ENVIRONMENTAL PRODUCT DECLARATION

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

EKO-SRBG1, Ekovent AB

EPD of multiple products, based on the results of a representative product

Included products: EKO-SRBG1-100, EKO-SRBG1-125, EKO-SRBG1-160, EKO-SRBG1-200, EKO-SRBG1-250, EKO-SRBG1-315, EKO-SRBG1-400, EKO-SRBG1-500, EKO-SRBG1-630

EPD HUB, HUB-2417

Published on 08.12.2024, last updated on 08.12.2024, valid until 07.12.2029

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Ekovent AB
Address	Mejselgatan 7, Vellinge, Sweden
Contact details	info@ekovent.se
Website	www.ekovent.se

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
Scope of the EPD	Cradle to gate with options, A4-B7, 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 VP-055	Haiha Nguyen, as an authorized verifier acting for EPD Hub Limited

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	EKO-SRBG1
Additional labels	EKO-SRBG1-100, EKO-SRBG1-125, EKO-SRBG1-160, EKO-SRBG1-200, EKO-SRBG1-250, EKO-SRBG1-315, EKO-SRBG1-400, EKO-SRBG1-500, EKO-SRBG1-630
Product reference	-
Place of production	Vellinge, Sweden
Period for data	01/01/2023-31/12/2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	0%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of EKO-SRBG1-125 fire damper with an electric actuator
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	3,69E+00
GWP-total, A1-A3 ($kgCO_2e$)	3,38E+00
Secondary material, inputs (%)	30.9
Secondary material, outputs (%)	59.3
Total energy use, A1-A3 (kWh)	13.9
Net freshwater use, A1-A3 (m^3)	1.75

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

EKOVENT is one of Sweden's leading companies and has for more than 50 years developed, manufactured, and marketed products for ventilation and fire protection.

PRODUCT DESCRIPTION

EKO-SRBG1 is a circular fire damper in fire class EI60/EI60S with a factory-installed safety electrical actuator with spring return, end position contacts and thermal sensor. The damper construction makes the damper light and easy to install. EKO-SRBG1 is also designed for easy disassembly for future reuse or recycling. EKO-SRBG1 is a complete fire damper with calcium silicate insulation and no further material is needed during the installation. The damper conforms to air tightness class 2 and the casing conforms to air tightness class C according to EN 1751:2014. Testing and classification in compliance with EN 1366-2 and EN 13501-3.

This EPD covers multiple product sizes in the EKO-SRBG1 series (EKO-SRBG1-100, EKO-SRBG1-125, EKO-SRBG1-160, EKO-SRBG1-200, EKO-SRBG1-250, EKO-SRBG1-315, EKO-SRBG1-400, EKO-SRBG1-500, EKO-SRBG1-630).

The environmental impact and composition data are specifically based on one kilogram of the representative product, EKO-SRBG1-125. GWP-total, GWP-GHG, and GWP-fossil values for all sizes are provided in Appendix 1.

Further information can be found at www.ekovent.se.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	64,57	Europe
Minerals	21,23	Europe
Fossil materials	14,20	Europe
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	0.087

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of EKO-SRBG1-125 fire damper with an electric actuator
Mass per declared unit	1 kg
Functional unit	-
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		
×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×		
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 raw materials and ancillary materials are transported to the production facility of Ekovent AB. It is assumed that all transport is carried out using lorries, with transport distances calculated from the suppliers' warehouses to the manufacturing site. After quality inspection at the production facility, steel components undergo punching and bending, while insulation materials are processed through milling. All components are then assembled.

The power required to produce the fire damper is sourced from 100% wind power, the facility is heated by biogas, and all production waste is transported by lorries to a recycling company. The finished product is packed in a manner appropriate for its specific size, using materials such as wooden pallets, cardboard, and plastic packaging film.

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.

It is assumed that transport is conducted using 16-32 ton Euro Class 6 lorries. The average transportation distance within Sweden is 425 km, based on delivery statistics. Installation spills and the handling of packaging material are considered, and material loss during installation is estimated to be zero. The pallets, along with a portion of the cardboard and plastic used for packaging, are sent for incineration with energy recovery, while the remaining cardboard and plastic are recycled.

PRODUCT USE AND MAINTENANCE (B1-B7)

At this stage, energy is consumed during the operation of the actuator. In standby mode, the actuator draws 0.8 W. However, every two days, it performs a 60-second test cycle, during which the energy consumption increases to 2.5 W. The total annual energy consumption is calculated to be 7.01 kWh/year. According to industry standards, the estimated service life of the fire damper is 25 years. Since the product is primarily distributed within Sweden, the environmental impact has been modeled using the Swedish electricity mix. Replacement of components or part is not included.

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

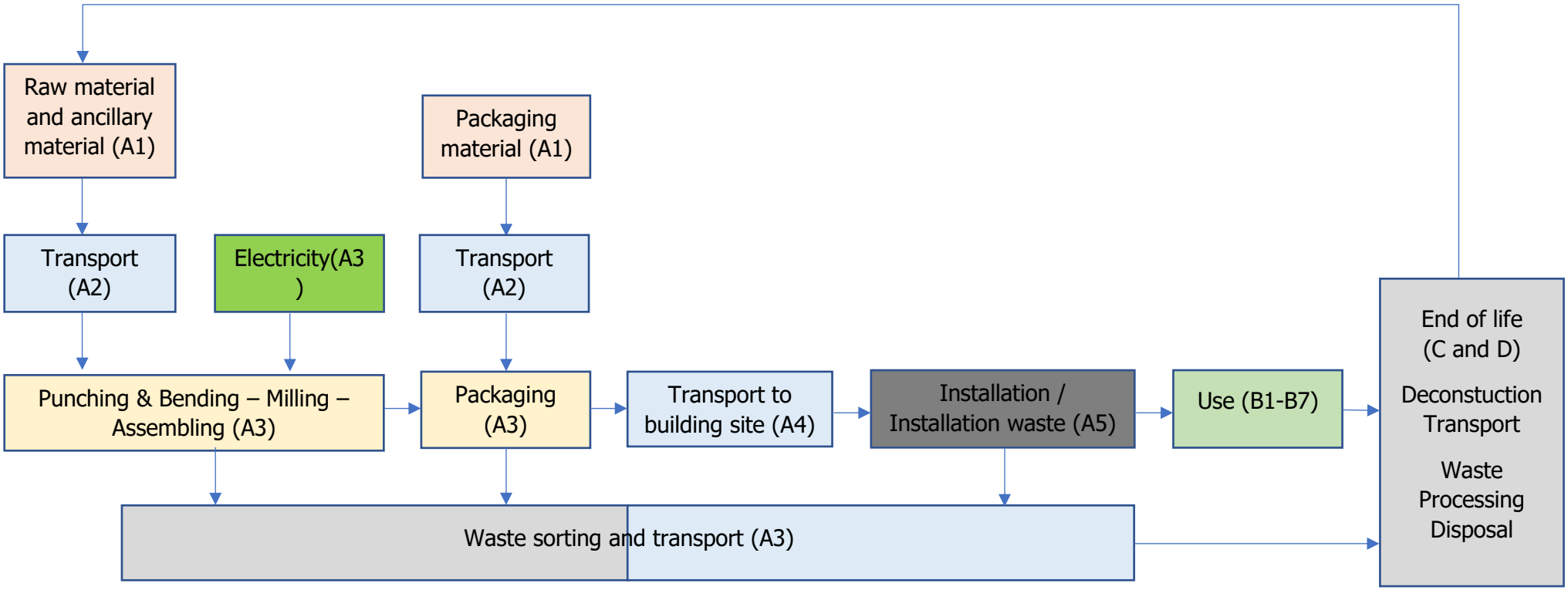
PRODUCT END OF LIFE (C1-C4, D)

Energy (0.1 kWh) for deconstruction is included in C1. The transportation distance to the local recycling center is assumed to be 50 km, and the transportation method is assumed to be by lorry in C2.

Activities related to steel recycling are included in C3 and C4. A recycling rate of 85% and a landfill rate of 15% have been assumed for the product (World Steel Association report 2020). This is considered as the proportion of the material in the product that will be recycled in a subsequent system. External scrap in the raw material is also deducted and accounts for 20%. Hence, the net flow to be credited in Module D is 76%.

It is assumed that 70% of plastics and rubber are incinerated, with the remaining 30% being recycled. A conservative assumption has been made that intumescent sealant, fire putty, and calcium silicate are directed to landfill. For electronic components, 76.3% are recycled according to local statistics, while the remaining 23.7% are sent to landfill. Benefits and loads from the energy recovery processes of packaging materials are reported in module D.

MANUFACTURING PROCESS AND SYSTEM BOUNDARY



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	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	0%

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 v3.8, 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 VP-029-C

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	3,53E+00	8,87E-02	-2,40E-01	3,38E+00	8,46E-02	3,32E-01	MND	4,95E-04	MND	MND	MND	2,67E-03	MND	4,95E-04	8,12E-03	1,39E-01	2,64E-03	-6,18E-01
GWP – fossil	kg CO_2e	3,52E+00	8,86E-02	7,64E-02	3,69E+00	8,46E-02	1,45E-02	MND	4,63E-04	MND	MND	MND	2,49E-03	MND	4,63E-04	8,11E-03	1,39E-01	2,63E-03	-6,17E-01
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-3,17E-01	-3,17E-01	0,00E+00	3,17E-01	MND	0,00E+00	MND	MND	MND	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO_2e	2,16E-03	3,54E-05	3,62E-04	2,55E-03	3,38E-05	3,27E-04	MND	3,25E-05	MND	MND	MND	1,75E-04	MND	3,25E-05	3,24E-06	2,37E-05	2,74E-06	-5,35E-04
Ozone depletion pot.	kg CFC_{-11}e	2,83E-07	2,05E-08	9,29E-09	3,13E-07	1,96E-08	8,78E-10	MND	2,26E-11	MND	MND	MND	1,22E-10	MND	2,26E-11	1,88E-09	2,29E-09	7,93E-10	-3,09E-08
Acidification potential	mol H^+e	2,24E-02	2,53E-04	4,80E-04	2,31E-02	2,40E-04	7,26E-05	MND	3,23E-06	MND	MND	MND	1,74E-05	MND	3,23E-06	2,31E-05	2,24E-04	2,21E-05	-3,69E-03
EP-freshwater[2)]	kg Pe	2,67E-04	6,34E-07	5,08E-06	2,73E-04	6,04E-07	3,21E-07	MND	2,52E-08	MND	MND	MND	1,36E-07	MND	2,52E-08	5,79E-08	8,48E-07	4,37E-08	-2,91E-05
EP-marine	kg Ne	4,25E-03	5,08E-05	1,31E-04	4,44E-03	4,79E-05	2,29E-05	MND	5,52E-07	MND	MND	MND	2,97E-06	MND	5,52E-07	4,60E-06	6,13E-05	7,46E-06	-7,00E-04
EP-terrestrial	mol Ne	4,95E-02	5,64E-04	1,38E-03	5,15E-02	5,32E-04	2,53E-04	MND	6,94E-06	MND	MND	MND	3,74E-05	MND	6,94E-06	5,11E-05	6,44E-04	8,21E-05	-9,36E-03
POCP ("smog")[3)]	kg NMVOCe	1,62E-02	2,16E-04	4,88E-04	1,69E-02	2,05E-04	6,35E-05	MND	1,64E-06	MND	MND	MND	8,82E-06	MND	1,64E-06	1,96E-05	1,79E-04	2,37E-05	-3,41E-03
ADP-minerals & metals[4)]	kg Sbe	4,09E-04	3,20E-07	1,07E-06	4,11E-04	3,06E-07	3,39E-07	MND	3,17E-08	MND	MND	MND	1,71E-07	MND	3,17E-08	2,93E-08	1,85E-06	9,84E-09	-1,02E-05
ADP-fossil resources	MJ	4,39E+01	1,32E+00	1,32E+00	4,66E+01	1,26E+00	6,84E-01	MND	6,27E-02	MND	MND	MND	3,38E-01	MND	6,27E-02	1,21E-01	2,41E-01	6,06E-02	-4,20E+00
Water use[5)]	m^3e depr.	1,11E+00	6,17E-03	6,14E-02	1,18E+00	5,89E-03	3,78E-02	MND	2,40E-03	MND	MND	MND	1,30E-02	MND	2,40E-03	5,65E-04	8,75E-03	3,59E-04	-9,77E-02

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.

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	3,77E+00	1,92E-02	4,36E+00	8,15E+00	1,83E-02	2,62E-01	MND	2,60E-02	MND	MND	MND	1,40E-01	MND	2,60E-02	1,76E-03	3,55E-02	1,15E-03	-4,09E+00
Renew. PER as material	MJ	4,00E-04	0,00E+00	2,82E+00	2,82E+00	0,00E+00	-2,82E+00	MND	0,00E+00	MND	MND	MND	0,00E+00	MND	0,00E+00	0,00E+00	-4,00E-04	0,00E+00	0,00E+00
Total use of renew. PER	MJ	3,77E+00	1,92E-02	7,19E+00	1,10E+01	1,83E-02	-2,56E+00	MND	2,60E-02	MND	MND	MND	1,40E-01	MND	2,60E-02	1,76E-03	3,51E-02	1,15E-03	-4,09E+00
Non-re. PER as energy	MJ	3,93E+01	1,32E+00	1,06E+00	4,17E+01	1,26E+00	6,82E-01	MND	6,25E-02	MND	MND	MND	3,37E-01	MND	6,25E-02	1,21E-01	2,42E-01	6,06E-02	-5,69E+00
Non-re. PER as material	MJ	4,57E+00	0,00E+00	2,55E-01	4,82E+00	0,00E+00	-2,55E-01	MND	0,00E+00	MND	MND	MND	0,00E+00	MND	0,00E+00	0,00E+00	-4,57E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	4,39E+01	1,32E+00	1,32E+00	4,65E+01	1,26E+00	4,27E-01	MND	6,25E-02	MND	MND	MND	3,37E-01	MND	6,25E-02	1,21E-01	-4,33E+00	6,06E-02	-5,69E+00
Secondary materials	kg	3,09E-01	4,48E-04	1,89E-02	3,28E-01	4,28E-04	1,40E-04	MND	5,66E-06	MND	MND	MND	3,05E-05	MND	5,66E-06	4,11E-05	3,39E-04	2,10E-05	2,88E-01
Renew. secondary fuels	MJ	6,15E-04	4,93E-06	8,50E-02	8,56E-02	4,71E-06	5,42E-07	MND	2,35E-08	MND	MND	MND	1,27E-07	MND	2,35E-08	4,52E-07	1,24E-05	8,39E-07	1,07E-03
Non-ren. secondary fuels	MJ	3,09E-23	0,00E+00	0,00E+00	3,09E-23	0,00E+00	0,00E+00	MND	0,00E+00	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	1,74E+00	1,68E-04	1,35E-03	1,75E+00	1,60E-04	5,70E-04	MND	6,05E-05	MND	MND	MND	3,26E-04	MND	6,05E-05	1,54E-05	2,94E-04	6,48E-05	-1,81E-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	3,44E-01	1,50E-03	9,88E-03	3,55E-01	1,43E-03	6,02E-04	MND	5,22E-05	MND	MND	MND	2,81E-04	MND	5,22E-05	1,37E-04	3,23E-03	8,43E-06	-1,93E-01
Non-hazardous waste	kg	4,94E+00	2,67E-02	1,34E-01	5,11E+00	2,54E-02	2,19E-01	MND	1,41E-03	MND	MND	MND	7,61E-03	MND	1,41E-03	2,44E-03	1,16E-01	2,58E-01	-1,12E+00
Radioactive waste	kg	2,44E-04	9,08E-06	4,53E-06	2,58E-04	8,66E-06	9,82E-06	MND	9,62E-07	MND	MND	MND	5,19E-06	MND	9,62E-07	8,31E-07	1,29E-06	3,79E-09	-1,04E-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	5,48E-04	0,00E+00	0,00E+00	5,48E-04	0,00E+00	0,00E+00	MND	0,00E+00	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	2,64E-02	0,00E+00	1,01E-02	3,65E-02	0,00E+00	1,76E-02	MND	0,00E+00	MND	MND	MND	0,00E+00	MND	0,00E+00	0,00E+00	6,52E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	5,07E-04	0,00E+00	0,00E+00	5,07E-04	0,00E+00	0,00E+00	MND	0,00E+00	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	4,54E-05	0,00E+00	0,00E+00	4,54E-05	0,00E+00	1,51E-01	MND	0,00E+00	MND	MND	MND	0,00E+00	MND	0,00E+00	0,00E+00	2,18E-01	0,00E+00	0,00E+00

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	3,52E+00	8,86E-02	7,64E-02	3,69E+00	8,46E-02	1,45E-02	MND	4,63E-04	MND	MND	MND	2,49E-03	MND	4,63E-04	8,11E-03	1,39E-01	2,63E-03	-6,17E-01

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.

APPENDIX 1. ADDITIONAL ENVIRONMENTAL INFORMATION

CLIMATE IMPACT VARIATION IN SRBG1 SERIES (MODULES A1-A3)

The table below presents the total climate impact results for modules A1-A3 (Cradle-to-gate) for all sizes in the SRBG1 series. Variation in impact is due to differences in material composition and size. GWP-TOTAL shows a 44% difference between the product with the highest and lowest impact, while GWP-FOSSILS and GWP-GHG each show a 41% difference, all measured per kilogram of fire damper.

RESULTS GWP-TOTAL FOR ALL DIMENSIONS

Dimension	GTIN	GWP-Total (A1-A3) [kg CO2-eq/kg fire damper]	Article weight [kg/piece]	GWP-Total (A1-A3) [kg CO2-eq per 1 piece fire damper]
100	07350139870009	3,8	2,92	11,11
125	07350139870016	3,38	3,25	10,99
160	07350139870023	3,46	3,75	12,97
200	07350139870030	3,1	4,39	13,60
250	07350139870047	2,88	5,25	15,12
315	07350139870054	2,72	6,53	17,75
400	07350139870061	2,71	8,41	22,79
500	07350139871389	2,28	14,10	32,15
630	07350139871396	2,12	19,11	40,51

RESULTS GWP-GHG FOR ALL DIMENSIONS

Dimension	GTIN	GWP-GHG (A1-A3) [kg CO2-eq/kg fire damper]	Article weight [kg/piece]	GWP-GHG (A1-A3) [kg CO2-eq per 1 piece fire damper]
100	07350139870009	4,11	2,92	12,02
125	07350139870016	3,69	3,25	12,00
160	07350139870023	3,78	3,75	14,17
200	07350139870030	3,42	4,39	15,00
250	07350139870047	3,2	5,25	16,80
315	07350139870054	3,03	6,53	19,77
400	07350139870061	3,03	8,41	25,49
500	07350139871389	2,59	14,10	36,52
630	07350139871396	2,44	19,11	46,63

RESULTS GWP-FOSSILS FOR ALL DIMENSIONS

Dimension	GTIN	GWP-Fossil (A1-A3) [kg CO2-eq/kg fire damper]	Article weight [kg/piece]	GWP-Fossil (A1-A3) [kg CO2-eq per 1 piece fire damper]
100	07350139870009	4,11	2,92	12,02
125	07350139870016	3,69	3,25	12,00
160	07350139870023	3,78	3,75	14,17
200	07350139870030	3,42	4,39	15,00
250	07350139870047	3,2	5,25	16,80
315	07350139870054	3,03	6,53	19,77
400	07350139870061	3,03	8,41	25,49
500	07350139871389	2,59	14,10	36,52
630	07350139871396	2,44	19,11	46,63

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.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
02.12.2024

VERIFIED ISO 14025