epd-norge
Global program operatør

# Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

## ProNordic L350R Air Handling Unit


FLEXIT
BEDRE INNEKLIMA

The Norwegian EPD Foundation

**Owner of the declaration:**
Flexit AS

**Product:**
ProNordic L350R Air Handling Unit

**Declared unit:**
1 pcs

**This declaration is based on Product Category Rules:**
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 030:2021 Part B for ventilation components

**Program operator:**
The Norwegian EPD Foundation

**Declaration number:**

NEPD-6955-6328-EN

**Registration number:**

NEPD-6955-6328-EN

**Issue date:** 24.06.2024

**Valid to:** 24.06.2029

**EPD software:**
LCAno EPD generator ID: 316448

## General information

**Product**

ProNordic L350R Air Handling Unit

**Owner of the declaration:**

Flexit AS
Contact person: Anton Olsson
Phone: +46761325238
e-mail: anton.olsson@flexit.no

**Program operator:**

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-norge.no

**Manufacturer:**

Flexit AB

**Declaration number:**

NEPD-6955-6328-EN

**Place of production:**

Flexit AB
Källhultsvängen 5B
672 41 Töcksfors, Sweden

**This declaration is based on Product Category Rules:**

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 030:2021 Part B for ventilation components

**Management system:**

ISO 14001 : 2015 iaf

**Statement of liability:**

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

**Organisation no:**

502066-4826

**Declared unit:**

1 pcs ProNordic L350R Air Handling Unit

**Issue date:**

24.06.2024

**Declared unit with option:**

A1-A3,A4,C1,C2,C3,C4,D

**Valid to:**

24.06.2029

**Year of study:**

2022

**Functional unit:**

**Comparability:**

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

**General information on verification of EPD from EPD tools:**

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

**Development and verification of EPD:**

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system and has been approved by EPD Norway. NEPDT46 VKEs EPD-generator

Developer of EPD: Alva Träff

Reviewer of company-specific input data and EPD: Anton Olsson

**Verification of EPD tool:**

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Alexander Borg, Asplan Viak AS

(no signature required)

**Approved:**

Håkon Hauan
Managing Director of EPD-Norway

## Product

### Product description:

Flexit ProNordic L350R are stock ventilation units (Art. nr: 156000) for commercial properties. Delivered as a right-hand version, but can easily be converted to a left-hand version on site. After-heating battery (electricity/water) is delivered with the units and installed on site. The units' compact physical dimensions simplify transport and make the products flexible and adaptable to most installations. The units can also be ordered fully configured, in right- and left-hand versions and with an electric or water battery, according to wishes, however with a certain delivery time. Simple control with Siemens Climatix CS2500 via the ProPanel or ProTouch control panels.

### Product specification

| Materials | kg | % |
|---|---|---|
| Insulation, Mineral based | 30,00 | 4,55 |
| Plastic - Polyamide | 6,17 | 0,93 |
| Plastic - Polyvinyl chloride (PVC) | 6,36 | 0,96 |
| Filter, plastic based | 2,39 | 0,36 |
| Insulation, Plastic based | 2,96 | 0,45 |
| Silicon products | 0,00 | 0,00 |
| Filter, mineral based | 8,40 | 1,27 |
| Textile - Polyester (PE) | 0,48 | 0,07 |
| Rubber, synthetic | 2,61 | 0,40 |
| Sealant | 0,58 | 0,09 |
| Metal - Aluminium | 87,23 | 13,22 |
| Electronic - Unspecified | 6,89 | 1,04 |
| Metal - Copper | 0,31 | 0,05 |
| Metal - Steel | 500,26 | 75,83 |
| Plastic - Polystyrene (PS) | 0,12 | 0,02 |
| Other | 2,41 | 0,36 |
| Plastic - Polyethylene | 2,39 | 0,36 |
| Plastic - Acrylonitrile butadiene styrene (ABS) | 0,12 | 0,02 |
| Total | 659,67 | 100,00 |

| Packaging | kg | % |
|---|---|---|
| Packaging - Cardboard | 0,44 | 59,92 |
| Packaging - Plastic | 0,29 | 40,08 |
| Total incl. packaging | 660,40 | 100,00 |

### Technical data:

Capacity 86 %/SFP 1,5: 4400 m3/h @ 230 Pa
Capasity 83 %/SFP 2: 5850 m3/h @ 250 Pa

Please visit our webpage www.flexit.com for the technical data specification under the product description

### Market:

Europe of which the largest share is in Norway, but scenarios in the cradle-to-gate are based on the situation in the Norwegian market

### Reference service life, product

25 years
The reference service life of the product depends on the area of use

### Reference service life, building or construction works

60 years
The reference service life of the product depends on the area of use

## LCA: Calculation rules

### Declared unit:

1 pcs ProNordic L350R Air Handling Unit

### Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

### Allocation:

The allocation is made in accordance with the provisions of EN 15804. Energy, water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

### Data quality:

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

| Materials | Source | Data quality | Year |
|---|---|---|---|
| Electronic - Unspecified | ecoinvent 3.6 | Database | 2019 |
| Filter, mineral based | ecoinvent 3.6 | Database | 2019 |
| Filter, plastic based | ecoinvent 3.6 | Database | 2019 |
| Insulation, Mineral based | ecoinvent 3.6 | Database | 2019 |
| Insulation, Plastic based | ecoinvent 3.6 | Database | 2019 |
| Metal - Aluminium | ecoinvent 3.6 | database | 2019 |
| Metal - Aluminium | Modified ecoinvent 3.6 | Database | 2019 |
| Metal - Copper | ecoinvent 3.6 | Database | 2019 |
| Metal - Steel | ecoinvent 3.6 | Database | 2019 |
| Other | Material composition + ecoinvent 3.6 | Supplier data + database | 2019 |
| Packaging - Cardboard | ecoinvent 3.6 | Database | 2019 |
| Packaging - Plastic | ecoinvent 3.6 | Database | 2019 |
| Plastic - Acrylonitrile butadiene styrene (ABS) | ecoinvent 3.6 | Database | 2019 |
| Plastic - Polyamide | ecoinvent 3.6 | Database | 2019 |
| Plastic - Polyethylene | ecoinvent 3.6 | Database | 2019 |
| Plastic - Polystyrene (PS) | ecoinvent 3.6 | Database | 2019 |
| Plastic - Polyvinyl chloride (PVC) | ecoinvent 3.6 | Database | 2019 |
| Rubber, synthetic | ecoinvent 3.6 | Database | 2019 |
| Sealant | ecoinvent 3.6 | Database | 2019 |
| Silicon products | ecoinvent 3.6 | Database | 2019 |
| Textile - Polyester (PE) | ecoinvent 3.6 | Database | 2019 |

## System boundaries (X=included, MND=module not declared, MNR=module not relevant)

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

### System boundary:

A1 includes the extraction and production of all raw materials used in the product.

A2 includes all types of transportation methods used for the raw materials to the production site in Töcksfors, Sweden.

A3 includes the manufacturing and packaging process of the air handling unit.

A4 includes the transport to the market/user.

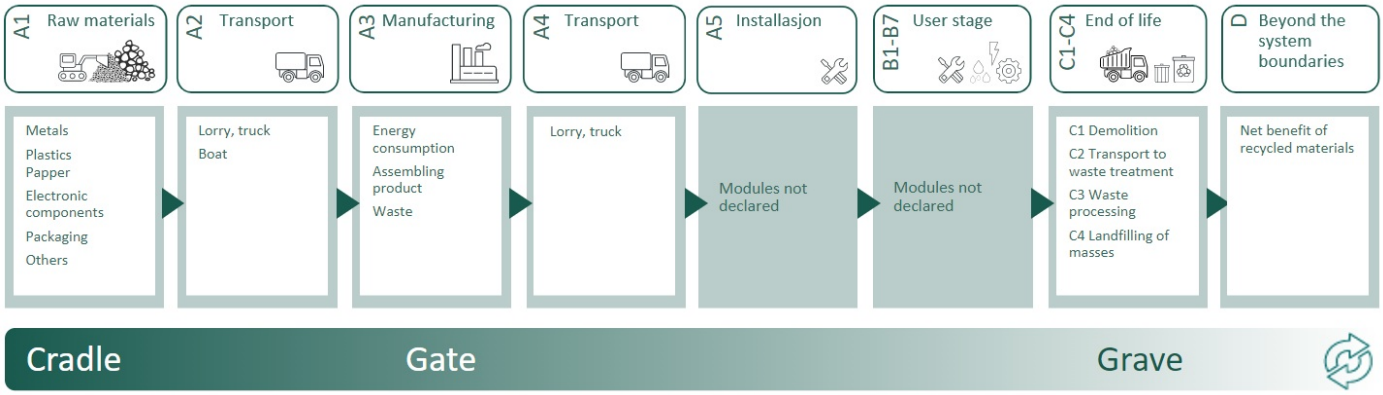
A5 modules not declared.

B1 - B7 modules not declared.

C1 - C4 includes the use of energy and other auxiliary materials required to demolish the building or construction in which the product is included, transport from the building site to the waste processing facility, distribution of the product to different waste treatment methods and the disposal.

D includes energy and materials that have achieved a new function and are no longer considered waste.

The flowchart in the figure below illustrates the system boundaries for the analysis.




### Additional technical information:

During the lifetime of the air handling unit, some parts, such as the filters and fans, Will need to be replaced sometimes.
For a full account of maintenance information, please visit our website:
www.flexit.com

## LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

A2: The transport methods used then there were no available data from the suppliers, were assumed to be:

Sweden, Finland and Norway - Class EURO 6 trucks
Thailand, Vietnam and Taiwan - Class EURO 4 trucks
Remaining countries - Class EURO 5 trucks
Distances with seagoing vessels - Ship, Freight, Transoceanic (km)

A3: The energy used in manufacturing were calculated by: the total yearly energy consumption (kWh) divided by the total yearly production of air handling units (kg).

A4: For the Nordic market, the default average travel distance from the manufacturing site to the building site is 300 km provided in NPCR 030 Part B for ventilation components.

C2: The average distance used from the deconstruction site to the waste processing facility is 85 km for the Norwegian market.

| Transport from production place to user (A4) | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy Consumption | Unit | Value (Liter/tonne) |
|---|---|---|---|---|---|
| Truck, 16-32 tonnes, EURO 6 (km) | 36,7 % | 300 | 0,043 | l/tkm | 12,90 |

| De-construction demolition (C1) | Unit | Value | | | |
|---|---|---|---|---|---|
| Demolition of building per kg of ventilation product (kg) | kg/DU | 659,70 | | | |

| Transport to waste processing (C2) | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy Consumption | Unit | Value (Liter/tonne) |
|---|---|---|---|---|---|
| Truck, 16-32 tonnes, EURO 6 (km) | 36,7 % | 85 | 0,043 | l/tkm | 3,66 |

| Waste processing (C3) | Unit | Value | | | |
|---|---|---|---|---|---|
| Materials to recycling (kg) | kg | 532,79 | | | |
| Waste treatment per kg Electronics scrap, Control units, incineration (kg) | kg | 6,89 | | | |
| Waste treatment per kg Expanded Polystyrene (EPS), incineration with fly ash extraction (kg) | kg | 0,06 | | | |
| Waste treatment per kg Hazardous waste, incineration (kg) | kg | 0,00 | | | |
| Waste treatment per kg plastic, industrial electronics, municipal incineration with fly ash extraction (kg) | kg | 0,02 | | | |
| Waste treatment per kg Plastics, to incineration (kg) | kg | 5,08 | | | |
| Waste treatment per kg Polyethylene (PE), incineration (kg) | kg | 1,20 | | | |
| Waste treatment per kg Polypropylene (PP), incineration (kg) | kg | 1,20 | | | |
| Waste treatment per kg Polyvinylchloride (PVC), incineration with fly ash extraction (kg) | kg | 6,36 | | | |
| Waste treatment per kg Rubber, municipal incineration with fly ash extraction (kg) | kg | 2,61 | | | |
| Waste treatment per kg wire plastic, municipal incineration - C3 - RoW | kg | 0,56 | | | |

| Disposal (C4) | Unit | Value | | | |
|---|---|---|---|---|---|
| Landfilling of ashes from incineration of Electronics scrap, Control units, process of ashes and residues (kg) | kg | 4,83 | | | |
| Landfilling of ashes from incineration of Expanded polystyrene (EPS), process per kg ashes and residues (kg) | kg | 0,00 | | | |
| Landfilling of ashes from incineration of Plastics, process per kg ashes and residues (kg) | kg | 0,12 | | | |
| Landfilling of ashes from incineration of Polyethylene (PE), process per kg ashes and residues (kg) | kg | 0,04 | | | |
| Landfilling of ashes from incineration of Polypropylene (PP), process per kg ashes and residues (kg) | kg | 0,04 | | | |
| Landfilling of ashes from incineration of Polyvinylchloride (PVC), process per kg ashes and residues (kg) | kg | 1,01 | | | |
| Landfilling of ashes from incineration of Rubber, municipal incineration with fly ash extraction (kg) | kg | 0,14 | | | |
| Landfilling of ashes from incineration per kg Hazardous waste, from incineration (kg) | kg | 0,00 | | | |
| Landfilling of ashes from incineration per kg plastic, industrial electronics, From municipal incineration with fly ash extraction (kg) | kg | 0,00 | | | |
| Landfilling of ashes from incineration per kg wire plastic, from municipal incineration - C4 - RoW | kg | 0,08 | | | |
| Waste treatment per kg Copper slag, to landfill, residual material landfill (kg) - GLO | kg | 0,16 | | | |
| Waste, aluminium, to landfill (kg) | kg | 6,11 | | | |
| Waste, Expanded polystyrene, EPS, to landfill (kg) | kg | 0,06 | | | |
| Waste, hazardous waste, to landfill (kg) | kg | 0,00 | | | |
| Waste, mineral wool, to landfil (kg) | kg | 38,40 | | | |
| Waste, plastic, mixture, to landfill (kg) | kg | 8,16 | | | |
| Waste, scrap steel, to landfill (kg) | kg | 50,03 | | | |

| Benefits and loads beyond the system boundaries (D) | Unit | Value | | | |
|---|---|---|---|---|---|
| Substitution of electricity, in Norway (MJ) | MJ | 15,17 | | | |
| Substitution of primary aluminium with net scrap (kg) | kg | 77,52 | | | |
| Substitution of primary copper with net scrap (kg) | kg | 1,05 | | | |
| Substitution of primary steel with net scrap (kg) | kg | 428,12 | | | |
| Substitution of thermal energy, district heating, in Norway (MJ) | MJ | 229,54 | | | |

## LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

| Environmental impact | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Indicator** | **Unit** | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
| | GWP-total | kg $CO_2$ -eq | 4,48E+03 | 3,24E+01 | 8,70E-01 | 9,18E+00 | 4,83E+01 | 2,30E+00 | -1,18E+03 |
| | GWP-fossil | kg $CO_2$ -eq | 4,47E+03 | 3,24E+01 | 8,70E-01 | 9,17E+00 | 4,83E+01 | 2,30E+00 | -1,16E+03 |
| | GWP-biogenic | kg $CO_2$ -eq | 7,93E+00 | 1,34E-02 | 1,63E-04 | 3,80E-03 | 8,55E-03 | 1,72E-03 | -3,44E+00 |
| | GWP-luluc | kg $CO_2$ -eq | 5,89E+00 | 1,15E-02 | 6,86E-05 | 3,26E-03 | 1,54E-03 | 4,11E-04 | -1,33E+01 |
| | ODP | kg CFC11 -eq | 2,31E-04 | 7,33E-06 | 1,88E-07 | 2,08E-06 | 5,77E-07 | 2,82E-07 | -9,70E-02 |
| | AP | mol H+ -eq | 3,70E+01 | 9,30E-02 | 9,10E-03 | 2,64E-02 | 1,43E-02 | 7,21E-03 | -7,43E+00 |
| | EP-FreshWater | kg P -eq | 1,98E-01 | 2,59E-04 | 3,17E-06 | 7,33E-05 | 5,81E-05 | 1,74E-05 | -5,86E-02 |
| | EP-Marine | kg N -eq | 5,64E+00 | 1,84E-02 | 4,02E-03 | 5,21E-03 | 4,55E-03 | 3,39E-03 | -1,09E+00 |
| | EP-Terrestial | mol N -eq | 9,19E+01 | 2,06E-01 | 4,41E-02 | 5,83E-02 | 4,79E-02 | 2,69E-02 | -1,17E+01 |
| | POCP | kg NMVOC -eq | 1,93E+01 | 7,89E-02 | 1,21E-02 | 2,23E-02 | 1,25E-02 | 7,84E-03 | -4,63E+00 |
| | ADP-minerals&metals[1] | kg Sb-eq | 7,38E-01 | 8,94E-04 | 1,33E-06 | 2,53E-04 | 3,63E-05 | 9,81E-06 | -9,44E-03 |
| | ADP-fossil[1] | MJ | 4,84E+04 | 4,89E+02 | 1,20E+01 | 1,39E+02 | 2,45E+01 | 2,09E+01 | -1,28E+04 |
| | WDP[1] | $m^3$ | 5,03E+05 | 4,73E+02 | 2,54E+00 | 1,34E+02 | 3,70E+02 | 1,19E+02 | -3,70E+05 |

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 = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment: EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

### Remarks to environmental impacts

## Additional environmental impact indicators

| Indicator | | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| | PM | Disease incidence | 3,90E-04 | 1,98E-06 | 2,41E-07 | 5,61E-07 | 8,62E-08 | 1,25E-07 | -8,87E-05 |
| | IRP[2] | kgBq U235 -eq | 2,31E+02 | 2,14E+00 | 5,13E-02 | 6,06E-01 | 1,09E-01 | 9,63E-02 | -3,65E+01 |
| | ETP-fw[1] | CTUe | 1,68E+05 | 3,63E+02 | 6,54E+00 | 1,03E+02 | 9,14E+02 | 3,81E+03 | -4,06E+04 |
| | HTP-c[1] | CTUh | 1,34E-05 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,76E-09 | 4,48E-09 | -4,07E-06 |
| | HTP-nc[1] | CTUh | 1,26E-04 | 3,96E-07 | 5,94E-09 | 1,12E-07 | 2,93E-07 | 2,78E-07 | 2,42E-05 |
| | SQP[1] | dimensionless | 1,46E+04 | 3,42E+02 | 1,52E+00 | 9,70E+01 | 8,37E+00 | 5,64E+01 | -5,48E+02 |

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 = Potential Soil Quality Index (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

1. The results of this environmental impact 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 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Indicator | | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
| | PERE | MJ | 5,38E+03 | 7,00E+00 | 6,48E-02 | 1,98E+00 | 2,73E+00 | 8,69E-01 | -3,62E+03 |
| | PERM | MJ | 3,57E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | PERT | MJ | 5,39E+03 | 7,00E+00 | 6,48E-02 | 1,98E+00 | 2,73E+00 | 8,69E-01 | -3,62E+03 |
| | PENRE | MJ | 4,77E+04 | 4,89E+02 | 1,20E+01 | 1,39E+02 | 2,45E+01 | 2,09E+01 | -1,28E+04 |
| | PENRM | MJ | 8,39E+02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | PENRT | MJ | 4,85E+04 | 4,89E+02 | 1,20E+01 | 1,39E+02 | 2,45E+01 | 2,09E+01 | -1,28E+04 |
| | SM | kg | 1,28E+01 | 0,00E+00 | 5,88E-03 | 0,00E+00 | 0,00E+00 | 5,32E-05 | 7,33E-01 |
| | RSF | MJ | 4,42E+01 | 2,51E-01 | 1,59E-03 | 7,10E-02 | 5,24E-02 | 1,93E-02 | 1,58E+01 |
| | NRSF | MJ | 9,47E+02 | 8,96E-01 | 2,34E-02 | 2,54E-01 | -4,30E-03 | 5,75E-02 | 4,93E+02 |
| | FW | $m^3$ | 2,73E+01 | 5,23E-02 | 6,16E-04 | 1,48E-02 | 4,64E-01 | 3,34E-02 | -1,85E+01 |

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 materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

## End of life - Waste

| Indicator | | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| | HWD | kg | 2,53E+01 | 2,52E-02 | 3,52E-04 | 7,15E-03 | 2,29E-02 | 4,25E-01 | 4,24E-01 |
| | NHWD | kg | 1,04E+03 | 2,38E+01 | 1,42E-02 | 6,74E+00 | 3,25E+00 | 1,07E+02 | -3,94E+02 |
| | RWD | kg | 1,51E-01 | 3,33E-03 | 8,31E-05 | 9,44E-04 | 1,31E-05 | 6,66E-05 | -3,46E-02 |

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

## End of life - Output flow

| Indicator | | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| | CRU | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | MFR | kg | 9,33E+00 | 0,00E+00 | 5,77E-03 | 0,00E+00 | 5,33E+02 | 2,21E-03 | -2,87E-02 |
| | MER | kg | 1,14E-01 | 0,00E+00 | 1,79E-05 | 0,00E+00 | 1,20E+01 | 3,11E-05 | -3,78E-03 |
| | EEE | MJ | 1,67E+00 | 0,00E+00 | 6,14E-05 | 0,00E+00 | 1,91E+01 | 1,27E-03 | -9,26E-03 |
| | EET | MJ | 2,53E+01 | 0,00E+00 | 9,28E-04 | 0,00E+00 | 2,88E+02 | 1,92E-02 | -1,40E-01 |

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

## Biogenic Carbon Content

| Indicator | Unit | At the factory gate |
|---|---|---|
| Biogenic carbon content in product | kg C | 0,00E+00 |
| Biogenic carbon content in accompanying packaging | kg C | 2,01E-01 |

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

## Additional requirements

### Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

| Electricity mix | Source | Amount | Unit |
|---|---|---|---|
| Electricity, Sweden (kWh) | ecoinvent 3.6 | 54,94 | g CO2-eq/kWh |

### Dangerous substances

The product contains no substances on the REACH Candidate list at or above 100 ppm, 0,01 % by weight.

### Indoor environment

## Additional Environmental Information

| Additional environmental impact indicators required in NPCR Part A for construction products | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
| GWPIOBC | kg $CO_2$ -eq | 4,48E+03 | 3,24E+01 | 8,70E-01 | 9,18E+00 | 4,83E+01 | 2,33E+00 | -1,38E+03 |

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

## Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.
ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.
Iversen et al., (2021) eEPD v2021.09 Background information for EPD generator tool system verification, LCA.no Report number: 07.21
Graafland and Iversen (2022) EPD generator for NPCR 030 Ventilation components, Background information for EPD generator application and LCA data, LCA.no report number: 12.22
NPCR Part A: Construction products and services. Ver. 2.0. April 2021, EPD-Norge.
NPCR 030 Part B for Ventilation components, Ver. 1.0, 18.05.2021, EPD Norway.

| | | |
|---|---|---|
| epd-norway Global Program Operator | **Program operator and publisher**<br>The Norwegian EPD Foundation<br>Post Box 5250 Majorstuen, 0303 Oslo, Norway | Phone: +47 977 22 020<br>e-mail: post@epd-norge.no<br>web: www.epd-norge.no |
| FLEXIT BEDRE INNEKLIMA | **Owner of the declaration:**<br>Flexit AS<br>Moseveien 8, 1870 Ørje | Phone: +46761325238<br>e-mail: anton.olsson@flexit.no<br>web: https://www.flexit.no/ |
| LCA.no | **Author of the Life Cycle Assessment**<br>LCA.no AS<br>Dokka 6A, 1671 | Phone: +47 916 50 916<br>e-mail: post@lca.no<br>web: www.lca.no |
| LCA.no | **Developer of EPD generator**<br>LCA.no AS<br>Dokka 6B,1671 Kråkerøy | Phone: +47 916 50 916<br>e-mail: post@lca.no<br>web: www.lca.no |
| ECO PLATFORM EPD VERIFIED | ECO Platform<br>ECO Portal | web: www.eco-platform.org<br>web: ECO Portal |