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-20160041-IBA1-EN
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Valid to	25.04.2021

Automatic folding door FFT FLEX Green
dormakaba

Institut Bauen und Umwelt e.V.

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1. General Information

dormakaba

Automatic folding door FFT FLEX Green

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

Owner of the Declaration
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Hofwisenstrasse 24
CH-8153 Rümlang
Switzerland

Declaration number
EPD-DOR-20160041-IBA1-EN

Declared product / Declared unit
The declared unit is one (1) m² (37.3 kg) of the automatic FFT FLEX Green folding door system comprising:
- the ES 200 FFT 2D drive unit
- two pairs of folding panels
- two hold-open columns
- a floor rail and
- the respective 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 FFT FLEX Green folding door system. The various technical characteristics are depicted in section 2.3. The product is manufactured at the DORMA production facility in Zusmarshausen, Germany. Product components are also procured from the DORMA location in Ennepetal. 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
26.04.2016

Valid to
25.04.2021

Verification

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

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

Dr. Burkhart Lehmann
(Managing Director IBU)

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

2. Product

2.1 Product description

The FFT FLEX Green is an automatic folding door with thermally separated, particularly slim profiles and a silent, dynamic drive system. It is particularly suitable where space is restricted yet as wide an opening as possible is to be achieved. This also achieves a maximum escape route width (2D variant). It permits opening widths of up to 2.4 metres and heights of up to 2.5 metres.

The dual-drive technology also offers a safe operational solution for emergency exits and escape routes according to /DIN 18650/ and /EN 16005/ (2D variant).

Other features include:

- Currentless opening thanks to integrated battery pack module
- Escape routes ensured by single-fault secure control technology
- Function safeguarded by self-monitoring sensors

The FFT FLEX Green folding door avails of highly-efficient thermal separation with very good thermal transmittance values (UD values) ranging from 1.7 to max. 2.4 (thermal coefficient) which can be calculated individually for each door system. In combination with ISO glass, the FFT FLEX Green ensures good thermal insulation of external doors.

A new drive system, whose force is transferred without toothed belts, improves smooth running and increases dynamism. Reserves are also achieved against wind loads as these are detected and compensated for by

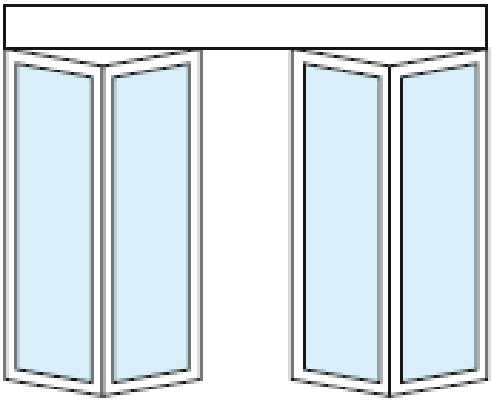
the FFT FLEX Green. In the opening and closing direction, the operating parameters are altered dynamically as required in order to adapt operation to the respective weather conditions.

2.2 Application

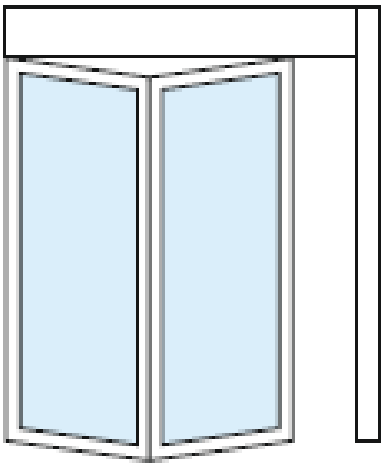
The FFT FLEX Green folding door is used when as wide an opening width as possible is to be achieved despite low wall opening dimensions. It is suitable for both external and internal doors in narrow passageways, barrier-free access points in public buildings as well as escape routes and emergency exits.

While opening, the door panel is simultaneously folded and automatically moved to the side.

Bi-parting opening
Both pairs of door panels are synchronously swivelled to the side and in opposing directions while opening, thereby permitting a maximum opening width of 2.4 metres.



Unilateral opening
For smaller applications: the FFT FLEX Green folding door comprising a single pair of panels permits a maximum opening width of 1.2 metres.



2.3 Technical Data

Door type		FFT FLEX Green (Standard)	FFT FLEX Green-2D (Emergency escape)
Drive unit		**ES 200 FFT**	**ES 200-2D FFT**
Door parameters			
Single-panel folding door	- Clear opening width (LW)[1]	800-1200 mm	900-1200 mm
	- Max. panel pair weight	1 x 90 kg	1 x 90 kg
Single-panel folding door	- Clear opening width (LW)[1]	900-2400 mm	900-2400 mm
	- Max. panel pair weight	2 x 90 kg	2 x 90 kg
Clear passage height[1]		2100-2500 mm	2100-2500 mm
Glazing		Double glazing ISO 28	Double glazing ISO 28
Technical data			
Suitable for use in emergency exits and escape routes		-	●
Opening and closing force (max. 150 N)		●	●
Opening speed (incremental adjustment)		10-75 cm/s	10-75 cm/s
Closing speed (incrementally variable)		10-50 cm/s	10-50 cm/s
Hold-open time		0-180 s	0-180 s
Installed load, frequency		230 V, 50/60 Hz	230 V, 50/60 Hz
Power consumption		250 W	250 W
Type of protection		IP 20	IP 20
Temperature range		-20 to +60 °C	-20 to +60 °C
Permissible humidity (relative)		Max. 93% (non-condensing)	Max. 93% (non-condensing)
Tested in accordance with low-voltage directives		●	●
Basic module			
Modular design		●	●
Microprocessor control		●	●
Functional programmes	- Off - Automatic - Permanent-open - Partial-open - Exit only - Night-bank control	●	●
Automatic reversing		●	●
Connection for bi-stable electromechanical locking device		●	●
Connection for presence sensor (both sides)		●	●
Equipment according to DIN 18650 and EN 16005		●	●
Adjustment of all basic parameters via integrated display and keypad		●	●
Parameter configuration by PDA		●	●
Emergency opening / Emergency closing (if battery pack installed)		●/●	●/- (Battery pack as standard)

Door type	FFT FLEX Green (Standard)	FFT FLEX Green-2D (Emergency escape)
Drive unit	**ES 200 FFT**	**ES 200-2D FFT**
Basic module		
Emergency rechargeable battery (if battery pack installed)	●	-
24 V output for external loads	●	●
Retrievable fault lock memory with error codes	●	●
DCW® bus connection (DORMA Connect and Work protocol)	●	●
Function module		
Door status contact (3x)	○	○
Panic closing function (observe national regulations)	○	-
Bell contact	○	○
Air lock control	○	○
Function module DIN 18650 and EN 16005		
Monitored secondary closing edge sensors	○	○
Manual lock release for electromechanical locking device	○	○
Light curtains for presence sensor	○	○
Rechargeable battery pack (emergency opening / emergency closing)	○	○/-

● standard ○ optional - no [1] different values on request

2.4 Application rules

The following rules apply for placing the FFT FLEX Green on the market:

- /DIN EN 16005/: Power-operated pedestrian doorsets
- /DIN 18650-1, -2/: Automatic door systems
- /DIN EN ISO 13849-1/: Safety of machinery
- /DIN EN 60335-2-103/A1/: Safety of electrical appliances for households and similar purposes

/AutSchR 1997/ also applies for DORMA ST 200-2D. /TÜV-Nord certificates/ are available for the respective products tested.

2.5 Delivery status

The folding door system is manufactured to the individual dimensions of the respective building. The variant on which the analysis is based looks like this on delivery:

Parameter	Dimensions
Clear height	2,100 mm
Total height	2,273 mm
Clear width	1,600 mm
Total width	1,960 mm
Surface area	4.45 m^2
Product weight incl. packaging	199.35 kg

2.6 Base materials / Ancillary materials

Mass percentages of the automatic folding door system:

Product components	Mass percentage
Insulating glass units	41%
Aluminium components	27%
Steel components	19%
Plastic components	8%
Electronic components	4%
Other metals	1%

2.7 Manufacture

The FFT FLEX Green folding door leaves, lock-columns and floor rails are manufactured in the DORMA plant in Zusmarshausen. Electronic components are also manufactured within the DORMA Group. The ES 200 FFT (2D) drive unit and printed circuit boards are manufactured in the Ennepetal plant. The certified Quality Management system to /DIN EN ISO 9001/ safeguards the high quality standard of DORMA products at all locations.

2.8 Environment and health during manufacturing

The DORMA Environment Management system at the Ennepetal facility is certified to /DIN EN ISO 14001/; occupational health and safety is certified to /OHSAS 18001/ and Energy Management to /DIN EN ISO 50001/.

2.9 Product processing/Installation

DORMA deploys its own, specially-trained assembly teams for installation.

2.10 Packaging

The declared unit includes the following packaging materials and their percentages by mass:

Packaging	Percentage
Paper/Cardboard	52%
Wood	39%
Polyethylene foil	9%

2.11 Condition of use

No auxiliary or consumable materials are incurred for usage of the automatic FFT FLEX Green folding door system. The energy required for the drive unit (ES 200 FFT 2D) under review was calculated for a service life of 10 years and recorded in Module B6. A life cycle of 10 years is dependent on regular maintenance of the doors. The corresponding spare parts are available for repairs or renewals.

2.12 Environment and health during use

There are no relationships between the product, the environment and health.

2.13 Reference service life

The reference service life amounts to 10 years. This corresponds with around 1,000,000 closing cycles in accordance with /DIN EN 16005/.

2.14 Extraordinary effects

Fire

Not of relevance as the product system is not combustible thanks to its material composition.

Water

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

Mechanical destruction

In the case of mechanical destruction, all product components must be disposed of 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 panels and metallurgical materials processed in the product.

Energy recovery

The materials suitable for energy recovery primarily comprise the plastics contained in the product.

Landfilling

The entire system can be landfilled in the absence of waste recycling technologies.

2.16 Disposal

Scrap incurred during the production phase

Cuttings incurred during the manufacturing phase is directed towards metallurgical recycling and energy recovery. Cuttings are collected separately and collected by a disposal company.

Waste codes in accordance with the European Waste Catalogue /EWC/2001/118/EC/:

- /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 an energy recovery process.

- /EWC 15 01 01/ Paper and cardboard packaging
- /EWC 15 01 02/ Plastic packaging
- /EWC 15 01 03/ Wooden packaging

EoL

All materials are directed to an energy recovery or metallurgical recycling process.

- /EWC 16 02 14/ Used devices with the exception of those included in 16 02 09 to 16 02 13
- /EWC 16 02 16/ Components removed from used devices with the exception of those included in 16 02 15
- /EWC 16 06 01/ Lead batteries
- /EWC 17 02 02/ Glass
- /EWC 17 02 03/ Plastic
- /EWC 17 04 02/ Aluminium
- /EWC 17 04 05/ Iron and steel
- /EWC 17 04 11/ Cables with the exception of those included in 17 04 10

Disposal of the drive unit in Europe is subject to the /WEEE Guideline 2012/19/EU/.

2.17 Further information

Contact data for more detailed information:
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Dorma Platz 1
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Tel.: +49 (0)2333 793-0
Internet: www.dormakaba.com

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is one (1) m² (37.3 kg) of the automatic FFT FLEX Green folding door system comprising:
- the ES 200 FFT 2D drive unit
- two pairs of folding panels
- two lock columns
- a floor rail and
- the respective packaging materials.

Declared Unit

Name	Value	Unit
Grammage	44.8	kg/m²
Mass (total system)	199.35	kg

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 actual procurement transport. Furthermore, the entire manufacturing phase was depicted, including processing of production waste as far as End-of-Waste status (EoW). Transport associated with distribution as well as installation in the building were also taken into consideration.

Module B6

The module includes the energy required for operating the ES 200 FFT 2D drive unit across its entire service life of 10 years.

Modules C2-3

The modules include the environmental impacts associated with processing the waste fractions as far as End-of-Waste status (EoW), including transport at the end of the product life cycle.

Module D

Evidence of credits incurred by waste treatment as a result of energetic (MVA route) or material recycling (recycling route) of packaging (A5), spare parts (B3) and the product at the End of Life (C3).

3.3 Estimates and assumptions

No estimates and 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 is 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 latest version 6 of the software system for comprehensive analysis /GaBi/ was used for modelling the life cycle. The entire production process was modelled using the manufacturer-specific data while generic background data sets were used for the upstream and downstream processes. All of the background data sets used were taken from the current versions of various GaBi data bases and the /ecoinvent data base/ (version 2.2). The data items contained in the data bases are documented online. German data records were generally used for Modules A1-3 and the corresponding European data records were used for transport associated with distribution (A4), usage (B Modules) and disposal scenarios (C Modules). German data was relied on where European data was not available.

3.6 Data quality

The background data records from the GaBi data bases used for the analysis pertain to the reference year 2013. Individual data sets were also taken from

the ecoinvent data base 2.2 which can be regarded as conservative on account of empirical values available. The data on the products under review was recorded using analyses of internal production and environmental data, LCA-relevant data within the supplier chain and analyses of relevant data for the provision of energy. The data surveyed has been examined for plausibility and consistency. Good data representativity can be assumed.

3.7 Period under review

The LCA data was recorded for the period 2014/15.

3.8 Allocation

The material flows required for the manufacture of the product system were compiled with relation to the DORMA ERP system. All of the energy flows considered within 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. Some data records do not indicate separate results for Modules C3 and D. The results for these data items were allocated analogously to Module D.

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 construction site (A4)

Name	Value	Unit
Transport distance	360	km
Capacity utilisation (including empty runs)	85	%

All of the distribution countries were recorded disproportionately in establishing the transport distance. Transport to the site is depicted using the corresponding fuel data records (see "A4 - Means of transport - Distribution" file).

Reference Service Life

Name	Value	Unit
Reference service life	10	a
Power supply	230 V AC / 50/60 Hz	
Protection class	IP 20	

Operational energy (B6)

Name	Value	Unit
Electricity consumption	2344	kWh
Max. power input	0,25	kW

Electricity consumption was calculated for the reference service life of 10 years.

Ende of life (C3)

Name	Value	Unit
Recycling	175	kg
Energy recovery	16	kg

A collection rate of 95% can be noted. The processes at the End-of-Life stage are modelled using data sets which represent the European average.

Re-use, recovery and recycling potential (D), relevant scenario information

Name	Value	Unit

Metals and insulated glass are directed to material recycling, plastic and packaging materials are directed to energy recovery circuits, whereby inner-European transport and recycling rates were taken into consideration.

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	MNR	MNR	MNR	X	MND	MND	X	X	MND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: Automatic folding door FFT FLEX Green

Parameter	Unit	A1-A3	A4	A5	B6	C2	C3	D
GWP	[kg CO_2-Eq.]	9.54E+2	3.39E+0	1.48E+1	1.11E+3	1.49E+0	6.85E+1	-5.84E+2
ODP	[kg CFC11-Eq.]	1.09E-5	1.39E-11	6.01E-11	8.23E-7	6.09E-12	4.02E-7	-1.33E-5
AP	[kg SO_2-Eq.]	4.85E+0	2.18E-2	2.32E-3	5.57E+0	9.48E-3	9.59E-2	-3.08E+0
EP	[kg $(PO_4)^{3-}$-Eq.]	1.21E+0	5.59E-3	4.14E-4	3.03E-1	2.43E-3	7.72E-3	-1.94E-1
POCP	[kg ethene-Eq.]	2.32E-1	-9.03E-3	1.84E-4	3.25E-1	-3.89E-3	6.61E-3	-2.00E-1
ADPE	[kg Sb-Eq.]	7.82E-2	1.32E-7	1.77E-7	1.75E-4	5.79E-8	6.71E-5	-1.14E-2
ADPF	[MJ]	1.15E+4	4.65E+1	3.13E+0	1.23E+4	2.04E+1	4.70E+2	-6.50E+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: Automatic folding door FFT FLEX Green

Parameter	Unit	A1-A3	A4	A5	B6	C2	C3	D
PERE	[MJ]	2.57E+3	2.61E+0	3.57E-1	4.15E+3	1.14E+0	2.73E+1	-2.38E+3
PERM	[MJ]	1.44E+2	2.46E-12	1.15E-11	1.16E-7	1.08E-12	2.61E-2	-1.47E-2
PERT	[MJ]	2.71E+3	2.61E+0	3.57E-1	4.15E+3	1.14E+0	2.73E+1	-2.38E+3
PENRE	[MJ]	1.40E+4	4.67E+1	3.72E+0	1.97E+4	2.05E+1	5.16E+2	-7.39E+3
PENRM	[MJ]	2.21E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.32E-3	-3.85E-6
PENRT	[MJ]	1.42E+4	4.67E+1	3.72E+0	1.97E+4	2.05E+1	5.16E+2	-7.39E+3
SM	[kg]	7.77E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	3.10E-4	1.02E-4	2.60E-1	1.36E-4	7.02E-3	3.02E-1
NRSF	[MJ]	0.00E+0	3.24E-3	5.60E-4	2.72E+0	1.42E-3	5.74E-2	3.40E+0
FW	[m^3]	5.62E+3	2.09E-1	3.41E-1	3.74E+3	9.17E-2	2.90E+1	-6.01E+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

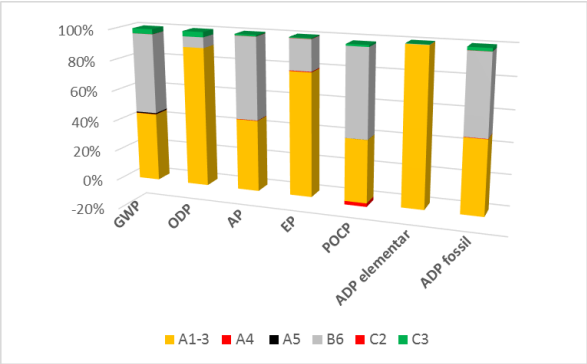
RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: Automatic folding door FFT FLEX Green

Parameter	Unit	A1-A3	A4	A5	B6	C2	C3	D
HWD	[kg]	8.70E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.28E-2	-2.25E-3
NHWD	[kg]	2.48E+3	1.76E-1	6.35E-1	4.58E+3	7.71E-2	8.63E+1	-1.13E+3
RWD	[kg]	7.19E-1	6.38E-5	2.32E-4	2.95E+0	2.80E-5	1.83E-2	-3.65E-1
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	7.75E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.91E+1	0.00E+0
MER	[kg]	1.45E-2	0.00E+0	2.03E+0	0.00E+0	0.00E+0	3.64E+0	0.00E+0
EEE	[MJ]	4.70E-1	0.00E+0	2.02E+1	0.00E+0	0.00E+0	3.92E+1	0.00E+0
EET	[MJ]	1.52E+0	0.00E+0	4.71E+1	0.00E+0	0.00E+0	9.94E+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

An evaluation of the LCA results permits the following interpretation based on the current CML version (last revised: April 2015):



[Legende]	[Legend]
GWP	GWP
DOP	ODP
AP	AP
EP	EP
POCP	POCP
ADP elementar	ADP elementary
ADP fossil	ADP fossil

The phases of raw material supply and usage dominate the entire life cycle of the FFT FLEX Green folding door across all environmental indicators evaluated. While the impact categories greenhouse potential, acidification potential, photochemical ozone formation potential and abiotic fossil use of resources are significantly caused by electricity production for energy requirements in B6, the impact categories ozone depletion potential, eutrification potential and abiotic, elementary use of resources are necessitated by resource requirements in A1-3.

Within the phase of raw material supply, the drive unit integrated in the product and the generally high percentage of aluminium used in the folding panel profiles are particularly responsible for the comparably high values of 42 to almost 100% in the dominance analysis. Apart from aluminium, the comparably high mass percentages of glass and steel are also of relevance for the analysis, while operational energy during production is only of subordinate significance as it is provided in full by hydro-power.

During the use phase, the energy required for operating the door system over a period of 10 years is of significance for the analysis. With values of between 7 and 59% in the dominance analysis, the use phase makes an essential contribution towards the environmental impacts calculated. It must however be considered that the usage scenario applied here of 100,000 closing cycles per year also has a significant influence. Higher or lower closing cycles lead to correspondingly higher or lower results. Furthermore, use of the respective power mix also has a definitive influence on this result. The EU-27 average data set was used in this EPD.

The positive effects of transportation in Modules A4 and C2 are caused by a negative characterisation factor in the CML evaluation system.

Waste management has a rather low influence on results accounting for percentage shares of up to 3.5%.

Transport to the construction site and/or waste processing plant and installation in the building do not have any appreciable influence on the results.

USE OF RESOURCES
The use of resources is interpreted below in relation to the individual modules.

Primary energy
The use of non-regenerative resources (**ADPF**) clearly dominates the analysis. In Module A1-3, use of primary energy is caused in particular by the manufacture of aluminium and steel as well as the manufacture of single-pane safety glass (for folding leaves). The use of hydro-power in the DORMA plants is somewhat apparent in the regenerative share. Accounting for a 5% share of regenerative primary energy, the material harnessing of regenerative energy in the form of biomass is rather low with the use of packaging materials in particular playing a role.
Energy requirements during the usage phase as well as waste processing are depicted by an EU-27 data set for generating energy. The renewable energy sources playing an increasing role in the power mix in Europe (approx. 18%) are detectable in Module B6 but still play a subordinate role, while transport does not have any influence on the evaluation.

Fresh water
The use of fresh water is dominated by Modules A1-3 and B6 at a ratio of 60:40. This result is attributable to both the use of water in the upstream chains associated with the materials and water consumption in the upstream chains associated with electricity production.

WASTE CATEGORIES
The ensuing waste volume is almost entirely dominated by non-hazardous waste, whereby approx. 35% of waste is incurred in Modules A1-3, 64% in Module B6 and 1% in Module C3.
Non-hazardous waste is incurred during all phases of the life cycle and is the result of energy production, the material up-stream stages and waste processing phases. Small volumes of hazardous waste are exclusively incurred in Modules A1-3 and originate in the material up-stream stages of metal and plastic production. Radioactive waste is primarily incurred through the use of nuclear energy during the usage phase and also through the use of nuclear energy in the up-stream phases associated with manufacturing (A1).

7. Requisite evidence

This Environmental Product Declaration does not require any evidence relating to the material composition of the product and its area of applicability.

8. References

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