RECTANGULAR DUCTS – TRADITIONAL STEEL

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Crenna Plåt AB

EPD HUB, HUB-5519
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Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Crenna Plåt AB
Address	Kvartsgatan 19, 749 40 Enköping, Sweden
Contact details	order@crenna.se
Website	https://www.crenna.se/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025 EN 17662 Execution of steel structures and aluminium structures
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Van Dong
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	HaiHa Nguyen, 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	Rectangular Ventilation Ducts – Traditional Steel
Additional labels	KK, KB, KÖ, KD, KG, KR, KA, KS, KF, KT
Product reference	-
Place(s) of raw material origin	Sweden
Place of production	Enköping, Sätra, Mölndal & Ängelholm, Sweden
Place(s) of installation and use	Sweden
Period for data	2024
Averaging in EPD	Multiple products and multiple factories
Variation in GWP-fossil for A1-A3 (%)	<10,6%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	96

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
Mass of packaging	0,111 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	3,23
GWP-total, A1-A3 ($kgCO_2e$)	3,01
Secondary material, inputs (%)	5,68
Secondary material, outputs (%)	84,1
Total energy use, A1-A3 (kWh)	11,4
Net freshwater use, A1-A3 (m^3)	0,01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Crenna Plåt AB is Sweden's largest manufacturer of rectangular ventilation ducts and has the market's widest range of silencers.

Crenna's main area of work is the manufacturing and sale of ventilation products such as rectangular ducts, silencers, security grilles, dampers, exterior wall grilles, distribution boxes and roof hoods.

PRODUCT DESCRIPTION

Crenna's **D-rated** rectangular ducts PREMIUM are designed and manufactured to ensure the highest possible material and construction quality. The products are intended for use in ventilation and air-conditioning systems in commercial, industrial and residential buildings. The ducts are used for supply air, extract air, outdoor air, exhaust air and air circulation within the building's conditioned spaces.

This product family offers high-quality rigid rectangular ventilation ducts with a rectangular cross-section, manufactured from galvanized steel. All products feature an integrated, standardized PG-joint and a pre-mounted gasket and are reinforced to meet pressure class 2 in accordance with SS-EN 1507:2006. All to ensure reliable, airtight joints and efficient installation. The product range includes ducts in various lengths and cross-section dimensions to suit different applications. The range also includes components such as bends, size transitions, reducers, take-offs, and other standardized duct parts, enabling flexible installations. Crenna's rectangular ducts are compatible with standardized duct components and accessories and are suitable for installation in both low- and high-pressure systems.

All ducts undergo quality control prior to delivery and are supplied with plastic-sealed ends, fully prepared for installation. Crennas rectangular PREMIUM ducts reduces installation time and ensures that the duct system consistently maintains high quality.

Further information can be found at:
https://www.crenna.se/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	98,7	EU
Minerals	-	-
Fossil materials	1,3	EU
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,04

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	-
Reference service life	> 50 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		
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	MND	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.

A market-based approach is used in modelling the electricity mix utilized in the factory. 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.

The product stage (A1-A3) covers the extraction and processing of all raw materials and the production of components. The steel raw material is received at the facility, where an incoming goods inspection is carried out. A unique ID number is assigned and linked to the manufacturing order to ensure full traceability.

The Crenna rectangular ducts are then formed into the required shape. A replicating oil emulsion is used during the forming process to reduce machine wear and to ensure stable production conditions. Production is carried out based on project-specific orders, which significantly minimizes material use. Production losses and ancillary materials are considered. The production sites use electricity and district heating.

The produced ducts are packed appropriately for their size using wooden pallets and plastic film. All steel scrap generated during production is collected and sent to a local facility for material recycling. The waste is transported approximately 50 km by lorry to a local waste management facility.

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.

The average transportation distance from the manufacturing site to building site is estimated to 104 km and the assumed transportation method is lorry. Transport is modelled assuming a lorry load factor of 50%. Deviations from this assumption are considered to have a negligible impact on the results.

The empty returns are excluded, as it is assumed to be utilized for other transport services.

A5 covers the installation of the product, which is assumed to be done by hand without any complex procedures. No material losses are expected during the installation process. Waste management of the packaging is also included, where the wooden pallet is assumed to be 32% recycled, 30% incinerated, and 38% sent to landfill. The plastic film is assumed to be 23% recycled and 76% incinerated (Eurostat).

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

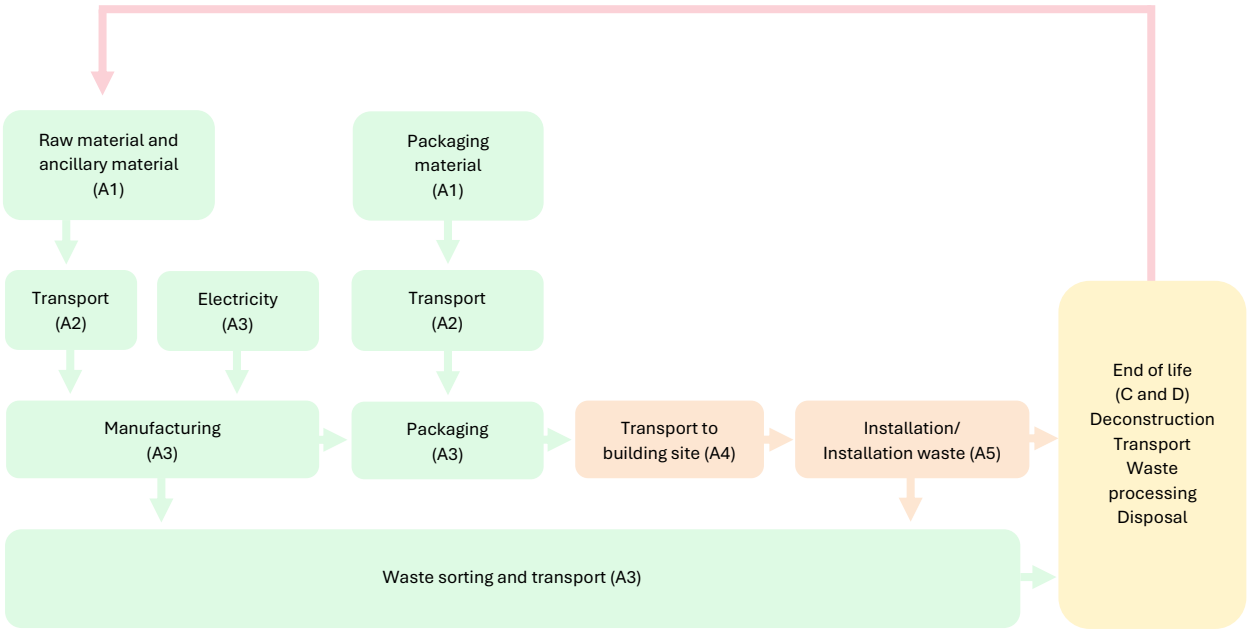
At the end of life, the product is assumed to be dismantled manually using standard tools (C1). The dismantled product is assumed to be transported approximately 50 km by lorry to a local recycling facility (C2).

In the recycling process (C3), steel components are sent for recycling with an assumed recovery rate of 85%, while 15% is sent to landfill (World Steel, 2020). Strips are assumed to be treated according to the following waste management distribution: 50% incineration with energy recovery, 23% recycling, and 27% landfill disposal. Putty is conservatively assumed to be disposed of entirely in landfill.

In module C4, the environmental impacts from final disposal are included. This is assumed to be the most common end-of-life practice for this product.

Module D accounts for the potential benefits and loads from energy recovery and material recycling at the end of life. Recycled steel is assumed to substitute primary steel production, while energy recovered from incineration of plastics, wood and packaging materials substitutes average electricity and heat production. The data and assumptions are based on Ecoinvent v3.10.1 (2024).

MANUFACTURING PROCESS



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.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

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/AC:2021 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	Allocated by mass or volume
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products and multiple factories
Grouping method	Based on average results of product group - by total revenue
Variation in GWP-fossil for A1-A3, %	<10,6%

The variability of the products is low. Based on calculations the maximum difference between the average EPD and EPD of the different ventilation ducts are less than 10,6%. The difference is due to the energy consumption and transportation. The raw materials, manufacturing process, the product design etc. are the same for all places of production. The product group represents multiple factories, with similar technical specifications and production standards. The product group represents multiple factories, with similar technical specifications and production standards.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD System Verification v3.2.3. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

World Steel Association (2020).

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

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	3,05E+00	7,61E-02	-1,12E-01	3,01E+00	2,19E-02	2,63E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,56E-03	5,50E-02	1,07E-03	-1,11E+00
GWP – fossil	kg CO_2e	3,06E+00	7,61E-02	8,65E-02	3,23E+00	2,19E-02	2,28E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,56E-03	5,52E-02	1,07E-03	-1,12E+00
GWP – biogenic	kg CO_2e	-1,56E-02	1,63E-05	-1,99E-01	-2,15E-01	4,40E-06	2,40E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,92E-06	-2,74E-04	3,52E-07	1,26E-02
GWP – LULUC	kg CO_2e	6,09E-04	3,19E-05	1,94E-04	8,36E-04	7,87E-06	5,60E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,43E-06	2,37E-05	5,46E-07	-1,83E-04
Ozone depletion pot.	kg CFC-$_{11}$e	1,29E-08	1,25E-09	1,78E-09	1,59E-08	4,36E-10	6,25E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,90E-10	2,63E-10	2,65E-11	-4,39E-09
Acidification potential	mol H^+e	7,69E-03	2,27E-04	4,82E-04	8,40E-03	4,56E-05	2,14E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,99E-05	2,33E-04	6,66E-06	-4,50E-03
EP-freshwater[2)]	kg Pe	1,98E-05	5,67E-06	3,01E-05	5,56E-05	1,48E-06	9,93E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,43E-07	1,27E-05	8,34E-08	-4,85E-04
EP-marine	kg Ne	1,80E-03	7,01E-05	1,06E-04	1,98E-03	1,10E-05	2,18E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,78E-06	5,45E-05	2,81E-06	-9,84E-04
EP-terrestrial	mol Ne	1,92E-02	7,62E-04	1,16E-03	2,11E-02	1,18E-04	8,74E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,15E-05	6,04E-04	2,79E-05	-1,08E-02
POCP ("smog")[3)]	kg NMVOCe	6,15E-03	3,44E-04	5,09E-04	7,01E-03	7,58E-05	2,83E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,31E-05	1,77E-04	1,01E-05	-3,69E-03
ADP-minerals & metals[4)]	kg Sbe	1,86E-04	2,25E-07	7,94E-07	1,87E-04	7,30E-08	1,13E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,18E-08	1,34E-06	1,43E-09	-1,06E-05
ADP-fossil resources	MJ	3,29E+01	1,09E+00	1,55E+00	3,56E+01	3,08E-01	5,36E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,34E-01	2,62E-01	2,33E-02	-1,06E+01
Water use[5)]	m^3e depr.	6,14E-01	5,41E-03	4,01E-02	6,59E-01	1,53E-03	1,83E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,68E-04	7,17E-03	1,01E-03	-1,93E-01

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, EF 3.1

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	2,64E-09	6,97E-09	6,76E-09	1,64E-08	1,61E-09	3,64E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,04E-10	3,13E-09	1,53E-10	-7,33E-08
Ionizing radiation[6)]	kBq U235e	8,80E-03	1,10E-03	6,55E-03	1,64E-02	3,98E-04	1,41E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,73E-04	2,21E-03	1,40E-05	2,94E-02
Ecotoxicity (freshwater)	CTUe	2,63E-01	1,52E-01	1,31E+00	1,72E+00	4,10E-02	2,13E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,79E-02	1,31E+00	1,58E-02	-2,72E+00
Human toxicity, cancer	CTUh	1,35E-11	1,26E-11	2,08E-10	2,34E-10	3,68E-12	2,41E-12	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,60E-12	1,96E-11	1,77E-13	-1,81E-10
Human tox. non-cancer	CTUh	4,47E-10	7,03E-10	1,09E-09	2,24E-09	1,95E-10	1,24E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,51E-11	1,25E-09	5,09E-12	-8,85E-09
SQP[7)]	-	2,62E-01	9,63E-01	1,64E+01	1,76E+01	1,86E-01	4,94E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,13E-02	4,92E-01	4,58E-02	-3,33E+00

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	2,27E+00	1,63E-02	2,64E+00	4,93E+00	5,40E-03	-1,51E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,35E-03	4,70E-02	2,19E-04	-4,66E-01
Renew. PER as material	MJ	1,55E-01	0,00E+00	1,74E+00	1,90E+00	0,00E+00	-1,74E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-2,34E-03	0,00E+00	8,03E-02
Total use of renew. PER	MJ	2,42E+00	1,63E-02	4,38E+00	6,83E+00	5,40E-03	-3,25E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,35E-03	4,47E-02	2,19E-04	-3,86E-01
Non-re. PER as energy	MJ	3,39E+01	1,09E+00	1,10E+00	3,61E+01	3,08E-01	-2,62E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,34E-01	-3,27E-01	-1,98E-02	-1,06E+01
Non-re. PER as material	MJ	4,40E-01	0,00E+00	4,46E-01	8,86E-01	0,00E+00	-4,46E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-4,31E-01	0,00E+00	2,07E-01
Total use of non-re. PER	MJ	3,43E+01	1,09E+00	1,54E+00	3,69E+01	3,08E-01	-7,08E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,34E-01	-7,59E-01	-1,98E-02	-1,04E+01
Secondary materials	kg	5,68E-02	4,79E-04	7,25E-03	6,45E-02	1,43E-04	4,26E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,24E-05	3,20E-04	5,82E-06	6,00E-01
Renew. secondary fuels	MJ	3,77E-04	6,07E-06	5,90E-02	5,94E-02	1,81E-06	4,04E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,89E-07	1,47E-05	1,21E-07	-8,97E-05
Non-ren. secondary fuels	MJ	7,19E-22	0,00E+00	0,00E+00	7,19E-22	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	4,29E-03	1,58E-04	9,45E-04	5,39E-03	4,20E-05	-1,26E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,83E-05	1,50E-04	1,97E-05	-2,84E-03

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	5,20E-02	1,77E-03	7,18E-03	6,09E-02	4,48E-04	4,92E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,95E-04	2,27E-03	2,66E-05	-3,60E-01
Non-hazardous waste	kg	2,76E-01	3,40E-02	2,99E-01	6,10E-01	9,46E-03	2,35E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,12E-03	8,30E-02	6,07E-03	-2,96E+00
Radioactive waste	kg	5,35E-04	2,70E-07	1,68E-06	5,36E-04	9,88E-08	3,53E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,31E-08	5,64E-07	3,42E-09	7,69E-06

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	4,80E-06	0,00E+00	0,00E+00	4,80E-06	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	2,91E-02	0,00E+00	1,57E-01	1,86E-01	0,00E+00	3,48E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,41E-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	3,71E-02	ND	ND	ND	ND	ND	ND	ND	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	2,12E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,76E-01	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	8,90E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,40E-02	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	1,23E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,02E-01	0,00E+00	0,00E+00

ADDITIONAL INDICATOR – GWP-GHG

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	3,06E+00	7,61E-02	8,67E-02	3,23E+00	2,19E-02	2,28E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,56E-03	5,52E-02	1,07E-03	-1,12E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	GO electricity 100 % wind, high voltage, supplied by Öresundskraft, Enköping, Göteborg, Stockholm; Modelled with: Electricity production, wind, 1-3MW turbine, onshore, Sweden, Ecoinvent 3.11. GO electricity 100 % wind, high voltage, supplied by Seraph Fastighetsförvaltning (Skånska Energi) Ängelholm; Modelled with: Electricity production, wind, 1-3MW turbine, onshore, Sweden, Ecoinvent 3.11. Transformation and transmission losses 5,2% are included.
Electricity CO2e / kWh per source	0.017 kg
District heating data source and quality	Modelled with: Market for heat, district or industrial, other than natural gas. Enköping, supplied by Ena Energi. Göteborg, supplied by Revelop. Ängelholm, supplied by Seraph Fastighetsförvaltning (Öresundskraft).
District heating CO2e / kWh	0.0718 kg

Transport scenario documentation A4

Scenario parameter	Value
Fuel type, consumption, and vehicle type. Eg, electric truck, diesel powered truck	Market for transport, freight, lorry 16-32 metric ton, EURO6 (EU)
Average transport distance, km	Truck 104 km
Capacity utilization (including empty return) %	50
Bulk density of transported products (kg/m3)	-
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	0
Water use / m^3	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	Plastic film: 0,0076 kg Wood pallet:0,103
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	Waste plastic film, materials for recycling, 0.0018 kg Waste plastic film, incineration with energy recovery, 0.0061 kg Waste wood, materials for recycling, 0.033 kg Waste wood, incineration with energy recovery, 0.031 kg Waste wood, landfill, 0.039 kg
Direct emissions to ambient air, soil and water / kg	0

End-of-life scenario documentation C1-C4

Scenario information	Value
Collection process – kg collected separately	1
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0,84
Recovery process – kg for energy recovery	0.1
Disposal (total) – kg for final deposition	0,15
Scenario assumptions e.g. transportation	Transported 50 km by lorry

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited

25.02.2026

APPENDIX 1. ADDITIONAL ENVIRONMENTAL INFORMATION

PRODUCT TYPES AND WEIGHT CONVERSIONS.

This study provides impacts based on a functional unit of 1 kg of product. All products are manufactured from sheet metal with a thickness of 0,65 mm. The conversion factors presented for the different product types and weights are calculated for one-meter lengths of rectangular ventilation ducts for the respective dimensions.

Dimensions A * B [mm]	Wall thickness [mm]	Length [m]	Specific weight [kg/m]	Surface area [m2]
400x300	0,65	1,00	8,2	1,40
600x400	0,65	1,00	11,8	2,00
1200x800	0,65	1,00	23,5	4,00
1600x1200	0,65	1,00	32,9	5,60