ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	DORMA Deutschland GmbH
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20140194-CBC1-EN
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Valid to	27.10.2019

8000 and 9000 Series Exits

DORMA

Institut Bauen und Umwelt e.V.

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

General Information

DORMA	**8000 and 9000 Series Exits**
Programme holder IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the Declaration** DORMA Deutschland GmbH DORMA Platz 1 58256 Ennepetal Germany
Declaration number EPD-DOR-20140194-CBC1-EN	**Declared product / Declared unit** The declaration represents one exit unit.
This Declaration is based on the Product Category Rules: Locks and fittings , 07.2014 (PCR tested and approved by the independent expert committee)	**Scope:** The declaration and the background LCA represent DORMA's 8000 and 9000 Series exit devices. Raw materials are provided by suppliers and shipped to DORMA, where the exits are manufactured and assembled at DORMA's Steelville, IL facility. 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 28.10.2014	
Valid to 27.10.2019	**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 tester appointed by SVA)

Product

Product description

DORMA's 8000 and 9000 Series exit devices reliably secure egress doors in compliance with applicable fire/life safety code requirements. The touchbar, rail assembly and integral parts are constructed of solid steel and are designed to minimize catch hazards.

These exit device series offer a selection of architectural finishes and can include a full complement of options, including alarmed exit, delayed egress exit, electric latch retraction, and device monitoring.

Application

The 8000 and 9000 Series are intended for use in schools, universities, and other institutional or commercial buildings as a fire or panic exit.

For paired doors where a full-width opening is only occasionally required, removable mullions are used. Doors are fitted with rim exit devices and normally function as single doors. Steel and aluminum mullions are available in 8' or 10' lengths.

Technical Data

DORMA's exit devices are available in different lengths to accommodate varying door widths. The stile touchbar, rail, and cover are fabricated in heavy gauge solid wrought materials and each exit is outfitted with deadlocking latch bolts. The standard trim for all devices is free wheeling and vandal-resistant.

Certifications include /ANSI A156.3/ for Grade 1, /ANSI 117.1/, and /UL 10C/. The devices also comply with /NFPA 101/ and /NFPA 80/ (as applicable).

Base materials / Ancillary materials

Name	Value	Unit
Steel	77	%
Brass	18	%
Aluminum	4	%
Plastic	1	%

Reference service life

No use stage modules are reported; as such, declaration of the reference service life (RSL) is voluntary. The RSL is not reported for the 8000 or 9000 Series exits.

LCA: Calculation rules

Declared Unit
The declared unit of this analysis is one surface applied exit.

Declared unit

Name	Value	Unit
Declared unit (1 exit)	1	1 piece/product
Mass of system (without packaging)	7.7	kg
Conversion factor to 1 kg	0.13	-

System boundary
Type of EPD: cradle-to-gate - with options. The following modules were considered in the analysis:

Product stage:

- Raw material supply (A1)
- Inbound transport (A2)
- Manufacturing (A3)

Construction process stage:

- Distribution (A4)
- Installation (A5)

End-of-life stage:

- Disposal (C4)

Beyond system boundaries:

- Reuse, recovery, recycling potential (D)

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.

LCA: Scenarios and additional technical information

Additional information is provided for declared modules, including A4, A5, C4, and D. In order to represent DORMA's global distribution network, a sales-weighted average is used to model transport to the building site. The table for Module A4 shows both weighted average transportation distance (given regional exit sales), which is used in the analysis, along with the variation in that distance. Additionally, estimated global average recycling rates are used to represent product disposal.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel (truck)	31	l/100km
Fuel economy (truck)	7.6	mpg
Transport distance (SI)	2400 - 7700	km
Average transport distance (SI)	3,830	km
Transport distance (imperial)	1,500 - 14,200	mi
Average transport distance (imperial)	2,380	mi
Capacity utilisation (including empty runs)	85	%

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (packaging)	3.1	kg

End of life (C1-C4)

Name	Value	Unit
Recycling	6.5	kg
Landfilling	1.2	kg

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

Name	Value	Unit
Recycling rate, aluminum	60	%
Recycling rate, brass	52	%
Recycling rate, paper	90	%
Recycling rate, plastics	14	%
Recycling rate, steel	88	%

LCA: Results

The table below summarizes which modules are declared (as indicated by an "X"), and which are not declared (as indicated with "MND"). Environmental performance results are shown for one (1) exit device.

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	MND	MND	MND	MND	MND	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 exit (7.7kg)*

Parameter	Unit	A1 - A3	A4	A5	C4	D
Global warming potential	[kg CO_2-Eq.]	6.336E+1	1.540E+0	6.450E-1	5.510E-2	-2.470E+1
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	5.629E-8	1.020E-11	3.020E-13	1.150E-12	-1.120E-7
Acidification potential of land and water	[kg SO_2-Eq.]	3.943E-1	1.330E-2	6.830E-4	2.500E-4	-2.140E-1
Eutrophication potential	[kg $(PO_4)^{3-}$- Eq.]	2.580E-2	2.100E-3	3.050E-4	2.920E-5	-1.180E-2
Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	2.403E-2	-1.460E-3	1.930E-4	2.430E-5	-1.380E-2
Abiotic depletion potential for non fossil resources	[kg Sb Eq.]	6.683E-3	6.180E-8	5.670E-9	2.160E-8	-2.590E-3
Abiotic depletion potential for fossil resources	[MJ]	7.723E+2	2.070E+1	2.210E-1	8.430E-1	-2.760E+2

RESULTS OF THE LCA - RESOURCE USE: 1 exit (7.7kg)*

Parameter	Unit	A1 - A3	A4	A5	C4	D
Renewable primary energy as energy carrier	[MJ]	7.571E+1	7.180E-1	1.050E-2	4.020E-2	-1.590E+1
Renewable primary energy resources as material utilization	[MJ]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Total use of renewable primary energy resources	[MJ]	7.571E+1	7.180E-1	1.050E-2	4.020E-2	-1.590E+1
Non renewable primary energy as energy carrier	[MJ]	8.811E+2	2.240E+1	2.470E-1	9.410E-1	-2.990E+2
Non renewable primary energy as material utilization	[MJ]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Total use of non renewable primary energy resources	[MJ]	8.811E+2	2.240E+1	2.470E-1	9.410E-1	-2.990E+2
Use of secondary material	[kg]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Use of renewable secondary fuels	[MJ]	-8.671E-2	1.520E-4	2.520E-4	9.620E-4	6.580E-4
Use of non renewable secondary fuels	[MJ]	-9.297E-1	1.590E-3	5.750E-4	2.190E-3	4.660E-3
Use of net fresh water	[m³]	2.884E+2	5.560E-1	-6.600E-1	-2.660E+0	2.110E+1

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1 exit (7.7kg)*

Parameter	Unit	A1 - A3	A4	A5	C4	D
Hazardous waste disposed	[kg]	2.203E-2	5.500E-5	5.690E-6	2.170E-5	-1.360E-4
Non hazardous waste disposed	[kg]	5.987E+0	2.270E-3	2.200E-1	1.220E+0	7.960E-1
Radioactive waste disposed	[kg]	2.209E-2	3.930E-5	2.830E-6	1.080E-5	-1.160E-3
Components for re-use	[kg]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Materials for recycling	[kg]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Materials for energy recovery	[kg]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Exported electrical energy	[MJ]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Exported thermal energy	[MJ]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0

* 1kg = 2.204 lbs.

Exit environmental impacts are dominated by the product stage (A1-A3) for all impact categories. The production of raw materials such as steel, in particular, are key drivers of environmental performance. The one exception is ozone depletion potential, for which Module D is negative and represents a significant portion of environmental impact. This is due to the high content of stainless steel in the product; both primary and secondary routes to producing stainless steel lead to high ozone-depleting emissions, although the credit given for primary steel production outweighs any burdens from recycling scrap stainless steel.

Compared to the product stage, distribution accounts for a small fraction of exit environmental impact. Distribution is modeled assuming a sales-weighted average based on the countries and regions in which the exit is sold. Finished products are shipped from DORMA's facility in Steelville, IL to various locations in Europe and the Americas. While the results represent DORMA's specific situation as of 2013, they can be reevaluated for a specific country or region.

At the end-of-life, DORMA's exits are modeled as being recycled. A portion of each material type is recovered and the remainder landfilled. In this case, proxy data are used as often, global average or even regional specific data are not available. Waste disposal (Module C4) is consistently a minor contributor to environmental impact so dataset choice is not anticipated to affect conclusions.

References

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

EN 15804
EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

ANSI A117.1
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ANSI A156.3
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GaBi 6
PE INTERNATIONAL; GaBi 6: Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, Echterdingen, 1992-2013.

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ISO 14040
EN ISO 14040:2006, Environmental management — Life cycle assessment — Principles and framework

ISO 14044
EN ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines

NFPA 80
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NFPA 101
NFPA 101 (2012): Life safety code

PCR Part A
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PCR Part B
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UL 10C
UL 10C, Positive pressure fire tests of door assemblies

Publisher		
Institut Bauen und Umwelt e.V.	Tel	+49 (0)30 3087748- 0
Panoramastr. 1	Fax	+49 (0)30 3087748- 29
10178 Berlin	Mail	info@bau-umwelt.com
Germany	Web	**www.bau-umwelt.com**
Programme holder		
Institut Bauen und Umwelt e.V.	Tel	+49 (0)30 - 3087748- 0
Panoramastr 1	Fax	+49 (0)30 – 3087748 - 29
10178 Berlin	Mail	info@bau-umwelt.com
Germany	Web	**www.bau-umwelt.com**
Author of the Life Cycle Assessment		
PE INTERNATIONAL, Inc.	Tel	+1 617-247-4477
Milk St. 170	Fax	+1 303-447-0909
02109 Boston, MA	Mail	consulting@pe-international.com
USA	Web	**www.pe-international.com**
Owner of the Declaration		
DORMA	Tel	+49 (0)2333 793-0
DORMA Platz 1	Fax	+49 (0)2333 793-4950
58256 Ennepetal	Mail	dorma-deutschland@dorma.com
Germany	Web	**www.dorma.com**