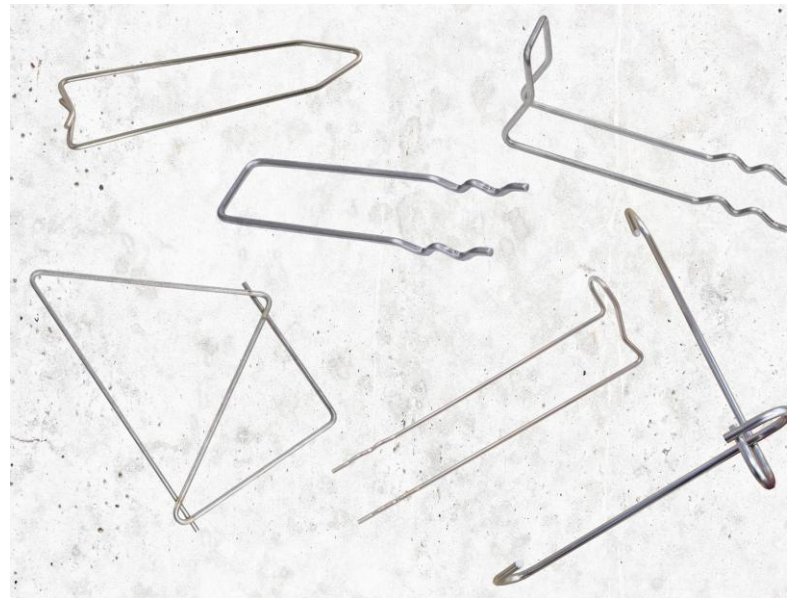


# ENVIRONMENTAL PRODUCT DECLARATION

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

Sandwich facade connections

Forshedaverken AB



**EPD HUB, HUB-2759**

Published on 07.03.2025, last updated on 07.03.2025, valid until 06.03.2030

## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Forshedaverken AB
Address	Forsheda Kvarnagård 3, 331 71 Forsheda
Contact details	info@forshedaverken.se
Website	<a href="https://forshedaverken.se/">https://forshedaverken.se/</a>

### 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	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	Oscar Ternstrom
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Imane Uald Lamkaddam as an authorized verifier for EPD Hub

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	Sandwich facade connections
Additional labels	Connector pin, Clip-on stirrup, Clip-on pin, Load carrying anchors, Beam ladder
Product reference	
Place of production	Forsheda, Sweden
Period for data	2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	0 %

### ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Sandwich facade connections
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	1,29E+00
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	1,59E-02
Secondary material, inputs (%)	82,5
Secondary material, outputs (%)	85
Total energy use, A1-A3 (kWh)	6,64
Net freshwater use, A1-A3 (m <sup>3</sup> )	0,01

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

We assist you with wire processing in automatic machines from Ø 1 mm up to Ø 10 mm. If you require stamping, flattening, punching, threading, or chamfering, we are happy to provide that for you. Everything is carried out with optimal efficiency.

### PRODUCT DESCRIPTION

The product is used to connect the outer layer to the inner layer of concrete sandwich panel and thereby transferring loads caused by deadweight, wind and temperature.

This is a average EPD and it covers Connector pin, Clip-on stirrup, Clip-on pin, Load carrying anchors, Beam ladder. The products use the same material and the same machines for the production process. The products are produced in one factory.

Further information can be found at <https://forshedaverken.se/>.

### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100 %	India
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	0
Biogenic carbon content in packaging, kg C	0,308

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of Sandwich facade connections
Mass per declared unit	1 kg
Functional unit	
Reference service life	

### 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	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.

The process begins with the receiving of wire and packaging materials into the storage facility. The majority of the raw material transport distance is via sea freight and the final distance to the facility is covered by truck. The wire is then transferred to the manufacturing facility by electric forklift, where it is loaded into the machine and automatically fed into the machinery. The process bends and welds the wire into finished products, which are subsequently placed onto a wooden pallet. The pallet is then supplemented with cardboard and pallet collar then transported to the warehouse for delivery to the customer.

The process is automated and considered stable, with a rejection rate estimated at 1%. Rejected materials consist solely of steel, which is sorted to be recycled. The distance to the recycling facility is estimated at 50 km. The EUR flat pallet is used at least once outside the system before entering. No additional consumables are used in the process.

The production facility is primarily heated using electricity, with oil as a supplementary energy source when needed. Machines and forklifts consume electricity during operation.

## 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 distance to the building site is assumed to be 100 km. A truck arrives at the facility weekly, ensuring that 100% truckload utilization can be assumed.

The product is installed manually, and no consumption occurs at this stage.

The packaging material exits the system, with the majority of the waste being recycled. The distance to the recycling facility is assumed to be 50 km.

### **PRODUCT USE AND MAINTENANCE (B1-B7)**

Not part of the scope.

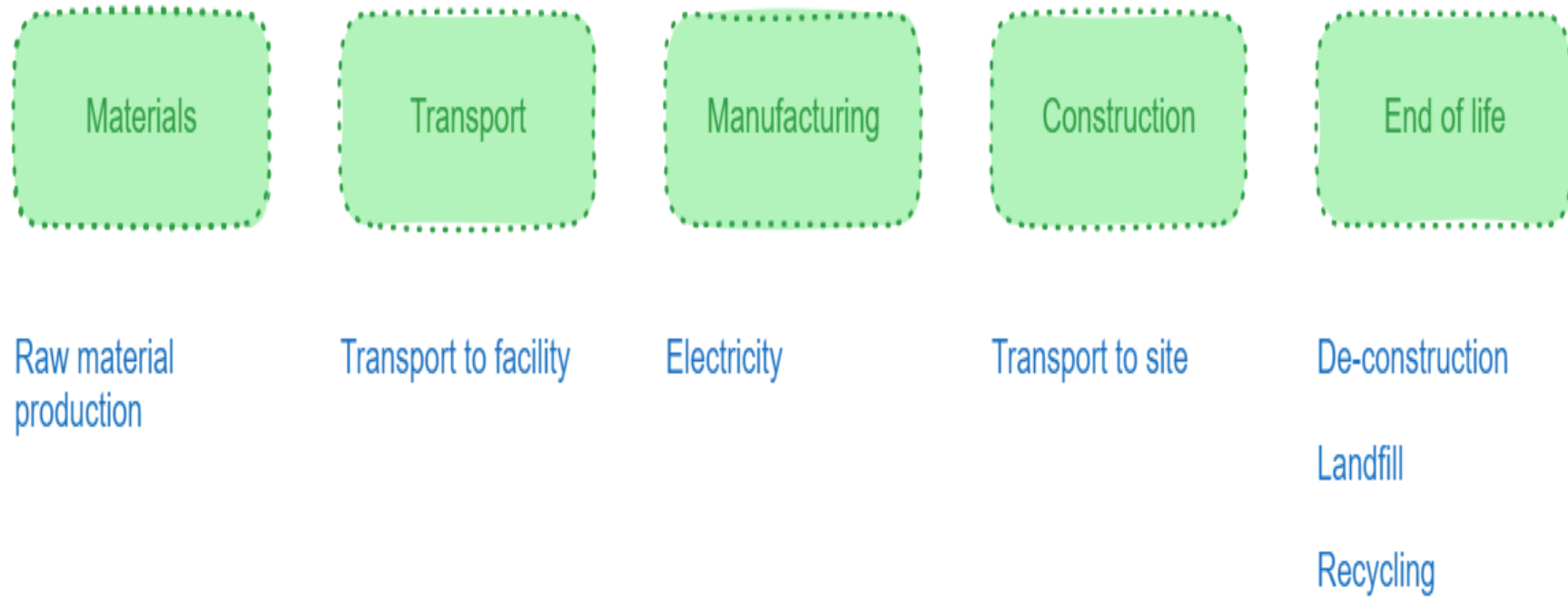
Air, soil, and water impacts during the use phase have not been studied.

### **PRODUCT END OF LIFE (C1-C4, D)**

At the end of its life—which coincides with that of the building—the product is sorted and handled by waste management services. Fifteen percent of the material ends up in landfills, while eighty-five percent is assumed to be recycled. This results in benefits from a reduced need for virgin materials.



## 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.

### 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	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

### AVERAGES AND VARIABILITY

Type of average	Multiple products
Averaging method	Averaged by shares of total mass
Variation in GWP-fossil for A1-A3	0 %

The average is across different products, made by the same material, in the same factory and with the same process. The shape and size of the products can vary, but not to the extent that it changes the process in any way.

### 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 v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

# 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 <sup>1)</sup>	kg CO <sub>2</sub> e	9,58E-01	2,60E-01	-1,20E+00	1,59E-02	2,84E-02	1,29E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,39E-03	1,86E-02	7,91E-04	-1,90E+00
GWP – fossil	kg CO <sub>2</sub> e	9,57E-01	2,60E-01	7,51E-02	1,29E+00	2,84E-02	1,08E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,38E-03	1,86E-02	7,90E-04	-1,90E+00
GWP – biogenic	kg CO <sub>2</sub> e	0,00E+00	0,00E+00	-1,28E+00	-1,28E+00	0,00E+00	1,28E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO <sub>2</sub> e	6,39E-04	1,68E-04	1,86E-03	2,67E-03	1,12E-05	7,02E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,46E-06	2,44E-05	7,46E-07	-4,54E-04
Ozone depletion pot.	kg CFC-11e	1,17E-07	5,35E-08	1,02E-08	1,81E-07	6,58E-09	1,90E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,16E-09	2,30E-09	3,20E-10	-8,27E-08
Acidification potential	mol H <sup>+</sup> e	4,44E-03	6,73E-03	4,64E-04	1,16E-02	1,15E-04	7,88E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,97E-05	2,36E-04	7,43E-06	-9,99E-03
EP-freshwater <sup>2)</sup>	kg Pe	4,25E-04	1,19E-06	1,34E-05	4,40E-04	2,00E-07	2,89E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,68E-08	9,98E-07	8,28E-09	-7,94E-05
EP-marine	kg Ne	9,83E-04	1,66E-03	1,39E-04	2,79E-03	3,45E-05	3,72E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,18E-05	4,99E-05	2,57E-06	-1,65E-03
EP-terrestrial	mol Ne	1,01E-02	1,85E-02	1,18E-03	2,98E-02	3,80E-04	3,19E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,30E-04	5,77E-04	2,83E-05	-1,92E-02
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	3,08E-03	4,84E-03	7,71E-04	8,69E-03	1,16E-04	9,18E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,17E-05	1,59E-04	8,23E-06	-8,47E-03
ADP-minerals & metals <sup>4)</sup>	kg Sbe	1,40E+01	4,32E-07	2,28E-07	1,40E+01	1,01E-07	3,51E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,20E-08	2,51E-06	1,82E-09	-2,64E-05
ADP-fossil resources	MJ	2,31E-01	3,41E+00	6,60E+00	1,02E+01	4,22E-01	1,73E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,41E-01	2,52E-01	2,17E-02	-1,73E+01
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	3,57E-06	1,15E-02	1,86E-02	3,01E-02	1,95E-03	1,59E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,31E-04	4,89E-03	6,87E-05	-2,87E-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 PO<sub>4</sub>e; 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	1,45E-07	1,27E-08	3,94E-09	1,62E-07	2,45E-09	1,23E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,08E-09	3,09E-09	1,50E-10	-1,33E-07
Ionizing radiation <sup>6)</sup>	kBq 11235e	5,64E-02	1,59E-02	5,14E-03	7,74E-02	2,21E-03	1,65E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,71E-04	2,81E-03	9,80E-05	1,98E-02
Ecotoxicity (freshwater)	CTUe	6,85E+00	2,39E+00	8,55E-01	1,01E+01	3,50E-01	1,84E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,27E-01	1,14E+00	1,41E-02	-6,14E+01
Human toxicity, cancer	CTUh	3,74E-08	1,40E-10	7,14E-11	3,76E-08	1,08E-11	1,44E-11	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,11E-12	3,50E-11	3,53E-13	1,15E-08
Human tox. non-cancer	CTUh	6,82E-09	1,81E-09	1,63E-09	1,03E-08	3,55E-10	5,73E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,25E-10	1,56E-09	9,24E-12	-3,79E-08
SQP <sup>7)</sup>	-	3,43E+00	1,30E+00	4,08E+01	4,55E+01	2,95E-01	2,25E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,62E-01	5,08E-01	4,63E-02	-9,13E+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 <sup>8)</sup>	MJ	8,61E-01	2,79E-02	9,04E+00	9,93E+00	6,05E-03	1,04E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,59E-03	4,47E-02	1,88E-04	-2,10E+00
Renew. PER as material	MJ	1,09E-01	0,00E+00	9,84E+00	9,95E+00	0,00E+00	-9,84E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-9,18E-02	-1,62E-02	0,00E+00
Total use of renew. PER	MJ	9,70E-01	2,79E-02	1,89E+01	1,99E+01	6,05E-03	-9,83E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,59E-03	-4,71E-02	-1,60E-02	-2,10E+00
Non-re. PER as energy	MJ	3,98E+00	3,41E+00	6,60E+00	1,40E+01	4,22E-01	1,73E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,41E-01	2,52E-01	2,17E-02	-1,73E+01
Non-re. PER as material	MJ	1,00E+01	0,00E+00	-9,70E-02	9,91E+00	0,00E+00	-2,07E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-8,42E+00	-1,49E+00	0,00E+00
Total use of non-re. PER	MJ	1,40E+01	3,41E+00	6,50E+00	2,39E+01	4,22E-01	1,71E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,41E-01	-8,17E+00	-1,46E+00	-1,73E+01
Secondary materials	kg	8,25E-01	1,41E-03	2,01E-02	8,47E-01	1,41E-04	1,24E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,91E-05	2,81E-04	4,55E-06	7,75E-01
Renew. secondary fuels	MJ	0,00E+00	5,76E-06	1,42E-03	1,42E-03	1,56E-06	1,35E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,95E-07	1,46E-05	1,19E-07	-1,27E-03
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	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m <sup>3</sup>	4,95E-03	2,76E-04	5,00E-04	5,73E-03	5,31E-05	7,05E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,83E-05	1,48E-04	2,37E-05	-6,87E-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	0,00E+00	4,58E-03	4,13E-03	8,71E-03	4,73E-04	2,53E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,87E-04	1,71E-03	0,00E+00	-5,00E-01
Non-hazardous waste	kg	0,00E+00	4,72E-02	4,08E-02	8,79E-02	8,41E-03	4,84E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,07E-03	5,47E-02	1,50E-01	-4,13E+00
Radioactive waste	kg	0,00E+00	2,38E-05	4,45E-05	6,83E-05	2,91E-06	6,01E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,43E-07	1,48E-06	0,00E+00	-1,34E-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	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	1,38E-02	0,00E+00	1,00E-02	2,38E-02	0,00E+00	2,26E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,50E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	2,14E-02	0,00E+00	0,00E+00	2,14E-02	0,00E+00	2,12E-01	MND	MND	MND	MND	MND	MND	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	7,71E+00	MND	MND	MND	MND	MND	MND	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 <sub>2</sub> e	9,25E-01	2,58E-01	7,56E-02	1,26E+00	2,82E-02	2,75E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,29E-03	1,83E-02	7,74E-04	-1,82E+00
Ozone depletion Pot.	kg CFC <sub>11</sub> e	4,61E-08	4,23E-08	8,27E-09	9,67E-08	5,21E-09	1,53E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,71E-09	1,86E-09	2,53E-10	-8,34E-08
Acidification	kg SO <sub>2</sub> e	3,54E-03	5,38E-03	3,66E-04	9,28E-03	8,96E-05	5,86E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,09E-05	1,91E-04	5,61E-06	-8,28E-03
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	1,98E-03	6,21E-04	1,49E-04	2,75E-03	2,03E-05	7,86E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,03E-06	6,30E-05	1,21E-06	-3,16E-03
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	5,45E-04	1,41E-04	1,00E-04	7,87E-04	3,67E-06	5,84E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,21E-06	7,22E-06	2,35E-07	-9,44E-04
ADP-elements	kg Sbe	8,65E-06	4,23E-07	2,20E-07	9,29E-06	9,85E-08	3,32E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,13E-08	2,50E-06	1,79E-09	-2,63E-05
ADP-fossil	MJ	1,03E+01	3,41E+00	9,63E-01	1,47E+01	4,22E-01	1,73E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,41E-01	2,52E-01	2,17E-02	-1,73E+01

## 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 <sup>9)</sup>	kg CO <sub>2</sub> e	9,58E-01	2,60E-01	7,69E-02	1,30E+00	2,84E-02	1,08E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,39E-03	1,86E-02	7,91E-04	-1,90E+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 - CH<sub>4</sub> fossil, CH<sub>4</sub> 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 CO<sub>2</sub> is set to zero.

## 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.

Imane Uald Lamkaddam as an authorized verifier for EPD Hub Limited 07.03.2025



## APPENDIX A

The table below show products and measurements covered by the EPD.

Product segment	Length range	Height range	Diameter range
Klämbygel – Clamp Bracket	120 mm – 400 mm	-	4 mm – 5 mm
Balkstege – Beam Ladder Connector	250 mm – 300 mm	160 mm – 420 mm	5 mm
Överbygel – Upper Bracket	160 mm – 440 mm	-	4 mm – 5 mm
Underbygel – Lower Bracket	160 mm – 280 mm	-	4 mm – 5 mm
Uppsticksbygel – Projecting Bracket	200 mm – 320 mm	-	4 mm
Bärankare – Load Anchor	255 mm – 810 mm	160 mm – 440 mm	7 mm – 10 mm
Distafix	-	60 mm – 240 mm	-