ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of the Declaration	dormakaba International Holding GmbH
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20200114-CBD2-EN
Issue date	01.07.2021
Valid to	30.06.2026

BEST HD7000
dormakaba

Institut Bauen und Umwelt e.V.

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ECO PLATFORM EPD EN 15804 VERIFIED

General Information

dormakaba

Programme holder
IBU – Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Declaration number
EPD-DOR-20200114-CBD2-EN

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

Issue date
01.07.2021

Valid to
30.06.2026

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

Dr. Alexander Röder
(Managing Director Institut Bauen und Umwelt e.V.))

BEST HD7000

Owner of the declaration
dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

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

Scope:
The declaration and the background LCA represent dormakaba's BEST HD7000 Series door closers. Raw materials are provided by suppliers, but the closers are manufactured and assembled at dormakaba facilities worldwide. Closer bodies are manufactured at dormakaba's Singapore facility and components of the closer arm are manufactured at dormakaba facilities in Ennepetal, Germany and Reamstown, USA. These parts are then shipped to Indianapolis, USA, where the final assembly takes place.

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)

Product

Information about the enterprise
dormakaba makes access in life smart and secure. As one of the top three companies in the industry, dormakaba is the trusted partner for products, solutions and services for access to buildings and rooms from a single source. With strong brands in its portfolio, the company and its numerous cooperation partners are represented in over 130 countries worldwide.

Product description/Product definition
The HD7000 Series door closers are non-handed surface applied door closers with adjustable spring power (size 1-6) 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)* barrier-free accessibility requirements.

The door closers are available with slim plastic, full plastic and full 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 HD7000 Series door 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 HD7000 Series have two independent adjustment valves to control the closing speed from 180° - 10° and from 10° - 0°. Optional delayed action adjustable with a separate independent valve delays door closing to allow unobstructed passage through the opening.

Based on arm selection, the mounting options are regular (pull side of the door), top jamb (push side of the door) and parallel arm (push side of the door).

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision which can be applied include product certifications like *ANSI A156.4 Grade 1*, *UL 10C*, and *ANSI A117.1*. The closers are also Underwriters Laboratories (label for the US, UL) and Label for Canada (CUL) listed, and *CSFM* (California State Fire Marshall) approved.

The plants in Singapore, Ennepetal, Reamstown and Indianapolis are certified to the quality management system *ISO 9001*, which ensures consistent quality of dormakaba's products.

The Environmental Management System in the Singapore, Ennepetal, Reamstown and Indianapolis production is certified to *ISO 14001*. The production in Singapore and Ennepetal are also certified to the Energy Management System *ISO 50001*.

Base materials/Ancillary materials

Name	Value	Unit
Steel	62	%
Aluminum	24	%
Oil	6	%
Plastics	5	%
Coatings	2	%
Other	1	%

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 HD7000 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 surface applied door closer.

Declared unit

Name	Value	Unit
Declared unit (1 closer)	1	piece/product
Mass of system (without packaging)	3.0	kg
Conversion factor to 1 kg	0.333	-
Mass of declared Product	3	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 mainly European 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)	0.006	l/100km
Transport distance average (ship)	13000	km
Transport distance average (truck)	1900	km
Transport distance range (truck)	10 - 4600	km
Transport distance range (ship)	0 - 21900	km
Capacity utilisation (including empty runs)	85	%

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 surface closer sales), which is used in the analysis.

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (packaging)	0.257	kg

End of life (C1-C4)

Name	Value	Unit
Recycling	3	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 (3.0kg)

Parameter	Unit	A1-A3	A4	A5	C3	D
Global warming potential	[kg CO_2-Eq.]	2.47E+1	8.31E-1	1.06E-1	6.24E-1	-1.00E+1
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.13E-12	6.74E-17	2.56E-17	3.58E-16	1.03E-13
Acidification potential of land and water	[kg SO_2-Eq.]	1.03E-1	1.79E-2	2.22E-5	1.48E-4	-3.82E-2
Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	7.62E-3	2.05E-3	4.19E-6	1.70E-5	-2.53E-3
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	9.56E-3	4.48E-4	1.47E-6	7.07E-6	-2.82E-3
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	8.58E-5	2.76E-8	2.09E-9	6.01E-8	-2.50E-5
Abiotic depletion potential for fossil resources	[MJ]	2.72E+2	1.09E+1	2.95E-2	2.73E-1	-9.67E+1

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A1: 1 closer (3.0kg)

Parameter	Unit	A1-A3	A4	A5	C3	D
Renewable primary energy as energy carrier	[MJ]	9.45E+0	4.14E-2	4.46E+0	6.55E-2	-2.94E+1
Renewable primary energy resources as material utilization	[MJ]	4.46E+0	0.00E+0	-4.46E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	[MJ]	1.39E+1	4.14E-2	5.90E-3	6.55E-2	-2.94E+1
Non-renewable primary energy as energy carrier	[MJ]	2.74E+2	1.09E+1	3.45E-2	2.08E-1	-1.07E+2
Non-renewable primary energy as material utilization	[MJ]	9.90E-2	0.00E+0	0.00E+0	9.90E-2	0.00E+0
Total use of non-renewable primary energy resources	[MJ]	2.74E+2	1.09E+1	3.45E-2	3.07E-1	-1.07E+2
Use of secondary material	[kg]	2.54E-1	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]	9.54E-2	1.89E-4	3.10E-4	1.88E-3	-9.00E-2

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A1: 1 closer (3.0kg)

Parameter	Unit	A1-A3	A4	A5	C3	D
Hazardous waste disposed	[kg]	8.88E-6	1.42E-9	6.66E-11	1.99E-9	-1.16E-7
Non-hazardous waste disposed	[kg]	3.10E+0	8.42E-5	3.33E-3	6.43E-2	-1.64E+0
Radioactive waste disposed	[kg]	8.32E-4	3.87E-6	2.00E-6	1.35E-5	-4.15E-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	2.95E+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	1.61E-1	1.20E+0	0.00E+0
Exported thermal energy	[MJ]	0.00E+0	0.00E+0	2.92E-1	2.31E+0	0.00E+0

References

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)

CSFM
California State Fire Marshall

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

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

ISO 50001
Energy Management System - ISO 50001:2011

OHSAS 18001
Occupational Health and Safety - OHSAS 18001:2007

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

UL 10C
UL 10C, Positive pressure fire tests of door assemblies

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