

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

CONNEX Separable Connector, Size 4, up to 72.5 kV - 84999999902783



PFISTERER

EPD-Global

Owner of the declaration:

PFISTERER Holding SE

Product:

CONNEX Separable Connector, Size 4, up to 72.5 kV -
84999999902783

Declared unit:

1 pcs

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core
PCR
NPCR 027:2020 Part B for Electrical cables and wires

Program operator:

EPD-Global

Declaration number:

NEPD-14491-14974

Issue date:

17.12.2025

Valid to:

17.12.2030

EPD software:

LCAno EPD generator ID: 1369202

General information

Product

CONNEX Separable Connector, Size 4, up to 72.5 kV - 84999999902783

Program operator:

EPD-Global
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-global.com

Declaration number:

NEPD-14491-14974

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 027:2020 Part B for Electrical cables and wires

Statement of liability:

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

Declared unit:

1 pcs CONNEX Separable Connector, Size 4, up to 72.5 kV - 84999999902783

Declared unit with option:

A1, A2, A3, A4, A5, B1, B2, B3, B4, B5, B6, B7, C1, C2, C3, C4, D

Functional unit:

To connect the power transmission cables or connect them to equipment for one unit and its packaging, under operating conditions identical to those of the cable, namely: during 40 years, with a use rate of 100 %, according to the standards in force (EPD-Norway NPCR 027, see product webpage or technical data sheet).

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-Global'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-Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Global's General Programme Instructions for further information on EPD tools

Verification of EPD tool:

Owner of the declaration:

PFISTERER Holding SE
Contact person: Tilo Grandy
Phone: +49 151 55220619
e-mail: Tilo.Grandy@pfisterer.com

Manufacturer:

PFISTERER Holding SE
Rosenstrasse 44
73650 Winterbach, Germany

Place of production:

Pfisterer production site - Kadan (Czech Republic)
Královský Vrch 1977
432 01 Kadan 1, Czech Republic

Management system:

ISO 9001, 14001, 45001; and for Kadan additionally ISO 50001

Organisation no:

DE811239413

Issue date:

17.12.2025

Valid to:

17.12.2030

Year of study:

2024

Comparability:

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

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-Global. Approval number: NEPDT199

Developer of EPD: Tilo Grandy

Reviewer of company-specific input data and EPD: Felix Fried

Approved:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPD-Global's procedures and guidelines for verification and approval of EPD tools. Approval number: NEPDT32.



Håkon Hauan, CEO EPD-Global

Third party verifier:

Vito D'Incognito, Take Care International

(no signature required)

Product

Product description:

The fully encapsulated CONNEX connection system with solid insulation makes power transformers and gas-insulated switchgear (GIS) more flexible than ever before: in terms of design, set-up, and application. With CONNEX, systems become compact all-rounders, ideally equipped for new requirements in the future.

CONNEX is a pioneering plug connector for transformers and GIS in open-air and building-based applications. Furthermore, it is the only connection system to have received certification for off-shore applications from the DNV GL classification company, making it ideally suited for use on open-sea platforms and wind farms.

Application:

- Pluggable separable connector for all XLPE cables
- Available as factory-tested and preassembled field installation cable

Product specification

Features:

- The separable connector is installed without any gas- and oilwork at the transformer or GIS
- Considerably reduced installation time and safe installation
- Horizontal, vertical and angled versions for connection to GIS and transformers
- Rapid separation and change of cable and equipment possible
- Touchproof, submersible, and maintenance-free
- Routine-tested from factory

Materials	kg	%
Metal	7.23	54.33
Packaging	2.83	21.22
Plastic	1.56	11.73
Silicone	1.69	12.72
Total	13.31	100.00

Technical data:

The technical data provided below describe the full variance of all Connex Separable Connectors size 4 variants. The specific variant considered in this EPD is fully included within this defined variance.

For further information:

<https://catalogue.pfisterer.com/en/849999999xxxxx/>

Article no.	849 999 999 xxxxx	
Max. system voltage	72.5	Um (kV)
Size	4	
Type designation	dry-type termination	
Applicable standards	IEC 60840, IEC 63026	
Working place	outdoor and indoor; offshore on request	
Nominal voltage	60 - 69	Un (kV)
Conductor residual voltage	36	U0 (kV)
Rated power frequency withstand voltage	140	1 min (kV)
Rated lightning impulse withstand voltage BIL	325	(kV)
Heating cycles AC voltage	72	(kV)
Partial discharge test < 5pc at	54	(kV)
Rated power frequency withstand voltage - 30 min	90	(kV)
Partial discharge test < 2pC at	54	(kV)
Nominal current	2500	IN (A)
Rated short-time withstand current	50	(kA)
Rated impulse current CALCULATED	160	(kA)
Conductor material	copper or aluminium	
Diameter of conductor	9.3 - 55.9	Ø (mm)
Conductor cross section area	95 - 2000	(mm ²)
Diameter over insulation	33 - 78.5	(mm)
Connection method	Compression connection	

Market:

Europe

Reference service life, product

40

Reference service life, building or construction works

40

LCA: Calculation rules**Declared unit:**

1 pcs CONNEX Separable Connector, Size 4, up to 72.5 kV - 84999999902783

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. Incoming energy and 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.

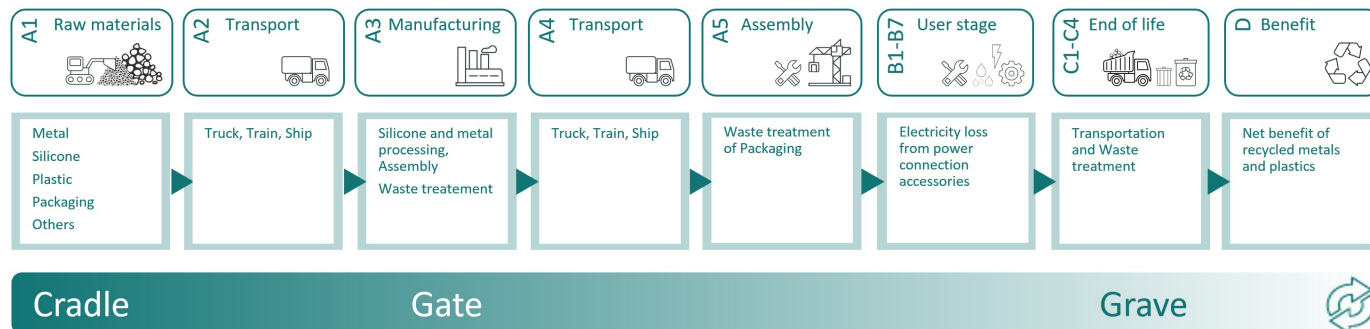
Materials	Source	Data quality	Year
Metal	ecoinvent 3.10.1	Database	2023
Metal	ecoinvent 3.11	Database	2024
Packaging	ecoinvent 3.10.1	Database	2023
Plastic	ecoinvent 3.10.1	Database	2023
Silicone	ecoinvent 3.10.1	Database	2023

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	X	X	X	X	X	X	X	X	X	X	X	X	X

System boundary:

The flowchart below illustrates the system boundaries of the analysis:



Additional technical information:

LCA: Scenarios and additional technical information

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

Module A4 = Intracontinental transport applied: A default transport scenario was applied according to EN 50693. Intracontinental transport is assumed to occur by truck over 3500 km.

Modules A5 = Average waste treatment of packaging is accounted for in this module (when relevant). No energy use for installation has been quantified since manual installation performed with portable electrical devices typically results in negligible energy use.

Modules B1, B2, B3, B5, and B7 = Company data shows that no significant activities have been reported for use, maintenance, repair, replacement, refurbishment, and water use. This reflects an absence of impacts during the 40 years reference service life of the power connection accessory in these modules.

Module B6 = The operational energy use of the power connection accessory is calculated based on the methodology described in PEP Ecopassport, Product Specific Rules (PSR) for wires, cables and accessories, reference PSR-0001-ed4-EN-2022 11 16. The following parameters are used to calculate the electricity loss of the power connection accessory:

Calculate electricity loss over the power connection accessories: $E = (R \times I^2 \times \Delta t)$ with $R = Z \times L \times 10^{-3}$

o Δt = Time in use of 1 261 440 000,00 seconds – corresponding to the lifetime multiplied with the use rate. Expressed in seconds. Calculated with a reference service life of 40 years and a use rate of 100 percent (according to appendix 1 of the PSR).

o Z = Linear conductor resistivity of 0.0376 ohm per km – determined according to the PSR guidelines.

o L = Length of the conducting part of 0.1 meter.

o I = Current intensity of 415 A. Expressed in Ampere.

o 10^{-3} = Conversion factor to meter (if Z is expressed in ohm per meter, this factor is not required)

o 3 600 000 = Conversion factor from Joules to kWh.

The B6 environmental impacts shall be calculated by the EPD user based on the actual intensity, expressed in ampere (A), during product use, by multiplying impacts by the square of this intensity. The EPD remains valid within an intensity range that considers the maximum admissible intensity.

Module C1 = No energy use for de-construction has been quantified since manual de-installation performed with portable electrical devices typically results in negligible energy use.

Module C2 = Local transport applied: A default transport scenario was applied according to EN 50693. Local transport is assumed to occur by truck over 1000 km.

Modules C3 and C4 = Waste treatment of the product follows the default values provided in EN 50693, Product Category Rules for life cycle assessments of electronic and electrical products and systems, table G.4. This table specified how different types of raw materials used in A1 will likely be treated during the end-of-life of the product. Waste treatments in C3 include material recycling and incineration with and without energy recovery and fly ash extraction. Disposal in C4 consist of landfilling of different waste fractions and of ashes.

Module D = The recyclability of metals and plastics allows the producers a credit for the net scrap that is produced at the end of a product's life. The benefits from recycling of net scrap are described in formula from EN 15804:2012+A2:2019. Substitution of heat and electricity generated by the incineration with energy recovery of plastic insulation and other parts is also calculated in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, over 32 tonnes, EURO 6 (kgkm) - RER	55.0 %	3500.00	0.023	l/tkm	80.50
Assembly (A5)	Unit	Value			
Waste, plastic, mixture, to average treatment - A5 including transport (kg)	kg	0.292			
Waste, cardboard and paper, to average treatment - A5 including transport (kg)	kg	2.53			
Operational energy (B6)	Unit	Value			
Electricity, medium voltage market group for electricity, medium voltage (kWh) - RER	kWh	226.91			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, over 32 tonnes, EURO 6 (kgkm) - RER	55.0 %	1000.00	0.023	l/tkm	23.00
Waste processing (C3)	Unit	Value			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	1.63			
Metal to recycling (kg)	kg	1.39			
Metal to recycling (kg)	kg	1.83			
Metal to recycling (kg)	kg	0.2035			
Metal to recycling (kg)	kg	1.52			

Disposal (C4)	Unit	Value			
Landfilling of plastic mixture (kg)	kg	1.63			
Landfilling of metal (kg)	kg	0.3482			
Landfilling of metal (kg)	kg	0.786			
Landfilling of metal (kg)	kg	0.1356			
Landfilling of metal (kg)	kg	1.01			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of plastic, mixture (kg)	kg	1.63			
Substitution of primary metal with net scrap (kg)	kg	1.39			
Substitution of primary metal with net scrap (kg)	kg	1.83			
Substitution of primary metal with net scrap (kg)	kg	0.2035			
Substitution of primary other non-ferrous metals with net scrap (kg)	kg	1.52			

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	A2	A3	A4	A5	B1	B2	B3
	GWP-total	kg CO ₂ -eq	6.94E+01	9.22E-01	2.94E+00	4.82E+00	1.70E-01	0	0	0
	GWP-fossil	kg CO ₂ -eq	7.15E+01	9.21E-01	2.84E+00	4.82E+00	8.29E-02	0	0	0
	GWP-biogenic	kg CO ₂ -eq	-2.49E+00	5.93E-04	9.24E-02	3.13E-03	8.69E-02	0	0	0
	GWP-luluc	kg CO ₂ -eq	4.25E-01	3.38E-04	7.36E-03	1.88E-03	2.00E-05	0	0	0
	ODP	kg CFC11 -eq	1.22E-06	1.84E-08	4.37E-08	9.32E-08	2.50E-09	0	0	0
	AP	mol H ⁺ -eq	1.04E+00	2.02E-03	1.04E-02	1.14E-02	3.26E-04	0	0	0
	EP-FreshWater	kg P -eq	9.77E-02	6.26E-05	3.70E-03	3.37E-04	4.82E-06	0	0	0
	EP-Marine	kg N -eq	1.06E-01	5.10E-04	2.50E-03	2.98E-03	2.30E-04	0	0	0
	EP-Terrestrial	mol N -eq	1.19E+00	5.52E-03	1.82E-02	3.23E-02	1.33E-03	0	0	0
	POCP	kg NMVOC -eq	3.79E-01	3.48E-03	5.41E-03	1.98E-02	4.60E-04	0	0	0
	ADP-minerals&metals ¹	kg Sb-eq	9.74E-03	2.80E-06	3.36E-06	1.38E-05	3.10E-07	0	0	0
	ADP-fossil ¹	MJ	1.02E+03	1.34E+01	4.67E+01	7.23E+01	8.09E-01	0	0	0
	WDP ¹	m ³	6.58E+02	6.74E-02	1.34E+00	3.70E-01	3.85E-01	0	0	0

Indicator		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	GWP-total	kg CO ₂ -eq	0	0	7.64E+01	0	0.00E+00	1.38E+00	7.72E+00	2.19E-01	-2.36E+01
	GWP-fossil	kg CO ₂ -eq	0	0	7.34E+01	0	0.00E+00	1.38E+00	3.85E+00	2.19E-01	-2.32E+01
	GWP-biogenic	kg CO ₂ -eq	0	0	2.76E+00	0	0.00E+00	8.93E-04	3.86E+00	1.66E-05	-9.59E-02
	GWP-luluc	kg CO ₂ -eq	0	0	2.28E-01	0	0.00E+00	5.36E-04	1.56E-05	1.64E-05	-3.12E-01
	ODP	kg CFC11 -eq	0	0	1.27E-06	0	0.00E+00	2.66E-08	8.37E-09	1.42E-08	-1.58E-06
	AP	mol H ⁺ -eq	0	0	3.74E-01	0	0.00E+00	3.25E-03	8.44E-04	3.80E-04	-2.20E-01
	EP-FreshWater	kg P -eq	0	0	6.55E-02	0	0.00E+00	9.62E-05	7.43E-07	7.61E-07	-1.43E-03
	EP-Marine	kg N -eq	0	0	6.49E-02	0	0.00E+00	8.52E-04	4.04E-04	3.30E-04	-2.26E-02
	EP-Terrestrial	mol N -eq	0	0	5.64E-01	0	0.00E+00	9.22E-03	4.14E-03	1.53E-03	-2.61E-01
	POCP	kg NMVOC -eq	0	0	1.87E-01	0	0.00E+00	5.65E-03	9.98E-04	4.73E-04	-9.27E-02
	ADP-minerals&metals ¹	kg Sb-eq	0	0	1.64E-04	0	0.00E+00	3.94E-06	4.21E-07	3.73E-07	-5.17E-04
	ADP-fossil ¹	MJ	0	0	1.74E+03	0	0.00E+00	2.07E+01	5.30E-01	1.13E+00	-3.54E+02
	WDP ¹	m ³	0	0	4.50E+01	0	0.00E+00	1.06E-01	3.82E+00	2.27E+01	-9.26E+03

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"

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	A2	A3	A4	A5	B1	B2	B3
 PM	Disease incidence	6.45E-06	7.60E-08	2.67E-08	4.66E-07	5.09E-09	0	0	0
 IRP ²	kgBq U235 -eq	6.52E+00	1.79E-02	1.13E+00	8.72E-02	1.72E-03	0	0	0
 ETP-fw ¹	CTUe	1.40E+03	1.72E+00	8.30E+00	8.52E+00	1.51E+00	0	0	0
 HTP-c ¹	CTUh	1.20E-07	0.00E+00	5.10E-10	0.00E+00	3.70E-11	0	0	0
 HTP-nc ¹	CTUh	8.52E-06	8.40E-09	1.86E-08	4.66E-08	2.12E-09	0	0	0
 SQP ¹	dimensionless	4.41E+02	1.09E+01	5.27E+00	7.28E+01	5.80E-01	0	0	0

Indicator	Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
 PM	Disease incidence	0	0	1.31E-06	0	0.00E+00	1.33E-07	3.70E-09	6.95E-09	-1.66E-06
 IRP ²	kgBq U235 -eq	0	0	4.85E+01	0	0.00E+00	2.49E-02	1.33E-03	6.87E-03	-9.72E-01
 ETP-fw ¹	CTUe	0	0	1.83E+02	0	0.00E+00	2.44E+00	8.14E+00	1.41E+03	-1.19E+03
 HTP-c ¹	CTUh	0	0	1.52E-08	0	0.00E+00	0.00E+00	2.23E-10	7.10E-11	-6.81E-08
 HTP-nc ¹	CTUh	0	0	6.56E-07	0	0.00E+00	1.33E-08	1.02E-08	1.43E-09	-1.07E-06
 SQP ¹	dimensionless	0	0	2.95E+02	0	0.00E+00	2.08E+01	9.67E-02	2.73E+00	-1.70E+01

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"

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	A2	A3	A4	A5	B1	B2	B3	
 PERE	MJ	2.62E+02	2.36E-01	2.46E+00	1.18E+00	2.17E-02	0	0	0	
 PERM	MJ	3.30E+01	0.00E+00	-7.60E-01	0.00E+00	0.00E+00	0	0	0	
 PERT	MJ	2.95E+02	2.36E-01	1.70E+00	1.18E+00	2.17E-02	0	0	0	
 PENRE	MJ	9.33E+02	1.34E+01	4.65E+01	7.24E+01	8.09E-01	0	0	0	
 PENRM	MJ	7.68E+01	0.00E+00	-5.08E+00	0.00E+00	0.00E+00	0	0	0	
 PENRT	MJ	1.01E+03	1.34E+01	4.14E+01	7.24E+01	8.09E-01	0	0	0	
 SM	kg	9.36E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0	
 RSF	MJ	3.66E+00	6.79E-05	5.09E-04	3.95E-04	7.00E-05	0	0	0	
 NRSF	MJ	1.43E-02	0.00E+00	6.46E-04	0.00E+00	1.65E-04	0	0	0	
 FW	m ³	1.48E+00	1.93E-03	2.89E-02	1.07E-02	8.40E-04	0	0	0	

Indicator	Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
 PERE	MJ	0	0	4.06E+02	0	0.00E+00	3.37E-01	2.95E-02	1.23E-01	-8.09E+01
 PERM	MJ	0	0	0.00E+00	0	0.00E+00	0.00E+00	-3.24E+01	0.00E+00	0.00E+00
 PERT	MJ	0	0	4.06E+02	0	0.00E+00	3.37E-01	-3.24E+01	1.23E-01	-8.09E+01
 PENRE	MJ	0	0	1.74E+03	0	0.00E+00	2.07E+01	5.30E-01	1.13E+00	-2.89E+02
 PENRM	MJ	0	0	0.00E+00	0	0.00E+00	0.00E+00	-7.62E+01	0.00E+00	-6.91E+01
 PENRT	MJ	0	0	1.74E+03	0	0.00E+00	2.07E+01	-7.57E+01	1.13E+00	-3.59E+02
 SM	kg	0	0	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-01
 RSF	MJ	0	0	7.67E-04	0	0.00E+00	1.13E-04	6.33E-04	2.55E-03	-1.64E-02
 NRSF	MJ	0	0	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	5.82E-04	3.49E+00
 FW	m ³	0	0	1.44E+00	0	0.00E+00	3.05E-03	4.48E-03	1.46E-03	-4.68E-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"

End of life - Waste										
Indicator		Unit	A1	A2	A3	A4	A5	B1	B2	B3
	HWD	kg	1.57E+01	1.87E-02	8.85E-02	1.05E-01	8.38E-04	0	0	0
	NHWD	kg	4.25E+02	3.98E-01	1.85E+01	2.10E+00	9.80E-01	0	0	0
	RWD	kg	1.60E-03	2.41E-06	2.72E-04	2.16E-05	1.85E-07	0	0	0

Indicator		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	HWD	kg	0	0	3.96E+00	0	0.00E+00	2.99E-02	0.00E+00	8.56E-02	4.43E-02
	NHWD	kg	0	0	3.22E+02	0	0.00E+00	5.99E-01	0.00E+00	3.94E+00	-6.38E+00
	RWD	kg	0	0	1.25E-02	0	0.00E+00	6.16E-06	0.00E+00	7.75E-06	-9.11E-04

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

"Reading example: 9.0 E-03 = $9.0 \cdot 10^{-3}$ = 0.009"

End of life - Output flow										
Indicator		Unit	A1	A2	A3	A4	A5	B1	B2	B3
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0
	MFR	kg	3.45E+00	0.00E+00	2.47E-01	0.00E+00	2.01E+00	0	0	0
	MER	kg	7.70E-02	0.00E+00	2.57E-03	0.00E+00	1.46E-05	0	0	0
	EEE	MJ	1.63E-03	0.00E+00	8.18E-05	0.00E+00	1.49E-04	0	0	0
	EET	MJ	1.11E-03	0.00E+00	9.28E-05	0.00E+00	5.39E-04	0	0	0

Indicator		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	CRU	kg	0	0	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0	0	0.00E+00	0	0.00E+00	0.00E+00	4.95E+00	1.46E-04	-6.71E-03
	MER	kg	0	0	0.00E+00	0	0.00E+00	0.00E+00	1.63E+00	3.57E-06	-5.03E-03
	EEE	MJ	0	0	0.00E+00	0	0.00E+00	0.00E+00	2.50E+00	2.32E-04	-8.10E-03
	EET	MJ	0	0	0.00E+00	0	0.00E+00	0.00E+00	3.78E+01	3.50E-03	-1.23E-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 = $9.0 \cdot 10^{-3}$ = 0.009"

Biogenic Carbon Content		
Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	1.07E+00
Biogenic carbon content in accompanying packaging	kg C	-1.08E-03

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, Germany (kWh)	ecoinvent 3.6	585.93	g CO ₂ -eq/kWh
Electricity, Czechia, medium voltage (kWh)	ecoinvent 3.10.1	639.08	g CO ₂ -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	0.015 kg
Lead	7439-92-1	0.06 kg

Indoor environment

Not relevant

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products											
Indicator	Unit		A1	A2	A3	A4	A5	B1	B2	B3	
GWPIOBC	kg CO ₂ -eq		7.29E+01	9.22E-01	2.84E+00	4.82E+00	1.70E-01	0	0	0	
Indicator	Unit		B4	B5	B6	B7	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq		0	0	7.38E+01	0	0.00E+00	1.38E+00	3.85E+00	2.19E-01	-2.33E+01

GWPI-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. International Organization for Standardization.

ISO 14044:2006. Environmental management - Life cycle assessment - Requirements and guidelines. International Organization for Standardization.

EN 15804:2012+A2:2019. Environmental product declaration - Core rules for the product category of construction products. European Committee for Standardization.

ISO 21930:2017. Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products. International Organization for Standardization.

EN 50693:2019. Product category rules for life cycle assessments of electronic and electrical products and systems. European Committee for Standardization.

Ecoinvent v3, 2019. 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. System verification report.

Philis et al., (2022). EPD generator for NPCR 027 part B for electrical wires and cables, background information for EPD generator application and LCA data, LCA.no Report number: 03.22. PCR verification report.

EPD Norway (2022). NPCR Part A: Construction products and services. The Norwegian EPD foundation. Version 2.0 published 24.03.2021.

EPD Norway (2022). NPCR 027 Part B for electrical cables and wires. The Norwegian EPD foundation. Version 2.0 published 01.03.2022.

 epd-global Powered by EPD-Norway	Program operator and publisher EPD-Global Postboks 5250 Majorstuen, 0303 Oslo, Norway	Phone: +47 977 22 020 e-mail: post@epd-norge.no web: www.epd-global.com
	Owner of the declaration: PFISTERER Holding SE Rosenstrasse 44, 73650 Winterbach, Germany	Phone: +49 151 55220619 e-mail: Tilo.Grandy@pfisterer.com web: https://www.pfisterer.com/en
	Author of the Life Cycle Assessment LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	Developer of EPD generator LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	ECO Platform ECO Portal	web: www.eco-platform.org web: ECO Portal