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-20130281-IBC1-EN
Issue date	21.02.2014
Valid to	20.02.2019

Besam Automatic Revolving Door, RD4

ASSA ABLOY Entrance Systems AB

Institut Bauen und Umwelt e.V.

www.bau-umwelt.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-20130281-IBC1-EN

This Declaration is based on the Product Category Rules:
Automatic doors, automatic gates, and revolving door systems, 10-2012
(PCR tested and approved by the independent expert committee)

Issue date
21.02.2014

Valid to
20.02.2019

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

Dr. Burkhart Lehmann
(Managing Director IBU)

Besam Automatic Revolving Door, RD4

Owner of the Declaration
ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
SE-261 44 Landskrona
Sweden

Declared product / Declared unit
This declaration represents 1 revolving door, consisting of 4 door leaves and surrounding frame with internal diameter of 3.0m and internal height of 2.2 m.

Scope:
This declaration and its LCA study are relevant to the Besam Revolving Door RD4 manufactured in two stages from components sourced from international tier one suppliers. The primary manufacturing stage of some components occurs in Suzhou, China at ASSA ABLOY Entrance Systems Co. at: 428 Xinglong Street 215126 Suzhou, P.R. of China. The final assembly and production stage occurs in Ostrov u Stribra, Czech Republic at Assa Abloy ES Production s.r.o at: D5 Logistic Park 34901 Ostrov u Stribra, Czech Republic. RD4 door sizes vary in internal diameter according to project requirements; a standard door with internal diameter of 3m and 4-leaves 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 and data according to ISO 14025
☐ internally ☒ externally

Dr.-Ing. Wolfram Trinius
(Independent tester appointed by SVA)

2. Product

2.1 Product description
Pedestrian automatic revolving doors are installations that serve to automatically regulate the flow of people in residential and nonresidential buildings while providing high thermal performance. Automatic revolving doors are made up of various assemblies mainly consisting of a support structure, glazing, drive unit, controller and safety equipment. Automatic doors also feature elements that are designed to simplify their installation, operation, and maintenance. Automatic door and gate systems are typically made of metal, plastic, and glass and are available in several designs for a range of functions depending on the individual application and operation requirements in the diverse building types.

2.2 Application
Automatic revolving doors are utilized to provide entrance and exit capabilities for many different building types.

Typical applications of automatic revolving doors include:

- Commercial buildings
- Residential buildings
- Airports
- Sporting venues

Well known features of automatic revolving doors include:

- Pedestrian flow control capability
- High thermal performance and climate control

The Besam RD4 is an automatic revolving door developed to provide draught free access to buildings. The door is designed to offer continuous use, a high degree of safety and maximum lifetime. The system is self-adjusting to the effects caused by normal variations in weather conditions and to minor friction changes caused by e.g. dust and dirt. The door can be used indoors or outdoors. Outdoor use with water resistant cover. This door may be used for escape routes.

2.3 Technical Data

The product has the following technical properties:

Constructional data

Name	Value	Unit
Heat transfer coefficient of the entire door or gate system	3.5	W/(m^{2}K)
Burglar protection class acc. to /EN 1628/ and /EN 1630/	yes	-
Power input "Standby"	55	W
Power input "Operation"	235	W

Heat transfer Coefficient of the entire door (U-value), in accordance with /EN ISO 10077-1 /-2/.
To meet the standards of burglar protection, additional equipments has to be added.

2.4 Placing on the market / Application rules

This product complies with the following directives:
/2006/95/EC/ Low Voltage Directive (LVD)
/2004/108/EC/ Electromagnetic Compatibility Directive (EMCD)
/2006/42/EC/ Machinery Directive (MD)

Harmonized European standards which have been applied:
/EN 60335-1/ Household and similar electrical appliances -Safety -Part 1: General requirements
/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 doorsets - Safety in use -Requirements and test methods

Other standards or technical specifications, which have been applied:
/DIN 18650-1/-2/ Building hardware - Powered pedestrian doors - Part 1: Product requirements and test methods/ Building hardware - Powered pedestrian doors - Part 2: Safety at powered pedestrian doors
/EN 60335-2-103 2003/ Household and similar electrical appliances Safety Part 2-103: Particular requirements for drives for gates, doors and windows

2.5 Delivery status

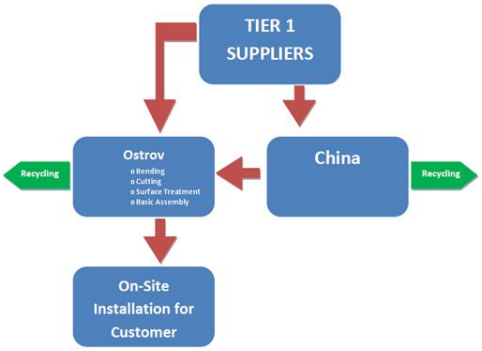
Revolving door unit with internal diameter of 3.0m, internal height of 2.2m and external height 2.4m, is delivered ready for installation.

2.6 Base materials / Ancillary materials

The composition of the BESAM RD in percentages (%) of total mass per unit (excluding packaging) is as following:

Component	Percentage in mass (%)
Glass	46
Aluminium	19
Particle Board	16
Steel	10
Rubber	5
Stainless steel	2
Others	2
Total	**100**

2.7 Manufacture



Profiles are provided by tier-1 supplier SAPA and delivered to the factory in Ostrov u Stribra, Czech Republic. The profiles are bended and machined. The products are surface treated; either anodized (externally) or powder coated (internally). Other parts such as, electronics, glass, etc. arrive from tier-1 suppliers or the factory in China and a basic assembly is done in Ostrov u Stribra. All the parts are encased in pine crates and forwarded on a standard wooden pallet for on-site installation. The certified Quality Management system, EN ISO 9001:2008/, ensures high standards.

2.8 Environment and health during manufacturing

Preparation conditions 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.

2.9 Product processing/Installation

The revolving door components are supplied ready for installation. The frame as well as the door leaves and central column are assembled and installed on-site. The components are assembled using simple tools including drills and hand tools. In addition polyurethane is applied to the glazing as a sealant. The installation is done by certified installation technicians.

2.10 Packaging
Packaging exists for the purpose of protection during transportation. RD 4 revolving doors are initially packaged in plastic tarpaulin, polystyrene and corrugated cardboard. Finally a revolving door is placed on a standard wooden pallet and encased in a pine crate. All of these packaging components are standard industry types and while the cardboard is recyclable, the pallets are available for immediate reuse upon delivery.

2.11 Condition of use
The best way to remove dust and dirt from the RD4 and to maintain the quality of the enamel layer, the surfaces should be cleaned three times/year (once/four months period) with gentle (pH 5-9), non-polishing detergent and water. Use a soft non-abrasive sponge. The cleaning should be documented.
To avoid damages to the profiles the brushes must be vacuum-cleaned weekly. Regular inspections by a trained and qualified person are recommended in a minimum of 2 visit per year or more.

2.12 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. Monitored pressure sensitive safety sensors on both entrance post and door leafs. Monitored touch less sensor on vertical entrance post and top of door leaf.
If an obstacle prohibits the rotation of the door (the resistance is higher than the pre-set value) the rotation will cease. Compressible vertical safety switches are placed on the drum edges. To prevent injury, the drum edges are equipped with soft safety edges.

2.13 Reference service life
This product has a reference service life of more than 10 000 000 cycles which adds up to a total time of serviceabilty between 15-20 years depending on use. For the calculation the lifetime of 20 years was considered.

2.14 Extraordinary effects

Fire
Not applicable.

Water
No substance can be anticipated to have a negative impact on contact with water. The electronic components and functions may be jeopardized in of case contact with water and must be installed in protected indoor areas.

Mechanical destruction
No impact on human health and environment is known or expected. Especially no hazardous substance can be anticipated in case of a mechanical destruction.

2.15 Re-use phase
It is possible to re-use the product during the reference service life and it can be moved from one location to another. The major materials, by weight of components, are glass, aluminum alloy, and steel which can be recycled. The plastic components can be used for energy recovery.

2.16 Disposal

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

Manufacturing
Cut-offs and scrap during the manufacturing process on the plant at Ostrov u Stribra are directed to a recycling unit. Waste water is cleared on-site and wastes are sent for destruction.

/EWC 12 01 01/ Ferrous metal filings and turnings
/EWC 12 01 03/ Non-ferrous metal filings and turnings
/EWC 08 02 01/ Waste coating powders

Packaging
All materials incurred during Installation on their end-of-life are directed to a recycling unit.
/EWC 15 01 01/ paper and cardboard packaging
/EWC 15 01 02/ plastic packaging
/EWC 15 01 03/ wooden packaging

End of life
All materials on their end-of-life can be directed to a recycling unit.
/EWC 16 02 14/ discarded Equipment other than those mentioned in 16 02 09 to 16 02 13.
/EWC 16 02 16/ components removed from discarded equipment other than those mentioned in 16 02 15.

/EWC 17 02 01/ wood
/EWC 17 02 02/ glass
/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

2.17 Further information
For further information and additional contact:

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3. LCA: Calculation rules

3.1 Declared Unit
The declaration refers to the functional unit of 1 piece of Besam Automatic Door System (RD4), including packaging, as specified in Part B requirements on the EPD for doors, windows, shutters, and related products /IBU PCR Part B/.

Declared unit

Name	Value	Unit
Declared unit for automatic doors and gates	20.73	m^2
Mass (Total system)	681	kg
Conversion factor to 1 kg	-	-
Declared unit for revolving door systems (dimensions acc. to this PCR; packaging included)	1	pce.

3.2 System boundary

Type of the EPD: cradle to gate - with options
The following life cycle phases were considered for revolving door:

A1-A3 Production phase:

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

Construction phase:

- A5 – Packaging waste processing

Use phase related to the operation of the building includes:

- B6 – Operational energy use (Energy consumption for BESAM-RD operation)

C1-C4 End-of-life phase:

- 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 status or disposal of final residues.

Module D:

- Declaration of all benefits or recycling potential from EOL and A5

3.3 Estimates and assumptions

Transport:
Real-world data for modes of transport and distances have been considered for those materials that contribute more than 2% of total product mass. For materials contributing less than 2% of total product mass, transport by road over an average distance of 500km has been considered.

Use phase:
For the use phase, it is assumed that the door is used in the European Union, thus an European electricity grid mix is considered within this phase. The operating hours of the revolving door are accounted for 4800 hours per year; for 12 hours per day in each case for on mode and stand by mode; power consumption is 235 W in on mode and 55 W in stand by mode.

EoL:
In the End-of-Life phase a recycling scenario with 100% collection rate was assumed.

3.4 Cut-off criteria

In the assessment, all available data from production process were 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).

For raw materials, contributing more than 2% to the total product mass, means of transportation and distances were modeled in more detail to better reflect reality; for materials or product parts, contributing less than 2% of total product mass, average distances and traditional means of transport were assumed. Average distance assumptions were based on following thoughts:
- within one country – max. transport distance of 500 km;
- between two countries/regions – average distance between these countries/regions.
- Several supplier countries – weighted average distances.

The overall contribution from these assumptions does not exceed 5% to the impact categories under consideration. Impacts relating to the production of machines and facilities required during production are not on the scope of this assessment.

3.5 Background data

For life cycle modeling of the considered products, the GaBi 6 Software System for Life Cycle Engineering, developed by PE INTERNATIONAL 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/.
PE INTERNATIONAL 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. The last revision of the used background data has taken place not longer than 10 years ago.

3.7 Period under review

The period under review is 2012/13 (12 month average).

3.8 Allocation

Regarding incineration, the software model for the waste incineration plant is adapted according to the material composition and heating value of the material. Following specific life cycle inventories for the waste incineration plant are considered:

- Waste incineration of plastic from packaging
- Waste incineration of paper from packaging
- Thermal treatment of plastic parts
- Waste incineration of particle board
- Waste incineration of electronic scraps (printed wiring boards)

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 each background dataset used is available in the GaBi dataset documentation.

3.9 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.

4. LCA: Scenarios and additional technical information

In the EPD scenarios and/or technical information for modules A5, B6, C1-C4 and D are given.

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site packaging (paper + plastic)	1.498	kg

Reference service life

Name	Value	Unit
Reference service life	20	a

Operational energy use (B6)

Name	Value	Unit
Electricity consumption	9600	kWh

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 aluminium, stainless steel, steel, zinc, electronic, particle board, plastic parts,	359.6	kg
Collected as mixed construction waste glass, other construction waste for landfilling	320.1	kg
Recycling aluminium, stainless steel, steel, zinc, copper, electronic	223.98	kg
Landfilling glass, other construction waste for landfilling	320.1	kg
Thermal recovery plastic parts, particle board	136.2	kg

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

Name	Value	Unit
Collected separately waste Besam automatic door system (RD4) (including packaging)	681	kg
Recycling aluminium	20	%
Recycling stainless steel	2.3	%
Recycling steel	10	%
Recycling electronic (PWBs, copper)	0.49	%
Reuse particle board	16	%
Reuse plastic parts	4	%
Reuse paper packaging (from A5)	0.09	%
Reues plastic packaging (from A5)	0.1	%
Construction waste going to landfill (glass)	47	%

5. LCA: Results

The Table below shows the LCA results for the declared unit - 1 Piece of Besam automatic door system (RD4).

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	MND	X	MND	MND	MND	MND	MND	X	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: declared unit and product

Parameter	Unit	A1 - A3	A5	B6	C2	C3	C4	D
GWP	[kg CO_2-Eq.]	2.86E+3	3.1E+0	4.62E+3	1.62E+1	3.5E-1	2.89E+2	-1.09E+3
ODP	[kg CFC11-Eq.]	7.77E-7	6.11E-11	4.15E-6	2.83E-10	3.14E-10	6.65E-9	-4.67E-7
AP	[kg SO_2-Eq.]	1.33E+1	8.01E-4	2.19E+1	7.33E-2	1.66E-3	1.13E-1	-6.24E+0
EP	[kg $(PO_4)^{3-}$- Eq.]	1.14E+0	8.04E-5	1.15E+0	1.69E-2	8.72E-5	2.18E-2	-6.88E-2
POCP	[kg Ethen Eq.]	8.65E-1	5.65E-5	1.29E+0	-2.4E-2	9.75E-5	1.28E-2	-2.83E-1
ADPE	[kg Sb Eq.]	5.03E-2	1.67E-7	6.36E-4	6.03E-7	4.81E-8	1.37E-5	-1.64E-2
ADPF	[MJ]	3.48E+4	1.71E+0	5.26E+4	2.23E+2	3.97E+0	1.47E+2	-1.11E+4

Caption	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

RESULTS OF THE LCA - RESOURCE USE: declared unit and product

Parameter	Unit	A1 - A3	A5	B6	C2	C3	C4	D
PERE	[MJ]	8.06E+3	-	-	-	-	-	-
PERM	[MJ]	1.73E+3	-	-	-	-	-	-
PERT	[MJ]	9.79E+3	1.07E-1	1.36E+4	8.78E+0	1.03E+0	1.16E+1	-5.97E+3
PENRE	[MJ]	3.96E+4	-	-	-	-	-	-
PENRM	[MJ]	9.46E+2	-	-	-	-	-	-
PENRT	[MJ]	4.05E+4	1.89E+0	8.16E+4	2.24E+2	6.17E+0	1.62E+2	-1.52E+4
SM	[kg]	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	-
RSF	[MJ]	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0
NRSF	[MJ]	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0
FW	[m^3]	2.64E+4	8.06E+0	3.65E+4	9.74E+0	2.76E+0	5.15E+2	-1.51E+4

Caption	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 – OUTPUT FLOWS AND WASTE CATEGORIES: declared unit and product

Parameter	Unit	A1 - A3	A5	B6	C2	C3	C4	D
HWD	[kg]	2.3E+0	2.11E-1	0.0E+0	0.0E+0	0.0E+0	7.61E+0	-1.44E-1
NHWD	[kg]	3.8E+2	1.46E-2	3.56E+1	2.91E-2	2.69E-3	3.16E+2	-2.21E+2
RWD	[kg]	2.33E+0	7.37E-5	1.2E+1	3.11E-4	9.07E-4	6.11E-3	-1.68E+0
CRU	[kg]	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	-
MFR	[kg]	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	-
MER	[kg]	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	-
EEE	[MJ]	0.0E+0	5.33E+0	0.0E+0	0.0E+0	0.0E+0	3.28E+2	-
EET	[MJ]	0.0E+0	1.47E+1	0.0E+0	0.0E+0	0.0E+0	8.62E+2	-

Caption	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; EEE = Exported thermal energy

6. LCA: Interpretation

This chapter contains an interpretation of the Life Cycle Impact Assessment categories. When expressed as a percentage, it refers impacts as a percentage of total impacts across all modules with the exception of module D.

Production phase (module A1-A3) contributes 16% to total impact assessment for Ozone Depletion Potential (ODP) category and almost 100% - for Abiotic Depletion Potential Elements (ADPE). For all other

categories this values ranges between 37% and 49%. The environmental impacts for the transport (A2) have a negligible impact within this stage.

To reflect the use phase corresponding to the RSL stated in this EPD, energy consumption was considered and has a major contribution for each impact assessment category between 59% and 84%, with exception of ADPE (1%).

In module D the benefits (negative values) and loads beyond the system boundary are declared for the recycling potential of the metals and for the credits from the incineration process (energy substitution) within A5.

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., 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. April 2013
www.bau-umwelt.de

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

EN 15804
EN 15804:2012-04: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

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

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

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

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

EN ISO 13849
EN ISO 13849-1:2008: Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design

EN 16005
EN 16005:2012: Power operated pedestrian doorsets - Safety in use -
Requirements and test methods

DIN 18650
DIN 18650-1: 2005: Building hardware - Powered pedestrian doors - Part 1: Product requirements and test methods

DIN 18650-2: 2005
DIN 18650-2: 2005: Building hardware - Powered pedestrian doors - Part 2: Safety at powered pedestrian doors

EN ISO 10077
EN ISO 10077-1 :2006: Thermal performance of windows, doors and
shutters – Calculation of thermal transmittance – Part 1: General

EN ISO 10077-2 :2012
EN ISO 10077-2 :2012: Thermal performance of windows, doors and
shutters – Calculation of thermal transmittance – Part 2: Numerical method for frame.

EN ISO 9001:2008
EN ISO 9001:2008: Quality management systems - Requirements (ISO 9001:2008)

2006/95/EC
Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

2006/42/EC
Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)

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:

Requirements on the EPD for Automatic doors, automatic gates, and revolving door systems. www.bau-umwelt.com

EMC directive 2004/108/EC
Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC

European Waste Catalogue and Hazardous Waste List - Valid from 1 January 2002, Environmental Protection Agency

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

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