



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Integrated control equipment for chilled beams and comfort modules

WISE, REACT and AWC

Swegon Group AB



EPD HUB, EPD number HUB-4293

Published on 31.10.2025, last updated on 31.10.2025, valid until 31.10.2030

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	Swegon Group AB
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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
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, B6, and modules C1-C4, D
EPD author	Heloise Hedbom
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Imane Uald Lamkaddam as an authorized verifier for EPD Hub

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	Integrated control equipment for chilled beams and comfort modules
Additional labels	See Appendix 1 WISE integrated control equipment REACT integrated control equipment AWC integrated control equipment
Product reference	-
Place(s) of raw material origin	Europe & Asia
Place of production	Arvika, Sweden
Place(s) of installation and use	Global
Period for data	2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	Not applicable
A1-A3 Specific data (%)	2,83

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit of WISE standard integrated control equipment
Declared unit mass	1,32 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	5,10E+01
GWP-total, A1-A3 (kgCO ₂ e)	5,11E+01
Secondary material, inputs (%)	24
Secondary material, outputs (%)	40,1
Total energy use, A1-A3 (kWh)	205
Net freshwater use, A1-A3 (m ³)	0,55

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

People spend most of their time indoors, which is why we need a sound indoor climate for our health, well-being, and happiness. Swegon's ambition is to achieve the world's best indoor environment with the least possible impact on the external environment. Our business models, services, products, and systems are all designed to provide the right solution for each individual project.

Swegon Group AB is a market leading supplier in the field of indoor environment, offering solutions for ventilation, heating, cooling and climate optimization, as well as connected services and expert technical support. Swegon has subsidiaries in and distributors all over the world and production plants in Europe, North America and India.

PRODUCT DESCRIPTION

Swegon chilled beams and comfort modules manufactured in Arvika can be equipped with a range of integrated control systems designed to enhance indoor climate performance and energy efficiency. These control solutions include WISE, AWC, and REACT, each offering specific functionalities. In this EPD, the environmental impact of the factory integrated control equipment on the chilled beams and comfort modules are included.

WISE is the smartest solution on the market for demand-controlled indoor climate (DCV), combining optimal comfort with energy efficiency, flexibility, and sustainability. The WISE chilled beams are designed for demand-controlled ventilation and come fully equipped with valves, actuators, and a control unit for wireless communication, enabling full integration with Swegon's WISE system.

REACT is a flexible and efficient solution for securing the indoor climate in every room, ideal for both renovations and new constructions. The system

lets you combine the right climate products with tailored accessories to meet each room's specific needs. Each room can function as a standalone unit or be seamlessly integrated into a building management system, offering maximum flexibility whether applied individually or across an entire building.

The **AWC** (Air and Water Control) is a stand-alone Demand Controlled Ventilation (DCV) system designed for both small and large installations. With its built-in sensors, it continuously adjusts to maintain optimal indoor environmental quality while ensuring energy-efficient operation. The system can be seamlessly monitored and integrated into BMS (Building Management Systems) via Modbus RTU, providing reliable and flexible control.

Together with the EPD for Swegon CAV chilled beams and comfort modules this includes the whole range of possible designs for modulating chilled beams and comfort modules.

For more information please visit: <https://www.swegon.com/products-and-services/climate-solutions/room-management-systems/>

Further information can be found at: www.swegon.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	61	Europe & Asia
Minerals	-	-
Fossil materials	39	Europe & Asia
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

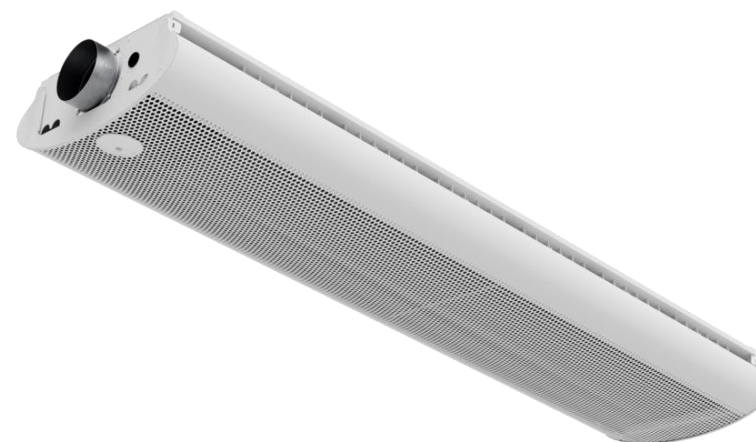
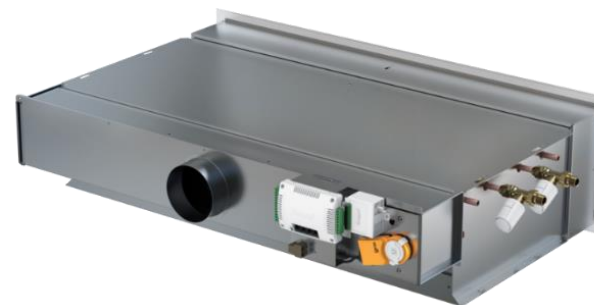
Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit of WISE standard integrated control equipment
Mass per declared unit	1,32 kg
Functional unit	Demand control ventilation and temperature control during 25 years. Assuming operation 8 760 hours during a year.
Reference service life	25 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	ND	ND	ND	ND	ND	x	ND	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 = ND. Modules not relevant = NR

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 material. 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 Arvika facility operates entirely on electricity sourced from hydropower and the amount used for this product is allocated by mass on factory level with 2024 as base year. 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.

Swegon's integrated control equipment for chilled beams and comfort modules are primarily composed of materials such as brass, steel, and other metals. The product also incorporates electronic components, including printed circuit boards (PCBs) and cables, as well as various polymer elements. The components produced in upstream modules are delivered to Swegon's production facility in Arvika, Sweden. At the production site, the steel is shaped to form the control plate. This control plate is then manually mounted and later integrated with other components onto chilled beams or comfort modules. These assemblies result in the final product, which can either be an AWC, REACT or a WISE product.

Certain components are packaged in individual plastic bags. Other packaging such as cardboard and wooden pallets is instead included in the environmental assessment of the CAV chilled beam or comfort module.

During the manufacturing process, material waste, primarily in the form of steel scrap, is generated. This scrap is collected and sent to a nearby recycling center for material recovery.

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 transportation to the construction site is calculated based on a weighted average sale of integrated control systems. The product is sold ready to be installed and no raw material waste is generated from installation (A5). The end-of-life treatment of product packaging is declared and average global

scenario per packaging material has been applied with different ratios of recycling, incineration, and disposal in landfill.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD follows additional requirements for products which are permanently installed into the building and using energy in module B6 of the use stage.

Electricity consumption during the use phase is calculated over a 25-year period, based on data from the WISE integrated control system including an actuator, a SMB controller, WISE CU, a temperature sensor for measuring supply air and a valve actuator. The electricity mix used is a weighted average of sales from integrated control systems. Replacement of components or parts is not included.

Please note that the environmental impact during the use phase varies according to individual usage patterns and geographic location. The results presented for module B6 in this EPD are scenario-based only. Therefore, the environmental impact from the use phase should be examined separately for individual projects.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

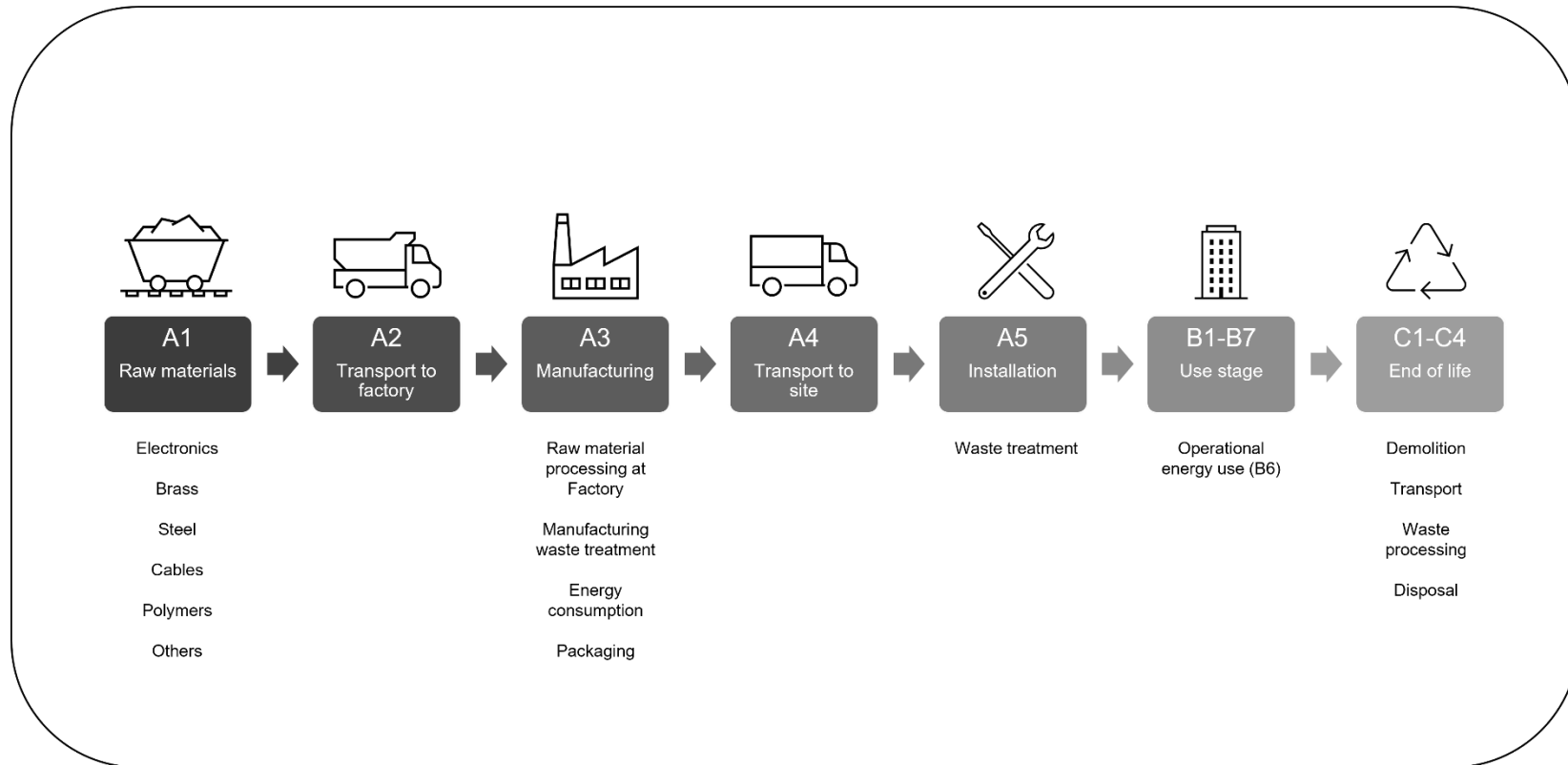
At the end of the product's life, the integrated control equipment is assumed to be demolished. The environmental impact of deconstruction (C1) is modelled using literature data, assuming an energy consumption of 0,1 kWh per kilogram of product removed. Subsequent waste processing (C3) and disposal (C4) are also modelled, with scenarios based on literature values that reflect typical end-of-life treatment routes, including recycling, incineration, and landfilling. It is assumed that material for recycling is collected separately.

The primary materials considered are steel, plastic, brass, and electronic components. For steel, it is assumed that 85% is recycled and 15% is sent to landfill (World Steel Association, 2020). For plastics, the end-of-life treatment varies depending on the type of plastic: approximately 23–27% are recycled, 47–50% are incinerated, and around 27% are landfilled (Plastics Europe, 2020). For brass, it is estimated that 60% is recycled, while the remaining 40% is disposed of in landfill (Copper Alliance, 2021). While for electronic components, a conservative assumption is applied, with 100% considered to be landfilled at end of life.

Transportation distances associated with the end-of-life treatment (C2) of these materials are assumed to be 250 km to recycling facilities, 150 km to incineration plants, and 50 km to landfill sites. All transportation is carried out using a 16-32 metric ton freight lorry compliant with EURO 5 standards.

Due to the material and energy recovery potential of the components included in the product, the end-of-life can be converted into recycled raw materials or energy through incineration. The potential environmental benefits and burdens associated with recycling and energy recovery processes are accounted for in Module D.

FLOW DIAGRAM



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	No allocation
Packaging material	No allocation
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	Not applicable

This EPD is product and factory specific and does not contain average calculations. The environmental impact data presented are specific to 1 unit of WISE standard integrated control equipment. The calculated GWP-GHG and GWP-fossil for all included sizes are shown for modules A1-A3 in Annex 1.

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

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 ₂ e	5,04E+01	7,11E-01	3,45E-02	5,11E+01	1,20E-01	2,93E-03	ND	ND	ND	ND	ND	3,72E+01	ND	9,39E-02	3,28E-02	1,24E-01	3,52E-02	-1,55E+00
GWP – fossil	kg CO ₂ e	5,02E+01	7,11E-01	3,44E-02	5,10E+01	1,20E-01	2,94E-03	ND	ND	ND	ND	ND	3,53E+01	ND	9,36E-02	3,28E-02	1,24E-01	3,52E-02	-1,54E+00
GWP – biogenic	kg CO ₂ e	1,05E-01	9,86E-05	7,32E-05	1,05E-01	2,67E-05	-8,31E-06	ND	ND	ND	ND	ND	4,87E-01	ND	1,37E-04	7,15E-06	-4,14E-04	-2,29E-05	-7,75E-05
GWP – LULUC	kg CO ₂ e	8,88E-02	1,57E-04	6,49E-05	8,90E-02	5,43E-05	1,45E-07	ND	ND	ND	ND	ND	1,45E+00	ND	1,83E-04	1,45E-05	1,85E-05	4,26E-06	-3,66E-03
Ozone depletion pot.	kg CFC-11e	2,44E-06	1,22E-08	1,39E-09	2,45E-06	1,78E-09	4,03E-12	ND	ND	ND	ND	ND	9,66E-07	ND	6,03E-10	4,58E-10	1,83E-10	1,82E-10	-1,42E-08
Acidification potential	mol H ⁺ e	6,02E-01	2,65E-03	3,03E-04	6,05E-01	2,87E-04	1,17E-06	ND	ND	ND	ND	ND	3,82E-01	ND	4,56E-04	1,09E-04	1,66E-04	4,91E-05	-1,09E-01
EP-freshwater ²⁾	kg Pe	1,07E-01	2,90E-05	8,21E-06	1,07E-01	9,37E-06	2,55E-08	ND	ND	ND	ND	ND	2,77E-02	ND	4,03E-05	2,55E-06	7,55E-06	6,63E-07	-8,68E-03
EP-marine	kg Ne	7,88E-02	9,35E-04	8,73E-05	7,98E-02	6,68E-05	1,63E-06	ND	ND	ND	ND	ND	4,59E-02	ND	9,11E-05	3,54E-05	4,96E-05	7,36E-04	-5,67E-03
EP-terrestrial	mol Ne	8,92E-01	1,02E-02	1,22E-03	9,03E-01	7,22E-04	4,74E-06	ND	ND	ND	ND	ND	4,99E-01	ND	9,17E-04	3,85E-04	4,76E-04	2,00E-04	-7,88E-02
POCP (“smog”) ³⁾	kg NMVOCe	2,54E-01	3,74E-03	3,23E-04	2,58E-01	3,93E-04	1,72E-06	ND	ND	ND	ND	ND	1,49E-01	ND	2,72E-04	1,52E-04	1,36E-04	7,63E-05	-2,22E-02
ADP-minerals & metals ⁴⁾	kg Sbe	2,18E-02	1,17E-06	1,69E-07	2,18E-02	4,00E-07	8,48E-10	ND	ND	ND	ND	ND	3,79E-03	ND	8,82E-08	1,08E-07	7,59E-07	1,33E-08	-1,52E-03
ADP-fossil resources	MJ	6,54E+02	9,65E+00	6,83E-01	6,65E+02	1,68E+00	3,21E-03	ND	ND	ND	ND	ND	2,20E+03	ND	1,21E+00	4,60E-01	1,81E-01	1,55E-01	-1,91E+01
Water use ⁵⁾	m ³ e depr.	1,92E+01	3,09E-02	1,69E-02	1,93E+01	7,88E-03	7,28E-05	ND	ND	ND	ND	ND	8,01E+02	ND	2,26E-02	2,13E-03	9,74E-03	6,44E-04	-1,30E+00

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	3,14E-06	2,91E-08	4,61E-09	3,18E-06	8,91E-09	2,44E-11	ND	ND	ND	ND	ND	2,55E-06	ND	4,11E-09	2,60E-09	2,27E-09	1,08E-09	-2,44E-07
Ionizing radiation ⁶⁾	kBq U235e	5,64E+00	7,51E-03	2,02E-03	5,65E+00	1,37E-03	4,18E-06	ND	ND	ND	ND	ND	1,37E+02	ND	1,27E-02	3,72E-04	6,06E-04	1,36E-04	-1,65E-01
Ecotoxicity (freshwater)	CTUe	1,71E+03	8,71E-01	1,80E-01	1,71E+03	2,67E-01	2,70E-03	ND	ND	ND	ND	ND	5,19E+02	ND	2,09E-01	7,27E-02	3,08E-01	1,21E+00	-1,57E+02
Human toxicity, cancer	CTUh	6,09E-08	8,16E-11	2,09E-11	6,10E-08	2,01E-11	1,94E-13	ND	ND	ND	ND	ND	6,05E-08	ND	1,13E-11	5,57E-12	2,29E-11	4,37E-12	-1,15E-08
Human tox. non-cancer	CTUh	4,56E-06	6,67E-09	6,79E-10	4,56E-06	1,06E-09	1,03E-11	ND	ND	ND	ND	ND	3,18E-06	ND	5,56E-10	2,88E-10	9,96E-10	7,91E-10	-1,13E-06
SQP ⁷⁾	-	3,04E+02	3,14E+00	3,61E+00	3,11E+02	1,02E+00	4,27E-03	ND	ND	ND	ND	ND	5,44E+02	ND	1,83E-01	2,74E-01	3,10E-01	3,36E-01	-3,61E+01

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	8,26E+01	1,04E-01	3,40E+00	8,61E+01	2,34E-02	7,87E-05	ND	ND	ND	ND	ND	3,52E+03	ND	1,58E-01	6,30E-03	2,51E-02	2,11E-03	-5,39E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	8,26E+01	1,04E-01	3,40E+00	8,61E+01	2,34E-02	7,87E-05	ND	ND	ND	ND	ND	3,52E+03	ND	1,58E-01	6,30E-03	2,51E-02	2,11E-03	-5,39E+00
Non-re. PER as energy	MJ	6,42E+02	9,65E+00	4,28E-01	6,52E+02	1,68E+00	-2,32E-01	ND	ND	ND	ND	ND	2,20E+03	ND	1,21E+00	4,60E-01	-2,55E+00	-1,25E+01	-1,95E+01
Non-re. PER as material	MJ	3,19E+00	0,00E+00	2,55E-01	3,44E+00	0,00E+00	-2,55E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-2,34E+00	-8,45E-01	0,00E+00
Total use of non-re. PER	MJ	6,45E+02	9,65E+00	6,83E-01	6,55E+02	1,68E+00	-4,87E-01	ND	ND	ND	ND	ND	2,20E+03	ND	1,21E+00	4,60E-01	-4,90E+00	-1,33E+01	-1,95E+01
Secondary materials	kg	3,17E-01	2,88E-03	3,87E-04	3,20E-01	7,66E-04	3,15E-06	ND	ND	ND	ND	ND	7,61E-01	ND	1,24E-04	2,07E-04	2,68E-04	4,85E-05	3,23E-01
Renew. secondary fuels	MJ	9,99E-03	2,91E-05	1,83E-04	1,02E-02	9,76E-06	3,25E-08	ND	ND	ND	ND	ND	3,12E-03	ND	5,93E-07	2,63E-06	9,03E-06	9,42E-07	-6,86E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	5,47E-01	8,80E-04	3,44E-04	5,48E-01	2,30E-04	-1,66E-05	ND	ND	ND	ND	ND	1,88E+01	ND	6,34E-04	6,09E-05	1,91E-04	-1,21E-03	-5,30E-02

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	5,28E+00	9,59E-03	2,16E-03	5,29E+00	2,95E-03	2,74E-05	ND	ND	ND	ND	ND	3,84E+00	ND	8,07E-03	8,01E-04	3,22E-03	2,32E-04	-5,06E-01
Non-hazardous waste	kg	2,22E+02	1,93E-01	1,52E-01	2,23E+02	5,53E-02	2,43E-02	ND	ND	ND	ND	ND	1,41E+02	ND	1,95E-01	1,50E-02	8,84E-02	1,73E+00	-2,86E+01
Radioactive waste	kg	1,55E-03	1,86E-06	5,03E-07	1,55E-03	3,37E-07	1,04E-09	ND	ND	ND	ND	ND	3,01E-02	ND	3,11E-06	9,11E-08	1,50E-07	3,33E-08	-4,33E-05

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	ND	ND	ND	ND	ND	0,00E+00	ND	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	6,16E-02	6,16E-02	0,00E+00	5,40E-04	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	4,85E-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	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	4,40E-02	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,07E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	5,41E-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	4,50E-03	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	2,27E-01	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	6,20E-03	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	3,14E-01	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 ₂ e	5,01E+01	7,07E-01	3,42E-02	5,08E+01	1,19E-01	2,92E-03	ND	ND	ND	ND	ND	3,68E+01	ND	9,33E-02	3,26E-02	1,24E-01	3,38E-02	-1,54E+00
Ozone depletion Pot.	kg CFC ₁₁ e	2,70E-06	9,72E-09	1,40E-09	2,71E-06	1,42E-09	3,24E-12	ND	ND	ND	ND	ND	7,89E-07	ND	5,10E-10	3,66E-10	1,54E-10	1,45E-10	-1,21E-08
Acidification	kg SO ₂ e	5,04E-01	1,99E-03	2,12E-04	5,07E-01	2,31E-04	8,65E-07	ND	ND	ND	ND	ND	3,24E-01	ND	3,78E-04	8,36E-05	1,31E-04	3,64E-05	-9,55E-02
Eutrophication	kg PO ₄ ³ e	1,20E-01	4,14E-04	2,99E-04	1,21E-01	5,38E-05	3,53E-07	ND	ND	ND	ND	ND	3,40E-02	ND	4,52E-05	2,03E-05	2,33E-05	4,14E-05	-3,81E-03
POCP (“smog”)	kg C ₂ H ₄ e	2,60E-02	1,61E-04	2,50E-05	2,62E-02	2,19E-05	1,61E-07	ND	ND	ND	ND	ND	1,70E-02	ND	2,10E-05	7,49E-06	8,42E-06	7,63E-06	-4,05E-03
ADP-elements	kg Sbe	2,18E-02	1,14E-06	1,64E-07	2,18E-02	3,90E-07	8,21E-10	ND	ND	ND	ND	ND	3,79E-03	ND	8,67E-08	1,05E-07	7,54E-07	1,30E-08	-1,52E-03
ADP-fossil	MJ	5,63E+02	9,53E+00	6,49E-01	5,73E+02	1,66E+00	3,14E-03	ND	ND	ND	ND	ND	3,03E+02	ND	1,00E+00	4,54E-01	1,71E-01	1,53E-01	-1,67E+01

ENVIRONMENTAL IMPACTS – ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Radioactive waste, high	kg	4,19E-04	4,81E-07	1,34E-07	4,20E-04	1,00E-07	2,95E-10	ND	ND	ND	ND	ND	5,47E-03	ND	8,79E-07	2,71E-08	4,85E-08	9,55E-09	-1,88E-05
Radioactive waste, int/low	kg	9,81E-04	1,37E-06	3,69E-07	9,83E-04	2,37E-07	7,44E-10	ND	ND	ND	ND	ND	2,46E-02	ND	2,23E-06	6,40E-08	1,01E-07	2,38E-08	-2,45E-05

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 ₂ e	5,03E+01	7,11E-01	3,45E-02	5,10E+01	1,20E-01	2,94E-03	ND	ND	ND	ND	ND	3,67E+01	ND	9,38E-02	3,28E-02	1,24E-01	3,52E-02	-1,55E+00

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.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, hydro, run-of-river. Ecoinvent 3.10.1
Electricity kg CO ₂ e / kWh	0,0044 kg CO ₂ / kWh
District heating data source and quality	Heat and power co-generation, wood chips, 6667 kW, state-of-the-art 2014. Ecoinvent 3.10.1
District heating kg CO ₂ e / kWh	0,0094 kg CO ₂ / kWh

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Transport, freight, lorry 16-32 metric ton, EURO6 and Transport, freight, sea, container ship
Average transport distance, km	503 km
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)	-
Water use	-
Other resource use	-
Quantitative description of energy type (regional mix) and consumption during the installation process	-
Waste materials on the building site before waste processing, generated by the product's installation (specified by type)	0,006 kg plastic film
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)	Recycling: 9% Incinerated with energy recovery: 12% Landfilled: 79%
Direct emissions to ambient air, soil and water	-

Use stage scenario documentation B6

Scenario information	Value
Type of energy carrier, e.g., electricity, natural gas, district heating	Market for electricity, low voltage (Reference product: electricity, low voltage)
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants	Demand control ventilation during 25 years. Assuming operation 8 760 hours during a year

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	0,49 kg
Collection process – kg collected with mixed construction waste	0,84 kg
Recovery process – kg for re-use	-
Recovery process – kg for recycling	0,49 kg
Recovery process – kg for energy recovery	0,046 kg
Disposal (total) – kg for final deposition	0,79 kg
Scenario assumptions e.g. transportation	Transportation type: Transport, freight, lorry 16-32 metric ton EURO5. Landfill: 50 km Incineration: 150 km Recycling: 250 km

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 15802+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

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited
31.10.2025



APPENDIX 1

This EPD covers various chilled beam and comfort module control system configurations, based on a representative product with WISE control for cooling. In the following table the GWP-GHG and GWP-fossil values for modules A1-A3 across different setups are shown.

The “WISE integrated control equipment” configuration reflects the high-runner version for cooling (A-coil). The “full kit” variant includes all optional components and

represents a maximum-impact scenario, suitable for use when additional features and/or a cooling and heating coil (B-coil) are selected.

These values represent only the control equipment and should be added to the environmental impact of the passive chilled beam or comfort module purchased from Swegon to calculate the total impact.

Product name	Description	Weight (kg)	GWP-fossil, A1-A3 (kg CO ₂ e/item)	GWP-GHG, A1-A3 (kg CO ₂ e/item)
AWC integrated control equipment	Standard units include an actuator, regulator, sensor module and valve actuator.	1,43	56,2	56,3
AWC integrated control equipment - full kit	Full kit units include an actuator, a regulator, a sensor module, a CO ₂ sensor detect Qa, a Condensation sensor SYST PCS and two valve actuators.	2,17	78,6	78,8

Product name	Description	Weight (kg)	GWP-Fossil, A1-A3 (kg CO ₂ e/item)	GWP-GHG, A1-A3 (kg CO ₂ e/item)
REACT integrated control equipment	Standard units include an actuator and a valve actuator.	1,47	26,0	26,0
REACT integrated control equipment - full kit	Full kit units include an actuator, a condensation sensor SYST PCS and two valve actuators.	2,00	36,5	36,6
WISE integrated control equipment	Standard units include an actuator, WISE CU, sensor module SMB and valve actuator.	1,32	51,0	51,0
WISE integrated control equipment - full kit	Full kit units include an actuator, WISE CU, sensor module SMB, CO ₂ sensor, condensation sensor CG-IV and valve actuator.	1,88	61,0	61,1