

# 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
Issue date	28.10.2014
Valid to	27.10.2019

## 8000 and 9000 Series Exits DORMA

[www.bau-umwelt.com](http://www.bau-umwelt.com) / <https://epd-online.com>



## General Information

<b>DORMA</b> <b>Programme holder</b> IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	<b>8000 and 9000 Series Exits</b> <b>Owner of the Declaration</b> DORMA Deutschland GmbH DORMA Platz 1 58256 Ennepetal Germany
<b>Declaration number</b> EPD-DOR-20140194-CBC1-EN	<b>Declared product / Declared unit</b> The declaration represents one exit unit.
<b>This Declaration is based on the Product Category Rules:</b> Locks and fittings , 07.2014 (PCR tested and approved by the independent expert committee)	<b>Scope:</b> 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.
<b>Issue date</b> 28.10.2014	
<b>Valid to</b> 27.10.2019	
 Prof. Dr.-Ing. Horst J. Bossenmayer (President of Institut Bauen und Umwelt e.V.)	<b>Verification</b> The CEN Norm EN 15804 serves as the core PCR Independent verification of the declaration according to ISO 14025 <input type="checkbox"/> internally <input checked="" type="checkbox"/> externally
 Dr. Burkhardt 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.

Recycling rate, brass	52	%
Recycling rate, paper	90	%
Recycling rate, plastics	14	%
Recycling rate, steel	88	%

### 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	%

## 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 BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement <sup>1)</sup>	Refurbishment <sup>1)</sup>	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 <sub>2</sub> -Eq.]	6.34E+1	1.54E+0	6.45E-1	5.51E-2	-2.47E+1
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	5.63E-8	1.02E-11	3.02E-13	1.15E-12	-1.12E-7
Acidification potential of land and water	[kg SO <sub>2</sub> -Eq.]	3.94E-1	1.33E-2	6.83E-4	2.50E-4	-2.14E-1
Eutrophication potential	[kg (PO <sub>4</sub> ) <sup>3-</sup> -Eq.]	2.58E-2	2.10E-3	3.05E-4	2.92E-5	-1.18E-2
Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	2.40E-2	-1.46E-3	1.93E-4	2.43E-5	-1.38E-2
Abiotic depletion potential for non fossil resources	[kg Sb Eq.]	6.68E-3	6.18E-8	5.67E-9	2.16E-8	-2.59E-3
Abiotic depletion potential for fossil resources	[MJ]	7.72E+2	2.07E+1	2.21E-1	8.43E-1	-2.76E+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]	7.57E+1	7.18E-1	1.05E-2	4.02E-2	-1.59E+1
Renewable primary energy resources as material utilization	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	[MJ]	7.57E+1	7.18E-1	1.05E-2	4.02E-2	-1.59E+1
Non renewable primary energy as energy carrier	[MJ]	8.81E+2	2.24E+1	2.47E-1	9.41E-1	-2.99E+2
Non renewable primary energy as material utilization	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Total use of non renewable primary energy resources	[MJ]	8.81E+2	2.24E+1	2.47E-1	9.41E-1	-2.99E+2
Use of secondary material	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of renewable secondary fuels	[MJ]	-8.67E-2	1.52E-4	2.52E-4	9.62E-4	6.58E-4
Use of non renewable secondary fuels	[MJ]	-9.30E-1	1.59E-3	5.75E-4	2.19E-3	4.66E-3
Use of net fresh water	[m <sup>3</sup> ]	2.88E+2	5.56E-1	-6.60E-1	-2.66E+0	2.11E+1

### RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES:

Parameter	Unit	A1-A3	A4	A5	C4	D
Hazardous waste disposed	[kg]	2.20E-2	5.50E-5	5.69E-6	2.17E-5	-1.36E-4
Non hazardous waste disposed	[kg]	5.99E+0	2.27E-3	2.20E-1	1.22E+0	7.96E-1
Radioactive waste disposed	[kg]	2.21E-2	3.93E-5	2.83E-6	1.08E-5	-1.16E-3
Components for re-use	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for energy recovery	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported electrical energy	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported thermal energy	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+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

### **Institut Bauen und Umwelt**

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

### **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+A1 2013: Sustainability of  
construction works — Environmental Product  
Declarations — Core rules for the product category of  
construction products

### **ANSI A117.1**

ANSI A117.1 - 2009, Accessible and usable buildings  
and facilities

### **ANSI A156.3**

ANSI/BHMA A156.3 - 2008, Exit devices

### **GaBi 6**

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

### **GaBi 6 Documentation**

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

### **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**

NFPA 80 (2013): Standard for fire doors and other  
opening protectives

### **NFPA 101**

NFPA 101 (2012): Life safety code

### **PCR Part A**

Institut Bauen und Umwelt e.V., 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. 2013. [www.bau-umwelt.com](http://www.bau-umwelt.com)

### **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 Locks and fittings. 2012. [www.bau-umwelt.com](http://www.bau-umwelt.com)

### **UL 10C**

UL 10C, Positive pressure fire tests of door assemblies



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