ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

1-36kV C70-240 Al/Cu
Melbye As

EPD HUB, HUB-3394
Publishing date 1 June 2025, last updated on 1 June 2025, valid until 1 June 2030.

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Melbye As
Address	Prost Stabels Vei 22, 2019 Skedsmokorset, Norway
Contact details	kontakt@melbye.no
Website	https://melbye.no

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
Sector	Electrical product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, B6, and modules C1-C4, D
EPD author	Aditya Dharmendra Nishad
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	1-36kV C70-240 Al/Cu
Additional labels	See appendix
Product reference	1-36kV C25-95 Al/Cu, 1-36kV C35-150 Al/Cu, 1-36kV C70-240 Al/Cu, 1-36kV C120-300 Al/Cu, 1-36kV C185-400 Al/Cu, 1-36kV C300-630 Al/Cu, 1-36kV C70-240/25-95 Al/Cu, 1-36kV C800-1000 Al/Cu,
Place(s) of raw material origin	China
Place of production	Binhai Industrial Zone Qidong, Jiangsu, Nantong, China
Place(s) of installation and use	-
Period for data	1st January 2023 to 31st December 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit
Declared unit mass	0.2522 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	4.90E-01
GWP-total, A1-A3 ($kgCO_2e$)	4.28E-01
Secondary material, inputs (%)	0.33
Secondary material, outputs (%)	94.2
Total energy use, A1-A3 (kWh)	2.03
Net freshwater use, A1-A3 (m^3)	0

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Melbye As is one of Norway's oldest family-owned companies, with a history dating all the way back to 1907. We have a proud tradition of technical innovation and trade, and today, we are a leading provider of forward-thinking products and system solutions for critical infrastructure. We have expertise within transmission and utilities, fiber, ducts and chambers and safety.

We serve customers throughout the Nordic region and the United Kingdom, engage with stakeholders across Europe, and collaborate with around 200 partners and suppliers .

While our headquarters are located just outside Oslo, Norway, we also have offices at multiple locations in Norway, Sweden, and the United Kingdom, as well as representatives in Finland, India and China. Together, we are more than 120 co-workers who share the company's core values: Innovation, teamwork, and professionalism.

With advanced expertise spread across our core areas and a dedication to long-term operation and future-oriented development, we stand at the forefront of addressing future challenges. We take pride in contributing to the development of critical infrastructure that will shape tomorrow's society.

PRODUCT DESCRIPTION

The 1-36kV C70–240 Al/Cu mechanical connector is designed to ensure safe, durable, and maintenance-free connections in electrical systems operating up to 36 kV. Made primarily of high-quality aluminium, this connector facilitates secure joining of aluminium and copper conductors without the need for soldering or welding. It is widely used in power distribution networks for its mechanical robustness, corrosion resistance, and ease of installation.

This EPD covers a range of products that includes a series of similar mechanical connectors manufactured at the same production facility.
the following additional product types are covered in this EPD:
1-36kV C25-95 Al/Cu,
1-36kV C35-150 Al/Cu,
1-36kV C70-240 Al/Cu,
1-36kV C120-300 Al/Cu,
1-36kV C185-400 Al/Cu,
1-36kV C300-630 Al/Cu,
1-36kV C70-240 Al/Cu,
1-36kV C800-1000 Al/Cu,
In the annex to this EPD, a scaling table is provided to reflect the GWP impacts for the range of products produced in the same plant.

Further information can be found at https://melbye.no.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	China
Minerals	-	-
Fossil materials	-	-
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0.01636

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit
Mass per declared unit	0.2522 kg
Functional unit	-
Reference service life	30 Years

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

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

Modules not declared = MND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Manufacturing waste (machining chips is removed) percentage is different for each product, in this case it is 21.11% for Aluminum part.
All the manufacturing process are done inhouse, the facility uses a mix of renewable and conventional energy sources. Cable Lugs are packed in corrugated boxes which are mounted on a pallet, both the pallet and box is outsourced. Manufacturing waste – generated waste from is collected and sent for recycling & land filling using truck, 250 km and 50 Km is considered respectively.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

A4 – Transportation to Construction Site
The transportation impacts from the final product delivery to the construction site (A4) include direct fuel combustion emissions, environmental impacts from fuel production, and associated infrastructure emissions. Cable lugs are primarily used in Norway and Sweden. Accordingly, the shipping distance, including the distance from the port to the customer, is an average of 100 km.

A5 – Installation Phase
There is no material loss during installation, as the lugs are made of metal, which is highly durable and not prone to breakage or physical damage. The lugs are directly installed onto the wire, eliminating the need for additional installation materials. Installation is performed manually; however, an energy consumption of 0.01 kWh/kg has been considered as a standard assumption for installation energy use.

A5 – End-of-Life Waste Management
The average transportation distance to the recycling facility is assumed to be 50 km, carried out by a lorry (>32 metric tons, EURO 5 standard). Wooden packaging: The wood is incinerated, with energy and heat recovery benefits accounted for as per the EU wood packaging scenario.

PRODUCT USE AND MAINTENANCE (B1-B7)

The Reference Service Life (RSL) of 30 years is based on the expected durability and performance of the cable connector under typical operating conditions. This assumption considers the material properties, resistance to environmental factors, and the manufacturer's experience with similar products in electrical applications. The RSL applies when the product is installed and used as intended, without excessive mechanical stress or exposure to extreme conditions.

B6 – Operational Energy Use

The mechanical lug is a passive component used in electrical and industrial applications to provide secure, solder-free connections. As a non-powered, static component, the mechanical lug does not consume any energy during its operational phase. Therefore, no electricity or fuel is used throughout its service life.

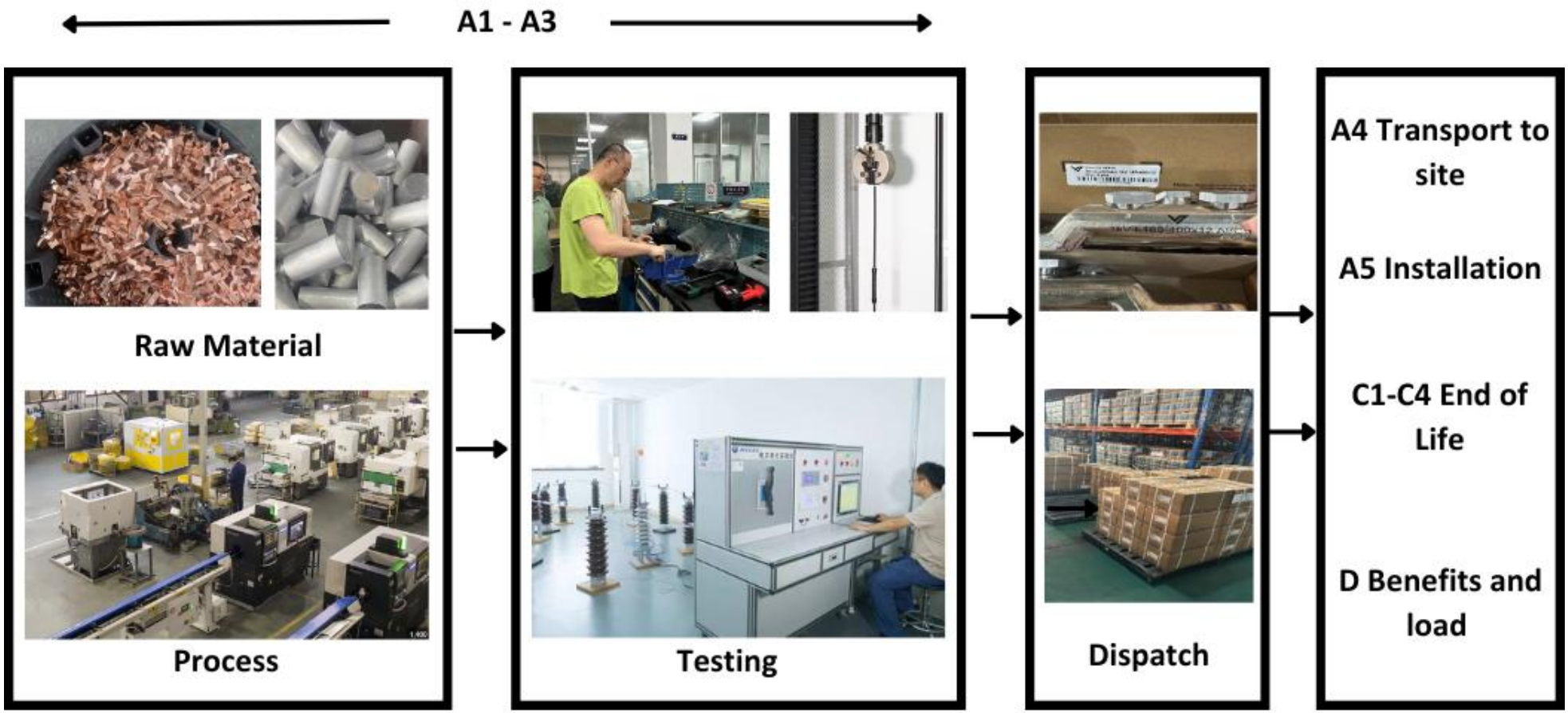
Although B6 is included in the scope to comply with the requirements of EN 15804 and the program operator's General Program Instructions (GPI) for electrical products, the operational energy use is 0 kWh per declared unit (1 unit of mechanical lug over a 30-year Reference Service Life). As a result, there are no environmental impacts attributed to this stage, and all B6 impact indicators are reported as zero.
Air, soil, and water impacts during the use phase have not been studied.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The product is manually removed, with an assumed energy consumption of 0.01 kWh/kg for demolition. Cable lugs used in Norway and Sweden are transported to recycling or landfill via lorries (16–32 metric tons, Euro 6) over an average distance of 250 km and 50km respectively.
Aluminum components are primarily sent for recycling, with a small percentage landfilled. All recycled metal is processed in Norway and Sweden.

D – Wooden Packaging

Untreated woods are incinerated, with energy and heat recovery accounted for as per the EU Wood Packaging scenario.


A1 - A3
Raw Material
Process
Testing
Dispatch
A4 Transport to site
A5 Installation
C1-C4 End of Life
D Benefits and load

LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3 (%)	-

This EPD is product and factory specific and does not contain average calculations.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	2.28E-01	1.90E-02	1.80E-01	4.28E-01	2.95E-01	6.49E-02	MND	MND	MND	MND	MND	0.00E+00	MND	9.09E-04	6.54E-03	6.53E-03	3.81E-04	-3.24E-03
GWP – fossil	kg CO_2e	2.28E-01	1.90E-02	2.43E-01	4.90E-01	2.94E-01	1.70E-03	MND	MND	MND	MND	MND	0.00E+00	MND	9.09E-04	6.54E-03	6.52E-03	3.81E-04	-1.13E-03
GWP – biogenic	kg CO_2e	0.00E+00	0.00E+00	-6.32E-02	-6.32E-02	0.00E+00	6.32E-02	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.11E-03
GWP – LULUC	kg CO_2e	3.48E-04	8.51E-06	2.48E-04	6.04E-04	1.32E-04	6.62E-07	MND	MND	MND	MND	MND	0.00E+00	MND	9.31E-08	2.93E-06	7.67E-06	5.32E-07	-2.72E-06
Ozone depletion pot.	kg CFC_{-11}e	2.77E-09	2.81E-10	3.30E-09	6.35E-09	4.35E-09	2.28E-11	MND	MND	MND	MND	MND	0.00E+00	MND	1.39E-11	9.65E-11	7.01E-11	6.96E-12	-1.44E-11
Acidification potential	mol H^+e	1.07E-03	6.48E-05	2.22E-03	3.36E-03	1.00E-03	1.16E-05	MND	MND	MND	MND	MND	0.00E+00	MND	8.21E-06	2.23E-05	6.98E-05	2.20E-06	-7.17E-06
EP-freshwater[2)]	kg Pe	9.63E-05	1.48E-06	1.24E-04	2.22E-04	2.29E-05	2.09E-07	MND	MND	MND	MND	MND	0.00E+00	MND	2.62E-08	5.09E-07	3.53E-06	5.95E-08	-6.99E-07
EP-marine	kg Ne	2.42E-04	2.13E-05	3.41E-04	6.05E-04	3.30E-04	8.85E-06	MND	MND	MND	MND	MND	0.00E+00	MND	3.81E-06	7.33E-06	1.55E-05	9.41E-07	-1.11E-06
EP-terrestrial	mol Ne	2.28E-03	2.32E-04	3.49E-03	6.00E-03	3.59E-03	5.31E-05	MND	MND	MND	MND	MND	0.00E+00	MND	4.17E-05	7.97E-05	1.75E-04	8.32E-06	-1.10E-05
POCP ("smog")[3)]	kg NMVOCe	7.01E-04	9.56E-05	9.46E-04	1.74E-03	1.48E-03	1.66E-05	MND	MND	MND	MND	MND	0.00E+00	MND	1.24E-05	3.29E-05	5.15E-05	2.61E-06	-3.53E-06
ADP-minerals & metals[4)]	kg Sbe	1.29E-06	5.30E-08	7.02E-06	8.36E-06	8.22E-07	4.92E-09	MND	MND	MND	MND	MND	0.00E+00	MND	3.26E-10	1.82E-08	3.85E-07	1.02E-09	-1.56E-09
ADP-fossil resources	MJ	3.01E+00	2.76E-01	2.75E+00	6.03E+00	4.27E+00	1.98E-02	MND	MND	MND	MND	MND	0.00E+00	MND	1.19E-02	9.49E-02	7.70E-02	6.44E-03	-1.85E-02
Water use[5)]	m^3e depr.	6.65E-02	1.36E-03	1.25E-01	1.93E-01	2.11E-02	2.47E-04	MND	MND	MND	MND	MND	0.00E+00	MND	2.97E-05	4.69E-04	1.22E-03	1.56E-04	-3.64E-04

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1.80E-08	1.90E-09	6.03E-09	2.59E-08	2.95E-08	2.82E-10	MND	MND	MND	MND	MND	0.00E+00	MND	2.33E-10	6.55E-10	9.74E-10	4.05E-11	-6.07E-11
Ionizing radiation[6)]	kBq U235e	2.92E-02	2.40E-04	1.54E-02	4.48E-02	3.72E-03	4.95E-05	MND	MND	MND	MND	MND	0.00E+00	MND	5.27E-06	8.26E-05	2.77E-04	1.39E-05	-3.53E-04
Ecotoxicity (freshwater)	CTUe	1.56E+00	3.90E-02	3.72E+00	5.31E+00	6.05E-01	2.23E-02	MND	MND	MND	MND	MND	0.00E+00	MND	6.55E-04	1.34E-02	4.47E-02	2.64E+00	-2.26E-03
Human toxicity, cancer	CTUh	1.27E-10	3.14E-12	9.47E-11	2.25E-10	4.86E-11	6.30E-13	MND	MND	MND	MND	MND	0.00E+00	MND	9.35E-14	1.08E-12	5.22E-12	2.83E-13	-2.39E-13
Human tox. non-cancer	CTUh	2.51E-09	1.79E-10	3.33E-09	6.02E-09	2.77E-09	3.01E-11	MND	MND	MND	MND	MND	0.00E+00	MND	1.48E-12	6.14E-11	3.34E-10	6.06E-11	-9.44E-12
SQP[7)]	-	1.51E+00	2.78E-01	3.37E+00	5.15E+00	4.30E+00	7.09E-03	MND	MND	MND	MND	MND	0.00E+00	MND	8.33E-04	9.56E-02	1.46E-01	9.91E-03	-1.14E-02

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	4.23E-01	3.78E-03	8.52E-01	1.28E+00	5.86E-02	-3.48E-01	MND	MND	MND	MND	MND	0.00E+00	MND	7.53E-05	1.30E-03	1.20E-02	2.02E-04	7.83E-03
Renew. PER as material	MJ	0.00E+00	0.00E+00	3.98E-01	3.98E-01	0.00E+00	-3.98E-01	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-02
Total use of renew. PER	MJ	4.23E-01	3.78E-03	1.25E+00	1.68E+00	5.86E-02	-7.46E-01	MND	MND	MND	MND	MND	0.00E+00	MND	7.53E-05	1.30E-03	1.20E-02	2.02E-04	2.67E-02
Non-re. PER as energy	MJ	3.01E+00	2.76E-01	2.75E+00	6.04E+00	4.27E+00	1.98E-02	MND	MND	MND	MND	MND	0.00E+00	MND	1.19E-02	9.49E-02	7.70E-02	6.45E-03	-1.85E-02
Non-re. PER as material	MJ	0.00E+00	0.00E+00	7.88E-04	7.88E-04	0.00E+00	-7.88E-04	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03
Total use of non-re. PER	MJ	3.01E+00	2.76E-01	2.75E+00	6.04E+00	4.27E+00	1.90E-02	MND	MND	MND	MND	MND	0.00E+00	MND	1.19E-02	9.49E-02	7.70E-02	6.45E-03	-1.74E-02
Secondary materials	kg	8.34E-04	1.17E-04	7.91E-02	8.00E-02	1.82E-03	1.61E-05	MND	MND	MND	MND	MND	0.00E+00	MND	4.94E-06	4.04E-05	8.91E-05	2.57E-06	9.75E-06
Renew. secondary fuels	MJ	1.57E-04	1.49E-06	2.03E-04	3.62E-04	2.31E-05	8.17E-08	MND	MND	MND	MND	MND	0.00E+00	MND	1.29E-08	5.13E-07	4.05E-06	3.56E-08	1.99E-06
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	1.48E-03	4.08E-05	2.97E-03	4.49E-03	6.32E-04	-7.83E-06	MND	MND	MND	MND	MND	0.00E+00	MND	7.86E-07	1.40E-05	3.36E-05	-5.72E-05	-1.41E-05

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1.68E-02	4.67E-04	1.76E-02	3.49E-02	7.24E-03	1.25E-04	MND	MND	MND	MND	MND	0.00E+00	MND	1.32E-05	1.61E-04	6.01E-04	4.87E-05	-8.17E-05
Non-hazardous waste	kg	1.37E+00	8.65E-03	2.12E+00	3.50E+00	1.34E-01	2.08E-02	MND	MND	MND	MND	MND	0.00E+00	MND	1.80E-04	2.98E-03	1.69E-02	8.20E-02	-3.46E-03
Radioactive waste	kg	7.31E-06	5.88E-08	5.49E-06	1.29E-05	9.11E-07	1.25E-08	MND	MND	MND	MND	MND	0.00E+00	MND	1.29E-09	2.02E-08	6.80E-08	3.41E-09	-9.06E-08

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	1.58E+00	1.58E+00	0.00E+00	1.63E-02	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	2.40E-01	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-02	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.60E-03	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.90E-03	MND	MND	MND	MND	MND	0.00E+00	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	2.46E-01	1.89E-02	2.43E-01	5.08E-01	2.93E-01	3.58E-03	MND	MND	MND	MND	MND	0.00E+00	MND	9.04E-04	6.50E-03	6.51E-03	3.79E-04	-1.13E-03
Ozone depletion Pot.	kg $CFC_{-11}e$	2.51E-09	2.24E-10	2.99E-09	5.72E-09	3.47E-09	1.83E-11	MND	MND	MND	MND	MND	0.00E+00	MND	1.10E-11	7.70E-11	5.81E-11	5.60E-12	-1.19E-11
Acidification	kg SO_2e	8.74E-04	4.95E-05	1.92E-03	2.84E-03	7.67E-04	8.35E-06	MND	MND	MND	MND	MND	0.00E+00	MND	5.77E-06	1.70E-05	5.61E-05	1.63E-06	-6.07E-06
Eutrophication	kg PO_4^3e	2.15E-04	1.21E-05	5.05E-04	7.31E-04	1.87E-04	4.53E-06	MND	MND	MND	MND	MND	0.00E+00	MND	1.35E-06	4.15E-06	7.99E-06	1.10E-06	-6.97E-07
POCP (“smog”)	kg C_2H_4e	6.41E-05	4.41E-06	7.48E-05	1.43E-04	6.83E-05	1.09E-06	MND	MND	MND	MND	MND	0.00E+00	MND	4.32E-07	1.52E-06	3.32E-06	1.23E-07	-3.46E-07
ADP-elements	kg Sbe	1.26E-06	5.17E-08	7.00E-06	8.31E-06	8.01E-07	4.81E-09	MND	MND	MND	MND	MND	0.00E+00	MND	3.17E-10	1.78E-08	3.83E-07	9.88E-10	-1.54E-09
ADP-fossil	MJ	2.52E+00	2.72E-01	2.68E+00	5.47E+00	4.22E+00	1.90E-02	MND	MND	MND	MND	MND	0.00E+00	MND	1.18E-02	9.36E-02	7.27E-02	6.22E-03	-1.23E-02

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	2.28E-01	1.90E-02	2.44E-01	4.91E-01	2.95E-01	1.70E-03	MND	MND	MND	MND	MND	0.00E+00	MND	9.09E-04	6.54E-03	6.53E-03	3.81E-04	-1.13E-03

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

SCALING TABLE FOR DIFFERENT TYPES OF Mechanical cable connectors:

This EPD covers the following listed Mechanical cable connectors:

Sr no.	Cable Connectors description	Weight (Kg)	GWP-total, (kgCO2e)	GWP-fossil, (kgCO2e)
1	1-36kV C25-95 Al/Cu	0.0701	0.23	0.23
2	1-36kV C35-150 Al/Cu	0.1151	0.37	0.37
3	1-36kV C70-240 Al/Cu	0.2522	0.8	0.8
4	1-36kV C120-300 Al/Cu	0.3621	1.2	1.19
5	1-36kV C185-400 Al/Cu	0.5304	1.99	1.98
6	1-36kV C300-630 Al/Cu	0.8985	2.72	2.7
7	1-36kV C70-240/25-95 Al/Cu	0.272	1.04	1.03
8	1-36kV C800-1000 Al/Cu	1.2925	5.58	5.55

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, China, 2021 (One Click LCA)
Electricity CO2e / kWh	0.82
District heating data source and quality	-
District heating CO2e / kWh	-

Transport scenario documentation A4

Scenario parameter	Value
Specific transport CO2e emissions, kg CO2e / tkm	Market for transport, freight, lorry 16-32 metric ton,
Average transport distance, km	9885.64
Capacity utilization (including empty return) %	50
Bulk density of transported products	-
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	-
Water use / m^3	-
Other resource use / kg	-
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0.002522
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	-
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	-
Direct emissions to ambient air, soil and water / kg	-

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	-
Collection process – kg collected with mixed waste	0.2522
Recovery process – kg for re-use	-
Recovery process – kg for recycling	0.24
Recovery process – kg for energy recovery	-
Disposal (total) – kg for final deposition	0.015
Scenario assumptions e.g. transportation	Transported 250 km (recycling) and 50 km (landfill) by lorry

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

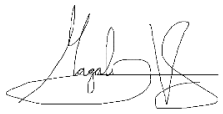
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
01.06.2025



VERIFIED ISO 14025