ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A1*

Owner of the Declaration	dormakaba International Holding
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20200117-CBAD1-EN
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Valid to	23.08.2025

RTS 85, RTS 88, BTS 84 Series door closers

dormakaba

Institut Bauen und Umwelt e.V.

www.ibu-epd.com | https://epd-online.com

General Information

dormakaba

Programme holder
IBU – Institut Bauen und Umwelt e.V.
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Germany

Declaration number
EPD-DOR-20200117-CBAD1-EN

This declaration is based on the product category rules:
Building Hardware products, 02.2016
(PCR checked and approved by the SVR)

Issue date
24.08.2020

Valid to
23.08.2025

Dipl. Ing. Hans Peters
(chairman of Institut Bauen und Umwelt e.V.)

Dr. Alexander Röder
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RTS 85, RTS 88, BTS 84 Series door closers

Owner of the declaration
dormakaba International Holding AG
Hofwisenstr. 24
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Switzerland

Declared product / declared unit
The declaration represents one concealed door closer unit.

Scope:
The declaration and the background LCA represent dormakaba's RTS 85, RTS 88, and BTS 84 Series Concealed Door Closers. Raw materials and components are provided by suppliers and shipped to dormakaba, where the closers are manufactured and assembled at the dormakaba facility in Suzhou, China. The RTS and BTS differ in how they are mounted to the door (floor versus frame), but are otherwise identical products.

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.
The EPD was created according to the specifications of *EN 15804+A1*. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard *EN 15804* serves as the core PCR
Independent verification of the declaration and data according to *ISO 14025:2010*
☐ internally ☒ externally

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

Product

Product description/Product definition
dormakaba's RTS 85, RTS 88, and BTS 84 Series concealed door closers offer a solution for installations where door control must be provided without disturbing aesthetic appearance or compromising durability. They can be installed a number of different configurations, including in standard, narrow or wide door frames, as well as with left-hand or right-hand single- or double-action mounting. The closers are designed for a wide variety of doors and represent an excellent alternative to surface-mounted closers. A comprehensive selection of accessories ensures that they can be used successfully with a wide variety of door constructions and floor coverings. Product benefits include:

- *For the trade:* Just one body for all types of fixing. Low inventory and minimal stocking requirements thanks to unit packs for closer bodies and accessories. Reliability and a dependable design provide long-lasting performance without the visual obtrusiveness of a surface-mounted closer.
- *For the installer:* Easy installation allows installers to be more productive with their time, especially because the majority of the preparation can be done prior to the installation of the unit. No floor preparation is necessary in the case of frame-mounted closers. Additionally, the "zero" position for double action doors is easy to adjust and closers are available with a comprehensive range of accessories.
- *For the architect:* Provides an aesthetically pleasing solution, especially for toughened glass doors, and is ideal for shop fitting applications.

- *For the user:* Avoids cluttering of door appearance, and backcheck prevents door contact with the frame. The closing mechanism allows for smooth performance with adjustable speed and is adjustable to accommodate traffic and weather changes.

For the use and application of the product the respective national provisions at the place of use apply. The standards which can be applied are the following:

- *EN 1154*
- *ANSI/BHMA A156.4*

Product variants with mechanical hold-open are not suitable for use on Fire doors.

Application
The RTS 85, RTS 88, and BTS 84 Series offer an aesthetically pleasing solution and are well-suited for use in moveable partitions and toughened glass doors, along with aluminum, wood, and hollow metal frames. The closers can be used for retrofit applications to replace surface-mounted closers. They are not intended for use in fire or smoke doors.

Technical Data
The concealed door closers employ a cam and roller mechanism, and are capable of controlling interior and exterior doors. They are non-handed, with a single closer for both single and double-acting doors. Users can adjust closing speed and optionally take advantage of mechanical hold-open points.

The plant in Suzhou is certified to the quality management system *ISO 9001*, which ensures consistent quality of dormakaba's products. The Environmental Management System in the Suzhou production is certified to *ISO 14001*.

Name	Value	Unit
Length	323	mm
Width	90	mm
Height	38	mm
Weight	4.4	kg
Test standards and methods	/EN 1154/	

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision which can be applied are mentioned above.

Base materials/Ancillary materials

Name	Value	Unit
Iron	51	%
Steel	39	%
Oil	6	%
Aluminum	3.5	%
others	0.5	%

The products include partial articles which contain substances listed in the *Candidate List* of *REACH* Regulation 1907/2006/EC (date: 15.01.2019) exceeding 0.1 percentage by mass in the alloy:

· Lead (Pb): 7439-290-1-1 (CAS-No.)

The *Candidate List* can be found on the *ECHA* website address: https://echa.europa.eu/de/home.

Reference service life
The reference service life of dormakaba's RTS 85, RTS 88, BTS 84 concealed door closers depends on the traffic pattern and degree of usage of the door. The reference service life amounts for 20 years.

LCA: Calculation rules

Declared Unit
The declared unit of this analysis is one concealed door closer.

Declared unit

Name	Value	Unit
Declared unit (1 closer)	1	piece/product
Mass of system (without packaging)	4.41	kg
Conversion factor to 1 kg	0.2268	-
Mass of declared Product	4.41	kg

System boundary
Type of EPD: cradle to gate - with options.
The Environmental Product Declaration refers to the production stage (A1-A3), transport from the gate to construction site (A4), the end of life stage (C3) and indicates the recycling potential which is declared in the module "benefits and loads beyond the product system boundary" (D).

In line with the PCR, A5 is declared to ensure the export of biogenic CO2 from renewable packaging materials.

Modules A1 to A3 include the provision and processing of raw materials as well as the processing of input materials, the transport to manufacturer and production site. Module C3 includes the incineration of plastics for energy recovery. Module D comprises the recycling of metals and gives the recycling potentials as well as potential benefits from energy substitution.
A5 is declared to ensure the export of biogenic CO2 that is incorporated in the used packaging materials (paper). Potential benefits from the incineration of packaging materials are also declared in module D.
The incineration processes in the End-of-Life are based on European datasets. The recycling processes in the End-of-Life are based on European and Global datasets.

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.

The database used is *GaBi ts* 9.2, SP 39.

LCA: Scenarios and additional technical information

Additional technical information for the declared modules.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel truck (per piece)	0.009	l/100km
Transport distance (ship)	0 - 25800	km
Transport distance (truck)	10 - 5000	km
Average transport distance (truck)	1000	km
Capacity utilisation (including empty runs)	85	%
Average transport distance (ship)	19600	km

In order to represent dormakaba'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 concealed closer sales), which is used in the analysis, along with the variation in that distance.

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (packaging)	0.514	kg

End of life (C1-C4)

Name	Value	Unit
Recycling	4.41	kg

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

Name	Value	Unit
Recycling	100	%

Collection rate is 100%.

LCA: Results

The table below summarizes which modules are declared (as indicated by an "X"), and which are not declared (as indicated with "MND").

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED; MNR = MODULE NOT RELEVANT)

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	MND	MND	MND	MND	X	MND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A1: 1 closer (4.41kg)

Parameter	Unit	A1-A3	A4	A5	C3	D
Global warming potential	[kg CO_2-Eq.]	1.14E+1	1.47E+0	7.28E-1	2.23E-1	-2.57E+0
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	8.59E-12	1.12E-16	1.75E-16	2.38E-16	6.07E-15
Acidification potential of land and water	[kg SO_2-Eq.]	3.26E-2	3.99E-2	1.52E-4	4.90E-5	-5.77E-3
Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	2.96E-3	4.37E-3	2.87E-5	1.06E-5	-5.26E-4
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	4.09E-3	1.74E-3	1.01E-5	3.77E-6	-7.30E-4
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	7.46E-5	4.81E-8	1.43E-8	3.85E-8	-6.42E-6
Abiotic depletion potential for fossil resources	[MJ]	1.31E+2	1.90E+1	2.02E-1	1.51E-1	-2.25E+1

RESULTS OF THE LCA - RESOURCE USE according to EN 15804+A1: 1 closer (4.41kg)

Parameter	Unit	A1-A3	A4	A5	C3	D
Renewable primary energy as energy carrier	[MJ]	2.90E+1	6.58E-2	3.81E+0	4.09E-2	1.03E+0
Renewable primary energy resources as material utilization	[MJ]	3.77E+0	0.00E+0	-3.77E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	[MJ]	3.28E+1	6.58E-2	4.04E-2	4.09E-2	1.03E+0
Non-renewable primary energy as energy carrier	[MJ]	1.31E+2	1.91E+1	2.36E-1	7.00E+0	-2.27E+1
Non-renewable primary energy as material utilization	[MJ]	6.83E+0	0.00E+0	0.00E+0	-6.83E+0	0.00E+0
Total use of non-renewable primary energy resources	[MJ]	1.38E+2	1.91E+1	2.36E-1	1.69E-1	-2.27E+1
Use of secondary material	[kg]	3.68E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of non-renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of net fresh water	[m^3]	5.59E-2	3.14E-4	2.13E-3	9.96E-4	-3.21E-3

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES according to EN 15804+A1: 1 closer (4.41kg)

Parameter	Unit	A1-A3	A4	A5	C3	D
Hazardous waste disposed	[kg]	6.12E-6	2.47E-9	4.57E-10	1.53E-9	-2.13E-8
Non-hazardous waste disposed	[kg]	9.69E-1	1.41E-4	2.29E-2	2.71E-2	-2.89E-2
Radioactive waste disposed	[kg]	2.60E-3	6.50E-6	1.37E-5	6.95E-6	-7.20E-5
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	1.22E+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	1.10E+0	2.48E-1	0.00E+0
Exported thermal energy	[MJ]	0.00E+0	0.00E+0	2.00E+0	6.33E-1	0.00E+0

References

ANSI/BHMA A156.4
ANSI/BHMA A156.4 - 2013, Door controls - Closers

Candidate List of REACH Regulation /1907/2006/EC (date: 16.01.2020)

ECHA
European Chemicals Agency

EN 1154
EN 1154:2003-04, Building hardware - Controlled door closing devices

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

GaBi ts
thinkstep AG, GaBi Software System and Database for Life Cycle Engineering (SP39). 1992-2019 Copyright thinkstep AG

ISO 9001
Quality Management System - ISO 9001:2015

ISO 14001
Environmental Management System - ISO 14001:2015

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

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

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 building hardware products

REACH
Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Regulation (EC) No 1907/2006

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