ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	**dormakaba International Holding AG**
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20160059-IBC1-EN
Issue date	26.05.2016
Valid to	25.05.2022

Automatic Sliding Door ST FLEX
dormakaba

Institut Bauen und Umwelt e.V.

www.bau-umwelt.com / https://epd-online.com

1. General Information

dormakaba

Automatic Sliding Door ST FLEX

Programme holder
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Declaration number
EPD-DOR-20160059-IBC1-EN

Declared product / Declared unit
The declared unit is one piece (1 pc.) of the ST FLEX automatic sliding door system comprising:

- the average values for the ES 200 Standard, ES 200 2D, ES 200 EASY and ES 200 EASYplus operators
- two sliding panels,
- two side screens and
- packaging materials.

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

Scope:
This EPD refers to the entire life cycle of a DORMA ST FLEX automatic sliding door system. The various technical characteristics are outlined in section 2.3.

The production location is DORMA Zusmarshausen, Germany. The material and energy flows were taken into consideration accordingly
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.

Issue date
26.05.2016

Valid to
25.05.2022

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

Dr. Burkhart Lehmann
(Managing Director IBU)

Verification

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

Dr.-Ing. Wolfram Trinius
(Independent verifier appointed by SVR)

2. Product

2.1 Product description

ST FLEX stands for an automatic sliding door system manufactured by DORMA. The automatic sliding door system comprises a sliding door operator including sensors and control unit. It can be opened on one or two sides and configured with or without side screens. Thanks to its low profile width, the ST FLEX automatic sliding door is extremely versatile and allows plenty of light penetration.

With its various designs, it is the perfect solution for sophisticated projects.To meet all requirements the ST FLEX system is available with different ES 200 operator versions.

2.2 Application

On request, automatic sliding door systems from DORMA are manufactured for the individual dimensions of various building projects. The different operator systems analysed within the framework of the EPD are designed for the following application:

Door parameters	ES 200 Stand-ard	ES 200 2D	ES 200 Easy	ES 200 EASY plus
Use in escape and rescue routes	-		-	-
Single-panel sliding door: - Opening width (clear width) [mm] - Door panel weight (max.) [kg]	700 – 3,000 1 x 200	900 – 1,800 1 x 150	700 – 3,000 1 x 120	700 – 3,000 1 x 200
Double-panel sliding door - Opening width (clear width) [mm] - Door panel weight (max.) [kg]	800 – 3,000 2 x 160	1,000 – 3,000 2 x 130	800 – 3,000 2 x 100	800 – 3,000 2 x 120

Details are available in the respective product catalogues.

2.3 Technical Data

Technical data on the operator systems relating to the ST FLEX sliding door system:

Technical data	ES 200 Stan-dard	ES 200 2D	ES 200 EASY	ES 200 EASY plus
Height	100/ 150 mm			
Overall depth	180 mm			
Opening and closing force	Max. 150 N			
Opening speed (incremental adjustment) [cm/s]	10 - 70	10 - 70	10 - 50	10 - 55
Closing speed (incremental adjustment) [cm/s]	10 - 50	10 - 50	10 - 40	10 - 50
Hold-open time [sec.]	0.0 - 180	0.5 - 30	0.5 - 30	0.0 - 60
Supply voltage / Frequency	230 V / 50/60 Hz			
Wattage [W]	250	180	180	250
Protection class	IP 20			
Tested to low-voltage guidelines	•	•	•	•

2.4 Placing on the market / Application rules

The following rules apply for the application and placing the ST FLEX Green on the market:

- /EN 16005/
- /DIN 18650-1/ -2/
- /ISO 13849-1/
- /EN 60335-1/
- /EN 60335-2-103/
- /IEC 60335-2-103/

AutSchR 1997 (German guidelines for automatic sliding doors in escape routes) also applies for DORMA ST 200-2D only.

TÜV-Nord certificates are available for the respective products tested.

2.5 Delivery status

As an automatic sliding door involves a customised door system, shapes and sizes can vary considerably. The ST FLEX product family under review has the following delivery scope:

Characteristics	Dimensions
Clear height	2.10 m
Total height	2.20 m
Clear width	2.00 m
Total width	4.10 m
Surface area	9.02 m²

The components associated with these dimensions have the following weights:

Components	Weight
1 x Operator ES 200	30.8 kg
1 x Packaging ES 200	5.1 kg
2 x Sliding panel	136.4 kg
2 x Side screen	144.6 kg
TOTAL	**316.9 kg**

The drive system is supplied in a separate box; the sliding panels and side screens are supplied on frames.

2.6 Base materials / Ancillary materials

The sliding door system product family displays the following mass percentages:

Component	Percentage
Glass panes	77 %
Aluminium components	14 %
Steel components	4 %
Electronic components	3 %
Plastic components	2 %
TOTAL	**100 %**

2.7 Manufacture

The ST FLEX Green sliding panels and side screens are manufactured in the DORMA plant Zusmarshausen. Electronic components are also manufactured within the DORMA Group. The operators and circuit boards are manufactured in Ennepetal. The certified Quality Management System to /ISO 9001/ safeguards the high quality standard of DORMA products at all locations.

2.8 Environment and health during manufacturing

The Environment Management System for the facility in Ennepetal is certified to /ISO 14001/ while Occupational Health & Safety is certified to /OHSAS 18001/ and the Energy Management System is certified to /ISO 50001/.

2.9 Product processing/Installation

DORMA deploys its own, specially-trained teams for installation of the product systems.

2.10 Packaging
The declared unit comprises the following packaging materials and their mass percentages:

Component	Percentage
Paper and cardboard	89 %
Wood	10 %
LDPE foil	1 %
TOTAL	**100 %**

More information on the possible re-use of packaging is provided in section 2.16.

2.11 Condition of use
Regular maintenance is advised to ensure the reference service life of 10 years. For repairs or renewals referring spare parts are available. The advised maintenance intervals for the DORMA products are included in the life cycle assessment as are the production of spare parts and the disposal of wear parts (module B3).
The energy required for the operators under review was calculated over the reference service life of 10 years and is included in module B6.

2.12 Environment and health during use
There are no interactions between products, the environment and health.

2.13 Reference service life
The reference service life amounts to 10 years. This complies with a total of 1,000,000 closing cycles according to /EN 16005/.

2.14 Extraordinary effects

Fire
Not relevant.

Water
No hazardous substances are released into the environment on contact with water.

Mechanical destruction
There exist no danger to the environment as far as product components are disposed properly.

2.15 Re-use phase
The following possibilities arise in terms of material composition:

Material recycling
The materials suitable for material recycling largely comprise the glass panes and metallurgical materials processed in the product.

Energy recovery
The materials suitable for material recycling largely comprise the plastics contained in the product.

Landfilling
The entire system can be landfilled in the absence of the appropriate waste recovery technologies.

2.16 Disposal
Offcuts and scraps during the manufacturing process
Offcuts and scraps incurred during the manufacturing phase are directed to metallurgical and energy recovery circuits. They are kept separately and collected for disposal by a disposal company.
Waste codes according to the /European Waste Catalogue - 2001/118/EC/ (EWC):

- /EWC 07 02 03/ Plastic waste
- /EWC 12 01 01/ Ferrous metal filings and turnings
- /EWC 12 01 03/ Non-ferrous metal filings and turnings

Packaging
The packaging components incurred during installation in the building are directed to energy recovery circuits.

- /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 are directed to an energy or metallurgical recovery circuit.

- /EWC 16 02 14/ Used devices with the exception of those outlined in 16 02 09 to 16 02 13
- /EWC 16 02 16/ Components removed from used devices with the exception of those outlined in 16 02 15
- /EWC 16 06 01/ Lead batteries
- /EWC 17 02 02/ Glass
- /EWC 17 02 03/ Plastics
- /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

Note: Disposal of the gearing motor is subject to the European /WEEE Directive - 2002/96/EC/.

2.17 Further information
Contact data for more detailed information:
Please refer to the last page of this Declaration.

3. LCA: Calculation rules

3.1 Declared Unit
The declared unit is one piece (1 pc.) of the ST FLEX automatic sliding door system comprising:

- average value of the ES 200 Standard, ES 200 2D, ES 200 EASY and ES 200 EASYplus operators,
- two sliding panels,
- two side screens and
- respective packaging materials.

The side screens are not part of the moving automatic door but rather form a part of the overall automatic door system and have been taken into consideration in the declared unit.

The declared unit comprises the following data:

ST FLEX

Name	Value	Unit
Declared unit	1	piece
Reference door (frame)	2.2 x 4.1	m
Mass (Gesamtsystem)	316.9	kg
Grammage	35.13	kg/m²
Conversion factor to 1 kg	0.003156	-

3.2 System boundary

Type of EPD: cradle to gate with options

Modules A1-3, A4 and A5

The product stage commences with considering production of the requisite raw materials and energies including all of the corresponding upstream chains and the requisite procurement transport. Furthermore the whole production phase was displayed at two production facilities until reaching the End-of-Waste status (EoW). Transport associated with distribution as well as installation in the building were also taken into consideration.

Module B3

This module includes replacement of wear parts across its entire service life of 10 years. The production of spare parts and the disposal of wear parts until EoW belong to this.

Module B6

This module includes the energy consumption for operating the declared drive units including the stand-by modus over the entire operating life time of 10 years.

Modules C2-3

These modules include the environmental impacts of the treatment of waste fractions until reaching the EoW including transport associated with this at the end of the product life cycle.

Module D

The credits resulting from the waste treatment which are resulting from the energetic (MVA-route) or mechanical recycling (recycling-route) of packaging (A5), spare parts (B3) and the product in the End-of-Life status (C3) are indicated here.

3.3 Estimates and assumptions

No estimates or assumptions were made which would be of relevance for interpreting the Life Cycle Assessment results.

3.4 Cut-off criteria

All data from the plant data survey during the period under review indicated in section 3.7 are taken into consideration with the result that material flows with a mass percentage of less than one per cent were also analysed. It can be assumed that the total of all neglected percentage shares does not exceed 5 % in the impact categories.

3.5 Background data

The current version 7 of the GaBi software system for life cycle engineering was used for modelling the life cycle. All of the background data used was taken from various /GaBi/ data bases and the /ecoinvent/ data base (version 2.2). The data items contained in the data bases are documented online.

For modules A1-3 German data records, for distribution transports (A4), installation (A5), usage (B6) and disposal scenarios (C modules) European data records were used if available.

The background data records used for the assessment of the /GaBi/ data bases have the reference year 2013. Some of the used /ecoinvent/ data sets are older than 10 years but are considered to be the most appropriate data available for modelling in accordance with /CEN/TR15941/. The /ecoinvent/ data sets can be classified as conservative based on available empirical values.

The secondary and recycling percentages can only be considered via the generic data sets. Individual adaptation of these secondary shares is not possible with the /GaBi/ software.

3.6 Data quality

Data on the products reviewed was collated on the basis of evaluations of internal production and environmental data, recording LCA-relevant data within the supplier chain and by measuring the relevant data for the provision of energy. The data collated was examined for plausibility and consistency with the result that good data representativeness can be assumed.

The secondary and recycling percentages were calculated manually due to missing /GaBi/ documentation.

3.7 Period under review

The LCA data was collated for the period from 1 January 2015 to 31 December 2015.

3.8 Allocation

The material flows required for the manufacture of the product system were compiled with relation to the Enterprise Resource Planning System (ERP system) of DORMA. All of the energy flows considered in this context were measured on site. The credits from thermal recovery of sales packaging as well as recycling and energy recovery of the dismantled product are allocated to Module D. The /GaBi/ data records for the material recycling do not indicate separate results for Modules C3 and D. The results for these data items were allocated analogously to Module D.

Production waste with a market value was treated as a co-product in the data model with the economic allocation.

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

Transport to the site (A4)

Name	Value	Unit
Means of transport truck Euro 3	17.3 t	useful load
Transport distance	340	km
Capacity utilisation (including empty runs)	85	%

In establishing the transport distance, all of the distribution countries were included proportionately.

Installation in the building (A5)

Name	Value	Unit
Output substances following waste treatment on site / Plastic protective foil	0.03	kg
Output substances following waste treatment on site / Wooden pallets and paper	5.09	kg
Disposal transport Means of Transpor / Truck Euro 3	17.3 t	useful load
Disposal transport / Transport distance	50	km
Disposal transport / Capacity utilisation (including empty runs)	50	%

Repairs (B3)

Name	Value	Unit
Material loss	18.2	kg

Repair cycle as per "Manufacturer's guidelines on wear parts" supplied by DORMA.

Reference service life

Name	Value	Unit
Reference service life	10	a

Operational energy use (B6)

Name	Value	Unit
Electricity consumption	2155	kWh
Equipment output	180 - 250	kW

Electricity consumption was calculated for the entire reference service life of 10 years and includes the stand-by modus.

End of life (C2-C3)

Name	Value	Unit
For Recycling	97	%
For Energy recovery	3	%

The processes at the End-of-Life are modelled using data representing the European average.

Re-use, recovery and recycling potential (D)

Module D includes the credits for the material recycling of the glass panes and the metals in modules B3 and C3 as well as the credits of the energetic recycling of plastics in modules B3 and C3 and the packaging materials in module A5.

5. LCA: Results

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 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	X	MNR	MNR	X	MND	MND	X	X	MND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: ST FLEX

Parameter	Unit	A1-A3	A4	A5	B3	B6	C2	C3	D
GWP	[kg CO_2-Eq.]	9.31E+2	5.17E+0	7.18E+0	1.63E+2	1.03E+3	4.32E-1	4.93E+1	-6.20E+2
ODP	[kg CFC11-Eq.]	4.86E-6	2.09E-11	3.45E-11	6.25E-7	7.65E-7	1.77E-12	4.31E-7	-1.34E-5
AP	[kg SO_2-Eq.]	5.76E+0	3.31E-2	1.52E-3	1.25E+0	5.17E+0	2.73E-3	5.92E-2	-3.22E+0
EP	[kg $(PO_4)^{3-}$-Eq.]	6.26E-1	8.49E-3	2.68E-4	5.37E-2	2.81E-1	7.01E-4	8.35E-3	-2.49E-1
POCP	[kg ethene-Eq.]	-2.85E-2	-1.37E-2	1.10E-4	6.49E-2	3.01E-1	-1.13E-3	5.35E-3	-2.05E-1
ADPE	[kg Sb-Eq.]	2.66E-2	2.02E-7	1.21E-7	8.78E-3	1.63E-4	1.68E-8	3.94E-5	-2.81E-2
ADPF	[MJ]	1.08E+4	7.09E+1	1.89E+0	1.77E+3	1.14E+4	5.92E+0	3.69E+2	-6.89E+3

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: ST FLEX

Parameter	Unit	A1-A3	A4	A5	B3	B6	C2	C3	D
PERE	[MJ]	2.15E+3	3.99E+0	2.13E-1	3.78E+2	3.85E+3	3.32E-1	1.74E+1	-2.40E+3
PERM	[MJ]	9.27E+1	3.84E-12	7.01E-12	1.36E+1	1.08E-7	3.14E-13	8.01E-2	-4.52E-2
PERT	[MJ]	2.24E+3	3.99E+0	2.13E-1	3.92E+2	3.85E+3	3.32E-1	1.74E+1	-2.40E+3
PENRE	[MJ]	1.27E+4	7.11E+1	2.23E+0	2.13E+3	1.83E+4	5.94E+0	4.05E+2	-7.83E+3
PENRM	[MJ]	1.17E+2	0.00E+0	0.00E+0	7.03E+1	0.00E+0	0.00E+0	2.25E-2	-1.18E-5
PENRT	[MJ]	1.29E+4	7.11E+1	2.23E+0	2.20E+3	1.83E+4	5.94E+0	4.05E+2	-7.83E+3
SM	[kg]	5.60E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	2.26E-1	4.74E-4	7.98E-5	4.31E-2	2.42E-1	3.94E-5	5.68E-3	-1.20E-1
NRSF	[MJ]	1.80E+0	4.96E-3	3.71E-4	3.29E-1	2.52E+0	4.13E-4	4.44E-2	-9.02E-1
FW	[m^3]	4.79E+3	3.19E-1	1.98E-1	7.90E+2	3.48E+3	2.66E-2	2.39E+1	-6.03E+3

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

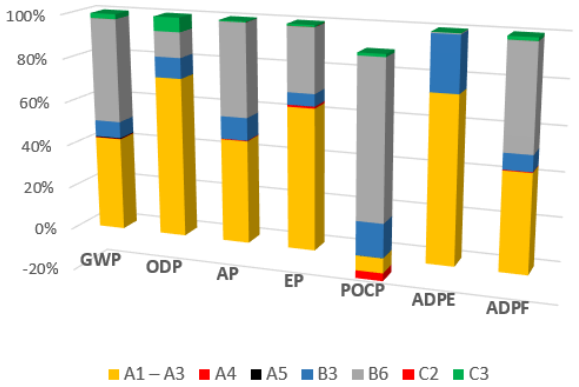
RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: ST FLEX

Parameter	Unit	A1-A3	A4	A5	B3	B6	C2	C3	D
HWD	[kg]	3.10E-1	0.00E+0	0.00E+0	6.03E-2	0.00E+0	0.00E+0	9.03E-2	0.00E+0
NHWD	[kg]	1.77E+3	2.71E-1	4.45E-1	5.05E+2	4.25E+3	2.24E-2	3.96E+1	-1.17E+3
RWD	[kg]	6.71E-1	9.71E-5	1.35E-4	1.12E-1	2.74E+0	8.12E-6	1.31E-2	-3.83E-1
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	7.13E+0	0.00E+0	0.00E+0	8.86E+0	0.00E+0	0.00E+0	2.87E+2	0.00E+0
MER	[kg]	1.48E-1	0.00E+0	4.86E+0	9.32E+0	0.00E+0	0.00E+0	9.56E+0	0.00E+0
EEE	[MJ]	1.59E+0	0.00E+0	9.29E+0	1.00E+1	0.00E+0	0.00E+0	3.00E+1	0.00E+0
EET	[MJ]	4.02E+0	0.00E+0	2.18E+1	2.57E+1	0.00E+0	0.00E+0	7.47E+1	0.00E+0

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

ENVIRONMENTAL EFFECTS
An evaluation of environmental effects allows the following interpretation on the basis of the current CML-version (April 2015):



Module A1-3 has a significant influence on the CML results due to the material pre-processes. The module is dominant with regard to the ozone depletion potential (**ODP**), the eutrophication potential (**EP**) and the abiotic depletion potential for elements (**ADPE**). Especially the electronic components in the operator as the gear motor and the power supply are mainly responsible for this.
Module B6 has a high influence on the life cycle due to the energetic usage during the usage phase of 10 years too. Therefore module B6 is dominant for the environmental indicators Global Warming Potential (**GWP**), Acidification Potential for soil and water (**AP**), Photochemical Ozone Creation Potential (**POCP**) and Abiotic Depletion Potential of Fossil Fuels (**ADPF**).
Module B3 includes the repair and the material pre-processes of the spare parts as well as the waste treatment of the wear parts. The module has influence on all of the indicators but is never significant.
Module A5 includes the waste treatment of the packaging for transports and has no influences on any indicator. The same applies to module C3 which includes the waste treatment of the whole product system at the end of life. Only the Ozone Depletion Potential (**ODP**) can be named here because of the recycling of glass.
Expenditures for transports can be seen among all environmental indicators but are of no significance in their effects. It has to be remarked that modules A2, A4 and C2 have a negative impact on the **POCP** due to the negative characterisation factor in the CML-system.

RESOURCE USE
In the following the resource use is interpreted module per module.

Primary energy
Module B6 dominates the whole life cycle with 55 % as the energy demand over 10 years of the automatic sliding door is displayed. Module A1-3 is behind this value with 37 %, as well as module B3 with 6 %. The disposal phase in module C3 has a share of about 1 % of the total primary energy demand.

Fresh water
The water consumption in module A1-3 has a significant impact of 53 % during the whole life time and results from the pre-processes of the aluminium used in the analysed product system. Beneath that a large part derives from the analysed operators (average of ES 200). Futher more the glass used and the hydro-power during production represent a small share.
Module B6, that displays the energy demand for the average operating system, has the second highest share of the water consumption in the life cycle (38 %). The share is dependent on the power-mix used in practice. For the modelling the EU-27 power mix was used.
Module B3 with its material upstream is responsible for about 9 % of the water use.

WASTE CATEGORIES
Disposed non-hazardous waste dominates the fractions of the waste. Module B6, namely the power-mix used in the pre-processes, play the significant role. Apart from this, this waste derives in the modules A1 and B3 in the upstream processes of the aluminium used and the single-pane safety glass as well as the pre-processes of the power consumption.
The radioactive waste derives especially from module B6 and with smaller impact from modules A1 and B3.
Hazardous waste derives especially from module A1, namely the pre-processes of the metallurgic raw materials (primary aluminium), and the single-pane safety glass.

7. Requisite evidence

This Environmental Product Declaration does not require any evidence in relation to the material composition in the product and its area of application.

8. References

Institute Construction and Environment e.V. (Institut Bauen und Umwelt e.V.), Königswinter (pub.):

General Principles for the EPD Programme of the Institute Construction and Environment e.V., 2013-04.

Product Category Rules for Construction Products Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background

Report, 2013-04.

Product Category Rules for Construction Products Part B: Requirements on the EPD for automatic doors, automatic gates, and revolving door systems, 2014-07.

www.bau-umwelt.de

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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.

AutSchR 1997: Directive governing automatic sliding doors in rescue routes, December 1997.

CEN/TR 15941:2010-03: Sustainability of construction works – Environmental product declarations – Methodology for selection and use of generic data; German version CEN/TR 15941:2010.

DIN 18650-1:2010-06, Powered pedestrian doors – Part 1: Product requirements and test methods.

DIN 18650-2:2010-06, Powered pedestrian doors – Part 2: Safety at powered pedestrian doors.

EN 15804:2012-04, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products; German version EN 15804:2012.

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Publisher
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