PECSO CAVI S.R.L.

ENVIRONMENTAL PRODUCT DECLARATION

PVC CABLES - type H05VV-F

H05VV-F 2X0,75 BLACK
H05VV-F 2X4 BLACK
H05VV-F 3G0,75 BLACK
H05VV-F 3G4 BLACK
H05VV-F 4G0,75 BLACK
H05VV-F 5G0,75 BLACK
H05VV-F 5G1 BLACK
H05VV-F 5G2,5 BLACK

SITE

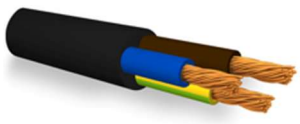
Via San Fermo 2/B – 46040
Gazoldo degli Ippoliti (MN)

In accordance with ISO 14025 and EN 50693:2019

Programme Operator	EPD Italy
Publisher	EPD Italy

Declaration number	EPDITALYH05VV-F_2024_rev.1.0
Registration number	EPDITALY1484

Issue date	29/09/2026
Valid until	29/09/2031



GENERAL INFORMATION

EPD OWNER	
Company name	Pecso Cavi S.r.l.
Registered office	Via San Fermo 2/B – 46040 Gazoldo degli Ippoliti (MN)
Contacts for information on the EPD	Luca Ciglioli – Laboratory, lucaciglioli@pecso.it

PROGRAM OPERATOR	
EPD Italy	Via Gaetano De Castilla n° 10 – 20124 Milan, Italy

EPD INFORMATION	
Product name	PVC CABLES - type H05VV-F For the cables included in the study, please refer to the following sections
Site	Via San Fermo 2/B – 46040 Gazoldo degli Ippoliti (MN)
Summary description and technical information about the product	Round flexible cables with PVC insulation, enclosed in a medium-thickness PVC jacket, featuring specific fire-resistance properties.
Scope of application of the product	These cables are for power.
Type of EPD	Product-specific EPD based on a qualified LCA tool
Applicable standards for the product	CEI EN 60228; CEI EN 50525-1; CEI EN 50525-2-11; CEI EN 50363-3; CEI EN 50363-4-1; CEI EN 50565-2
CPC Code	463

VERIFICATION INFORMATION	
PCR	PCR EPDItaly-007: Electronic and Electrical Products and Systems, rev.3.2 dated 10.12.2025 sub-PCR EPDItaly-016 Electronic and Electrical Products and Systems – Cables and Wires, rev.3 dated 03.10.2024
EPD Italy Regulations	version 7.1 dated 05.09.2025
Project Report LCA	LCA Study report Generale_PCS_rev1 LCA study report specific_H05VV-F 2X0,75_rev.1_08/07/2026 LCA study report specific_H05VV-F 2X4_rev.1_08/07/2026 LCA study report specific_H05VV-F 3G0,75_rev.1_08/07/2026 LCA study report specific_H05VV-F 3G4_rev.1_13/07/2026 LCA study report specific_H05VV-F 4G0,75_rev.2_22/09/2026 LCA study report specific_H05VV-F 5G0,75_rev.2_22/09/2026 LCA study report specific_H05VV-F 5G1_rev.2_22/09/2026 LCA study report specific_H05VV-F 5G2,5_rev.2_22/09/2026
Independent Verification/Validation Statement	The PCR review was conducted by Ing. Alessandro Marson, Ing. Sebastiano Greco, Dott.ssa Chiara Maran – info@epditaly.it.

	The reference standard for PCR is EN 50693:2019. Independent verification of the declaration and data was conducted in accordance with ISO 14025:2010. ☐Internal ☒External Third-party verification/validation performed by: ICMQ S.p.A., Via Gaetano De Castilla 10 – 20124 Milan, Italy. Accredited by Accredia.
Statement Comparability	Environmental claims published within the same product category but originating from different programs may not be comparable.
Statement Responsibility	The EPD Owner releases EPD Italy from any liability arising from non-compliance with environmental legislation. The owner of the declaration shall be responsible for the information and supporting evidence. EPD Italy disclaims all liability regarding the information, data, and results provided by the EPD Owner for the life cycle assessment.
Technical Support	**Aequilibria Srl - SB** P.le della Stazione, 8 35131 – Padova (PD) - ITALIA

1. INTRODUCTION

This document represents the EPD study conducted for the product PVC CABLES – type H05VV-F manufactured by Pecso Cavi S.r.l., in accordance with the EPDItaly Program and its Regulations, developed in compliance with ISO 14025 and intended to provide a tool for the development, verification, and publication of Environmental Product Declarations.

The study was conducted in accordance with PCR 007 "Electronic and electrical products and systems" rev. 3.2 dated 12/10/2025, together with PCR 016 of the same program "Electronic and electrical products and systems – cables and wires" rev. 3 dated 10/03/2024, which identifies and documents the objective and scope of application of LCA-based information for the product category, the rules for generating additional environmental information, the life cycle stages to be included, the parameters to be addressed, and the manner in which the parameters must be collected and reported.

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2. MANUFACTURER INFORMATION

Pecso Cavi was founded in 1979 with the production of wiring harnesses for electrical panels, followed shortly thereafter by the manufacture of single-core cables.
From the very beginning, promising commercial opportunities abroad became apparent, developing in parallel with the company's entry into the domestic market.
The early 1990s marked a major turning point: the relocation and significant expansion of the production facility, the broadening of the product range (rubber cables were added to the existing PVC cable line), and the attainment of IMQ certifications as recognition of the products' high quality standards.
In the years that followed, growth was steady and continuous, eventually reaching the current scale that allows Pecso Cavi to carve out a prominent position in national and international markets and rank among the top Italian manufacturers in the sector.

3. PRODUCT INFORMATION

The products included in the EPD are listed and described below.

Product family	HO5VV-F
Product name	H05VV-F 2X0,75 BLACK
Electrical resistance (Ω/km)	26,0
Mass (kg/km)	56,13

Product family	HO5VV-F
Product name	H05VV-F 2X4 BLACK
Electrical resistance (Ω/km)	4,95
Mass (kg/km)	185,62

Product family	HO5VV-F
Product name	H05VV-F 3G0,75 BLACK
Electrical resistance (Ω/km)	26
Mass (kg/km)	67,57

Product family	HO5VV-F
Product name	H05VV-F 3G4 BLACK
Electrical resistance (Ω/km)	4,95
Mass (kg/km)	233,03

Product family	HO5VV-F
Product name	H05VV-F 4G0,75 BLACK
Electrical resistance (Ω/km)	26
Mass (kg/km)	82,67

Product family	HO5VV-F
Product name	H05VV-F 5G0,75 BLACK
Electrical resistance (Ω/km)	26
Mass (kg/km)	102,57

Product family	HO5VV-F
Product name	H05VV-F 5G1 BLACK
Electrical resistance (Ω/km)	19,5
Mass (kg/km)	123,28

Product family	HO5VV-F
Product name	H05VV-F 5G2,5 BLACK
Electrical resistance (Ω/km)	7,98
Mass (kg/km)	256,14

These are flexible power cables, PVC-insulated and enclosed in a circular PVC jacket, with specific fire-resistant properties.

The copper rod is delivered to the Pecso Cavo plant, where it is rough-drawn and drawn. Once these processes are complete, the stranding operation takes place using stranding machines; this involves twisting together a certain number of copper strands of equal diameter to form a rope known as a strand. The strands obtained by passing the multifilament through the stranding machines are immediately sent to the primary insulation lines. Here, the copper strands are coated with PVC; the strand is pulled through the extruder head—the main component of the line—where the wire is coated with molten PVC, which, once cooled, forms the primary insulation around the strand. Upon exiting the extruder head, the insulated wire passes through a cooling section, which involves immersing and passing the wire through water inside special channels.
After the cable has been cooled, it is dried using air or suction dryers.
The semi-finished product equipped with this initial insulation is sent for stranding, an operation performed on special machines similar to stranding machines. To produce multi-conductor cables, the single-wire semi-finished cable undergoes mechanical stranding to form strands composed of a variable number of conductors (typically from 2 to 56). The composite cable produced in this way is then covered with an additional layer of insulation called a sheath. This process follows the same procedure as that used for core extrusion lines, with the difference that the extruders used are larger and have a higher capacity. Finally, the product moves on to packaging and shipping.

The following image shows the product flow chart:

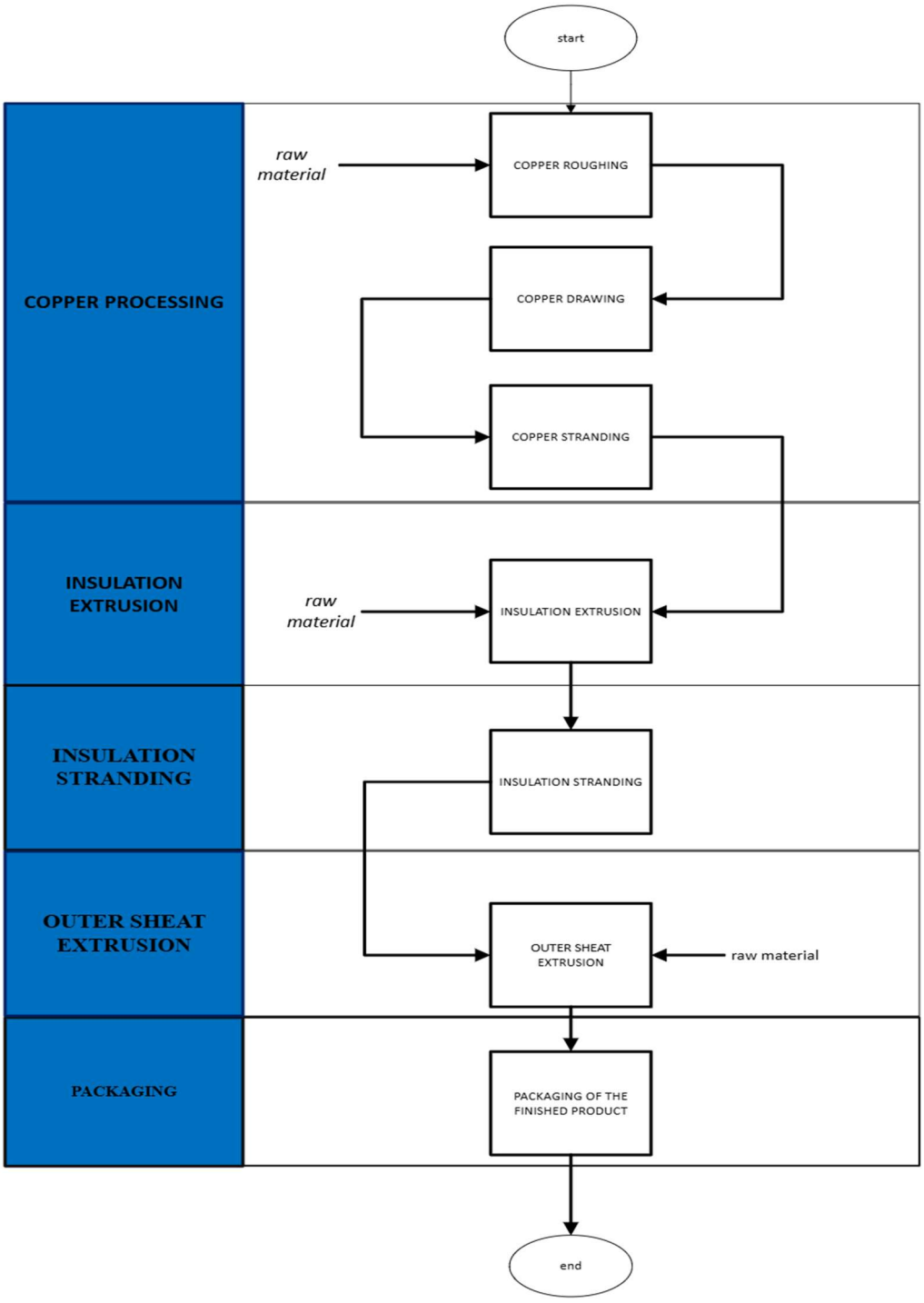

Figure 1. Flowchart

The main components and materials of the product under study are:

H05VV-F 2X0,75 BLACK	
RAW MATERIALS	PERCENTAGE
Copper	19,74%
PVC	68%
PE	0,11%
Wood	11,54%
Other	0,61%

H05VV-F 2X4 BLACK	
RAW MATERIALS	PERCENTAGE
Copper	32,49%
PVC	63,45%
Wood	3,82%
Other	0,23%

H05VV-F 3G0,75 BLACK	
RAW MATERIALS	PERCENTAGE
Copper	25,12%
PVC	64,48%
PE	0,10%
Wood	9,79%
Altro	0,51%

H05VV-F 3G4 BLACK	
RAW MATERIALS	PERCENTAGE
Copper	39,15%
PVC	57,59%
Wood	3,07%
Other	0,19%

H05VV-F 4G0,75 BLACK	
RAW MATERIALS	PERCENTAGE
Copper	29,63%
PVC	61,18%
Wood	8,66%
Other	0,54%

H05VV-F 5G0,75 BLACK	
RAW MATERIALS	PERCENTAGE
Copper	31,08%
PVC	61,20%
Wood	7,27%
Other	0,44%

H05VV-F 5G1 BLACK	
RAW MATERIALS	PERCENTAGE
Copper	33,69%
PVC	60,03%
Wood	5,91%
Other	0,37%

H05VV-F 5G2,5 BLACK	
RAW MATERIALS	PERCENTAGE
Copper	39%
PVC	57,89%
Wood	2,94%
Other	0,18%

The product in question does not contain any substances included in the “Candidate List of Substances of Very High Concern for Authorization” under the European REACH Regulation, as published in the Official Journal on January 21, 2016.

4. INFORMATION ABOUT THE LCA STUDY

Given the scope of this "cradle-to-grave" study, the declared unit is based on the reference PCR and is **defined as 1 km of cable for all life cycle stages, with the exception of the use phase.**
The declared unit refers to 1 km of cable as produced by the manufacturer, without accounting for material losses that may occur during cable installation. Since the cable may operate at varying loads during its useful life, the use phase must be modeled using a functional unit of 1 km of cable with a load of 1 A.

The life cycle phases included in the study are schematically represented in Table 2. The approach takes into account "cradle-to-grave" boundaries and includes the following phases: Production, Distribution, Installation, Use, and End-of-life. For the installation phase, the following aspects were considered irrelevant and therefore excluded from the analysis: installation waste, general waste generated during installation, and any additional consumption of materials or energy occurring during the installation phase.

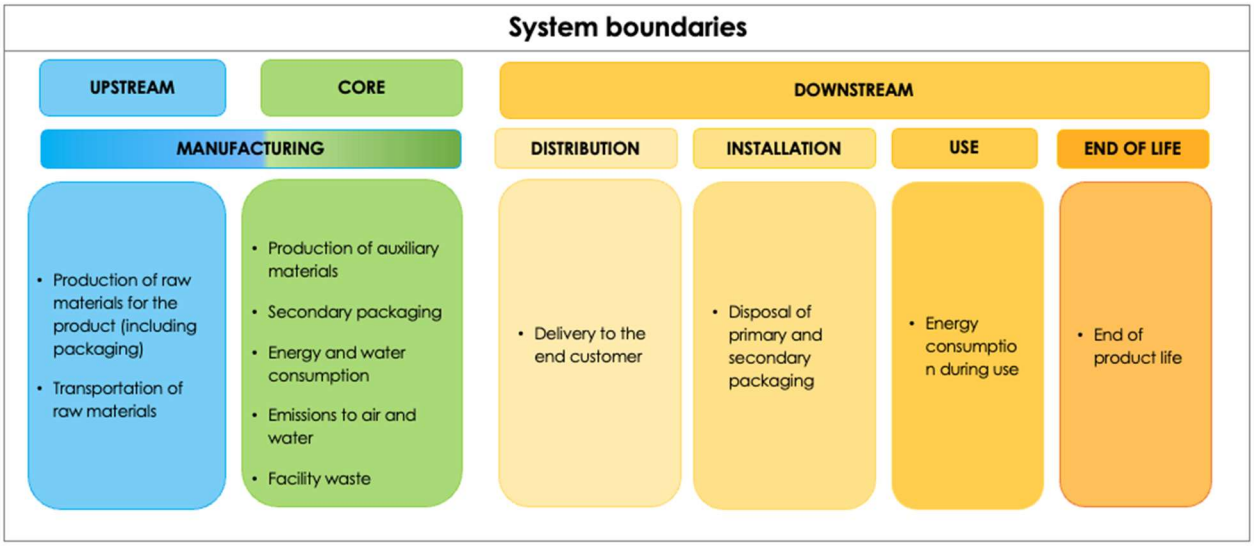

Figure 2. System boundaries

The following table shows the life cycle stages included in accordance with EN 50693.

Phase	Manufacturing stage	Distribution stage	Installation stage	Use stage	End of life stage
Phase declared	X	X	X	X	X

System boundaries	The study's boundaries follow a "cradle-to-grave" approach.
Geographical scope	European
Allocation	In this LCA Tool, a physical allocation method was generally adopted, using the total length (km) of cables produced during the reference period as the parameter.
Cut-off criteria	In accordance with EN 50693, the threshold considered in this

	study is set at a maximum of 5% of the total environmental impact of the product system under analysis, as determined by the results of the life cycle impact assessment (LCIA). The manufacturing of production equipment, buildings, and other capital goods is not included within the system boundaries. Staff commuting to the workplace via company vehicles and research and development activities have not been included. The production of manufacturing machinery, buildings, and other company infrastructure is not included.
Data reference year	2024
Reference tool	This EPD was generated using the results automatically generated by the Qualified LCA Tool "LCA Tool_PCS_dati 2024_rev. 1" dated 02/27/2026.

Table 4. Information about the study

The LCA study was conducted in accordance with the UNI EN ISO 14040/14044 standards, following the guidelines of EN 50693:2019.

The software used for the impact assessment is SimaPro Developer 10.2.0.3; Ecoinvent 3.11 database. The methods used to calculate impacts are *EN 15804 + A2 (adapted) V1.01 / EF 3.1 normalization and weighting set* for calculating impact categories, *Cumulative Energy Demand (LHV) V1.01 / Cumulative energy demand* for the calculation of energy resource use and consumption, *Selected LCI results, additional V1.07* for water consumption, *EDIP 2003 V1.07 / Default for waste*.

The assessment of all the potential environmental impacts listed above is based on the life cycle of the product under analysis, taking into account production and disposal.

The following describes the elements and processes considered for the assessment of impacts related to each phase:

Manufacturing Phase	• Production of raw materials, including production and processing; • Electricity generation, including steam and heat derived from primary energy sources, including extraction, refining, and transportation; • Transportation to the production site, including both internal transportation and transportation of raw materials and packaging; • Product manufacturing process; • Packaging materials used; • Emissions to the atmosphere, including those from the combustion of primary energy resources and water discharges; • Production of auxiliary materials; • Treatment of waste generated by the manufacturing process; • The source of electricity used and modeled for the production site is based on the Italian residual mix, equal to 0.680 kg CO_2 eq/kWh (Ecoinvent 3.11).
Distribution Phase	• Transportation of the packaged product from the manufacturer's final logistics hub to the customer
Installation Phase	• Management of packaging waste at the installation site, including collection and processing through to final disposal.
Use Phase	• Operating energy. This includes the electricity consumed (including electricity generated) by the product throughout its entire reference life cycle*.

	• * Details regarding the calculation of electricity consumption over the product's life cycle are provided in PCR 016. • The selected dataset is for low-voltage energy; the reference country for the dataset is directly linked to the country that will be selected as the country of use for the cable. If the final destination of the device is unknown, the emission factor for the relevant region—which may be European or global—is calculated, and the emission factor will be the arithmetic mean of the emission factors of the individual countries belonging to those continents (comprising the countries where the device is destined).
End of life Phase	• Transportation of waste to treatment facilities. • Waste treatment: includes manual dismantling of the cable. • For the end-of-life phase pertaining solely to product components, the dataset "Waste, electrical and electronic cables {RoW}| market for waste, electrical and electronic cables | Cut-off, U" was used, which also includes waste transportation.

Table 5. Processes considered in the various phases of the study

Site-specific data were used for all of the following processes:
- production and transport of raw materials for the devices and packaging materials;
- manufacturing processes, facility energy consumption, atmospheric emissions, and waste;
- linear durability and RSL of the device;
- transport to the end customer.

Generic data were used for:
- recycling, energy recovery, and disposal rates for the finished product;
- waste transport.

The default scenarios described in the PCR EPDItaly007 and PCR EPDItaly016 documents were used for:
- Device current: 1 A.

5. Environmental Impact Assessment

The potential environmental impacts assessed through an LCA of the products included in the EPD are presented in the tables below.

Cable H05VV-F 2X0,75 BLACK

ENVIRONMENTAL IMPACTS							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
GWP (TOT)	kg CO_2 eq	2,49E+02	5,85E+00	5,76E+00	1,58E+03	5,07E+01	**1,89E+03**
GWP - Fossil	kg CO_2 eq	2,57E+02	5,84E+00	3,50E-01	1,54E+03	5,07E+01	**1,85E+03**
GWP - Biogenic	kg CO_2 eq	-8,25E+00	5,27E-03	5,40E+00	3,20E+01	1,16E-03	**2,92E+01**
GWP - Luluc Land use and Land use change	kg CO_2 eq	3,62E-01	2,15E-03	5,84E-05	4,54E+00	2,24E-03	**4,91E+00**
ODP (Ozone depletion)	kg CFC_{11} eq	6,38E-05	1,26E-07	3,30E-09	3,09E-05	1,07E-08	**9,49E-05**
AP (Acidification)	mol H^+eq	1,19E+01	1,38E-02	1,18E-03	9,74E+00	6,80E-02	**2,17E+01**
EP - Acquatic freshwater (Eutrophication, freshwater)	kg P eq	6,64E-01	4,57E-04	3,47E-05	1,45E+00	7,18E-05	**2,11E+00**
EP - Acquatic marine (Eutrophication, freshwater	Kg N eq	5,60E-01	3,52E-03	5,91E-04	1,43E+00	3,00E-02	**2,02E+00**
EP - Acquatic terrestrial (Eutrophication, freshwater)	mol N eq	7,19E+00	3,80E-02	5,57E-03	1,29E+01	3,28E-01	**2,04E+01**
POCP (Photochemical ozone formation)	kg NMVOC eq	2,39E+00	2,11E-02	1,63E-03	4,30E+00	3,02E-01	**7,01E+00**

ADPE (Resource use, minerals and metals	kg Sb eq	1,60E-01	1,99E-05	4,96E-07	2,01E-02	2,16E-06	**1,80E-01**
ADPF (Resource use, fossils)	MJ	4,40E+03	8,30E+01	2,26E+00	3,02E+04	9,47E+00	**3,47E+04**
WDP (Water use)	m^3 depriv.	2,46E+02	3,40E-01	3,21E-02	3,38E+02	4,69E-02	**5,84E+02**

The results of the environmental impact indicators "Water use," "ADP – fossil resources," and "ADP – metals & minerals" should be interpreted with caution, as there is a high degree of uncertainty regarding these results or experience with the indicator is limited.

USE OF RESOURCES							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
PENRE	MJ	3,58E+03	8,30E+01	2,26E+00	3,02E+04	9,47E+00	**3,39E+04**
PENRM	MJ	8,27E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**8,27E+02**
PENRT	MJ	4,40E+03	8,30E+01	2,26E+00	3,02E+04	9,47E+00	**3,47E+04**
PERE	MJ	7,48E+02	1,57E+00	4,18E-02	1,06E+04	1,51E-01	**1,13E+04**
PERM	MJ	4,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**4,45E+00**
PERT	MJ	7,52E+02	1,57E+00	4,18E-02	1,06E+04	1,51E-01	**1,13E+04**
FW (Net use of fresh water)	m^3	6,07E+00	1,12E-02	1,06E-03	2,42E+01	1,46E-03	**3,03E+01**
MS (use of secondary materials)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
RSF (use of renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
NRSF (Use of non-renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

*Legend: **PENRE** = Use of non-renewable primary energy resources, excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources as raw materials; **PENRT** = Total use of non-renewable primary energy resources; **PERE** = Use of renewable primary energy, excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable energy resources as raw materials; **PERT** = Total use of renewable primary energy resources.*

WASTE PRODUCTION							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Hazardous waste disposal (HWD)	kg	5,82E-01	2,11E-03	3,19E-02	2,09E+00	2,72E-04	**2,70E+00**
Non-hazardous waste disposal (NHWD)	kg	4,05E+01	3,92E+00	1,71E-01	1,45E+02	6,03E-01	**1,90E+02**
Radioactive waste disposal (RWD)	kg	8,12E-03	3,18E-05	6,82E-07	1,84E-01	2,08E-06	**1,93E-01**

OUTGOING FLOWS							
Impact category	**Unit of measurement**	**PRODUCTION phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Materials for energy recovery (MER)	kg	0,00E+00	0,00E+00	3,77E+00	0,00E+00	0,00E+00	**3,77E+00**
Materials for recycling (MFR)	kg	3,48E+00	0,00E+00	4,07E+00	0,00E+00	3,47E+01	**4,22E+01**
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
ETE (exported thermal energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
EEE (exported electricity energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

Cable H05VV-F 2X4 BLACK

ENVIRONMENTAL IMPACTS							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
GWP (TOT)	kg CO_2 eq	9,89E+02	5,10E+00	5,76E+00	3,00E+02	1,68E+02	**1,47E+03**
GWP - Fossil	kg CO_2 eq	9,87E+02	5,09E+00	3,50E-01	2,93E+02	1,68E+02	**1,45E+03**
GWP - Biogenic	kg CO_2 eq	5,35E-01	3,54E-03	5,40E+00	6,10E+00	3,85E-03	**1,20E+01**
GWP - Luluc Land use and Land use change	kg CO_2 eq	1,57E+00	1,71E-03	5,84E-05	8,65E-01	7,40E-03	**2,44E+00**
ODP (Ozone depletion)	kg CFC_{11} eq	1,82E-04	1,11E-07	3,30E-09	5,88E-06	3,54E-08	**1,88E-04**
AP (Acidification)	mol H^+eq	5,81E+01	1,09E-02	1,18E-03	1,85E+00	2,25E-01	**6,01E+01**
EP - Acquatic freshwater (Eutrophication, freshwater)	kg P eq	3,21E+00	3,53E-04	3,47E-05	2,76E-01	2,37E-04	**3,48E+00**
EP - Acquatic marine (Eutrophication, freshwater	Kg N eq	2,53E+00	2,63E-03	5,91E-04	2,71E-01	9,92E-02	**2,90E+00**
EP - Acquatic terrestrial (Eutrophication, freshwater)	mol N eq	3,36E+01	2,84E-02	5,57E-03	2,45E+00	1,09E+00	**3,72E+01**
POCP (Photochemical ozone formation)	kg NMVOC eq	1,08E+01	1,73E-02	1,63E-03	8,19E-01	9,97E-01	**1,26E+01**

ADPE (Resource use, minerals and metals	kg Sb eq	7,95E-01	1,75E-05	4,96E-07	3,83E-03	7,15E-06	**7,99E-01**
ADPF (Resource use, fossils)	MJ	1,57E+04	7,24E+01	2,26E+00	5,75E+03	3,13E+01	**2,16E+04**
WDP (Water use)	m^3 depriv.	1,08E+03	2,84E-01	3,21E-02	6,44E+01	1,55E-01	**1,14E+03**

The results of the environmental impact indicators "Water use," "ADP – fossil resources," and "ADP – metals & minerals" should be interpreted with caution, as there is a high degree of uncertainty regarding these results or experience with the indicator is limited.

USE OF RESOURCES							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
PENRE	MJ	1,34E+04	7,24E+01	2,26E+00	5,75E+03	3,13E+01	**1,93E+04**
PENRM	MJ	2,29E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**2,29E+03**
PENRT	MJ	1,57E+04	7,24E+01	2,26E+00	5,75E+03	3,13E+01	**2,16E+04**
PERE	MJ	2,74E+03	1,16E+00	4,18E-02	2,02E+03	4,99E-01	**4,76E+03**
PERM	MJ	4,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**4,45E+00**
PERT	MJ	2,74E+03	1,16E+00	4,18E-02	2,02E+03	4,99E-01	**4,76E+03**
FW (Net use of fresh water)	m^3	2,64E+01	9,15E-03	1,06E-03	4,61E+00	4,83E-03	**3,10E+01**
MS (use of secondary materials)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
RSF (use of renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
NRSF (Use of non-renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

*Legend: **PENRE** = Use of non-renewable primary energy resources, excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources as raw materials; **PENRT** = Total use of non-renewable primary energy resources; **PERE** = Use of renewable primary energy, excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable energy resources as raw materials; **PERT** = Total use of renewable primary energy resources.*

WASTE PRODUCTION							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Hazardous waste disposal (HWD)	kg	2,51E+00	1,85E-03	3,19E-02	3,97E-01	9,01E-04	**2,95E+00**
Non-hazardous waste disposal (NHWD)	kg	1,79E+02	3,53E+00	1,71E-01	2,75E+01	1,99E+00	**2,12E+02**
Radioactive waste disposal (RWD)	kg	3,17E-02	2,16E-05	6,82E-07	3,51E-02	6,87E-06	**6,69E-02**

OUTGOING FLOWS							
Impact category	**Unit of measurement**	**PRODUCTION phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Materials for energy recovery (MER)	kg	0,00E+00	0,00E+00	3,77E+00	0,00E+00	0,00E+00	**3,77E+00**
Materials for recycling (MFR)	kg	3,48E+00	0,00E+00	4,07E+00	0,00E+00	1,15E+02	**1,22E+02**
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
ETE (exported thermal energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
EEE (exported electricity energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

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ENVIRONMENTAL IMPACTS							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
GWP (TOT)	kg CO_2 eq	3,34E+02	7,14E+00	5,76E+00	1,58E+03	6,10E+01	**1,98E+03**
GWP - Fossil	kg CO_2 eq	3,41E+02	7,14E+00	3,50E-01	1,54E+03	6,10E+01	**1,95E+03**
GWP - Biogenic	kg CO_2 eq	-7,24E+00	4,52E-03	5,40E+00	3,20E+01	1,40E-03	**3,02E+01**
GWP - Luluc Land use and Land use change	kg CO_2 eq	5,06E-01	2,38E-03	5,84E-05	4,54E+00	2,70E-03	**5,05E+00**
ODP (Ozone depletion)	kg CFC_{11} eq	7,19E-05	1,56E-07	3,30E-09	3,09E-05	1,29E-08	**1,03E-04**
AP (Acidification)	mol H^+eq	1,76E+01	1,54E-02	1,18E-03	9,74E+00	8,18E-02	**2,75E+01**
EP - Acquatic freshwater (Eutrophication, freshwater)	kg P eq	9,81E-01	5,09E-04	3,47E-05	1,45E+00	8,65E-05	**2,43E+00**
EP - Acquatic marine (Eutrophication, freshwater	Kg N eq	8,01E-01	3,76E-03	5,91E-04	1,43E+00	3,61E-02	**2,27E+00**
EP - Acquatic terrestrial (Eutrophication, freshwater)	mol N eq	1,05E+01	4,06E-02	5,57E-03	1,29E+01	3,95E-01	**2,38E+01**
POCP (Photochemical ozone formation)	kg NMVOC eq	3,41E+00	2,42E-02	1,63E-03	4,30E+00	3,63E-01	**8,10E+00**

ADPE (Resource use, minerals and metals	kg Sb eq	2,40E-01	2,44E-05	4,96E-07	2,01E-02	2,60E-06	**2,60E-01**
ADPF (Resource use, fossils)	MJ	5,62E+03	1,01E+02	2,26E+00	3,02E+04	1,14E+01	**3,60E+04**
WDP (Water use)	m^3 depriv.	3,42E+02	3,81E-01	3,21E-02	3,38E+02	5,65E-02	**6,81E+02**

The results of the environmental impact indicators "Water use," "ADP – fossil resources," and "ADP – metals & minerals" should be interpreted with caution, as there is a high degree of uncertainty regarding these results or experience with the indicator is limited.

USE OF RESOURCES							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
PENRE	MJ	4,69E+03	1,01E+02	2,26E+00	3,02E+04	1,14E+01	**3,50E+04**
PENRM	MJ	9,22E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**9,22E+02**
PENRT	MJ	5,62E+03	1,01E+02	2,26E+00	3,02E+04	1,14E+01	**3,60E+04**
PERE	MJ	9,85E+02	1,82E+00	4,18E-02	1,06E+04	1,82E-01	**1,16E+04**
PERM	MJ	4,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**4,45E+00**
PERT	MJ	9,90E+02	1,82E+00	4,18E-02	1,06E+04	1,82E-01	**1,16E+04**
FW (Net use of fresh water)	m^3	8,41E+00	1,28E-02	1,06E-03	2,42E+01	1,76E-03	**3,26E+01**
MS (use of secondary materials)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
RSF (use of renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
NRSF (Use of non-renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

*Legend: **PENRE** = Use of non-renewable primary energy resources, excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources as raw materials; **PENRT** = Total use of non-renewable primary energy resources; **PERE** = Use of renewable primary energy, excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable energy resources as raw materials; **PERT** = Total use of renewable primary energy resources.*

WASTE PRODUCTION							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Hazardous waste disposal (HWD)	kg	8,14E-01	2,44E-03	3,19E-02	2,09E+00	3,28E-04	**2,93E+00**
Non-hazardous waste disposal (NHWD)	kg	5,70E+01	4,39E+00	1,71E-01	1,45E+02	7,26E-01	**2,07E+02**
Radioactive waste disposal (RWD)	kg	1,08E-02	3,69E-05	6,82E-07	1,84E-01	2,50E-06	**1,95E-01**

OUTGOING FLOWS							
Impact category	**Unit of measurement**	**PRODUCTION phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Materials for energy recovery (MER)	kg	0,00E+00	0,00E+00	3,77E+00	0,00E+00	0,00E+00	**3,77E+00**
Materials for recycling (MFR)	kg	3,48E+00	0,00E+00	4,07E+00	0,00E+00	4,17E+01	**4,93E+01**
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
ETE (exported thermal energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
EEE (exported electricity energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

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ENVIRONMENTAL IMPACTS							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
GWP (TOT)	kg CO_2 eq	1,38E+03	1,45E+01	5,76E+00	3,00E+02	2,10E+02	**1,91E+03**
GWP - Fossil	kg CO_2 eq	1,37E+03	1,45E+01	3,50E-01	2,93E+02	2,10E+02	**1,89E+03**
GWP - Biogenic	kg CO_2 eq	5,29E+00	4,20E-02	5,40E+00	6,10E+00	4,83E-03	**1,68E+01**
GWP - Luluc Land use and Land use change	kg CO_2 eq	2,27E+00	9,77E-03	5,84E-05	8,65E-01	9,29E-03	**3,15E+00**
ODP (Ozone depletion)	kg CFC_{11} eq	2,09E-04	2,83E-07	3,30E-09	5,88E-06	4,44E-08	**2,15E-04**
AP (Acidification)	mol H^+eq	8,67E+01	6,35E-02	1,18E-03	1,85E+00	2,82E-01	**8,89E+01**
EP - Acquatic freshwater (Eutrophication, freshwater)	kg P eq	4,77E+00	2,32E-03	3,47E-05	2,76E-01	2,98E-04	**5,05E+00**
EP - Acquatic marine (Eutrophication, freshwater	Kg N eq	3,71E+00	2,04E-02	5,91E-04	2,71E-01	1,25E-01	**4,13E+00**
EP - Acquatic terrestrial (Eutrophication, freshwater)	mol N eq	4,97E+01	2,20E-01	5,57E-03	2,45E+00	1,36E+00	**5,37E+01**
POCP (Photochemical ozone formation)	kg NMVOC eq	1,58E+01	8,07E-02	1,63E-03	8,19E-01	1,25E+00	**1,80E+01**

ADPE (Resource use, minerals and metals	kg Sb eq	1,19E+00	4,69E-05	4,96E-07	3,83E-03	8,98E-06	**1,20E+00**
ADPF (Resource use, fossils)	MJ	2,12E+04	2,07E+02	2,26E+00	5,75E+03	3,93E+01	**2,72E+04**
WDP (Water use)	m^3 depriv.	1,54E+03	1,18E+00	3,21E-02	6,44E+01	1,95E-01	**1,61E+03**

The results of the environmental impact indicators "Water use," "ADP – fossil resources," and "ADP – metals & minerals" should be interpreted with caution, as there is a high degree of uncertainty regarding these results or experience with the indicator is limited.

USE OF RESOURCES							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
PENRE	MJ	1,86E+04	2,07E+02	2,26E+00	5,75E+03	3,93E+01	**2,46E+04**
PENRM	MJ	2,59E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**2,59E+03**
PENRT	MJ	2,12E+04	2,07E+02	2,26E+00	5,75E+03	3,93E+01	**2,72E+04**
PERE	MJ	3,89E+03	9,27E+00	4,18E-02	2,02E+03	6,26E-01	**5,92E+03**
PERM	MJ	4,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**4,45E+00**
PERT	MJ	3,90E+03	9,27E+00	4,18E-02	2,02E+03	6,26E-01	**5,92E+03**
FW (Net use of fresh water)	m^3	3,76E+01	4,47E-02	1,06E-03	4,61E+00	6,07E-03	**4,23E+01**
MS (use of secondary materials)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
RSF (use of renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
NRSF (Use of non-renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

*Legend: **PENRE** = Use of non-renewable primary energy resources, excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources as raw materials; **PENRT** = Total use of non-renewable primary energy resources; **PERE** = Use of renewable primary energy, excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable energy resources as raw materials; **PERT** = Total use of renewable primary energy resources.*

WASTE PRODUCTION							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Hazardous waste disposal (HWD)	kg	3,64E+00	5,21E-03	3,19E-02	3,97E-01	1,13E-03	**4,08E+00**
Non-hazardous waste disposal (NHWD)	kg	2,59E+02	7,32E+00	1,71E-01	2,75E+01	2,50E+00	**2,97E+02**
Radioactive waste disposal (RWD)	kg	4,40E-02	2,37E-04	6,82E-07	3,51E-02	8,62E-06	**7,94E-02**

OUTGOING FLOWS							
Impact category	**Unit of measurement**	**PRODUCTION phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Materials for energy recovery (MER)	kg	0,00E+00	0,00E+00	3,77E+00	0,00E+00	0,00E+00	**3,77E+00**
Materials for recycling (MFR)	kg	3,48E+00	0,00E+00	4,07E+00	0,00E+00	1,44E+02	**1,51E+02**
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
ETE (exported thermal energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
EEE (exported electricity energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

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ENVIRONMENTAL IMPACTS							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
GWP (TOT)	kg CO_2 eq	4,27E+02	1,57E+01	5,76E+00	1,58E+03	7,48E+01	**2,10E+03**
GWP - Fossil	kg CO_2 eq	4,33E+02	1,57E+01	3,50E-01	1,54E+03	7,47E+01	**2,06E+03**
GWP - Biogenic	kg CO_2 eq	-6,15E+00	1,47E-02	5,40E+00	3,20E+01	1,72E-03	**3,13E+01**
GWP - Luluc Land use and Land use change	kg CO_2 eq	6,56E-01	5,91E-03	5,84E-05	4,54E+00	3,30E-03	**5,21E+00**
ODP (Ozone depletion)	kg CFC_{11} eq	8,53E-05	3,38E-07	3,30E-09	3,09E-05	1,58E-08	**1,17E-04**
AP (Acidification)	mol H^+eq	2,35E+01	3,80E-02	1,18E-03	9,74E+00	1,00E-01	**3,33E+01**
EP - Acquatic freshwater (Eutrophication, freshwater)	kg P eq	1,30E+00	1,28E-03	3,47E-05	1,45E+00	1,06E-04	**2,75E+00**
EP - Acquatic marine (Eutrophication, freshwater	Kg N eq	1,05E+00	9,89E-03	5,91E-04	1,43E+00	4,42E-02	**2,53E+00**
EP - Acquatic terrestrial (Eutrophication, freshwater)	mol N eq	1,38E+01	1,07E-01	5,57E-03	1,29E+01	4,84E-01	**2,73E+01**
POCP (Photochemical ozone formation)	kg NMVOC eq	4,47E+00	5,75E-02	1,63E-03	4,30E+00	4,45E-01	**9,27E+00**

ADPE (Resource use, minerals and metals	kg Sb eq	3,20E-01	5,33E-05	4,96E-07	2,01E-02	3,19E-06	**3,40E-01**
ADPF (Resource use, fossils)	MJ	7,02E+03	2,23E+02	2,26E+00	3,02E+04	1,40E+01	**3,75E+04**
WDP (Water use)	m^3 depriv.	4,45E+02	9,08E-01	3,21E-02	3,38E+02	6,92E-02	**7,85E+02**

The results of the environmental impact indicators "Water use," "ADP – fossil resources," and "ADP – metals & minerals" should be interpreted with caution, as there is a high degree of uncertainty regarding these results or experience with the indicator is limited.

USE OF RESOURCES							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
PENRE	MJ	5,93E+03	2,23E+02	2,26E+00	3,02E+04	1,40E+01	**3,64E+04**
PENRM	MJ	1,09E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**1,09E+03**
PENRT	MJ	7,02E+03	2,23E+02	2,26E+00	3,02E+04	1,40E+01	**3,75E+04**
PERE	MJ	1,23E+03	4,56E+00	4,18E-02	1,06E+04	2,22E-01	**1,18E+04**
PERM	MJ	4,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**4,45E+00**
PERT	MJ	1,24E+03	4,56E+00	4,18E-02	1,06E+04	2,22E-01	**1,18E+04**
FW (Net use of fresh water)	m^3	1,09E+01	3,06E-02	1,06E-03	2,42E+01	2,16E-03	**3,52E+01**
MS (use of secondary materials)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
RSF (use of renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
NRSF (Use of non-renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

*Legend: **PENRE** = Use of non-renewable primary energy resources, excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources as raw materials; **PENRT** = Total use of non-renewable primary energy resources; **PERE** = Use of renewable primary energy, excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable energy resources as raw materials; **PERT** = Total use of renewable primary energy resources.*

WASTE PRODUCTION							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Hazardous waste disposal (HWD)	kg	1,05E+00	5,54E-03	3,19E-02	2,09E+00	4,02E-04	**3,18E+00**
Non-hazardous waste disposal (NHWD)	kg	7,42E+01	9,96E+00	1,71E-01	1,45E+02	8,89E-01	**2,30E+02**
Radioactive waste disposal (RWD)	kg	1,37E-02	9,63E-05	6,82E-07	1,84E-01	3,06E-06	**1,98E-01**

OUTGOING FLOWS							
Impact category	**Unit of measurement**	**PRODUCTION phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Materials for energy recovery (MER)	kg	0,00E+00	0,00E+00	3,77E+00	0,00E+00	0,00E+00	**3,77E+00**
Materials for recycling (MFR)	kg	3,48E+00	0,00E+00	4,07E+00	0,00E+00	5,11E+01	**5,87E+01**
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
ETE (exported thermal energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
EEE (exported electricity energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

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ENVIRONMENTAL IMPACTS							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
GWP (TOT)	kg CO_2 eq	5,30E+02	7,70E+00	5,76E+00	1,58E+03	9,26E+01	**2,21E+03**
GWP - Fossil	kg CO_2 eq	5,35E+02	7,69E+00	3,50E-01	1,54E+03	9,26E+01	**2,17E+03**
GWP - Biogenic	kg CO_2 eq	-4,96E+00	6,77E-03	5,40E+00	3,20E+01	2,13E-03	**3,25E+01**
GWP - Luluc Land use and Land use change	kg CO_2 eq	8,15E-01	2,81E-03	5,84E-05	4,54E+00	4,09E-03	**5,36E+00**
ODP (Ozone depletion)	kg CFC_{11} eq	1,05E-04	1,66E-07	3,30E-09	3,09E-05	1,96E-08	**1,36E-04**
AP (Acidification)	mol H^+eq	2,93E+01	1,80E-02	1,18E-03	9,74E+00	1,24E-01	**3,92E+01**
EP - Acquatic freshwater (Eutrophication, freshwater)	kg P eq	1,62E+00	5,92E-04	3,47E-05	1,45E+00	1,31E-04	**3,07E+00**
EP - Acquatic marine (Eutrophication, freshwater	Kg N eq	1,30E+00	4,55E-03	5,91E-04	1,43E+00	5,48E-02	**2,79E+00**
EP - Acquatic terrestrial (Eutrophication, freshwater)	mol N eq	1,72E+01	4,92E-02	5,57E-03	1,29E+01	6,00E-01	**3,07E+01**
POCP (Photochemical ozone formation)	kg NMVOC eq	5,56E+00	2,76E-02	1,63E-03	4,30E+00	5,51E-01	**1,04E+01**

ADPE (Resource use, minerals and metals	kg Sb eq	4,00E-01	2,63E-05	4,96E-07	2,01E-02	3,95E-06	**4,20E-01**
ADPF (Resource use, fossils)	MJ	8,66E+03	1,09E+02	2,26E+00	3,02E+04	1,73E+01	**3,90E+04**
WDP (Water use)	m^3 depriv.	5,56E+02	4,46E-01	3,21E-02	3,38E+02	8,57E-02	**8,95E+02**

The results of the environmental impact indicators "Water use," "ADP – fossil resources," and "ADP – metals & minerals" should be interpreted with caution, as there is a high degree of uncertainty regarding these results or experience with the indicator is limited.

USE OF RESOURCES							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
PENRE	MJ	7,32E+03	1,09E+02	2,26E+00	3,02E+04	1,73E+01	**3,77E+04**
PENRM	MJ	1,34E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**1,34E+03**
PENRT	MJ	8,66E+03	1,09E+02	2,26E+00	3,02E+04	1,73E+01	**3,90E+04**
PERE	MJ	1,49E+03	2,02E+00	4,18E-02	1,06E+04	2,76E-01	**1,21E+04**
PERM	MJ	4,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**4,45E+00**
PERT	MJ	1,50E+03	2,02E+00	4,18E-02	1,06E+04	2,76E-01	**1,21E+04**
FW (Net use of fresh water)	m^3	1,36E+01	1,47E-02	1,06E-03	2,42E+01	2,67E-03	**3,79E+01**
MS (use of secondary materials)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
RSF (use of renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
NRSF (Use of non-renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

*Legend: **PENRE** = Use of non-renewable primary energy resources, excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources as raw materials; **PENRT** = Total use of non-renewable primary energy resources; **PERE** = Use of renewable primary energy, excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable energy resources as raw materials; **PERT** = Total use of renewable primary energy resources.*

WASTE PRODUCTION							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Hazardous waste disposal (HWD)	kg	1,31E+00	2,79E-03	3,19E-02	2,09E+00	4,98E-04	**3,43E+00**
Non-hazardous waste disposal (NHWD)	kg	9,21E+01	5,21E+00	1,71E-01	1,45E+02	1,10E+00	**2,43E+02**
Radioactive waste disposal (RWD)	kg	1,69E-02	4,04E-05	6,82E-07	1,84E-01	3,80E-06	**2,01E-01**

OUTGOING FLOWS							
Impact category	**Unit of measurement**	**PRODUCTION phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Materials for energy recovery (MER)	kg	0,00E+00	0,00E+00	3,77E+00	0,00E+00	0,00E+00	**3,77E+00**
Materials for recycling (MFR)	kg	3,48E+00	0,00E+00	4,07E+00	0,00E+00	5,79E+01	**6,55E+01**
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
ETE (exported thermal energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
EEE (exported electricity energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

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ENVIRONMENTAL IMPACTS							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
GWP (TOT)	kg CO_2 eq	6,71E+02	4,21E+01	5,76E+00	1,18E+03	1,11E+02	**2,01E+03**
GWP - Fossil	kg CO_2 eq	6,74E+02	4,21E+01	3,50E-01	1,15E+03	1,11E+02	**1,98E+03**
GWP - Biogenic	kg CO_2 eq	-3,26E+00	2,93E-02	5,40E+00	2,40E+01	2,56E-03	**2,62E+01**
GWP - Luluc Land use and Land use change	kg CO_2 eq	1,06E+00	1,42E-02	5,84E-05	3,41E+00	4,92E-03	**4,48E+00**
ODP (Ozone depletion)	kg CFC_{11} eq	1,21E-04	9,19E-07	3,30E-09	2,32E-05	2,35E-08	**1,45E-04**
AP (Acidification)	mol H^+eq	3,89E+01	9,04E-02	1,18E-03	7,30E+00	1,49E-01	**4,65E+01**
EP - Acquatic freshwater (Eutrophication, freshwater)	kg P eq	2,15E+00	2,92E-03	3,47E-05	1,09E+00	1,58E-04	**3,24E+00**
EP - Acquatic marine (Eutrophication, freshwater	Kg N eq	1,71E+00	2,18E-02	5,91E-04	1,07E+00	6,59E-02	**2,86E+00**
EP - Acquatic terrestrial (Eutrophication, freshwater)	mol N eq	2,26E+01	2,35E-01	5,57E-03	9,66E+00	7,21E-01	**3,32E+01**
POCP (Photochemical ozone formation)	kg NMVOC eq	7,28E+00	1,43E-01	1,63E-03	3,23E+00	6,62E-01	**1,13E+01**

ADPE (Resource use, minerals and metals	kg Sb eq	5,33E-01	1,45E-04	4,96E-07	1,51E-02	4,75E-06	**5,48E-01**
ADPF (Resource use, fossils)	MJ	1,07E+04	5,98E+02	2,26E+00	2,27E+04	2,08E+01	**3,40E+04**
WDP (Water use)	m^3 depriv.	7,20E+02	2,35E+00	3,21E-02	2,54E+02	1,03E-01	**9,76E+02**

The results of the environmental impact indicators "Water use," "ADP – fossil resources," and "ADP – metals & minerals" should be interpreted with caution, as there is a high degree of uncertainty regarding these results or experience with the indicator is limited.

USE OF RESOURCES							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
PENRE	MJ	9,18E+03	5,98E+02	2,26E+00	2,27E+04	2,08E+01	**3,25E+04**
PENRM	MJ	1,52E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**1,52E+03**
PENRT	MJ	1,07E+04	5,98E+02	2,26E+00	2,27E+04	2,08E+01	**3,40E+04**
PERE	MJ	1,89E+03	9,57E+00	4,18E-02	7,94E+03	3,31E-01	**9,85E+03**
PERM	MJ	4,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**4,45E+00**
PERT	MJ	1,90E+03	9,57E+00	4,18E-02	7,94E+03	3,31E-01	**9,85E+03**
FW (Net use of fresh water)	m^3	1,76E+01	7,56E-02	1,06E-03	1,82E+01	3,21E-03	**3,59E+01**
MS (use of secondary materials)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
RSF (use of renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
NRSF (Use of non-renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

*Legend: **PENRE** = Use of non-renewable primary energy resources, excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources as raw materials; **PENRT** = Total use of non-renewable primary energy resources; **PERE** = Use of renewable primary energy, excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable energy resources as raw materials; **PERT** = Total use of renewable primary energy resources.*

WASTE PRODUCTION							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Hazardous waste disposal (HWD)	kg	1,70E+00	1,53E-02	3,19E-02	1,56E+00	5,98E-04	**3,31E+00**
Non-hazardous waste disposal (NHWD)	kg	1,20E+02	2,92E+01	1,71E-01	1,09E+02	1,32E+00	**2,59E+02**
Radioactive waste disposal (RWD)	kg	2,14E-02	1,78E-04	6,82E-07	1,38E-01	4,56E-06	**1,60E-01**

OUTGOING FLOWS							
Impact category	**Unit of measurement**	**PRODUCTION phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Materials for energy recovery (MER)	kg	0,00E+00	0,00E+00	3,77E+00	0,00E+00	0,00E+00	**3,77E+00**
Materials for recycling (MFR)	kg	3,48E+00	0,00E+00	4,07E+00	0,00E+00	7,61E+01	**8,37E+01**
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
ETE (exported thermal energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
EEE (exported electricity energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

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ENVIRONMENTAL IMPACTS							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
GWP (TOT)	kg CO_2 eq	1,47E+03	7,36E+01	5,76E+00	4,84E+02	2,31E+02	**2,27E+03**
GWP - Fossil	kg CO_2 eq	1,46E+03	7,35E+01	3,50E-01	4,72E+02	2,31E+02	**2,24E+03**
GWP - Biogenic	kg CO_2 eq	6,28E+00	5,26E-02	5,40E+00	9,83E+00	5,31E-03	**2,16E+01**
GWP - Luluc Land use and Land use change	kg CO_2 eq	2,38E+00	2,50E-02	5,84E-05	1,39E+00	1,02E-02	**3,81E+00**
ODP (Ozone depletion)	kg CFC_{11} eq	2,37E-04	1,60E-06	3,30E-09	9,48E-06	4,88E-08	**2,48E-04**
AP (Acidification)	mol H^+eq	9,04E+01	1,59E-01	1,18E-03	2,99E+00	3,10E-01	**9,38E+01**
EP - Acquatic freshwater (Eutrophication, freshwater)	kg P eq	4,98E+00	5,16E-03	3,47E-05	4,45E-01	3,28E-04	**5,43E+00**
EP - Acquatic marine (Eutrophication, freshwater	Kg N eq	3,88E+00	3,86E-02	5,91E-04	4,37E-01	1,37E-01	**4,50E+00**
EP - Acquatic terrestrial (Eutrophication, freshwater)	mol N eq	5,19E+01	4,17E-01	5,57E-03	3,95E+00	1,50E+00	**5,78E+01**
POCP (Photochemical ozone formation)	kg NMVOC eq	1,66E+01	2,52E-01	1,63E-03	1,32E+00	1,38E+00	**1,95E+01**

ADPE (Resource use, minerals and metals	kg Sb eq	1,24E+00	2,52E-04	4,96E-07	6,18E-03	9,87E-06	**1,25E+00**
ADPF (Resource use, fossils)	MJ	2,28E+04	1,04E+03	2,26E+00	9,28E+03	4,32E+01	**3,31E+04**
WDP (Water use)	m^3 depriv.	1,63E+03	4,12E+00	3,21E-02	1,04E+02	2,14E-01	**1,74E+03**

The results of the environmental impact indicators "Water use," "ADP – fossil resources," and "ADP – metals & minerals" should be interpreted with caution, as there is a high degree of uncertainty regarding these results or experience with the indicator is limited.

USE OF RESOURCES							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
PENRE	MJ	1,98E+04	1,04E+03	2,26E+00	9,28E+03	4,32E+01	**3,02E+04**
PENRM	MJ	2,95E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**2,95E+03**
PENRT	MJ	2,28E+04	1,04E+03	2,26E+00	9,28E+03	4,32E+01	**3,31E+04**
PERE	MJ	4,08E+03	1,70E+01	4,18E-02	3,25E+03	6,88E-01	**7,35E+03**
PERM	MJ	4,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**4,45E+00**
PERT	MJ	4,09E+03	1,70E+01	4,18E-02	3,25E+03	6,88E-01	**7,35E+03**
FW (Net use of fresh water)	m^3	3,98E+01	1,33E-01	1,06E-03	7,43E+00	6,67E-03	**4,74E+01**
MS (use of secondary materials)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
RSF (use of renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
NRSF (Use of non-renewable secondary fuels)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

*Legend: **PENRE** = Use of non-renewable primary energy resources, excluding non-renewable primary energy resources used as raw materials; **PENRM** = Use of non-renewable primary energy resources as raw materials; **PENRT** = Total use of non-renewable primary energy resources; **PERE** = Use of renewable primary energy, excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable energy resources as raw materials; **PERT** = Total use of renewable primary energy resources.*

WASTE PRODUCTION							
Impact category	**Unit of measurement**	**MANUFACTURING phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Hazardous waste disposal (HWD)	kg	3,82E+00	2,67E-02	3,19E-02	6,40E-01	1,24E-03	**4,52E+00**
Non-hazardous waste disposal (NHWD)	kg	2,72E+02	5,08E+01	1,71E-01	4,44E+01	2,75E+00	**3,70E+02**
Radioactive waste disposal (RWD)	kg	4,69E-02	3,20E-04	6,82E-07	5,66E-02	9,48E-06	**1,04E-01**

OUTGOING FLOWS							
Impact category	**Unit of measurement**	**PRODUCTION phase**	**DISTRIBUTION phase**	**INSTALLATION Phase**	**Use and Maintenance Phase**	**END OF LIFE phase**	**TOTAL**
Materials for energy recovery (MER)	kg	0,00E+00	0,00E+00	3,77E+00	0,00E+00	0,00E+00	**3,77E+00**
Materials for recycling (MFR)	kg	3,48E+00	0,00E+00	4,07E+00	0,00E+00	1,58E+02	**1,66E+02**
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
ETE (exported thermal energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
EEE (exported electricity energy)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

6. References

- UNI EN ISO 14040:2021 Environmental management - Life cycle assessment - Principles and framework
- UNI EN ISO 14044:2021 Environmental management - Life cycle assessment - Requirements and guidelines
- UNI EN ISO 14025:2010, Etichette e dichiarazioni ambientali - Dichiarazioni ambientali di Tipo III - Principi e procedure
- EN 50693:2019 Product category rules for life cycle assessments of electronic and electrical products and systems;
- EPDItaly Program Regulations, Rev. 7.1, dated september 5th, 2025;
- PCR EPDItaly 007 "Electronic and Electrical Products and Systems" rev. 3.2 - 2025/12/10;
- PCR EPDItaly016 - Cables rev. 3 2024/10/03.