# ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

| | |
|---|---|
| Owner of the Declaration | ASSA ABLOY Entrance Systems AB |
| Publisher | Institut Bauen und Umwelt e.V. (IBU) |
| Programme holder | Institut Bauen und Umwelt e.V. (IBU) |
| Declaration number | EPD-ASA-20250457-IBA1-EN |
| Issue date | 23.01.2026 |
| Valid to | 22.01.2031 |

## ASSA ABLOY Integra Swing Door System

## ASSA ABLOY Entrance Systems

Institut Bauen und Umwelt e.V.

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ASSA ABLOY

# 1. General Information

## ASSA ABLOY Entrance Systems

**Programme holder**

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

**Declaration number**

EPD-ASA-20250457-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**

23.01.2026

**Valid to**

22.01.2031

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

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

## ASSA ABLOY Integra Swing Door System

**Owner of the declaration**

ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
SE-261 44 Landskrona
Sweden

**Declared product / declared unit**

This declaration represents 1 automatic ASSA ABLOY Integra swing door system consisting of 2 door leaves with a frame height of 2.6 m, a frame width of 2.5 m and 22 mm insulated laminated glass.

**Scope:**

This declaration and its LCA study are relevant to the ASSA ABLOY Integra swing door system.
The final assembly and production stage occurs in Ostrov u Stribra, Czech Republic at D5 Logistic Park 34901 Ostrov u Stribra, Czech Republic. Components are sourced from international tier one suppliers. The ASSA ABLOY Integra swing door system varies in size according to project requirements; a door system with a frame height of 2.6 m and a frame width of 2.5 m with 2 door leaves with 22 mm clear insulated laminated glass 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 |
| ☐ internally ☒ externally |

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

## 2. Product

### 2.1 Product description/Product definition

**Product name:** ASSA ABLOY Integra swing door system.

**Product characteristic:** The ASSA ABLOY Integra swing door system is equipped with SW200 overhead concealed operator, an automatic, robust, electro-mechanical swing door operator. The system provides an aesthetic look as the drive unit is connected directly to the top of the door showing no arm system. The doors are pivot-driven, enhancing stability and smooth operation during opening and closing cycles.

The Integra door system can be delivered as a single-leaf door or a double-leaf door. The operator works electro-mechanically. It opens with a motor and closes with a motor and spring. The opening and closing speeds can be varied individually. The motor, control unit, gear box and spring are combined into a compact unit and mounted within the cover.

The ASSA ABLOY Integra swing door system can handle heavy doors up to 170 kg and is designed for applications that require highly intelligent functions. The smart control unit offers added-value features like double-door controls and monitored battery backup for convenience. Push-and-Go opens the door automatically when manually pushed from the closed position and Power Assist provides motorized assistance when the door is opened by hand.

ASSA ABLOY Integra swing door system is comprised mostly of aluminium and glass.

The swing door system has 3 primary parts:
1) Operator
2) Frame
3) Door leaf

The ASSA ABLOY Integra swing door system has been designed to meet operational and safety requirements and is certified by a third party to fulfill the European Directives and the standards issued by the European Standardization Committee (CEN).

For the placing on the market in the European Union/European Free Trade Association (EU/EFTA) (excl. Switzerland), Switzerland and Turkey the following European directives apply to the ASSA ABLOY Integra swing door system:

- *2014/30/EU* Electromagnetic Compatibility Directive (EMCD)
- *2006/42/EC* Machinery Directive (MD)
- *2011/65/EU* on the restriction of the use of certain hazardous substances in electrical and electronic equipment with the applicable amendments (RoHS).

These directives provide for CE marking of the product and issuing a Declaration of Conformity.

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

- *EN 60335-1* Household and similar electrical appliances -Safety - Part 1: General requirements
- *EN 60335-2-103* Household and similar electrical appliances -Safety - Part 2: Particular requirements for drives for gates, doors and windows
- *EN 61000-6-2* Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- *EN 61000-6-3* Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- *EN ISO 13849-1* Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design
- *EN 16005* Power operated pedestrian door sets - Safety in use - Requirements and test methods.

**Other standards or technical specifications, which have been applied:**

- *FCC Part 15B* Unintentional Radiators
- *IEC 60335-1 ed 5* Household and similar electrical appliances - Safety - Part 1: General requirements
- *UL 325* Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems
- *IEC 60335-2-103: ed. 2.1* Household and similar electrical appliances -Safety - Part 2: Particular requirements for drives for gates, doors and windows

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*.

For the application and use the respective national provisions apply.

### 2.2 Application

The ASSA ABLOY Integra swing door system is suitable for both external and internal use. The ASSA ABLOY Integra swing door system facilitates entry and exit in buildings, ranging from healthcare facilities to the public sector. Packed with innovative and advanced technological features, the ASSA ABLOY Integra swing door system performs to the highest standards in the industry with unique features such as;

- Stack pressure management,
- Full Power for heavy doors,
- Low Energy and Power Assist for smooth opening of accessible 'barrier-free' passages
- Breakout option for escape route

### 2.3 Technical Data

The list presents the technical properties of ASSA ABLOY Integra swing door system.

Frame height: FH 2100-2950 mm
Frame width: 1000-2700 mm
Clear opening: FW-257 mm
Depth: 160 mm
Glass: 6 mm, 8 mm or 10 mm laminated 22 mm or 40 mm insulated
Inertia max: 80 $kgm^2$
Cover finish: Powder coated or anodized

**Constructional data**

| Name | Value | Unit |
|---|---|---|
| Heat transfer coefficient of the entire door or gate system* | 2.9 | W/(m$^2$K) |
| Power "Standby" | 10 | W |
| Power "On" | 40 | W |
| Power "Idle" | 10 | W |
| Auxiliary voltage | 24 V DC, max. 700mA | V DC / mA |
| Opening time (0° - 80°) | 2-12 | sec |
| Closing time (90° - 10°) | 4-12 | sec |
| Hold open time | 1.5-30 | sec |
| Opening width single leaf door max: | 1192 | mm |
| Opening width double-leaf door max: | 2443 | mm |
| Noise emission | <63.8 | dB |
| Ambient temperature | -20 up to +45 | °C |
| Protection class | IP20 | |
| Locking unit (optional): | Electro-mechanical or manual lock | |
| Mains power supply | 100-240 V AC+10/-15%, 50/60 Hz, mains fuse max 10A (building installation) | |

*Heat transfer coefficient varies between 1,1-5,7 W/m2K depending on type of glass

Performance data of the product according to the harmonized standards, based on provisions for harmonization.

- *EN 60335-1* Household and similar electrical appliances -Safety - Part 1: General requirements
- *EN 60335-2-103* Household and similar electrical appliances -Safety - Part 2: Particular requirements for drives for gates, doors and windows
- *EN 61000-6-2* Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
- *EN 61000-6-3* Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- *EN ISO 13849-1* Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design
- *EN 16005* Power operated pedestrian door sets - Safety in use - Requirements and test methods.

### 2.4 Delivery status

The ASSA ABLOY Integra swing door system, frame height 2.6 m and frame width 2.5 m, is delivered ready for installation.

### 2.5 Base materials/Ancillary materials

The average composition of a standard ASSA ABLOY Integra swing door system is as follows:

| Name | Value | Unit |
|---|---|---|
| Aluminium | 33.52 | % |
| Brass | 0.02 | % |
| Copper | 0.18 | % |
| Plastics | 4.30 | % |
| Stainless steel | 0.19 | % |
| Steel | 7.45 | % |
| Zinc | 1.29 | % |
| Glass | 51.96 | % |
| Electronic | 0.61 | % |
| Electro-mechanics | 0.32 | % |
| Paper | 0.15 | % |
| Others | 0.01 | % |

### 2.6 Manufacture

The primary manufacturing processes are made by tier one suppliers and the final manufacturing processes for operator units occur in the factory in Ostrov, Czech Republic. The profiles are machined and surface treated; either anodized (externally) or powder coated (internally). Glass panes for the door leaves arrive already fitted to size. Other parts as electronics etc. arrives from tier one suppliers or the factory in China and a final assembly is done in Ostrov. The operators are packed in cardboard boxes and forwarded to on-site installation. The certified quality management system, *EN ISO 9001:2015*, ensures high standards.

Offcuts and scraps during the manufacturing process are directed to a recycling unit. Wastewater is cleared on-site, and waste is sent for disposal:

Waste codes according to the European Waste Catalogue and Hazardous Waste List - Valid from 1 July 2015:
EWC 12 01 03 Non-ferrous metal filings and turnings
EWC 17 02 03 Plastic
EWC 17 04 02 Aluminum
EWC 17 04 05 Iron and steel
EWC 08 02 01 Waste coating powders

### 2.7 Environment and health during manufacturing

ASSA ABLOY Entrance Systems AB is committed to producing and distributing door opening solutions with minimal environmental impact, where health & safety are the primary focus for all employees and associates.
• Environmental operations, Greenhouse gases, energy, water, waste, 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. ASSA ABLOY Entrance Systems AB´s management is aware of their environmental roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.
• Preparation conditions in the factory Ostrov do not require special health and safety measures. Standard health and safety measures (work gloves, hearing protection, safety shoes, dust mask when sanding and milling, dust extraction, etc.) are observed where appropriate.
• Water and soil contamination does not occur, and all production related waste is processed internally in the appropriate manner.

### 2.8 Product processing/Installation

The ASSA ABLOY Integra swing door system is supplied ready for installation. The installation is performed by trained and

qualified installation technicians.

### 2.9 Packaging

Packaging exists for the purpose of protection during transportation. The ASSA ABLOY Integra swing door system is packed in a wooden crate and accessories in cardboard packages. The wooden crate and cardboard are recyclable. The wood material is FSC certified.

Cardboard/paper: 1.21 %
Wood: 98.79 %
Total: 100 %

All materials incurred during installation are directed to a recycling unit.

Waste codes according to the European Waste Catalogue and Hazardous Waste List -Valid from 1 July 2015:
EWC 15 01 01 paper and cardboard packaging
EWC 15 01 03 wooden packaging

### 2.10 Condition of use

Regular inspections shall be made according to national regulations and product documentation by an ASSA ABLOY Entrance Systems trained and qualified technician. The number of service occasions should be in accordance with national requirements and product documentation. Service is recommended according to "Service Log Book". Regular inspections and cleaning should be performed by the owner of the product, according to "User Manual".

The best way to remove dust and dirt from ASSA ABLOY Integra swing door system is to use water and a soft cloth or a sponge. A gentle detergent may be used. To maintain the quality of the enamel layer, the surfaces should be cleaned three times/year (once/four month's period). The cleaning should be documented.

- Do not expose profiles to alkalis. Aluminum is sensitive to alkalis.
- Do not clean with high pressure water. Operator, programme selector and sensors could be damaged, and water may enter the profiles.
- Do not use polishing detergent.
- Do not scrub with materials that will cause mechanical damage.

### 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 approximately 1,000,000 cycles or 10 years of average daily use with the recommended maintenance and service program. For this EPD a lifetime of 10 years was considered.

### 2.13 Extraordinary effects

**Fire**

The ASSA ABLOY Integra swing door system is not fire approved due to the fact that it is an exterior door. The product consists mostly of metals and glass which does not add to the spread of fire.

**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 place to another.
The majority, by weight, of components are aluminum and glass which can be recycled. All recyclable materials are directed to a recycling unit where they are recycled (electronics, electro-mechanics, steel, and aluminum). The plastic components can be used for energy recovery within a waste incineration process.

### 2.15 Disposal

The product can be mechanically disassembled to separate the different materials. The majority of components are aluminum, steel and glass which can be recycled. The plastic components are used for energy recovery in an incineration plant.

Waste codes according to the European Waste Catalogue and Hazardous Waste List -Valid from 1 July 2015:
EWC 17 02 02 Glass
EWC 17 02 03 Plastic

EWC 17 04 07 Mixed metals
EWC 17 04 02 Aluminum
EWC 17 04 04 Zinc
EWC 17 04 05 Iron and steel
EWC 17 04 11 Cables with the exception of those outlined in 17 04 10
EWC 20 01 36 discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35

The disposal of the product is subject to the Waste Electrical and Electronic Equipment (WEEE) Directive within Europe, Directive *2012/19/EU*

### 2.16 Further information

ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
SE-261 44 Landskrona
Sweden
www.assaabloyentrance.com

## 3. LCA: Calculation rules

### 3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of ASSA ABLOY Integra swing door system 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 Integra swing door system for 10 years.

**Declared unit and mass reference**

| Name | Value | Unit |
|---|---|---|
| Dimensions (width x height) | 2500x2600 | mm |
| Declared Unit | 1 | pce |
| Mass (without packaging) | 273.29 | kg |
| Mass packaging (paper wood, copper and plastics) | 70.86 | kg |
| Mass reference | 273.29 | kg/pce |

### 3.2 System boundary

Type of the EPD: cradle to grave and module D (A+B+C+D).
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 - Deconstruction/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.

Use stage:
For the use phase, it is assumed that one piece of swing door integra 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 10 hours in on mode, 6 hours in stand by mode, and 8 hours in idle mode per day (365 days per year in use, 10 years lifetime); the power consumption throughout the whole life cycle is 1,971 MWh.

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 2024 (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. Sphera's Managed LCA Content CUP 2024.2 serves as background database for the calculation.

## 4. LCA: Scenarios and additional technical information

**Characteristic product properties of biogenic carbon**

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).

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

| Name | Value | Unit |
|---|---|---|
| Biogenic carbon content in product | 0.16 | kg C |
| Biogenic carbon content in accompanying packaging | 35.37 | kg C |

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of $CO_2$.

**Transport to the building site (A4)**

| Name | Value | Unit |
|---|---|---|
| Litres of fuel | 27.5 | l/100km |
| Capacity utilisation (including empty runs) | 61 | % |
| Transport distance by truck | 1425 | km |

**Installation into the building (A5)**

| Name | Value | Unit |
|---|---|---|
| Output substances following waste treatment on site (paper/cardboard packaging) | 0.858 | kg |
| Output substances following waste treatment on site (wood packaging) | 70 | kg |

**Use or application of the installed product (B1) see section 2.12 "Use"**

| Name | Value | Unit |
|---|---|---|
| Life Span according to the manufacturer | 10 | years |

**Operational energy use (B6)**

| Name | Value | Unit |
|---|---|---|
| Electricity consumption per RSL (365 days per year during 10 years) | 1971 | kWh |
| Hours per day in on mode | 10 | h |
| Hours per day in stand-by mode | 6 | h |
| Hours per day in idle mode | 8 | h |
| Power consumption – on mode | 40 | W |
| Power consumption – stand-by mode | 10 | W |
| Power consumption – idle mode | 10 | W |
| Years of use | 10 | Year |
| Days per year in use | 365 | Day |

*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_standby model*h_standby mode) *Days_years operational*Lifespan)+(W_idle mode*h_idle mode* Days_years idle*Lifespan)+ ( W_standby mode*h_idle mode* Days_years idle*Lifespan)*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_standby model – Energy consumption in standby mode in W
- h_standby mode – Operation time in Standby mode in hours
- Lifespan - Reference service life of product
- Days_year operation - Operation days per year
- Days_year idle – Only Idle days per year
- Days_year standby – Only stand by days per year
- 0.001 - Conversion factor from Wh to kWh

**End of life (C1-C4)**

| Name | Value | Unit |
|---|---|---|
| Transport to EoL (C2) | 100 | km |
| Collected separately waste type (aluminium, steel, zinc, brass, stainless steel, copper, electronic, electromechanics etc.) | 131.25 | kg |
| Incineration of plastic parts | 11.75 | kg |
| Incineration of paper | 0.40 | kg |
| Recycling (aluminium, steel, copper, electronic, electro-mechanics, stainless steel, zinc and brass) | 119.09 | kg |
| Landfill | 142.04 | kg |

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

| Name | Value | Unit |
|---|---|---|
| Collected separately waste type (including packaging) | 202.10 | kg |
| Recycling aluminium | 45.34 | % |
| Recycling brass | 0.03 | % |
| Recycling copper | 0.24 | % |
| Recycling stainless steel | 0.25 | % |
| Recycling steel | 10.07 | % |
| Recycling zinc | 1.74 | % |
| Recycling electronic | 0.82 | % |
| Recycling electro mechanics | 0.43 | % |
| Incineration of plastic parts | 5.81 | % |
| Incineration of paper | 0.20 | % |
| Incineration of packaging (paper and wood) (from A5) | 35.06 | % |

## 5. LCA: Results

**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: 1 piece ASSA ABLOY Integra Swing Door System**

| Parameter | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg $CO_2$ eq | 1.25E+03 | 3.72E+01 | 1.31E+02 | 5.95E+02 | 0 | 2.07E+00 | 3.01E+01 | 1.07E+00 | -8.05E+02 |
| GWP-fossil | kg $CO_2$ eq | 1.38E+03 | 3.65E+01 | 2.57E-01 | 5.89E+02 | 0 | 2.03E+00 | 2.95E+01 | 1.06E+00 | -8.02E+02 |
| GWP-biogenic | kg $CO_2$ eq | -1.29E+02 | 8.72E-02 | 1.31E+02 | 5.3E+00 | 0 | 4.86E-03 | 5.57E-01 | -4.48E-06 | -2.27E+00 |
| GWP-luluc | kg $CO_2$ eq | 5.34E-01 | 6.14E-01 | 9.5E-05 | 8.94E-02 | 0 | 3.42E-02 | 1.55E-03 | 6.38E-03 | -1.39E-01 |
| ODP | kg CFC11 eq | 2.79E-09 | 5.38E-12 | 1.37E-12 | 1.33E-08 | 0 | 3E-13 | 9.3E-12 | 2.87E-12 | -9.99E-10 |
| AP | mol $H^+$ eq | 8.18E+00 | 5E-02 | 1.37E-01 | 1.14E+00 | 0 | 2.79E-03 | 4.58E-03 | 7.55E-03 | -4.03E+00 |
| EP-freshwater | kg P eq | 1.37E-03 | 1.56E-04 | 4.28E-07 | 2.44E-03 | 0 | 8.69E-06 | 2.2E-06 | 2.42E-06 | -3.29E-04 |
| EP-marine | kg N eq | 1.73E+00 | 1.82E-02 | 2.95E-02 | 2.84E-01 | 0 | 1.01E-03 | 1.38E-03 | 1.94E-03 | -7.58E-01 |
| EP-terrestrial | mol N eq | 1.93E+01 | 2.16E-01 | 3.28E-01 | 2.97E+00 | 0 | 1.2E-02 | 2.11E-02 | 2.14E-02 | -8.3E+00 |
| POCP | kg NMVOC eq | 4.68E+00 | 4.98E-02 | 9.92E-02 | 7.51E-01 | 0 | 2.78E-03 | 3.87E-03 | 5.94E-03 | -2.25E+00 |
| ADPE | kg Sb eq | 1.2E-02 | 3.18E-06 | 1.39E-08 | 1.1E-04 | 0 | 1.77E-07 | 8.92E-08 | 6.88E-08 | -4.65E-03 |
| ADPF | MJ | 1.76E+04 | 4.81E+02 | 3.07E+00 | 1.24E+04 | 0 | 2.68E+01 | 1.65E+01 | 1.4E+01 | -9.56E+03 |
| WDP | $m^3$ world eq deprived | 3.89E+02 | 5.66E-01 | 4.68E+00 | 1.63E+02 | 0 | 3.15E-02 | 2.99E+00 | 1.22E-01 | -3.24E+02 |

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: 1 piece ASSA ABLOY Integra Swing Door System**

| Parameter | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 6.86E+03 | 4.14E+01 | 1.35E+03 | 8.93E+03 | 0 | 2.31E+00 | 5.34E+00 | 2.44E+00 | -5.47E+03 |
| PERM | MJ | 1.34E+03 | 0 | -1.34E+03 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 8.2E+03 | 4.14E+01 | 7.07E-01 | 8.93E+03 | 0 | 2.31E+00 | 5.34E+00 | 2.44E+00 | -5.47E+03 |
| PENRE | MJ | 1.71E+04 | 4.81E+02 | 3.07E+00 | 1.24E+04 | 0 | 2.68E+01 | 5.26E+02 | 1.4E+01 | -9.56E+03 |
| PENRM | MJ | 5.09E+02 | 0 | 0 | 0 | 0 | 0 | -5.09E+02 | 0 | 0 |
| PENRT | MJ | 1.76E+04 | 4.81E+02 | 3.07E+00 | 1.24E+04 | 0 | 2.68E+01 | 1.65E+01 | 1.4E+01 | -9.56E+03 |
| SM | kg | 8.24E+01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.8E+01 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 1.43E+01 | 4.62E-02 | 1.09E-01 | 6.84E+00 | 0 | 2.57E-03 | 7.18E-02 | 3.71E-03 | -1.19E+01 |

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: 1 piece ASSA ABLOY Integra Swing Door System**

| Parameter | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 4.48E-05 | 4.8E-05 | 1.84E-08 | 1.79E-05 | 0 | 1.03E-09 | 1.13E-08 | 3.49E-09 | -2.11E-05 |
| NHWD | kg | 1.78E+02 | 4.27E+02 | 7.86E-02 | 1.02E+01 | 0 | 4.38E-03 | 2.89E+00 | 7.11E+01 | -3.34E+02 |
| RWD | kg | 2.24E+00 | 7.59E-01 | 8.76E-04 | 1.98E+00 | 0 | 4.88E-05 | 8.18E-04 | 1.47E-04 | -4.97E-01 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 2.38E-02 | 0 | 0 | 0 | 0 | 0 | 1.1E+02 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 1.29E+01 | 0 | 0 |
| EEE | MJ | 3.98E-01 | 0 | 3.55E+02 | 0 | 0 | 0 | 5.42E+01 | 0 | 0 |
| EET | MJ | 9.23E-01 | 0 | 4.72E+02 | 0 | 0 | 0 | 9.76E+01 | 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: 1 piece ASSA ABLOY Integra Swing Door System**

| Parameter | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 1.09E-04 | 5.01E-07 | 6.23E-07 | 9.51E-06 | 0 | 2.79E-08 | 5.37E-08 | 1.7E-02 | -5.46E+01 |
| IR | kBq U235 eq | 9.05E+01 | 1.27E-01 | 9.73E-03 | 3.25E+02 | 0 | 7.08E-03 | 1.21E-01 | 8.07E+00 | -2.72E+03 |
| ETP-fw | CTUe | 1.05E+04 | 3.57E+02 | 3.37E+00 | 3.58E+03 | 0 | 1.99E+01 | 9.59E+00 | 1.91E-10 | -1.42E-06 |
| HTP-c | CTUh | 2.24E-06 | 7.21E-09 | 1.09E-08 | 2.01E-07 | 0 | 4.02E-10 | 5.21E-10 | 7.37E-09 | -7.16E-06 |
| HTP-nc | CTUh | 1.1E-05 | 3.24E-07 | 3.81E-07 | 3.08E-06 | 0 | 1.8E-08 | 4.16E-08 | 3.86E+00 | -5.19E+02 |
| SQP | SQP | 1.43E+04 | 2.37E+02 | 5.85E-01 | 5.21E+03 | 0 | 1.32E+01 | 4.62E+00 | 0 | 0 |

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 40% and 99% to the overall results for all core environmental impact assessment categories.

Within the production stage, the main contribution to all the impact categories is the production of glass, steel and aluminum mainly due to the energy consumption of these processes. While Steel and aluminum together account for approx. 41%, glass contributes to approx. 52% 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.

To reflect the use stage (module B6) in 10 years of service life, the energy consumption was included, and it has a relevant contribution for all core impact assessment categories considered - between 1% and 71%, with the exception of ODP (82%). This is a result of 10 hours of operation in on mode, 8 hours in idle mode and 6 hours in stand-by mode per day and per 365 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 harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

**DIN EN ISO 10140-2**
DIN EN ISO 10140-2:2010, Acoustics - Laboratory measurement of sound insulation of building elements - Part 2:Measurement of airborne sound insulation (ISO 10140-2:2010); German version EN ISO 10140-2:2010

**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 4102**
DIN 4102-1 B2:1998, Reaction to fire tests - Ignitability of building products subjected to direct impingement of flame.

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

**DIN EN 12426**
DIN EN 12424:2000, Industrial, commercial and garage door sand gates. Air permeability. Classification; German version EN12424:2000

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

**EN ISO 10140-2**
EN ISO 10140-2:2010, Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation (ISO 10140-2:2010); German version EN ISO 10140-2:2010

**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 door sand gates - Product standard, performance characteristics

**EN 15804**
EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products. EN 16005

**EN 16005**
EN 16005 Power operated pedestrian door sets - Safety in use - Requirements and test methods.

**EN 60335-1**
EN 60335-1 Household and similar electrical appliances - Safety - Part 1: General requirements

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

**EN 61000-6-2**
EN 61000-6-2:2005, Electromagnetic compatibility (EMC) - Part6-2: Generic standards - Immunity for industrial environments

**EN 61000-6-3**
EN 61000-6-3:2007: Electromagnetic compatibility (EMC) - Part6-3: Generic Standards - Emission standard for residential, commercial and light-industrial environments

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

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

**Regulation (EU) No 305/2011**
Regulation of the European parliament and the council laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

**2006/42/EC**
European directive on machinery, and amending Directive 95/16/EC (recast)

**2011/65/EC**
European directive on the restriction of the use of certain hazardous substances in electrical and electronical equipment, and its amendment directives including 2015/863/EC (RoHS directive)

**2012/19/EU**
European directive on waste electrical and electronic equipment (WEEE)

**2014/30/EU**
European directive on the harmonization of the laws of the Member States relating to electromagnetic compatibility (recast)

**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

**FCC Part 15B**
FCC Part 15B Unintentional Radiators

**IEC 60335-1 ed 5**
IEC 60335-1 ed 5 Household and similar electrical appliances - Safety - Part 1: General requirements

**UL 325**
UL 325 Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems

**IEC 60335-2-103: ed. 2.1**
IEC 60335-2-103: ed. 2.1 Household and similar electrical appliances -Safety - Part 2: Particular requirements for drives for gates, doors and windows

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**IBU PCR Part A**
Institut Bauen und Umwelt e.V., Berlin (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 1.4 04.2024 www.ibu-epd.de

**IBU PCR Part B**
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: Part B: PCR for Automatic doors, automatic gates, and revolving door systems, Version v8 (08. 2024)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

ASSA ABLOY


**Publisher**

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

**Programme holder**

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

**Author of the Life Cycle Assessment**

Sphera Solutions GmbH
Hauptstraße 111- 113
70771 Leinfelden-Echterdingen
Germany

+49 711 341817-0
info@sphera.com
www.sphera.com

**Owner of the Declaration**

ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
SE-261 44 Landskrona
Sweden

+46 (0)10 47 47 000
info@assaabloy.com
www.assaabloyentrance.com