

# ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	ASSA ABLOY Entrance Systems AB (Residential Doors)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-ASA-20240091-IBA1-EN
Issue date	28.01.2025
Valid to	27.01.2030

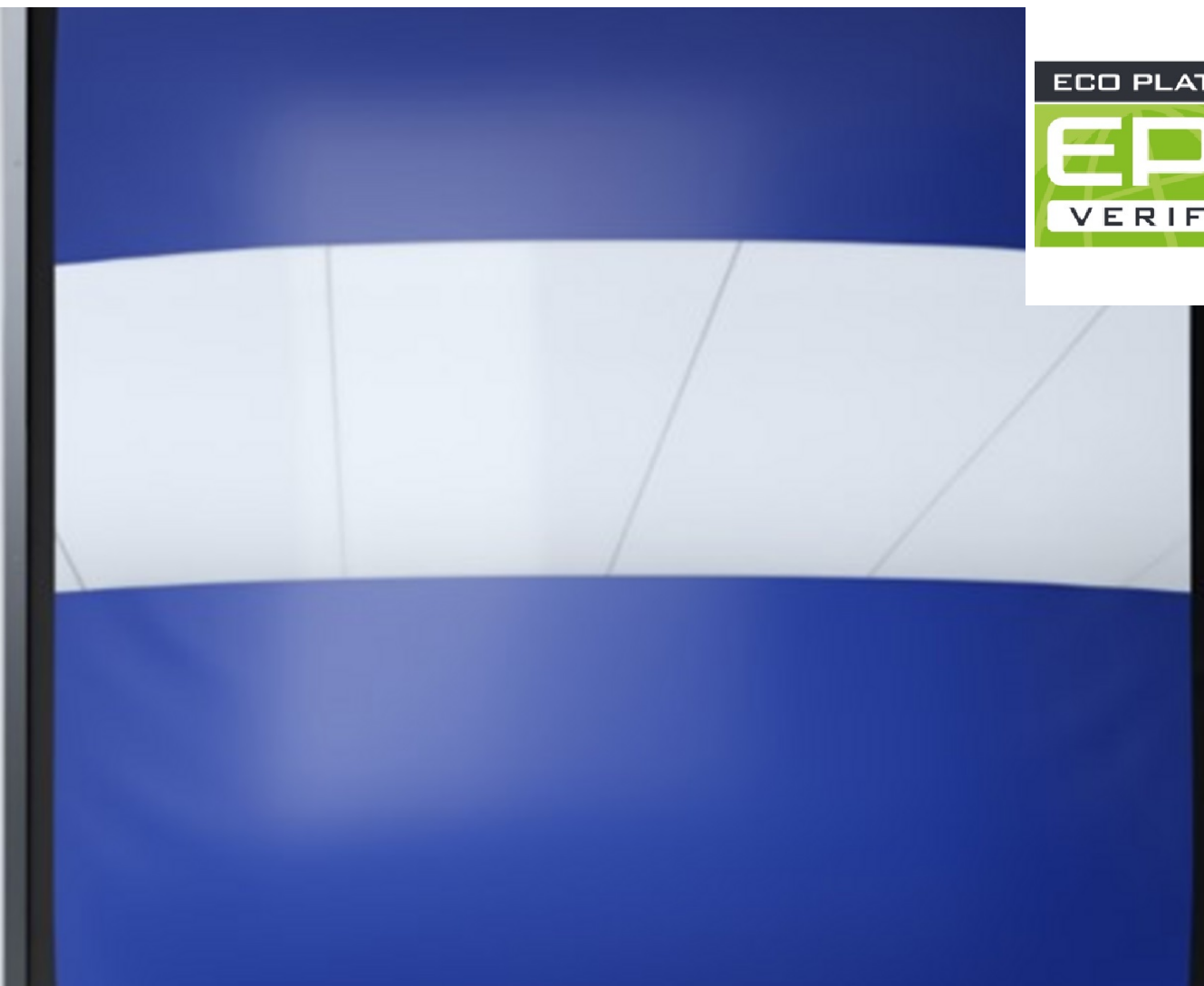
## ASSA ABLOY HS9120G high performance door ASSA ABLOY Entrance Systems AB

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## 1. General Information

### ASSA ABLOY Entrance Systems AB

**Programme holder**

IBU – Institut Bauen und Umwelt e.V.  
Hegelplatz 1  
10117 Berlin  
Germany

**Declaration number**

EPD-ASA-20240091-IBA1-EN

**This declaration is based on the product category rules:**

Automatic doors, automatic gates, and revolving door systems,  
01.08.2021  
(PCR checked and approved by the SVR)

**Issue date**

28.01.2025

**Valid to**

27.01.2030



Dipl.-Ing. Hans Peters  
(Chairman of Institut Bauen und Umwelt e.V.)



Florian Pronold  
(Managing Director Institut Bauen und Umwelt e.V.)

### ASSA ABLOY HS9120G high performance door

**Owner of the declaration**

ASSA ABLOY Entrance Systems AB (Residential Doors)  
Lodjursgatan 10  
26144 Landskrona  
Sweden

**Declared product / declared unit**

This declaration represents 1 high performance door with electrical operation for internal applications, 2500 mm width and 3000 mm height, consisting of a galvanized steel door frame and a 900 g/m<sup>2</sup> fabric curtain.

**Scope:**

This declaration and its LCA study are relevant to the ASSA ABLOY HS9120G high performance door. The production location is Moorsel, Belgium and components are sourced from international tier one suppliers. ASSA ABLOY HS9120G high performance door size vary according to project requirements; a standard door 2500 mm width and 3000 mm height with a galvanized steel frame and 900g/m<sup>2</sup> curtain, is used in this declaration.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

**Verification**

The standard EN 15804 serves as the core PCR	
Independent verification of the declaration and data according to ISO 14025:2011	
<input type="checkbox"/>	internally
<input checked="" type="checkbox"/>	externally



Dr.-Ing. Wolfram Trinius,  
(Independent verifier)

## 2. Product

### 2.1 Product description/Product definition

**Product name:** ASSA ABLOY HS9120G high performance door

The ASSA ABLOY HS9120G high performance door is suitable for all types of buildings, with regards to both function and appearance. High flexibility makes it possible to install this door in almost every type of building. The door rolls up on a roll above the lintel when opened, not needing excessive space around the door opening and leaving the door opening completely free. The door frame is kept to a minimum to tightly hold the door curtain in position and reduce air flow between two areas.

The fast opening and closing speed improve traffic flow, provides employee comfort, and saves energy. The superior sealing technology protects areas against drafts, humidity, dust and dirt.

Features that make the door safe are soft bottom profile, light curtain and automatic release of curtain from side guides if crashed into. The curtain reintroduces itself after a crash to reduce downtime and maintenance.

The door is made of a steel supporting framework and has a curtain to prevent air loss with a special integrated curtain seal. This is designed to limit air loss when the door is closed which reduces energy costs. The surface of the curtain is PVC coated. There is top, bottom and side seals on the door to seal the door to the framework. The standard side frame is made of galvanized steel on the outside and a sliding track made of PE plastic the inside.

The door has 3 primary parts:

- 1) Top roll with door curtain
- 2) Side frames
- 3) Control system with drive system

The ASSA ABLOY HS9120G high performance door has been designed to meet all operational and safety requirements in the European Directives and the standards issued by the European Standardization Committee (CEN).

For the placing on the market in the EU/EFTA (excl. Switzerland), Switzerland and Turkey the following European directives apply to the ASSA ABLOY HS9120G high performance door:

- 2006/42/EC Machinery Directive (MD)
- 2004/30/EU Electromagnetic Compatibility Directive (EMCD)
- 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment with the applicable amendments (RoHS).
- 2015/863/EU amending Annex II to Directive 2011/65/EU (RoHS)

**Harmonized European standards, which have been applied:**

- EN 12453:2017 Industrial, commercial and garage doors and gates – Safety in use of power operated doors – Requirements and test methods'
- EN ISO 13849-1 Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design
- EN 61000-6-2:2005 Electromagnetic compatibility (EMC) -Part 6-2: Generic standards - Immunity for industrial environments

- EN 61000-6-3:2007 Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments
- EN 60204-1 Safety of machinery - Electrical equipment of machines - Part 1: General requirements
- EN 60335-1:2012 + A11:2011 + A13:2017 + AC1:2014 Household and similar electrical appliances -Safety - Part 1: General requirements
- EN 60335-2-103:2015 Household and similar electrical appliances -Safety -Part 2: Particular requirements for drives for gates, doors and windows

Construction Products Regulation (CPR) (EU)No 305/2011 applies.

The products need a Declaration of Performance and CE marking under consideration of the Construction Products Regulation and the harmonized standard EN 13241:2003+A2:2016 Industrial, commercial, garage doors and gates — Product standard — Part 1: performance characteristics. Products without fire resistance or smoke control characteristics.

Disposal of the product is subject to the Waste from Electrical and Electronic Equipment (WEEE) Directive within Europe, Directive 2012/19/EU together with the RoHS Directive 2011/65/EU and its amending Directive 2015/863.

Further standards that can be applied for HS9120G high performance doors are:

- EN 12424 Industrial, commercial and garage doors and gates - Resistance to wind load – Classification: Class 1
- EN 12425 Industrial, commercial and garage doors and gates - Resistance to water penetration - Classification: Class 2
- EN 12426 Industrial, commercial and garage doors and gates - Air permeability – Classification: Class 1
- EN 12428 Industrial, commercial and garage doors and gates - Thermal transmittance - Requirements for classification: 6,02 W/m2K
- EN 12453 Industrial, commercial and garage doors and gates - Safety in use of power operated doors - Requirements and test methods: Pass
- EN 12604 Industrial, commercial and garage doors and gates - Mechanical aspects - Requirements and test methods  
Mechanical resistance: Pass  
Unintended movements: Pass  
Performance: 1.000.000 cycles

For the application and use, the respective national provisions apply.

### 2.2 Application

The ASSA ABLOY HS9120G high performance door is suitable for all types of buildings, with regards to both function and appearance. It has a modern, clean design and meets high air permeability demands. Space saving design makes it possible to install this door in almost every type of building in even the tightest spaces.

### 2.3 Technical Data

The table presents the technical properties of the ASSA ABLOY HS9120G high performance door:

#### Technical and Constructional data

Name	Value	Unit
Max size (W x H)	2500 x 3000	mm
Curtain weight	900	g/m <sup>2</sup>
Curtain thickness	0.7	mm
Curtain material	PVC coated textile. Optional: fire retardant	
Top roll or motor cover	Galvanized Steel. Optional: powder coated. Optional: stainless steel	
Safety devices	light grid inside frame. Optional: safety edge and stationary photocell	
Clear PVC windows (optional)	Different number of windows (640x580mm) depending on door size	
Vision panels (optional)	400 x 800mm high vision panels depending on door size	
Electrical operation	DCC Frequency converter control system	
Opening/closing speed	Opening 2.0 m/s. Closing 0.5 m/s	
Power input "Operation"	385	W
Power input "Standby"	29	W

Other constructional categories are not applicable

1) Other sizes available, maximum height: 4000 mm and maximum width: 4000 mm.

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to: EN 13241+A2:2016.

## 2.4 Delivery status

ASSA ABLOY HS9120G high performance door unit with a door size of width 2500 mm and height 3000 mm is delivered in parts ready for installation.

## 2.5 Base materials/Ancillary materials

The average composition for ASSA ABLOY HS9120G high performance door is as following:

Name	Value	Unit
Aluminum	3.46	%
Brass	0.08	%
Copper	0.03	%
Plastics	12.72	%
Stainless steel	0.07	%
Steel	74.04	%
Electronics	0.98	%
Electro mechanics	8.33	%
Others	0.29	%
Total	100	%

## 2.6 Manufacture

The final manufacturing processes occur at the factory in Moorsel, Belgium. The textile curtain is cut and welded together. Steel and plastic profiles are cut and drilled in preparation for assembly. The side frames and covers are assembled with hand tools and special tools. Painting of parts and complete assemblies.

Offcuts and scraps during the manufacturing process are directed to a recycling unit. Waste is sent for disposal. Waste codes according to *European Waste Catalogue and Hazardous*

*Waste List* -Valid from 1 July 2015.

EWC 12 01 01 Ferrous metal filings and turnings

EWC 17 02 03 plastic

EWC 17 04 01 copper, bronze, brass

EWC 17 04 05 iron and steel

EWC 17 04 11 Cables with the exception of those outlined in 17 04 10

## 2.7 Environment and health during manufacturing

ASSA ABLOY Entrance Systems is committed to producing and distributing door opening solutions with minimal environmental impact, where health & safety is the primary focus for all employees and associates.

- Environmental operations, Greenhouse gases, energy, water, waste, Volatile Organic Compound (VOC), surface treatment and Health & Safety are being routinely monitored. Inspections, audits, and reviews are conducted periodically to ensure that applicable standards are met, and environment management program effectiveness is evaluated.

- Code of Conduct covers human rights, labor practices and decent work. Management of ASSA ABLOY Entrance Systems is aware of their roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.

- Any waste metals during machining are separated and recycled.

## 2.8 Product processing/Installation

The high performance door components are supplied ready for installation. The ASSA ABLOY HS9120G high performance door is shipped to site in pre-assembled components (top roll with door curtain, side frames and control unit). The components are assembled using simple tools including drills and hand tools.

The installation is performed by trained and qualified installation technicians. Qualified person is defined as a person, suitably trained, qualified by knowledge, skills, and practical experience, and provided with the necessary instructions to enable the required installation, to be carried out correctly and safely.

## 2.9 Packaging

Packaging exists for the purpose of protection during transportation. ASSA ABLOY HS9120G high performance door components are packaged on in-house made wooden pallets and corrugated cardboard. All of these packaging components are standard industry types. The cardboard and wood are recyclable.

The packaging includes cardboard/paper (20%) and wood (80%).

All materials incurred during installation are sent to a recycling unit (e.g. steel) and waste incineration plant (wood paper and plastic) for its energy recovery.

Waste codes according to *European Waste Catalogue and Hazardous Waste List* -Valid from 1 July 2015.

EWC 15 01 01 paper and cardboard packaging

EWC 15 01 02 plastic packaging

EWC 15 01 03 wooden packaging.

## 2.10 Condition of use

Regular inspections by a trained and qualified person are recommended a minimum of one visit per every six months or 50.000 cycles. Examinations on a 3-months period by the user

of the ASSA ABLOY HS9120G high performance door.

- 1) Clean the door leaf with a soft clean brush and mild detergent.
- 2) If damage is found, contact the local service center for advice.

## 2.11 Environment and health during use

There is no harmful emissive potential. No damage to health or impairment is expected under normal use corresponding to the intended use of the product.

## 2.12 Reference service life

The product has a reference service life of more than 1.000.000 cycles or 10 years standard daily use with the recommended maintenance and service program. For this EPD a lifetime of 10 years was considered.

## 2.13 Extraordinary effects

### Fire

Door curtain can optionally consist partly of material which fulfill level B-S2-d0 according to DIN EN 13501-1.

### Water

Contains no substances that impact water. In case of a flood, electric operation of the device will be influenced negatively.

### Mechanical destruction

No danger to the environment can be anticipated during mechanical destruction.

## 2.14 Re-use phase

The product is possible to be re-used during the reference service life and be moved from one opening to another.

All recyclable materials are directed to a recycling unit where they are recycled (steel, electronics, electro-mechanics and aluminum).

On the other hand, the plastic components are sent to the waste incineration plant for its energy recovery.

Waste codes according to *European Waste Catalogue and Hazardous Waste List* -Valid from 1 July 2015.

*EWC 16 02 14* Used devices with the exception of those outlined in 16 02 09 to 16 02 13

*EWC 17 02 03* plastic

*EWC 17 04 01* copper, bronze, brass

*EWC 17 04 02* aluminum

*EWC 17 04 05* iron and steel

*EWC 17 04 11* Cables with the exception of those outlined in 17 04 10

## 2.15 Disposal

The product can be mechanically disassembled to separate the different materials. The majority, of components are steel which will be recycled. The plastic components are used for energy recovery in an incineration plant. No disposal is foreseen for the product nor for the corresponding packaging.

## 2.16 Further information

ASSA ABLOY Entrance Systems AB

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SE-261 44 Landskrona

Sweden

[www.assaabloyentrance.com](http://www.assaabloyentrance.com)

## 3. LCA: Calculation rules

### 3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of ASSA ABLOY HS9120G high performance door (width of 2500 mm and height 3000 mm) as specified in Part B requirements on the *EPD IBU: PCR Automatic doors, automatic gates, and revolving door systems (door systems)*. Functional unit for module B6: Use of 1 piece of ASSA ABLOY HS9120G high performance door for 10 years.

#### Declared unit

Name	Value	Unit
Mass (without packaging)	135.78	kg
Mass packaging (paper, wood)	43.85	kg
Declared unit for high performance door	1	pce.
Dimensions for high performance door (L x H)	2500 x 3000	mm
Mass reference	135.78	kg/pce

### 3.2 System boundary

Type of the EPD: cradle to gate - with options.  
The following life cycle stages were considered:

Production stage:

- A1 – Raw material extraction and processing
- A2 – Transport to the manufacturer and
- A3 – Manufacturing

Construction stage:

- A4 - Transport from the gate to the site
- A5 – Packaging waste processing

Use stage related to the operation of the building includes:

- B6 – Operational energy use

End-of-life stage:

- C1 - De-construction/demolition
- C2 – Transport to waste processing,
- C3 – Waste processing for recycling and
- C4 – Disposal (landfill, waste for incineration).

This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of-waste state or disposal of final residues.

- Benefits and loads beyond the system boundaries: D – Declaration of all benefits and loads.

### 3.3 Estimates and assumptions

Transportation: Data on the mode of transport and distances, as reported by suppliers were used for those materials and parts contributing more than 2 % of the total product mass. In case of unknown transport distances for parts and materials, contributing less than 2 % to the total product mass, transport by road over an average distance of 500 km was assumed.

Use stage:

For the use stage, it is assumed that the rapid roll door is used in the European Union, thus a European electricity grid mix is considered within this stage. According to the most representative scenario, the operating hours of the product are accounted for 0.72 hours in on mode and 23.28 hours in standby mode per day (260 days per year in use over a lifetime of 10 years); the power consumption throughout the whole life

cycle is 2476.03 kWh.

## EoL:

In the End-of-Life stage, for all the materials from the product which can be recycled (steel, aluminum, electronic parts, electro-mechanics, copper, stainless steel and brass), a recycling scenario with 100 % collection rate was assumed. The plastic components are sent for energy recovery within a waste incineration process.

EoL is assumed to happen within EU-28. Furthermore, a transport distance by truck of 100 km has been assumed in the model.

### 3.4 Cut-off criteria

In the assessment, all available data from the production process are considered, i.e. all raw materials used, auxiliary materials (e.g. lubricants), and electric power consumption - including material and energy flows contributing less than 1 % of mass or energy (if available). In case a specific flow contributing less than 1 % in mass or energy is not available, worst case assumption proxies are selected to represent the respective environmental impacts.

Impacts relating to the production of machines and facilities required during production are out of the scope of this assessment.

### 3.5 Background data

For life cycle modelling of the considered product, Sphera's Life Cycle for Expert (LCA FE) software is used. Sphera Managed Lifecycle Content (MLC) modelling database is used as the background database of the study.

### 3.6 Data quality

The requirements for data quality and background data correspond to the specifications of the *IBU PCR Part A*. Sphera performed a variety of tests and checks during the entire project to ensure a high quality of the completed project. This obviously includes an extensive review of project specific LCA models as well as the background data used. The technological background of the collected data reflects the

physical reality of the declared products.

The datasets are complete and conform to the system boundaries and the criteria for the exclusion of inputs and outputs.

All relevant background datasets are taken from the *Sphera MLC database*.

### 3.7 Period under review

The period under review is 2023 (12-month average).

### 3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Europe

### 3.9 Allocation

Regarding incineration, the software model for the waste incineration plant (WIP) is adapted according to the material composition and heating value of the combusted material. In this EPD, the following specific life cycle inventories for the WIP are considered for:

- Waste incineration of Paper
- Waste incineration of Plastic
- Waste incineration of Wood

Regarding the recycling material of metals, the metal parts in the EoL are declared as end-of-waste status. Thus, these materials are considered in module D.

Specific information on allocation within the background data is given in the MLC dataset documentation.

### 3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. *MLC database CUP (version) 2020.1 (former GaBi)* serves as background database for the calculation.

## 4. LCA: Scenarios and additional technical information

### Characteristic product properties of biogenic carbon

Packaging material containing biogenic carbon includes wood (35.00 kg) and paper (8.85 kg).

### Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	21.3	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO<sub>2</sub>.

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment if modules are not declared (MND).

### Transport to the building site (A4)

Name	Value	Unit
Kg of fuel diesel with maximum load (27t payload)	27.505	kg/100km
Transport distance truck (primary target market is EU 27)	984	km
Capacity utilisation (including empty runs)	61	%
Transport by ship	102	km

### Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (paper/cardboard packaging)	8.85	kg
Output substances following waste treatment on site (steel packaging)	0.00	kg
Output substances following waste treatment on site (wood packaging)	35.00	kg
Output substances following waste treatment on site (plastic packaging)	0.00	kg

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies to the reference

conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list of service life by *BNB* is declared.

## Reference service life

Name	Value	Unit
Reference service life	10	a

## Operational energy use (B6)

Name	Value	Unit
Electricity consumption per RSL (10 years, 260 days per year)	2476.03	kWh
Hours per day in on mode	0.72	h
Hours per day in stand-by mode	23.28	h
Hours per day in idle mode	0	h
Power consumption - on mode	385	W
Power consumption - stand-by mode	29	W
Power consumption - idle mode	0	W

For the remaining days (105 days) the power is being switched off.

\*Total energy consumed during the whole product life was calculated using following formula:

$$(W_{active\_mode} * h_{active\_mode} + W_{idle\_mode} * h_{idle\_mode} + W_{stand\_by\_mode} * h_{stand\_by\_mode}) * Life\_span * days\_year * 0.001$$

## Where:

- $W_{active\_mode}$  - Energy consumption in active mode in W
- $h_{active\_mode}$  - Operation time in active mode in hours
- $W_{idle\_mode}$  - Energy consumption in idle mode in W
- $h_{idle\_mode}$  - Operation time in idle mode in hours

- $W_{stand\_by\_mode}$  - Energy consumption in stand-by mode in W
- $h_{stand\_by\_mode}$  - Operation time in stand-by mode in hours
- $Life\_span$  - Reference service life of product
- $days\_year$  - Operation days per year
- 0.001 - Conversion factor from Wh to kWh.

## End of life (C1-C4)

Name	Value	Unit
Collected separately aluminum, steel, brass, plastics, stainless steel, copper, electronic, electromechanics, etc.	135.39	kg
Incineration of plastic parts	17.27	kg
Recycling aluminum, steel, copper, electronic, electromechanics, stainless steel and brass	-	kg
Incineration of paper	8.85	kg
Landfilling	0.39	kg

## Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Collected separately waste type (including packaging)	179.24	kg
Recycling aluminum	2.62	%
Recycling brass	0.06	%
Recycling copper	0.02	%
Recycling stainless steel	0.05	%
Recycling steel	56.09	%
Recycling electronic	0.74	%
Recycling electro mechanics	6.31	%
Incineration of plastic parts	9.64	%
Incineration of paper	0.027	%
Incineration of packaging (paper, wood and plastic) (from A%5)	24.46	%
Recycling of steel packaging	0.00	%

## 5. LCA: Results

Results shown are calculated according to EN 15804+A2.

Note:

EP-freshwater: This indicator has been calculated as 'kg P eq' as required in the characterization model (EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe; <http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml>).

**DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)**

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MNR	MNR	MNR	X	MND	X	X	X	X	X

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: One piece of HS9120G high performance door

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq	5.11E+02	1.09E+01	7.76E+01	1E+03	0	8.18E-01	3.91E+01	8.97E-05	-3.92E+02
GWP-fossil	kg CO <sub>2</sub> eq	5.76E+02	1.08E+01	6.97E-01	9.97E+02	0	8.13E-01	3.91E+01	1.06E-04	-3.91E+02
GWP-biogenic	kg CO <sub>2</sub> eq	-6.59E+01	0	7.69E+01	3.32E+00	0	0	-1.93E-03	0	-2.64E-01
GWP-luluc	kg CO <sub>2</sub> eq	4.51E-01	8.58E-02	3.15E-04	1.44E+00	0	6.6E-03	1.37E-03	3.06E-07	-8.69E-02
ODP	kg CFC11 eq	1.68E-08	1.3E-15	3.12E-15	2.19E-11	0	9.8E-17	1.14E-14	3.93E-19	8.79E-12
AP	mol H <sup>+</sup> eq	1.83E+00	2.05E-02	7.97E-02	2.2E+00	0	8.36E-04	5.19E-03	7.62E-07	-2.24E+00
EP-freshwater	kg P eq	9.12E-04	3.23E-05	6.21E-07	2.66E-03	0	2.48E-06	1.92E-06	1.82E-10	-1.46E-04
EP-marine	kg N eq	3.52E-01	5.62E-03	2E-02	4.89E-01	0	2.44E-04	1.4E-03	1.96E-07	-3.5E-01
EP-terrestrial	mol N eq	3.81E+00	6.5E-02	2.23E-01	5.13E+00	0	2.93E-03	2.32E-02	2.15E-06	-3.81E+00
POCP	kg NMVOC eq	1.2E+00	1.57E-02	6.44E-02	1.34E+00	0	6.76E-04	4.02E-03	5.94E-07	-1.08E+00
ADPE	kg Sb eq	7.04E+03	1.44E+02	5.22E+00	1.75E+04	0	1.09E+01	1.52E+01	1.39E-03	-3.98E+03
ADPF	MJ	1.93E-02	7.66E-07	5.02E-08	2.88E-04	0	5.84E-08	1.68E-07	9.53E-12	-8E-02
WDP	m <sup>3</sup> world eq deprived	2.68E+01	9.52E-02	3.74E+00	2.17E+02	0	7.29E-03	4.07E+00	1.11E-05	-2.15E+01

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

### RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: One piece of HS9120G high performance door

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PERE	MJ	8.05E+02	7.94E+00	8.16E+02	7.77E+03	0	6.1E-01	3.09E+00	1.82E-04	-3.51E+02
PERM	MJ	8.15E+02	0	-8.15E+02	0	0	0	0	0	0
PERT	MJ	1.62E+03	7.94E+00	9.27E-01	7.77E+03	0	6.1E-01	3.09E+00	1.82E-04	-3.51E+02
PENRE	MJ	6.15E+03	1.44E+02	5.22E+00	1.75E+04	0	1.09E+01	9.5E+02	1.39E-03	-3.99E+03
PENRM	MJ	9.35E+02	0	0	0	0	0	-9.35E+02	0	0
PENRT	MJ	7.08E+03	1.44E+02	5.22E+00	1.75E+04	0	1.09E+01	1.52E+01	1.39E-03	-3.99E+03
SM	kg	2.47E+01	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m <sup>3</sup>	1.66E+00	9.2E-03	8.7E-02	8.98E+00	0	7.06E-04	9.66E-02	3.51E-07	-1.3E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

### RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: One piece of HS9120G high performance door

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
HWD	kg	1.46E-04	6.57E-06	9.33E-09	7.25E-06	0	5.05E-07	5.14E-08	2.12E-11	-2.84E-06
NHWD	kg	2.01E+01	2.19E-02	7.26E-01	1.24E+01	0	1.66E-03	3.77E+00	7.01E-03	-1.34E+01
RWD	kg	2.01E-01	1.78E-04	2.39E-04	2.66E+00	0	1.34E-05	6.23E-04	1.58E-08	-9.95E-02
CRU	kg	0	0	0	0	0	0	0	0	0



MFR	kg	1E+01	0	0	0	0	0	1.07E+02	0	0
MER	kg	0	0	4.39E+01	0	0	0	0	0	0
EEE	MJ	0	0	1.93E+02	0	0	0	8.65E+01	0	0
EET	MJ	0	0	2.79E+02	0	0	0	1.56E+02	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

## RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: One piece of HS9120G high performance door

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PM	Disease incidence	2E-05	2.26E-07	3.46E-07	1.85E-05	0	4.98E-09	7.24E-08	9.43E-12	-2.16E-05
IR	kBq U235 eq	2.23E+01	2.58E-02	3.54E-02	4.36E+02	0	1.94E-03	8.03E-02	1.63E-06	-1.81E+01
ETP-fw	CTUe	2.44E+03	1.02E+02	3.47E+00	7.5E+03	0	7.67E+00	1.1E+01	7.96E-04	-8.68E+02
HTP-c	CTUh	6.43E-07	2.13E-09	4.65E-09	2.07E-07	0	1.61E-10	5.89E-10	1.18E-13	-3.61E-07
HTP-nc	CTUh	6.93E-06	1.1E-07	3.97E-07	7.63E-06	0	8.29E-09	6.35E-08	1.3E-11	-2.59E-06
SQP	SQP	8.78E+03	4.95E+01	1.26E+00	5.58E+03	0	3.81E+00	3.78E+00	2.9E-04	-1.24E+02

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. 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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

## 6. LCA: Interpretation

This chapter contains an interpretation of the Life Cycle Impact Assessment categories. Stated percentages in the whole interpretation are related to the overall life cycle, excluding credits (module D).

The production stage (modules A1-A3) contributes between approximately 25 % and 45 % to the overall results for all the environmental impact assessment categories hereby considered, except for the abiotic depletion potential (ADPE), for which the contribution from the production stage accounts for approx. 98.52% - this impact category describes the reduction of the global amount of non-renewable raw materials, therefore, as expected, it is mainly related to the extraction of raw materials (A1). The ozone depletion potential (ODP), for which the contribution from the production stage accounts for approx. 99.87 %.

Within the production stage, the main contribution for all the impact categories is the production of steel mainly due to the energy consumption of these processes and accounts for approx. 74% to the overall mass of the product, therefore, the

impacts are in line with the mass composition of the product. The environmental impacts for the transport (A2) have a negligible impact within this stage.

The use stage (module B6) of the product is a hotspot in the life cycle impact assessment of the product. To reflect the use stage (module B6), the energy consumption was included, and it has a major contribution for all the impact assessment categories considered - between approximately 53% and 73%, with the exception of WDP (86.21%) and ADPE (1.5%). This is a result of 0.72 hours of operation in on mode and 23.28 hours in stand-by mode per day and per 220 days in a year.

In the end-of-life stage, there are loads and benefits (module D, negative values) considered. The benefits are considered beyond the system boundaries and are declared for the recycling potential of the metals and for the credits from the incineration process (energy substitution).

## 7. Requisite evidence

Not applicable in this EPD.

## 8. References

Standards:

### CPR

Regulation (EU) No. 305/2011, Construction Product Regulation (CPR)- laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

### DIN EN ISO 13849-1

DIN EN ISO 13849-1:2016, Safety of machinery - Safety-

related parts of control systems - Part 1: General principles for design

### DIN EN 12424

DIN EN 12424EN 61000-6-:2000, Industrial, commercial and garage doors and gates - Resistance to wind load - Classification; German version EN 12424:2000

### DIN EN 12426

DIN EN 12426:2000, Industrial, commercial and garage doors

and gates. Air permeability. Classification; German version EN 12426:2000

## **DIN EN 12428**

DIN EN 12428:2013, Industrial, commercial and garage doors - Thermal transmittance - Requirements for the calculation; German version EN 12428:2013

## **DIN EN 13501-1**

DIN EN 13501-1:2019-05 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

## **EN 12425**

EN 12425:2000, Industrial, commercial and garage doors and gates - Resistance to water penetration - Classification; German version EN 12425:2000

## **EN 12453**

EN 12453:2017, Industrial, commercial and garage doors and gates – Safety in use of power operated doors – Requirements and test methods

## **EN 13241-1**

EN 13241:2003+A2:2016, Industrial, commercial, garage doors and gates - Product standard, performance characteristics. Products without fire resistance or smoke control characteristics.

## **EN 60204**

EN 60204-1 Safety of machinery - Electrical equipment of machines - Part 1: General requirements

## **EN 60335-1**

EN 60335-1:2012 + A11:2011 + A13:2017 + AC1:2014 Household and similar electrical appliances -Safety -Part 1: General requirements

## **EN 60335-2**

EN 60335-2-103:2015 Household and similar electrical appliances -Safety -Part 2: Particular requirements for drives for gates, doors and windows

## **EN 12604**

EN 12604 Industrial, commercial and garage doors and gates - Mechanical aspects - Requirements and test methods

## **EN 61000-6-2**

EN 61000-6-2:2005, Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

## **EN 61000-6-3**

EN 61000-6-3:2007: Electromagnetic compatibility (EMC) - Part 6-3: Generic Standards - Emission standard for residential, commercial and light-industrial environments

## **ISO 9001**

ISO 9001:2015, Quality management systems - Requirements with guidance for us

## **DIN EN ISO 14025**

DIN EN ISO 14025:2010, Environmental labels and declarations - Type III environmental declarations - Principles and procedures

## **EN 15804+A2**

EN 15804:2014+A2:2020, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

## **EWC**

European Waste Catalogue established by Commission Decision 2000/532/EC

## **2011/65/EC**

European directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment, and its amendment directives including 2015/863/EC (RoHS directive)

## **2015/863/EU**

European directive amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances

## **2012/19/EU**

European directive on waste electrical and electronic equipment (WEEE)

## **Sphera Managed Lifecycle Content (MLC)**

Sphera Solutions, Managed LCA content dataset documentation, Sphera Solutions, Chicago, US, 2023. Retrieved from <https://sphera.com/product-sustainability-gabi-data-search/>

**Sphera's Life Cycle for Expert (LCA FE) software:** Sphera Solutions, 'Life Cycle Assessment for Expert software', Sphera Solutions, Chicago, US, 2023. Retrieved from <https://sphera.com/life-cycle-assessment-lca-software/>  
Other sources:

## **IBU PCR Part A:2019**

Institut Bauen und Umwelt e.V., Königswinter (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report. Version 1.8 April 2019  
[www.ibu-epd.de](http://www.ibu-epd.de)

## **IBU PCR Part B: 2017**

IBU PCR Part B: PCR Guidance-Texts for Building-Related Products and Services. From the range of Environmental Product Declarations of Institute Construction and Environment e.V. (IBU). Part B: Requirements on the EPD for Automatic doors, automatic gates and revolving door systems Version 1.6 (11. 2017) [www.ibu-epd.com](http://www.ibu-epd.com)

## **IBU 2021**

General Instructions for the EPD programme of Institut Bauen und Umwelt e.V. Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021.  
[www.ibu-epd.com](http://www.ibu-epd.com)

## **TRACI Methodology**

Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI), EPA/600/R-12/554 2012



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