ENVIRONMENTAL-PRODUCT DECLARATION

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

Owner of the Declaration	dormakaba International Holding GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20200113-CBA2-EN
Issue date	24/08/2020
Valid to	23/08/2025

BEST HD8000
dormakaba

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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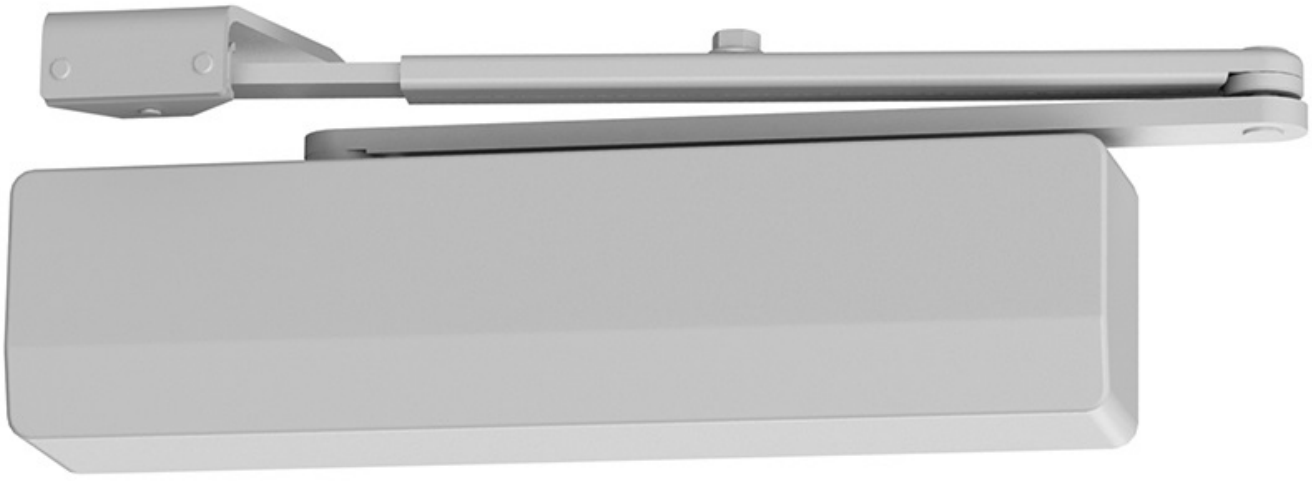

General Information

dormakaba

Programme holder

IBU – Institut Bauen und Umwelt e.V.
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10117 Berlin
Germany

Declaration number

EPD-DOR-20200113-CBA2-EN

This declaration is based on the product category rules:

Building Hardware products, 01/08/2021
(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.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

BEST HD8000

Owner of the declaration

dormakaba International Holding GmbH
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58256 Ennepetal
Germany

Declared product / declared unit

1 door closer (1 piece) of the BEST HD8000 series

Scope:

This EPD refers to a specific door closer manufactured by dormakaba Production GmbH & Co. KG. The production site is located in Singapore. The LCA results are valid for the variants HD8016 and HD8056.

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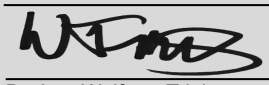
The EPD was created according to the specifications of EN 15804+A1. In the following, the standard will be simplified as *EN 15804 bezeichnet*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally



Dr.-Ing. Wolfram Trinius,
(Independent verifier)

Product

Product description/Product definition

The HD8000 series are non-handed surface applied door closers with adjustable spring power (size 1-6 and size 5-6) and backcheck that controls opening motion during abusive or abrupt opening. Supported by a full complement of optional arms, plates, and brackets, the door closers provide the flexibility needed to meet the demands of commercial and institutional applications, including Americans with Disabilities Act (*ADA*) barrierfree accessibility requirements (only size 1-6). The door closers are available with plastic and metal cover. 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:

- *ANSI/BHMA 156.4*
- *ANSI/ICC A117.1*
- *UL listed product*
- *UL 10C*
- *ADA compliant (version 1-6)*

Application

The HD8000 series closers are designed for commercial and institutional applications, including *ADA* barrier-free accessibility requirements. They are suitable for use on hollow metal, aluminum
and wood doors and can be used for fire doors.

Technical Data

The door closers have following technical properties:

Data and features	1-6	5-6
Variable closing force (spring strength)	size 1-6	size 5-6 (+50%)
Standard doors	•	•
External doors, outward opening	•	•
For fire and smoke check doors	•	•
Non-handed	•	•
Arm assembly type	Scissor Arm	Scissor Arm
Closing force variable by means of adjustment screw	•	•
Closing speed adjustable by valve	•	•
Latching speed adjustable by valve	•	•
Backcheck (BC/ÖD) adjustable at valve	•	•
Delayed action (DC/SV) adjustable at valve	○	○
Hold-open	○	○
Weight in kg	4	4
Length (L) in mm	337	337
Overall depth (B) in mm	60,5	60,5
Height (H) in mm	83,5	83,5
Standard	ANSI A156.4 Grade 1	ANSI A156.4 Grade 1

• *yes* – *no* ○ *optional*

Please list the Technical Data according to the
List in the chapter “Product group specific calculation rules”

Example:

Technical

Data for Locking Cylinders acc. to the classification in EN 1303: Performance data of the product with respect to its characteristics in accordance with the relevant technical provision which can be applied are mentioned above.

The plant in
Singapore is certified to the quality management system *ISO 9001*, which
ensures consistent quality of dormakaba's products.

The Environmental Management System in the Singapore production is certified to *ISO 14001* and the Energy Management to *ISO
50001*.

Base materials/Ancillary materials

Name	Value	Unit
Steel	62	%
Aluminum	25	%
Plastic	4	%
Oil	4	%
Others (Lacquer)	4	%

The products include partial articles which contain substances listed in
the *Candidate List* of *REACH* Regulation 1907/2006/EC (date: 16.01.2020) 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.

Environment and health during use

Reference service life

The reference service life of the HD8000 Series door closers depends on the traffic pattern and degree of
usage of the door. These closers are rated to ANSI Grade 1, meaning they
are designed to withstand a minimum of 1,500,000 cycles. The reference
service life amounts for 20 years.

LCA: Calculation rules

Declared Unit

The declared unit of this analysis is one door closer.

Declared unit

Name	Value	Unit
Declared unit	1	piece/product
Conversion factor to 1 kg	0.2427	-
Mass of declared Product	4.12	kg

The difference in product weight for the two-door
closer types is approx. 4%. The product with the highest weight is
declared in this EPD representing the entire product series.

For IBU core EPDs (where clause 3.6 is part of the EPD): for average EPDs, an estimate of the robustness of the LCA values must be made, e.g. concerning variability of the production process, geographical representativeness and the

influence of background data and preliminary products compared to the environmental impacts caused by actual production.

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.

Geographic Representativeness
Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Singapore

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 technical information for the declared modules.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel truck (per piece)	0.008	l/100km
Transport distance truck	2000	km
Capacity utilisation (including empty runs)	85	%
Transport distance ship	13000	km

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (packaging)	0.25	kg

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies for the reference conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list on service life by BNB is declared.

End of life (C1-C4)

Name	Value	Unit
Recycling	4.12	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 door closer (4.12kg)

Parameter	Unit	A1-A3	A4	A5	C3	D
Global warming potential (GWP)	kg CO_2 eq	10.4	1.21	0.349	0.689	-3.47
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	7.71E-10	9.8E-17	8.4E-17	3.74E-16	-7.72E-16
Acidification potential of land and water (AP)	kg SO_2 eq	4.22E-02	2.6E-02	7.31E-05	4.57E-04	-8.42E-03
Eutrophication potential (EP)	kg PO_4^3 eq	3.92E-03	2.99E-03	1.38E-05	7E-05	-7.25E-04
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg Ethen eq	3.92E-03	6.56E-04	4.83E-06	1.85E-05	-8.91E-04
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	3.29E-04	4.01E-08	6.86E-09	5.58E-08	5.84E-06
Abiotic depletion potential for fossil resources (ADPF)	MJ	149	15.9	0.0968	0.307	-31.5

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A1: 1 door closer (4.12kg)

Parameter	Unit	A1-A3	A4	A5	C3	D
Renewable primary energy as energy carrier (PERE)	MJ	29.702	0.0601	3.717	0.0683	-0.226
Renewable primary energy resources as material utilization (PERM)	MJ	3.698	0	-3.698	0	0
Total use of renewable primary energy resources (PERT)	MJ	33.4	0.0601	0.0194	0.0683	-0.226
Non renewable primary energy as energy carrier (PENRE)	MJ	141.101	15.9	0	19.242	-34
Non renewable primary energy as material utilization (PENRM)	MJ	18.899	0	0	-18.899	0
Total use of non renewable primary energy resources (PENRT)	MJ	160	15.9	0.113	0.343	-34
Use of secondary material (SM)	kg	2.61	0	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0
Use of net fresh water (FW)	m^3	0.0488	0.000275	0.00102	0.00245	-0.00927

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A1: 1 door closer (4.12kg)

Parameter	Unit	A1-A3	A4	A5	C3	D
Hazardous waste disposed (HWD)	kg	7.23E-06	2.06E-09	2.19E-10	2.06E-09	-2.32E-09
Non hazardous waste disposed (NHWD)	kg	0.955	0.000122	0.011	0.0457	-0.178
Radioactive waste disposed (RWD)	kg	4.22E-03	5.62E-06	6.56E-06	1.43E-05	-9.89E-04
Components for re-use (CRU)	kg	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	0	1.62	0
Materials for energy recovery (MER)	kg	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0.529	1.52	0
Exported thermal energy (EET)	MJ	0	0	0.959	2.97	0

References

Standards

EN 15804

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

EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

ISO 14025

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

Further References

Title of the software/database

Title of the software/database. Addition to the title, version. Place: Publisher, Date of publication [Access on access date].

IBU 2021

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021
www.ibu-epd.com

ADA
Americans with Disabilities Act 1990

ANSI/ICC A117.1

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

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 15804

EN 15804:2012-04

Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

ISO 9001

Quality Management System: ISO 9001:2015

ISO 14001
Environmental Management System: ISO 14001:2015

ISO 50001
Energy Management System: ISO 50001:2011 **UL 10C**

UL 10C, Positive pressure fire tests of door assemblies

GaBi ts

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

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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