref. year 2021	0.051	kg CO_2e/MJ

Background system:

Upstream processes are modelled using national energy mixes. Downstream processes are modelled using national energy mixes.

Flowdiagram



System boundary

This EPD is based on a cradle-to-gate with options LCA, which covers modules A1-A3, B1-B7, C1-C4 and D in accordance to the PCR and EPD Denmark rules for EEE products, in which 100 weight-% has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, packaging and waste processing up to the ”end-of-waste” state or final disposal. The LCA results for A1-A3 are also declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

The majority of the raw materials are transported from suppliers in Denmark (EURO 6 truck) and a few from China (EURO 5/6 truck and transoceanic ship).

The assembly of the products is manually at the factory in Ikast, Denmark. In A3 a waste handling of the packaging material for the raw materials is also included.

The packaging material for the declared product leaving the factory gate includes EU pallets (wood) which are assumed reused 25 times before disposal (EPD Danmark, 2023; European Commission, 2021). Thus, the modelling has been done accordingly with 1/25 virgin material input and 24/25 secondary input material. The biogenic carbon has been accounted for in both the virgin and secondary wood material.

Use stage (B1-B7) includes:

B1: No activity occurs in module B1.

B2: To maintain the function of the declared product, the filters have to be replaced once a year (stated by the manufacturer). The production of new filters is included in B2. The waste treatment of the old filters is also included in B2. B2 is modelled for the RSL of 20 years.

B3-B5: No activity occurs in module B3-B5.

B6: Electricity (national mix) is included for the operation of the air handling unit. The electricity consumption is calculated based on annual operation time of 8.760 hours with a performance of max flow rate of 53% (RV2). The annual electricity use is listed in the table below.

	m3/hour	kWh/year
RV2	26	35.9

B6 is modelled for the RSL of 20 years.

B7: No activity occurs in module B7.

End of Life (C1-C4) includes:

For the end of life scenario, a 100% collection rate is assumed.

Module C1 is assumed to be zero using manual dismantling.

In C2, the transport distances scenario is set to 50 km by truck based on a Danish national scenario.

In module C3 an incineration rate of 8% for the plastic is assumed. The steel is modelled as 90% recycled and 10% landfilled. The electronics are modelled recycled in accordance to the cPCR. The amount of electronics is modelled as replaced with the raw materials from the ecoinvent process ”market for electronics, for control units”. This process consists of 46% steel, 32% plastics, 14% PCB and 8% cables. Cables consists of 66% copper and 34% plastics. PCB consists of copper, resin and glass fiber (assumption of 33% each). This share is used to model the benefits beyond the system boundary in module D.

In C4 10% of the steel is modelled using a landfill process for metal.

Re-use, recovery and recycling potential (D) includes:

Module D includes reuse, recovery and/or recycling potential, expressed as net impact and benefits, due to reuse, recycling and incineration of materials with energy recovery in module C3.

The credit for plastic is calculated as the difference between production of new plastic granulates and the production of plastic granulates from secondary material. The process for production of plastic granulates from secondary material, calculates that an input of 1.19 kg plastic is needed to produce 1 kg of plastic granulates from secondary material.

The credit of steel is calculated as the difference between production of new primary steel using the blast furnace (BF) route and production of secondary steel from post-consumer scrap using the electric arc furnace (EAF) route. By crediting the difference between these two production routes, the environmental impacts from producing secondary steel from post-consumer steel scrap is subtracted from the environmental impacts from producing primary steel, and an overestimation of the credit in module D has been avoided. Furthermore, secondary material input in A1 for steel (15% for steel plate) has been subtracted the total amount for credit in module D.

The energy recovery is credited in module D and the energy recovered is based on the calorific values of the different raw materials from incineration of plastic.

Credit of copper, resin and glass fiber is modelled as avoided production of these new raw materials.

Note

It should be noted that the packaging material, EU pallets (wood), has an uptake of biogenic carbon in life cycle module A3. This biogenic carbon is released again in life cycle module A5, but module A5 is not declared in this EPD. However, the uptake of biogenic carbon from the packaging material is small as related to the total climate change (GWP-total) for life cycle modules A1-3.

Some of the packaging materials in A1 has been excluded in this LCA as the amounts and types are unknown. This is within the cut-off criteria. As the production is manually assembly no lubricants, oils or auxiliaries are present in the production, thus not included in the LCA.

LCA results

RV2

ENVIRONMENTAL IMPACTS PER 1 piece RV2															
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**B1**	**B2**	**B3-B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	1.20E+02	5.68E-01	9.55E-01	1.22E+02	0.00E+00	2.65E-01	0.00E+00	3.44E+02	0.00E+00	0.00E+00	1.37E-02	5.89E-01	4.41E-04	-4.60E+00
GWP-fossil	kg CO_2 eq.	1.20E+02	5.60E-01	7.11E+00	1.28E+02	0.00E+00	2.64E-01	0.00E+00	3.40E+02	0.00E+00	0.00E+00	1.35E-02	5.82E-01	4.41E-04	-4.57E+00
GWP-biogenic	kg CO_2 eq.	-2.01E-01	1.05E-03	-6.17E+00	-6.37E+00	0.00E+00	1.28E-03	0.00E+00	4.05E+00	0.00E+00	0.00E+00	3.22E-05	6.25E-03	-1.73E-06	-2.35E-02
GWP-luluc	kg CO_2 eq.	1.58E-01	6.96E-03	7.40E-03	1.72E-01	0.00E+00	7.24E-05	0.00E+00	6.50E-02	0.00E+00	0.00E+00	2.26E-04	8.11E-05	1.93E-06	-2.47E-03
ODP	kg CFC 11 eq.	6.36E-06	7.24E-14	6.66E-10	6.36E-06	0.00E+00	2.39E-11	0.00E+00	1.15E-08	0.00E+00	0.00E+00	1.99E-15	1.06E-09	1.38E-15	-1.98E-11
AP	mol H^+ eq.	7.51E-01	3.33E-03	2.46E-02	7.78E-01	0.00E+00	3.59E-04	0.00E+00	5.27E-01	0.00E+00	0.00E+00	2.16E-05	3.78E-04	2.76E-06	-1.24E-02
EP-freshwater	kg P eq.	1.64E-01	1.80E-06	1.27E-04	1.64E-01	0.00E+00	5.57E-07	0.00E+00	1.83E-03	0.00E+00	0.00E+00	5.75E-08	5.15E-06	8.98E-10	-6.30E-06
EP-marine	kg N eq.	1.65E-01	1.38E-03	8.00E-03	1.74E-01	0.00E+00	9.52E-05	0.00E+00	1.60E-01	0.00E+00	0.00E+00	8.11E-06	1.33E-04	6.70E-07	-2.29E-03
EP-terrestrial	mol N eq.	1.76E+00	1.53E-02	6.34E-02	1.84E+00	0.00E+00	1.03E-03	0.00E+00	1.65E+00	0.00E+00	0.00E+00	9.52E-05	1.56E-03	7.36E-06	-2.36E-02
POCP	kg NMVOC eq.	4.96E-01	3.73E-03	1.82E-02	5.18E-01	0.00E+00	3.52E-04	0.00E+00	3.90E-01	0.00E+00	0.00E+00	2.10E-05	4.81E-04	2.11E-06	-8.16E-03
ADPm[1]	kg Sb eq.	4.69E-02	4.31E-08	1.91E-06	4.69E-02	0.00E+00	2.49E-08	0.00E+00	6.38E-05	0.00E+00	0.00E+00	1.17E-09	2.30E-07	2.97E-11	-2.30E-04
ADPf[1]	MJ	1.93E+03	7.24E+00	9.69E+01	2.04E+03	0.00E+00	6.21E+00	0.00E+00	4.02E+03	0.00E+00	0.00E+00	1.78E-01	9.15E-01	7.36E-03	-1.37E+02
WDP[1]	m^3 world eq. deprived	4.10E+01	6.79E-03	9.87E-01	4.20E+01	0.00E+00	1.86E-03	0.00E+00	9.54E+00	0.00E+00	0.00E+00	2.09E-04	-2.58E-01	5.43E-05	-1.88E-01
Caption	GWP-total = Global Warming Potential – total; GWP-fossil = Global Warming Potential – fossil fuels; GWP-biogenic = Global Warming Potential – biogenic; GWP-luluc = Global Warming Potential – land use and land use change; ODP = Ozone Depletion; AP = Acidifcation; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use														
Disclaimer	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.														

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 piece RV2															
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**B1**	**B2**	**B3-B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	6.03E-06	7.71E-08	2.30E-07	6.34E-06	0.00E+00	3.37E-09	0.00E+00	4.21E-06	0.00E+00	0.00E+00	2.26E-10	1.33E-08	3.20E-11	-1.18E-07
IRP[2]	[kBq U235 eq.]	1.31E+01	1.66E-03	3.93E-01	1.35E+01	0.00E+00	1.39E-02	0.00E+00	3.08E+01	0.00E+00	0.00E+00	4.69E-05	3.42E-03	1.37E-05	6.38E-02
ETP-fw[1]	[CTUe]	3.62E+03	5.59E+00	1.35E+01	3.64E+03	0.00E+00	3.03E+00	0.00E+00	1.70E+03	0.00E+00	0.00E+00	1.32E-01	5.34E-01	4.48E-03	-6.52E+01
HTP-c[1]	[CTUh]	2.59E-07	1.07E-10	2.12E-09	2.61E-07	0.00E+00	8.24E-11	0.00E+00	8.61E-08	0.00E+00	0.00E+00	2.66E-12	3.52E-10	9.74E-14	-3.15E-09
HTP-nc[1]	[CTUh]	4.23E-06	4.27E-09	8.46E-08	4.32E-06	0.00E+00	2.74E-09	0.00E+00	1.34E-06	0.00E+00	0.00E+00	1.19E-10	7.29E-10	3.46E-12	-7.84E-08
SQP[1]	-	5.76E+02	2.69E+00	5.94E+02	1.17E+03	0.00E+00	6.50E-01	0.00E+00	2.88E+03	0.00E+00	0.00E+00	8.73E-02	1.45E+00	1.35E-03	-2.28E+01
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality														
Disclaimers	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. [2] 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.														

RESOURCE USE PER 1 piece RV2															
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**B1**	**B2**	**B3-B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	1.95E+02	4.79E-01	1.48E+02	3.43E+02	0.00E+00	8.90E-01	0.00E+00	4.65E+03	0.00E+00	0.00E+00	1.53E-02	7.70E-02	1.09E-03	-1.61E+01
PERM	[MJ]	4.70E+00	0.00E+00	6.69E+01	7.16E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.99E+02	4.79E-01	2.15E+02	4.15E+02	0.00E+00	8.90E-01	0.00E+00	4.65E+03	0.00E+00	0.00E+00	1.53E-02	7.70E-02	1.09E-03	-1.61E+01
PENRE	[MJ]	1.84E+03	7.24E+00	9.79E+01	1.94E+03	0.00E+00	6.21E+00	0.00E+00	4.02E+03	0.00E+00	0.00E+00	1.78E-01	9.20E+01	7.36E-03	-1.37E+02
PENRM	[MJ]	9.43E+01	0.00E+00	-9.92E-01	9.33E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.10E+01	0.00E+00	0.00E+00
PENRT	[MJ]	1.93E+03	7.24E+00	9.69E+01	2.04E+03	0.00E+00	6.21E+00	0.00E+00	4.02E+03	0.00E+00	0.00E+00	1.78E-01	9.15E-01	7.36E-03	-1.37E+02
SM	[kg]	1.50E-05	0.00E+00	3.66E+00	3.66E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m^3]	9.89E-01	5.37E-04	3.60E-02	1.03E+00	0.00E+00	1.70E-03	0.00E+00	1.41E+00	0.00E+00	0.00E+00	1.70E-05	-6.00E-03	1.64E-06	-1.75E-02
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water														

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 piece RV2															
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**B1**	**B2**	**B3-B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	5.17E+00	3.10E-10	6.95E-04	5.17E+00	0.00E+00	3.26E-05	0.00E+00	9.82E-06	0.00E+00	0.00E+00	6.80E-12	1.82E-03	1.75E-12	2.19E-07
NHWD	[kg]	1.44E-01	1.00E-03	2.22E-01	3.67E-01	0.00E+00	3.22E-03	0.00E+00	4.37E+00	0.00E+00	0.00E+00	2.90E-05	2.08E-03	2.13E-02	3.72E-02
RWD	[kg]	2.77E-03	1.22E-05	3.30E-03	6.09E-03	0.00E+00	1.42E-04	0.00E+00	2.51E-01	0.00E+00	0.00E+00	3.23E-07	3.48E-06	9.99E-08	-2.41E-05
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	3.82E-01	3.82E-01	0.00E+00	7.36E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E+00	0.00E+00	0.00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy														

BIOGENIC CARBON CONTENT PER 1 piece RV2		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in accompanying packaging	kg C	1.73E+00

Additional information

LCA interpretation

The results of the EPD shows the potential environmental impacts associated with one piece of RV2 air handling unit. Through a contribution analysis the results showed that the production PCB is the most dominant flow on the total impact.

Technical information on scenarios

Reference service life

RSL information		Unit
Reference service Life	20	Years
Maintenance	Replacement of filters once a year	As appropriate

Use (B1-B7)

Scenario information	Value	Unit
B2 - Maintenance		
Maintenance process	Filters from PET plastic	-
Maintenance cycle	1	/year
Ancillary materials for maintenance (specify which)	-	kg/cycle
Waste materials resulting from maintenance (specify which)	0.04	kg
Net freshwater consumption during maintenance	0	m^3
Energy input during maintenance	0	kWh
B6 + B7 – Use of energy and water		
Electricity (national grid mix)	35.9	kWh/year

B2

Filter replacement, B2	RV2	Unit
PET filter, new raw material input	0.004	kg/year
Waste handling, PET	0.004	kg/year

B6

RV2	RV2	Unit
Operation time per year	8,670	**hours**
Performance of max flow rate	53	**%**
Flow rate	26	**m3/h**
Energy use	0.00410	**kWh/h**
Operational energy use, 1 year	35.9	**kWh**
Operational energy use, 20 years (B6)	718	**kWh**

End of life (C1-C4)

Scenario information – RV2	Value	Unit
Collected separately	3.02	kg
Collected with mixed waste	0	kg
For reuse	0	kg
For recycling	2.83	kg
For energy recovery	0.167	kg
For final disposal	0.0213	kg
Assumptions for scenario development	-	As appropriate

Re-use, recovery and recycling potential (D)

Scenario information/Materiel – RV2	Value	Unit
Displaced material (recycling)	2.54	kg
Displaced energy from material (incineration)	0.167	kg

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

Publisher	www.epddanmark.dk Template version 2024.1
Programme operator	Danish Technological Institute Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	Nana Lin Rasmussen Morten Ryberg Sweco A/S Ørestads Blvd. 41, 2300 København, Denmark
LCA software /background data	*LCA for Experts (LCA FE)* version 10.8. Generic data are primarily based on life cycle inventory data from Sphera's database Managed LCA Content (MLC) version 2024.1 and Ecoinvent database 3.10. *EN 15804 reference package 3.1*
3rd party verifier	Guangli Du BUILD – Institut for Byggeri, By og Miljø, Aalborg Universitet København

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