epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

TVR-D

TROX® TECHNIK
The art of handling air

The Norwegian EPD Foundation

Owner of the declaration:
TROX Group

Product:
TVR-D

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-8313-7989-EN

Registration number:

NEPD-8313-7989-EN

Issue date: 04.12.2024

Valid to: 04.12.2029

EPD software:
LCAno EPD generator ID: 646249

General information

Product

TVR-D

Owner of the declaration:

TROX Group
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Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
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Manufacturer:

TROX Group
Heinrich-Trox-Platz 1
47506 Neukirchen-Vluyn, Germany

Declaration number:

NEPD-8313-7989-EN

Place of production:

TROX GmbH - Werk Anholt
Gendringer Str. 85
46419 Isselburg, Germany

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 9001, ISO 14001:2015, ISO 50001:2018

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:

DE 120250070

Declared unit:

1 pcs TVR-D

Issue date:

04.12.2024

Declared unit with option:

A1-A3,A4,B1,B2,B3,B4,B5,B6,B7,C1,C2,C3,C4,D

Valid to:

04.12.2029

Year of study:

2023

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.

Developer of EPD: Jule Dallmann

Reviewer of company-specific input data and EPD: Alina Buchner

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:

For various standard applications.
Circular air terminal units for standard applications in supply air or extract air systems with variable volume flow rates.

For more information see: www.trox.de/en/df0fe6200debc478

Product specification

Circular VAV terminal units for variable and constant air volume systems, suitable for supply or extract air, available in 7 nominal sizes. High control accuracy (even with upstream bend R = 1D). Ready-to-commission unit which consists of the mechanical parts and the electronic control components. Each unit contains an averaging effective pressure sensor for volume flow rate measurement, and a control damper blade. Factory mounted control components complete with wiring and tubing. Effective pressure sensor with 3 mm measuring holes, hence resistant to contamination. Position of the damper blade indicated externally at shaft extension. The damper blade is factory set to open position, which allows a ventilation airflow even without control; this does not apply to variants with defined safe position NC (normally closed).
Meets the hygiene requirements of EN 16798, Part 3, of VDI 6022, Sheet 1, and of DIN 1946, Part 4.

This EPD includes the environmental data of the product series TVR-D.
The following represents a representative dataset of the most sold variant in the declared sales year (TVR-D/100/BUDNF).

Materials	kg	%
Chemical	0,00	0,06
Electronic - Unspecified	2,24	32,28
Insulation, Mineral based	0,21	3,03
Metal - Galvanized Steel	3,97	57,17
Plastic	0,02	0,31
Plastic - Polyamide	0,00	0,05
Plastic - Polyethylene	0,02	0,30
Plastic - Polyoxymethylene (POM)	0,15	2,19
Plastic - Polyurethane (PUR)	0,04	0,56
Rubber, synthetic	0,00	0,03
Metal - Aluminium	0,02	0,23
Metal - Steel	0,26	3,79
Total	6,94	100,00

Packaging	kg	%
Packaging - Cardboard	0,25	28,57
Packaging - Pallet	0,58	66,67
Packaging - Paper	0,04	4,76
Total incl. packaging	7,81	100,00

Technical data:

Nominal sizes: 100 – 400 mm.
Volume flow rate range: 34 – 7591 m^3/h or 10 – 2108 l/s.
Volume flow rate control range (unit for dynamic effective pressure measurements): Approx. 10 – 100% of the nominal volume flow rate.
Volume flow rate control range (unit for static effective pressure measurements): Approx. 15 to 100% of the nominal volume flow rate.
Minimum differential pressure: Up to 117 Pa (without circular silencer).
Maximum differential pressure: 1000 Pa.
Operating temperature: 10 to 50 °C.

For more technical data see: www.trox.de/en/df0fe6200debc478

Market:

Europe.

Reference service life, product

20 years.

Reference service life, building or construction works

60 years.

LCA: Calculation rules

Declared unit:

1 pcs TVR-D

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
Chemical	ecoinvent 3.6	Database	2019
Electronic - Unspecified	ecoinvent 3.6	Database	2019
Insulation, Mineral based	ecoinvent 3.6	Database	2019
Metal - Aluminium	ecoinvent 3.6	database	2019
Metal - Galvanized Steel	ecoinvent 3.6	Database	2020
Metal - Steel	ecoinvent 3.6	Database	2019
Packaging - Cardboard	ecoinvent 3.6	Database	2019
Packaging - Pallet	ecoinvent 3.6	Database	2019
Packaging - Paper	ecoinvent 3.6	Database	2019
Plastic	ecoinvent 3.6	Database	2019
Plastic - Polyamide	Modified ecoinvent 3.6	Database	2019
Plastic - Polyethylene	ecoinvent 3.6	Database	2019
Plastic - Polyoxymethylene (POM)	ecoinvent 3.6	Database	2019
Plastic - Polyurethane (PUR)	ecoinvent 3.6	Database	2019
Rubber, synthetic	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	X	X	X	X	X	X	X	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 Anholt, Germany.

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

A4 includes the transport to the market/user.

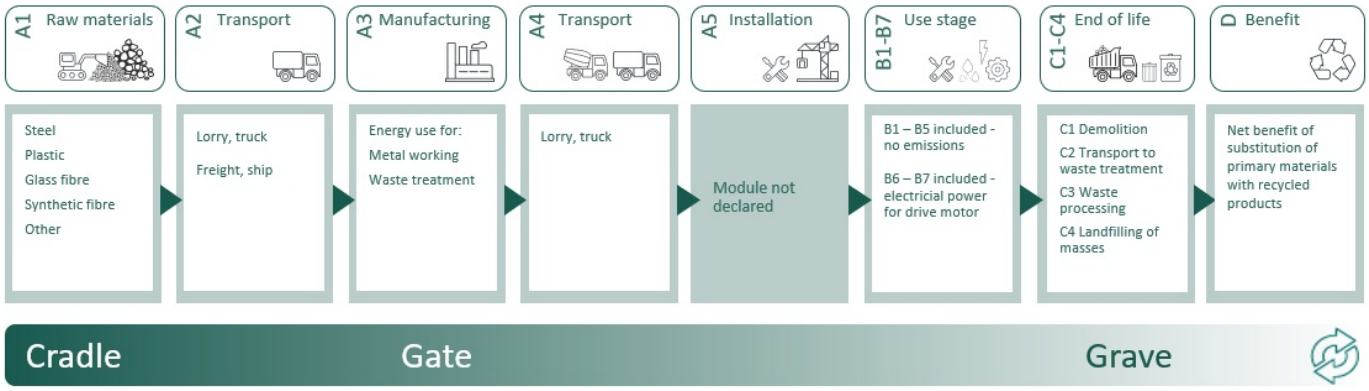
A5 modules not declared.

B1 - B5 No emissions are released during use of the product (B1). Maintenance (B2) and repair (B3) or replacement of individual components (B4) is not relevant during the service life under consideration (maintenance-free). According to the manufacturer, the product does not need to be replaced during its service life (B5). The modules are therefore labelled with '0'.

B6 - B7 During operation of the building, electrical energy is required to supply the electric drive motor and setpoint adjustments of the product.

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.



Additional technical information:

Suitable for the control of volume flow rate, room pressure or duct pressure.
Electronic control components for different applications (Easy, Compact, Universal, and LABCONTROL).
High control accuracy even with upstream bend (R = 1D).
Closed blade air leakage to EN 1751, up to class 4.
Casing air leakage to EN 1751, class C.

Optional equipment and accessories:
Acoustic cladding for the reduction of case-radiated noise.
Secondary silencer CA (for Germany and Switzerland), CAH (for EMEA) or CF for the reduction of air-regenerated noise.
Hot water heat exchanger WL and electric air heater EL for reheating the airflow.

LCA: Scenarios and additional technical information

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

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 %	800	0,043	l/tkm	34,40

Operational energy (B6)	Unit	Value			
Electricity, European average (kWh)	kWh	1002,00			

De-construction demolition (C1)	Unit	Value			
Demolition of building per kg of ventilation product (kg)	kg/DU	6,94			

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 %	50	0,043	l/tkm	2,15

Waste processing (C3)	Unit	Value			
Waste treatment per kg Plastics, incineration (kg)	kg	0,03			
Waste treatment per kg Polyoxymethylene (POM), incineration with fly ash extraction (kg)	kg	0,08			
Materials to recycling (kg)	kg	3,82			
Waste treatment per kg Electronic scrap, incineration (kg)	kg	2,24			
Waste treatment per kg Rubber, municipal incineration with fly ash extraction (kg)	kg	0,00			
Waste treatment per kg Hazardous waste, incineration (kg)	kg	0,00			
Waste treatment per kg Polyethylene (PE), incineration (kg)	kg	0,01			

Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Plastics, process per kg ashes and residues (kg)	kg	0,00			
Waste, plastic, mixture, to landfill (kg)	kg	0,12			
Landfilling of ashes from incineration of Polyoxymethylene (POM), process per kg ashes and residues (kg)	kg	0,00			
Waste, scrap steel, to landfill (kg)	kg	0,42			
Landfilling of ashes from incineration of Electronic scrap, process of ashes and residues (kg)	kg	1,57			
Landfilling of ashes from incineration of Rubber, municipal incineration with fly ash extraction (kg)	kg	0,00			
Waste, aluminium, to landfill (kg)	kg	0,00			
Landfilling of ashes from incineration per kg Hazardous waste, from incineration (kg)	kg	0,00			
Waste, hazardous waste, to landfill (kg)	kg	0,00			
Landfilling of ashes from incineration of Polyethylene (PE), process per kg ashes and residues (kg)	kg	0,00			
Waste, mineral wool, to landfil (kg)	kg	0,21			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity (MJ)	MJ	0,10			
Substitution of thermal energy, district heating (MJ)	MJ	1,54			
Substitution of primary steel with net scrap (kg)	kg	0,92			
Substitution of primary aluminium with net scrap (kg)	kg	0,01			

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	B1	B2	B3	B4	B5
GWP-total	kg CO_2 -eq	1,06E+02	1,02E+00	0	0	0	0	0
GWP-fossil	kg CO_2 -eq	1,05E+02	1,02E+00	0	0	0	0	0
GWP-biogenic	kg CO_2 -eq	6,67E-01	4,23E-04	0	0	0	0	0
GWP-luluc	kg CO_2 -eq	1,70E-01	3,63E-04	0	0	0	0	0
ODP	kg CFC11 -eq	8,75E-06	2,31E-07	0	0	0	0	0
AP	mol H+ -eq	8,97E-01	2,93E-03	0	0	0	0	0
EP-FreshWater	kg P -eq	1,76E-02	8,16E-06	0	0	0	0	0
EP-Marine	kg N -eq	1,33E-01	5,81E-04	0	0	0	0	0
EP-Terrestial	mol N -eq	1,91E+00	6,49E-03	0	0	0	0	0
POCP	kg NMVOC -eq	4,40E-01	2,49E-03	0	0	0	0	0
ADP-minerals&metals[1]	kg Sb-eq	6,02E-02	2,82E-05	0	0	0	0	0
ADP-fossil[1]	MJ	1,38E+03	1,54E+01	0	0	0	0	0
WDP[1]	m^3	4,82E+03	1,49E+01	0	0	0	0	0

Indicator	Unit	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 -eq	4,29E+02	0	9,15E-03	6,39E-02	2,63E+00	2,04E-01	-1,15E+00
GWP-fossil	kg CO_2 -eq	4,25E+02	0	9,15E-03	6,38E-02	2,63E+00	2,04E-01	-1,14E+00
GWP-biogenic	kg CO_2 -eq	2,99E+00	0	1,72E-06	2,64E-05	3,39E-04	2,90E-04	-1,16E-03
GWP-luluc	kg CO_2 -eq	9,88E-01	0	7,21E-07	2,27E-05	7,92E-05	7,68E-05	-3,18E-03
ODP	kg CFC11 -eq	3,60E-05	0	1,98E-09	1,45E-08	1,26E-08	1,01E-08	-6,52E-04
AP	mol H+ -eq	2,48E+00	0	9,57E-05	1,83E-04	9,20E-04	3,81E-04	-5,95E-03
EP-FreshWater	kg P -eq	4,54E-02	0	3,33E-08	5,10E-07	2,84E-06	2,36E-06	-6,78E-05
EP-Marine	kg N -eq	3,15E-01	0	4,22E-05	3,63E-05	3,88E-04	1,12E-04	-1,17E-03
EP-Terrestial	mol N -eq	3,88E+00	0	4,64E-04	4,06E-04	3,96E-03	1,08E-03	-1,21E-02
POCP	kg NMVOC -eq	9,85E-01	0	1,27E-04	1,55E-04	9,77E-04	3,04E-04	-5,53E-03
ADP-minerals&metals[1]	kg Sb-eq	3,12E-03	0	1,40E-08	1,76E-06	1,01E-06	8,73E-07	-1,73E-05
ADP-fossil[1]	MJ	8,77E+03	0	1,26E-01	9,65E-01	1,14E+00	9,69E-01	-1,02E+01
WDP[1]	m^3	1,32E+05	0	2,68E-02	9,33E-01	3,20E+00	2,87E+00	-2,23E+01

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	B1	B2	B3	B4	B5
	PM	Disease incidence	6,43E-06	6,25E-08	0	0	0	0	0
	IRP[2]	kgBq U235 -eq	5,36E+00	6,75E-02	0	0	0	0	0
	ETP-fw[1]	CTUe	8,85E+03	1,14E+01	0	0	0	0	0
	HTP-c[1]	CTUh	2,20E-07	0,00E+00	0	0	0	0	0
	HTP-nc[1]	CTUh	5,92E-06	1,25E-08	0	0	0	0	0
	SQP[1]	dimensionless	6,49E+02	1,08E+01	0	0	0	0	0

Indicator		Unit	B6	B7	C1	C2	C3	C4	D
	PM	Disease incidence	6,50E-06	0	2,53E-09	3,91E-09	5,60E-09	4,27E-09	-9,71E-08
	IRP[2]	kgBq U235 -eq	7,68E+01	0	5,40E-04	4,22E-03	4,16E-03	4,19E-03	-4,24E-03
	ETP-fw[1]	CTUe	6,14E+03	0	6,88E-02	7,15E-01	7,23E+00	6,23E+00	-5,88E+01
	HTP-c[1]	CTUh	1,71E-07	0	0,00E+00	0,00E+00	2,13E-10	3,60E-11	-5,19E-09
	HTP-nc[1]	CTUh	5,92E-06	0	6,20E-11	7,81E-10	1,98E-08	1,94E-09	1,01E-07
	SQP[1]	dimensionless	2,12E+03	0	1,60E-02	6,75E-01	4,18E-01	8,12E-01	-1,50E+00

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	B1	B2	B3	B4	B5
	PERE	MJ	1,58E+02	2,21E-01	0	0	0	0	0
	PERM	MJ	0,00E+00	0,00E+00	0	0	0	0	0
	PERT	MJ	1,69E+02	2,21E-01	0	0	0	0	0
	PENRE	MJ	1,37E+03	1,54E+01	0	0	0	0	0
	PENRM	MJ	6,35E+00	0,00E+00	0	0	0	0	0
	PENRT	MJ	1,38E+03	1,54E+01	0	0	0	0	0
	SM	kg	4,29E+00	0,00E+00	0	0	0	0	0
	RSF	MJ	4,40E+00	7,91E-03	0	0	0	0	0
	NRSF	MJ	8,98E+00	2,83E-02	0	0	0	0	0
	FW	m^3	1,07E+00	1,65E-03	0	0	0	0	0

Indicator		Unit	B6	B7	C1	C2	C3	C4	D
	PERE	MJ	1,70E+03	0	6,81E-04	1,38E-02	7,64E-02	6,86E-02	-2,07E+00
	PERM	MJ	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	1,70E+03	0	6,81E-04	1,38E-02	7,64E-02	6,86E-02	-2,07E+00
	PENRE	MJ	8,78E+03	0	1,26E-01	9,65E-01	1,14E+00	9,69E-01	-1,02E+01
	PENRM	MJ	0,00E+00	0	0,00E+00	0,00E+00	-6,35E+00	0,00E+00	0,00E+00
	PENRT	MJ	8,78E+03	0	1,26E-01	9,65E-01	-5,20E+00	9,69E-01	-1,02E+01
	SM	kg	0,00E+00	0	6,18E-05	0,00E+00	0,00E+00	6,47E-05	0,00E+00
	RSF	MJ	1,24E+02	0	1,68E-05	4,94E-04	1,87E-03	1,61E-03	3,60E-02
	NRSF	MJ	2,94E+01	0	2,47E-04	1,77E-03	-1,40E-03	8,35E-04	1,01E+00
	FW	m^3	7,44E+00	0	6,48E-06	1,03E-04	5,23E-03	4,19E-03	-6,28E-03

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	B1	B2	B3	B4	B5
	HWD	kg	6,86E-01	7,96E-04	0	0	0	0	0
	NHWD	kg	1,90E+01	7,51E-01	0	0	0	0	0
	RWD	kg	4,29E-03	1,05E-04	0	0	0	0	0

Indicator		Unit	B6	B7	C1	C2	C3	C4	D
	HWD	kg	1,32E+00	0	3,71E-06	4,98E-05	7,44E-03	5,14E-02	-4,71E-03
	NHWD	kg	2,97E+01	0	1,49E-04	4,69E-02	1,06E+00	1,84E+00	-4,52E-01
	RWD	kg	6,27E-02	0	8,74E-07	6,57E-06	4,26E-06	4,25E-06	-4,51E-06

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	B1	B2	B3	B4	B5
	CRU	kg	0,00E+00	0,00E+00	0	0	0	0	0
	MFR	kg	7,54E-01	0,00E+00	0	0	0	0	0
	MER	kg	2,44E-01	0,00E+00	0	0	0	0	0
	EEE	MJ	1,44E-01	0,00E+00	0	0	0	0	0
	EET	MJ	2,17E+00	0,00E+00	0	0	0	0	0

Indicator		Unit	B6	B7	C1	C2	C3	C4	D
	CRU	kg	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0	6,07E-05	0,00E+00	3,83E+00	1,86E-05	0,00E+00
	MER	kg	0,00E+00	0	1,88E-07	0,00E+00	8,99E-02	3,26E-07	0,00E+00
	EEE	MJ	0,00E+00	0	6,45E-07	0,00E+00	1,36E+00	1,75E-05	0,00E+00
	EET	MJ	0,00E+00	0	9,76E-06	0,00E+00	2,06E+01	2,66E-04	0,00E+00

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	0,00E+00

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, market mix (kWh) - Germany	ecoinvent 3.6	585,93	g CO2-eq/kWh

Dangerous substances

The product contains dangerous substances, more than 0,1% by weight, given by the REACH Candidate List, see table:

Name	CASNo	Amount
Lead	7439-92-1	> 0.1 % w/w
Perfluorobutane sulfonic acid (PFBS) and its salts		> 0.1% w/w and < 0.3% w/w
Lead monoxide (lead oxide)	1317-36-8	> 0.1% w/w
Diboron trioxide	1303-86-2	> 0.1% w/w
2-methylimidazole	693-98-1	> 0.1% w/w
Lead titanium trioxide	12060-00-3	> 0.1% w/w
Potassium 1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonate	29420-49-3	> 0.1% w/w

Indoor environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products								
Indicator	**Unit**	A1-A3	A4	B1	B2	B3	B4	B5
GWPIOBC	kg CO_2 -eq	1,06E+02	1,02E+00	0	0	0	0	0

Indicator	**Unit**	B6	B7	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	4,60E+02	0	9,15E-03	6,39E-02	2,63E+00	2,04E-01	-1,64E+00

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.

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