ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	**ASSA ABLOY Entrance Systems AB**
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-ASA-20170175-IBA1-EN
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Valid to	12.11.2023

ASSA ABLOY OH1082P Overhead sectional door

ASSA ABLOY Entrance Systems AB

Institut Bauen und Umwelt e.V.

www.ibu-epd.com / https://epd-online.com

1. General Information

ASSA ABLOY Entrance Systems AB

Programme holder
IBU - Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Declaration number
EPD-ASA-20170175-IBA1-EN

This Declaration is based on the Product Category Rules (PCR):
PCR Automatic doors, automatic gates, and revolving door systems, 07.2014
(PCR tested and approved by the SVR)

Issue date
13.11.2017

Valid to
12.11.2023

Prof. Dr.-Ing. Horst J. Bossenmayer
(President of Institut Bauen und Umwelt e.V.)

Dr.-Ing. Burkhart Lehmann
(Managing Director IBU)

ASSA ABLOY OH1082P Overhead sectional door

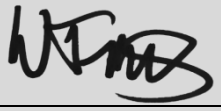
ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
SE-261 44 Landskrona
Sweden

Declared product / Declared unit
This declaration represents 1 industrial sectional door with electrical operation, 3650 mm width and 3620 mm height, consisting of panels filled with penthane blown PIR foam CFC-free, panel thickness 82 mm and panel height 545 mm.

Scope:
This declaration and its LCA study are relevant to the Sectional Door - ASSA ABLOY OH1082P- Overhead sectional door. The production location is Heerhugowaard, The Netherlands and components are sourced from international tier one suppliers. ASSA ABLOY OH1082P door sizes vary according to project requirements; a standard door 3650 mm width and 3620 mm height with insulated panels filled with penthane blown PIR foam CFC-free, panel thickness 82 mm, panel height 545 mm 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.

Verification

The CEN Norm /EN 15804/ serves as the core PCR
Independent verification of the declaration according to /ISO 14025/
☐ internally ☒ externally



Dr. Wolfram Trinius
(Independent verifier appointed by SVR)

2. Product

2.1 Product description / Product definition

Product name: ASSA ABLOY OH1082P Overhead sectional door
Product characteristic: Overhead sectional door

The ASSA ABLOY OH1082P Overhead sectional door is suitable for all types of buildings, with regard to both function and appearance. High flexibility makes it possible to install this door in almost every type of building. The door slides up under the roof when opened, allowing free space around the door opening and leaving the door opening completely free. The door is made of insulated panels. The panels are designed without thermal bridge to provide minimal thermal transmittance, which reduces energy cost. The surface is made of waffled steel. There is top, bottom and side seals and seals between door sections. The standard track system is made of galvanized steel. The balancing system balances the door by applying a force nearly equal to the weight of the door leaf. This allows the door leaf to be moved up and down, and to stay open in any position. The balancing system supports heavy forces. In case of a spring or cable break, its counterforce is lost. The door is therefore equipped with two safety devices that can block downward door movement; Spring Break Device (standard) and Cable Break Device (option, not declared in this EPD).

The door has 4 primary parts:
1) Door leaf
2) Track set
3) Balancing system
4) Operating system/chain hoist (optional)

The ASSA ABLOY OH1082P Overhead sectional 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 of the product on the market in the EU/EFTA (with the exception of Switzerland) the Regulation (EU) No. 305/2011/ (CPR) and the following other harmonisation provisions apply: Directive (EU) 2006/42/EC Machinery Directive (MD) and Directive (EU) 2014/30/EU Electromagnetic Compatibility Directive (EMCD) respectively.
The product needs a Declaration of Performance in accordance with the CPR taking into consideration /EN 13241-1:2003: Industrial, commercial, garage doors and gates - Product standard, performance characteristics/ and the CE-marking.
The CE-marking for the product takes into account the Declaration of Performance in accordance with the CPR and the proof of conformity with the following harmonised norms based on the other harmonisation provisions.

/EN 13241-1:2003 + A1: 2011/, /EN 61000-6-2:2005/ /EN 61000-6-3:2007/, /EN 60335-1:2002+A1:2004+A11:2004+A12:2006+A2:2006+A13:2008+A14:2010/

For the application and use the respective national provisions apply.

2.2 Application

The ASSA ABLOY OH1082P Overhead sectional door is suitable for all types of buildings, with regard to both function and appearance. It has a modern, clean design and is one of the most stable and well insulated overhead doors on the market. High flexibility makes it possible to install this door in almost every type of building allowing free space around the door.

2.3 Technical Data

The table presents the technical properties of the ASSA ABLOY OH1082P overhead sectional door:

Parameter	Value	Unit
Maximum height	8000	mm
Maximum width	6000	mm
Panel thickness	82	mm
Panel material	Waffled steel	-
Filling	CFC-free Penthane blown PIR	-
Resistance to wind load acc. to EN12424	Class 3	-
Thermal transmittance acc. to EN 12428	0.46	W/(m^{2}K)
Resistance to Water penetration acc. to EN 12425	Class 3	-
Air permeability acc. to EN 12426	Class 3	-
Acoustic insulation acc. EN ISO 10140-2	25	dB
Power input "Idle"	15	W
Power input "Operation"	500	W

2.4 Delivery status

ASSA ABLOY OH1082P Overhead sectional door unit with door size of width 3650 mm and height 3620 mm is delivered in parts ready for installation. All necessary installation material is included. For every track type, ASSA ABLOY offers specific installation kits to position the door in the building facade.

2.5 Base materials / Ancillary materials

The average composition for ASSA ABLOY OH1082P Overhead sectional door, is as following:

Component	Percentage in mass (%)
Aluminium	5.6
Brass	0.65
Plastics	12.97
Stainless steel	0.01
Steel	78.36
Electronics	0.44
Electro mechanics	1.52
Others	0.45
Total	**100.0**

Steel and Stainless steel used in the product originate mainly from China and the Netherlands while Aluminium originates from China and Sweden.

2.6 Manufacture

Door components are sourced from national & international suppliers. The door is assembled in Heerhugowaard, the Netherlands, ready for installation at site. The electronics are produced in Ostrov, Czech Republic.

The factory in Heerhugowaard has a certification of Quality Management system in accordance with ISO 9001 & ISO 14001.

2.7 Environment and health during manufacturing

ASSA ABLOY 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, GHG, energy, water, waste, VOC, surface treatment and H&S are being routinely monitored. Inspections, audits, and reviews are conducted periodically to ensure that applicable standards are met and the effectiveness of Environment Management program is evaluated.
• Code of Conduct covers human rights, labour practices and decent work. Management of ASSA ABLOY is aware of their environmental roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.

• The factory of Heerhugowaard, The Netherlands has a certification of Environmental Management system in accordance with ISO 14001.
• Any waste metals during machining are separated and recycled.

2.8 Product processing/Installation

The Overhead sectional door components are supplied ready for installation. The panels, tracks, springs and hardware are assembled and installed on-site. The components are assembled using simple tools including drills and hand tools. The installation is performed by skilled installation technicians.

2.9 Packaging

Packaging exists for the purpose of protection during transportation. ASSA ABLOY OH1082P Overhead sectional door is packaged in polystyrene plastic and corrugated cardboard Wooden blocks are used to separate the right and left tracks when packed together. All of these packaging components are standard industry types. The cardboard is recyclable.

Material	Percentage in mass (%)
Wood	21.23
Cardboard/paper	67.93
Plastics	10.84
Total	**100.0**

2.10 Condition of use

Regular inspections by a skilled, trained and qualified person is recommend a minimum of one visit per year or more.
Monthly examination of the ASSA ABLOY OH1082P Overhead sectional door
1) Use a soft brush and a mild detergent to clean the track set and the door seals.
2) Make sure there are no loose screws, bolts or nuts on the door leaf or the track set.
3) If necessary tighten all loose screws, bolts and nuts.
4) Examine all door leaf hinges, door seals, rollers and roller holders for damage.
5) If damage is found, contact the local service centre for advice.
6) Examine the door cables for damage and corrosion.
7) If damage or corrosion is found, contact the local service centre for advice.
8) Lubricate the metal door-leaf hinges with oil (SAE 20).

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 reference service life of 100.000 cycles which complies for 10 years of standard daily use (with the recommended yearly service check). For this EPD the lifetime of 10 years was considered.

2.13 Extraordinary effects

Fire
The product is not fireproof and no test has been conducted according to EN13501-1. The product wall surfaces however consists of a large amount of steel, which does not add to the spread of fire.

Water
Panels contain no substances that have any impact on water in case of flood.

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

2.14 Re-use stage

The product is possible to re-use during the reference service life and be moved from one door to another. The majority, by weight, of components is steel, plastic and aluminium alloy which can be recycled. At the end of its lifetime all materials (except some small parts which are landfilled) are directed to a recycling unit. The plastic components can be used for energy recovery within a waste incineration process.

2.15 Disposal

Waste codes according to European Waste Catalogue and Hazardous Waste List -Valid from 1 January 2002.

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 aluminium
EWC 17 04 05 iron and steel
EWC 17 04 11 Cables with the exception of those outlined in 17 04 10

Landfill
Some small products parts (e.g. Hotmelt, Methylene diisocyanate) were assumed to be landfilled.

2.16 Further information

ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
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Sweden
www.assaabloy.com

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of ASSA ABLOY OH1082P Overhead sectional door as specified in Part B requirements on the EPD for PCR Automatic doors, automatic gates, and revolving door systems.

Declared unit

Name	Value	Unit
Declared unit	154.9 kg	1 piece of ASSA ABLOY OH1082P Overhead sectional door
Surface area of the door	48	m^2
Conversion factor to 1 kg	0.0065	-

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

Use stage related to the operation of the building includes:

- B6 – Operational energy use

Construction stage:

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

End-of-life stage:

- C2 – Transport to waste processing
- C3 – Waste processing (recycling)
- C4 – Disposal (landfill and 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.

- D –Declaration of all benefits and loads

3.3 Estimates and assumptions

Transportation: Data on mode of transport and distances, as reported by suppliers were used for those materials and parts contributing more than 2% of total product mass. Transport by road over an average distance of 750 km was assumed.

Use stage:
For the use stage, it is assumed that the overhead sectional 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 1584 hours in on mode, 3696 hours in idle mode and 3480 hours in off mode per year; the power consumption throughout the whole life-cycle is 8474.4 kWh.

EoL: In the End-of-Life stage, for all the materials; which can be recycled, a recycling scenario with 100% collection rate was assumed.

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), thermal energy consumption 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 products, the GaBi 6 Software System for Life Cycle Engineering, developed by thinkstep AG, is used /GaBi 6 2013/. The GaBi-database contains consistent and documented datasets which are documented in the online GaBi-documentation /GaBi 6 2013D/. To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation and auxiliary materials.

3.6 Data quality

The requirements for data quality and background data correspond to the specifications of the /IBU PCR PART A/.
thinkstep performed a variety of tests and checks during the entire project to ensure 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 GaBi 6 software database.

3.7 Period under review

The period under review is 2015/2016 (12-month average).

3.8 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 wood
- Waste incineration of plastics

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 GaBi dataset documentation.

3.9 Comparability

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.

4. LCA: Scenarios and additional technical information

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).

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (Paper packaging)	4.42	kg
Output substances following waste treatment on site (Plastics packaging)	0.70	kg
Output substances following waste treatment on site (Wood packaging)	1.38	kg

Reference service life

Name	Value	Unit
Reference service life	10	a

Operational energy use (B6)

Name	Value	Unit
Electricity consumption per RSL (10 years, operational in 220 days per year)	8474.4	kWh
Hours per day in on mode	7.2	h
Hours per day in idle mode	16.8	h
Power consumption – on mode	500	W
Power consumption – idle mode	15	W

*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 (C2-C4)

Name	Value	Unit
Collected separately Aluminium, Brass, Steel, Stainless steel, Electronics, Electro-mechanics, Plastics	154.21	kg
Collected separately as construction waste (landfill)	0.69	kg
Recycling Aluminium	8.67	kg
Recycling Steel	121.39	kg
Incineration Plastic Parts	20.11	kg
Recycling Brass	1.00	kg
Recyling Stainless steel	0.016	kg
Recycling Electronics	0.68	kg
Recycling Electro-mechanics	2.35	kg
Landfill (no recycling potential)	0.69	kg

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

Name	Value	Unit
Collected separately waste type (including packaging)	161.42	kg
Recycling Aluminium	5.37	%
Recycling Steel	75.20	%
Incineration Plastic Parts (incl. packaging from A5)	12.90	%
Recycling Brass	0.62	%
Recyling Stainless steel	0.01	%
Recycling Electronics	0.42	%
Recycling Electro-mechanics	1.45	%
Reuse Paper packaging (from A5)	2.74	%
Incineration of wood (from A5)	0.86	%
Landfill (no recycling potential)	0.43	%

5. LCA: Results

Results shown below were calculated using CML 2000 – Apr. 2013 Methodology.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement[1)]	Refurbishment[1)]	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	MND	MND	MND	X	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: One piece of ASSA ABLOY OH1082P Overhead sectional door

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	2.06E+03	2.15E+01	6.26E+00	4.02E+03	2.81E+00	1.07E+01	1.64E+02	-7.28E+02
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	6.65E-07	1.03E-10	2.86E-11	2.75E-06	1.34E-11	5.77E-09	4.85E-10	1.32E-08
AP	Acidification potential of land and water	[kg SO_2-Eq.]	9.12E+00	1.03E-01	1.43E-03	1.90E+01	1.28E-02	4.00E-02	5.04E-02	-2.90E+00
EP	Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	8.78E-01	2.28E-02	2.49E-04	1.07E+00	2.94E-03	2.29E-03	6.83E-03	-2.17E-01
POCP	Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	9.18E-01	-3.11E-02	1.01E-04	1.13E+00	-4.14E-03	2.39E-03	2.94E-03	-3.60E-01
ADPE	Abiotic depletion potential for non-fossil resources	[kg Sb Eq.]	9.75E-02	8.07E-07	1.13E-07	5.57E-04	1.06E-07	1.20E-06	2.03E-05	-1.12E-02
ADPF	Abiotic depletion potential for fossil resources	[MJ]	2.35E+04	2.96E+02	1.75E+00	4.57E+04	3.87E+01	9.62E+01	8.38E+01	-7.29E+03

RESULTS OF THE LCA - RESOURCE USE: One piece of ASSA ABLOY OH1082P Overhead sectional door

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	1.70E+03	-	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	1.70E+03	1.16E+01	1.64E-01	1.31E+04	1.53E+00	2.74E+01	8.02E+00	-3.98E+02
PENRE	Non-renewable primary energy as energy carrier	[MJ]	2.53E+04	-	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	2.53E+04	2.97E+02	2.06E+00	7.16E+04	3.89E+01	1.50E+02	9.58E+01	-7.48E+03
SM	Use of secondary material	[kg]	4.48E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	Use of non-renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	Use of net fresh water	[m^3]	6.32E+00	8.18E-03	1.82E-02	3.23E+01	1.08E-03	7.34E-02	5.07E-01	-1.66E+00

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: One piece of ASSA ABLOY OH1082P Overhead sectional door

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	8.96E-01	6.74E-04	1.41E-04	9.92E+00	8.85E-05	2.08E-02	1.05E-02	2.46E-01
NHWD	Non-hazardous waste disposed	[kg]	5.64E+01	3.71E-02	1.57E-01	2.31E+01	4.89E-03	8.03E-02	2.00E+01	-2.15E+01
RWD	Radioactive waste disposed	[kg]	7.28E-01	3.89E-04	1.20E-04	1.03E+01	5.09E-05	2.16E-02	4.77E-03	-7.28E-02
CRU	Components for re-use	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	Materials for recycling	[kg]	0.00E+00	0.00E+00	9.88E-01	0.00E+00	0.00E+00	5.39E+02	0.00E+00	0.00E+00
MER	Materials for energy recovery	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	Exported electrical energy	[MJ]	0.00E+00	0.00E+00	7.92E+00	0.00E+00	0.00E+00	2.62E+00	2.41E+02	0.00E+00
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	2.23E+01	0.00E+00	0.00E+00	7.35E+00	6.60E+02	0.00E+00

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 19% 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. 99% - this impact category describes the reduction of the global amount of non-renewable raw materials, therefore, as expected, it is mainly related with the extraction of raw materials (A1).

Within the production stage, the main contribution for all the impact categories is the production of steel mainly due to the energy consumption on this process. Steel accounts with approx. 78% 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), the energy consumption was included and it has a major contribution for all the impact assessment categories considered - between 54% and 80%, with the exception of ADPE (1%). This is a result of 7.2 hours of operation in on mode and 16.8 hours in idle 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

Institut Bauen und Umwelt
Institut Bauen und Umwelt e.V., Berlin (pub.): Generation of Environmental Product Declarations (EPDs);

General principles
For the EPD range of Institut Bauen und Umwelt e.V. (IBU), 2013-04
www.bau-umwelt.de

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. April 2017
www.bau-umwelt.de

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: Requirements on the EPD for PCR Loading dock and loading dock equipments.
www.bau-umwelt.com

ISO 14025
ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

ISO 14001:2009
Environmental management systems - Requirements with guidance for use (ISO 14001:2004 + Cor. 1:2009)

ISO 9001:2008
Quality management systems - Requirements

EN 15804
EN 15804: 2012+A1:2014: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

GaBi 6 2013
GaBi 6 2013: Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, Leinfelden-Echterdingen, 1992-2013.

GaBi 6 2013D
GaBi 6 2013D: Documentation of GaBi 6: Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, Leinfelden-Echterdingen, 1992-2013. http://documentation.gabi-software.com/

EN 60335-1
EN 60335-1:2012: Household and similar electrical appliances -Safety - Part 1: General requirements

EN 60335-6-2-103
EN 61000-6-2-103:2003: Household and similar electrical appliances - Safety - Part 2-103: Particular requirements for drives for gates, doors and windows

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 61000-6-3:2001: Quality management systems - Requirements (ISO 9001:2008)

EN 12424:2000
Industrial, commercial and garage doors and gates – Resistance to wind load – Classification Wind load

EN 12428:2000
Industrial, commercial and garage doors and gates – Thermal transmittance - Requirements for the calculation

EN 12425:2000
Industrial, commercial and garage doors and gates – Resistance to water penetration – Classification

EN 12426:2000
Industrial, commercial and garage doors and gates – Air permeability – Classification

EN ISO 10140-2
Industrial, commercial and garage doors and gates – Acoustic insulation– Classification

EN 13241-1:2003
Industrial, commercial and garage doors and gates – Product standard - Part 1: Products without fire resistance or smoke control characteristics

2014/30/EU
Electromagnetic Compatibility Directive (EMCD)

2006/42/EC
Machinery Directive (MD)

EWC
Waste codes according to European Waste Catalogue and Hazardous Waste List - Valid from 1 January 2002.
http://ec.europa.eu/environment/waste/framework/list.htm

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 02 01 copper, bronze, brass

EWC 17 02 02 aluminium

EWC 17 04 05 iron and steel

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

9. Annex

Results shown below were calculated using TRACI Methodology.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement[1)]	Refurbishment[1)]	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	MND	MND	MND	X	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: One **piece of ASSA ABLOY OH1082P Overhead sectional door**

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	2.06E+03	2.15E+01	6.26E+00	4.02E+03	2.81E+00	1.07E+01	1.64E+02	-7.28E+02
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	7.07E-07	1.09E-10	3.04E-11	2.93E-06	1.43E-11	6.14E-09	5.15E-10	1.37E-08
AP	Acidification potential of land and water	[kg SO_2-Eq.]	9.29E+00	1.33E-01	1.73E-03	1.80E+01	1.68E-02	3.80E-02	6.10E-02	-2.88E+00
EP	Eutrophication potential	[kg N-eq.]	5.46E-01	9.18E-03	9.96E-05	7.65E-01	1.19E-03	1.62E-03	3.08E-03	-1.50E-01
Smog	Ground-level smog formation potential	[kg O_3-eq.]	1.38E+02	2.73E+00	4.04E-02	1.63E+02	3.46E-01	3.47E-01	1.05E+00	-3.89E+01
Resources	Resources – resources fossil	[MJ]	1.83E+03	4.26E+01	2.06E-01	3.26E+03	5.57E+00	6.87E+00	8.42E+00	-1.72E+02

RESULTS OF THE LCA - RESOURCE USE: One **piece of ASSA ABLOY OH1082P Overhead sectional door**

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	1.70E+03	-	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	1.70E+03	1.16E+01	1.64E-01	1.31E+04	1.53E+00	2.74E+01	8.02E+00	-3.98E+02
PENRE	Non-renewable primary energy as energy carrier	[MJ]	2.53E+04	-	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	2.53E+04	2.97E+02	2.06E+00	7.16E+04	3.89E+01	1.50E+02	9.58E+01	-7.48E+03
SM	Use of secondary material	[kg]	4.48E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	Use of non-renewable secondary fuels	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	Use of net fresh water	[m^3]	6.32E+00	8.18E-03	1.82E-02	3.23E+01	1.08E-03	7.34E-02	5.07E-01	-1.66E+00

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: One **piece of ASSA ABLOY OH1082P Overhead sectional door**

Parameter	Parameter	Unit	A1 - A3	A4	A5	B6	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	8.96E-01	6.74E-04	1.41E-04	9.92E+00	8.85E-05	2.08E-02	1.05E-02	2.46E-01
NHWD	Non-hazardous waste disposed	[kg]	5.64E+01	3.71E-02	1.57E-01	2.31E+01	4.89E-03	8.03E-02	2.00E+01	-2.15E+01
RWD	Radioactive waste disposed	[kg]	7.28E-01	3.89E-04	1.20E-04	1.03E+01	5.09E-05	2.16E-02	4.77E-03	-7.28E-02
CRU	Components for re-use	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
MFR	Materials for recycling	[kg]	0.00E+00	0.00E+00	9.88E-01	0.00E+00	0.00E+00	5.39E+02	0.00E+00	-
MER	Materials for energy recovery	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
EEE	Exported electrical energy	[MJ]	0.00E+00	0.00E+00	7.92E+00	0.00E+00	0.00E+00	2.62E+00	2.41E+02	-
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	2.23E+01	0.00E+00	0.00E+00	7.35E+00	6.60E+02	-

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