ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

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-20250126-CBA1-EN
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Valid to	10/04/2030

TS 93 door closer system

dormakaba

Institut Bauen und Umwelt e.V.

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ECO PLATFORM EPD VERIFIED

General Information

dormakaba

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-DOR-20250126-CBA1-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

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Valid to

10/04/2030

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

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

TS 93 door closer system

Owner of the declaration

dormakaba International Holding GmbH
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58256 Ennepetal
Germany

Declared product / declared unit

1 piece of the product: TS 93 EN 5-7 slide rail door closer consisting of the following items:

- Door closer
- Accessories - cover and mounting plate
- Product packaging

Scope:

This Environmental Product Declaration refers to a specific door closer TS 93 manufactured by dormakaba. This EPD is also representing the variants TS 93 EN 1-5, ANSI 1-5, EN 2-5, Basic and 2S. The production site is located in Singapore.

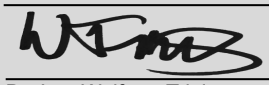
The data represents the year 2024.

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+A2. 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 14025:2011
☐ internally ☒ externally



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

Product

Product description/Product definition

The TS 93 door closer system sets new standards in user convenience in project applications. The proven dormakaba technology of the heart-shaped cam ensures exceptional ease of opening. The TS 93 range comprises a modular system which enables just a few door closer models to be combined with a number of different slide channels to meet virtually every conceivable functional requirement. Doors of varying designs can be equipped for a wide range of different applications.

For the door closer TS 93 the standards which can be applied are the following:

- *EN 1154*
- *EN 1158*
- *EN 1155*
- *DIN 18040*

The CE marking takes into account the proof of conformity with the respective harmonized standards based on the legal provisions above.

Application

The TS 93 system can be used universally. Depending on the accessories, can be used on single-panel or double-panel fire and smoke protection doors. The door closer can also be used on standard doors.

Technical Data

The door closer TS 93 system has following technical properties:

Data and features	TS 93 B/G* / TS 93 Basic B/G* / TS 93 B/G* 2S / ANSI 1-5	TS 93 B/G*
Variable closing force (spring strength)	EN 2-5, 1-5 / EN 2-5 / EN 2-5 / Sz 1-5	EN 5-7
Standard doors	≤1250 mm	≤1600 mm
External doors, outward opening	≤1250 mm	≤1600 mm
For fire and check doors	≤1250 mm	≤1600 mm
Non-handed	•	•
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	◦	◦
Length (L) in mm	275	285
Overall depth (B) in mm	53	62
Height (H) in mm	60	71
CE mark for building products	•	•

• yes - no ◦ optional
*B = Standard model for pull-side door leaf fixing / push-side transom fixing
G = Special mode for push-side door leaf fixing / pull-side transform fixingPerformance 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

The major material composition including the packaging of the product is listed below:

Name	Value	Unit
Steel	81	%
Aluminium	11	%
Packaging	5	%
Others	3	%

The product includes partial articles which contain substances listed in the *Candidate List of REACH Regulation 1907/2006/EC* (date: 25.01.2025) exceeding 0.1 percentage by mass: yes

- Lead (Pb): 7439-92-1 (CAS-No.) is included in some of the alloys used. The concentration of lead in each individual alloy does not exceed 4% (by mass).

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 the TS 93 door closer system is about 20 years, depending on the application and frequency of use. For repairs and renewals, suitable spare parts are available. The TS 93 door closer system is tested and certified to *EN 1154*, meaning the products are designed to withstand a minimum of 500,000 cycles. The ANSI version is tested and certified to BHMA A156.4, meaning they are designed to withstand a minimum of 1,500,000 cycles.

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece of the product: TS 93 door closer system including packaging

Name	Value	Unit
Declared unit	1	piece/product
Mass of declared Product without Packaging	4.76	kg
Mass of Packaging	0.26	kg
Total mass of declared product	5.02	kg

System boundary
The type of EPD is: cradle to gate with options, modules C1–C4, and module D (A1–A3 + C + D and additional modules: A4+ A5)

Production - Module A1-A3
The product stage includes: — A1, raw material extraction, processing and mechanical treatments, processing of secondary material input (e.g. recycling processes), — A2, transport to the manufacturer, — A3, manufacturing and assembly including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state.

Construction stage - Modules A4-A5
The construction process stage includes:
— A4, transport to the building site; — A5, installation into the building; including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state or disposal of final residues during the construction process stage.

End-of-life stage– Modules C1-C4 and D
The end-of-life stage includes: — C1, de-construction, demolition: — C2, transport to waste processing; — C3, waste processing for reuse, recovery and/or recycling; — C4, disposal; including provision and all transport, provision of all materials, products and related energy and water use. Module D (Benefits and loads beyond the system boundary) includes: — D, recycling potentials, expressed as net impacts and benefits.

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

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. Background database: GaBi, SP40.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	0.09	kg C

Singapore is considered for A3.

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	0.00276	l/100km
Transport distance (for scaling)	100	
Capacity utilisation (including empty runs)	55	%
Transport distance via truck (from habor to dormakaba logistic centre)	300	km
Transport distance via ship (from harbor to harbor)	10000	km

The product is transported via truck and ship. The product is stored in the dormakaba logistic center in Germany. The main distribution region is Europe. In order to allow scaling to a specific point of installation 100 km are declared as well.

Installation into the building (A5)

Name	Value	Unit
Waste packaging (paper and plastic / technical documentation)	0.26	kg

Reference service life

Name	Value	Unit
Life Span according to the manufacturer	20	a

End of life (C1-C4)
C1: (Option 1 < 100 kg) The product dismantling from the building is done manually without environmental burden.
C2: Transport to waste management is 50 km.

Name	Value	Unit
Collected separately waste type	4.76	kg
Recycling	4.75	kg
Energy recovery	0.017	kg

The product is disassembled in a recycling process. Material recycling is then assumed for metals. The plastic components are assumed to be incinerated with energy recovery. Region for the End of Life is: Europe.

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

Name	Value	Unit
Recycling	100	%

The collection rate is 100 %.

LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR 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	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece Product name

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	2.17E+01	3.4E-01	3.66E-01	0	2.08E-02	4.04E-01	0	-4.53E+00
GWP-fossil	kg CO_2 eq	2.21E+01	3.32E-01	1.26E-02	0	1.99E-02	4.04E-01	0	-4.52E+00
GWP-biogenic	kg CO_2 eq	-4.09E-01	7.97E-03	3.53E-01	0	9.2E-04	9.42E-06	0	-1.12E-02
GWP-luluc	kg CO_2 eq	1.14E-02	7.37E-06	6.16E-06	0	4.74E-07	2.28E-05	0	-7.06E-04
ODP	kg CFC11 eq	3.45E-11	3.32E-17	6.7E-17	0	2.1E-18	2.04E-16	0	-2.82E-11
AP	mol H^+ eq	1E-01	6.21E-03	1.02E-04	0	1.99E-05	7.19E-05	0	-1.57E-02
EP-freshwater	kg P eq	2.33E-05	7.29E-08	1.3E-08	0	4.26E-09	3.25E-08	0	-2.16E-06
EP-marine	kg N eq	1.78E-02	1.65E-03	3.67E-05	0	6.34E-06	1.62E-05	0	-2.28E-03
EP-terrestrial	mol N eq	1.93E-01	1.81E-02	4.59E-04	0	7.05E-05	3.28E-04	0	-2.47E-02
POCP	kg NMVOC eq	5.45E-02	4.61E-03	9.74E-05	0	1.79E-05	4.49E-05	0	-7.23E-03
ADPE	kg Sb eq	3.27E-04	9.25E-09	1.06E-09	0	5.97E-10	2.8E-09	0	-1.92E-07
ADPF	MJ	2.48E+02	4.37E+00	1.16E-01	0	2.82E-01	1.87E-01	0	-6.01E+01
WDP	m^3 world eq deprived	3.05E+00	6.24E-04	4.52E-02	0	3.9E-05	4.13E-02	0	-1.58E-01

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece Product name

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	3.36E+01	1.4E-02	3.08E+00	0	8.9E-04	4.87E-02	0	-2.42E+01
PERM	MJ	3.06E+00	0	-3.06E+00	0	0	0	0	0
PERT	MJ	3.67E+01	1.4E-02	2.12E-02	0	8.9E-04	4.87E-02	0	-2.42E+01
PENRE	MJ	2.47E+02	4.37E+00	1.76E-01	0	2.83E-01	7.56E-01	0	-6.02E+01
PENRM	MJ	6.29E-01	0	-6.02E-02	0	0	-5.69E-01	0	0
PENRT	MJ	2.48E+02	4.37E+00	1.16E-01	0	2.83E-01	1.87E-01	0	-6.02E+01
SM	kg	3.89E+00	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	9.45E-02	2.53E-05	1.07E-03	0	1.6E-06	9.89E-04	0	-4.31E-02

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece Product name

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.46E-06	4.27E-10	1.75E-10	0	2.74E-11	7.14E-10	0	-2.99E-08
NHWD	kg	2.44E+00	4.47E-04	1.17E-02	0	2.89E-05	4.2E-02	0	-9.54E-01
RWD	kg	4.55E-03	4.77E-06	6.07E-06	0	3.03E-07	6.95E-06	0	-5.89E-03
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	4.61E+00	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	5.54E-01	0	0	7.48E-01	0	0
EET	MJ	0	0	1.01E+00	0	0	1.72E+00	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:
1 piece Product name

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	2.44E-06	1.04E-07	5.7E-10	0	1.05E-10	9.18E-10	0	-2.45E-07
IR	kBq U235 eq	5.78E-01	6.84E-04	9.35E-04	0	4.34E-05	6.26E-04	0	-1.19E+00
ETP-fw	CTUe	7.35E+01	3.09E+00	5.49E-02	0	2E-01	7.03E-02	0	-2.09E+01
HTP-c	CTUh	8.94E-09	5.82E-11	2.92E-12	0	3.77E-12	6.09E-12	0	-2.3E-09
HTP-nc	CTUh	2.66E-07	2.61E-09	1.3E-10	0	1.61E-10	6.16E-10	0	-3.11E-08
SQP	SQP	7.24E+01	1.14E-02	3.08E-02	0	7.26E-04	5.61E-02	0	-1.58E+00

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

This EPD was created using a software tool.

References

EN 1154
DIN EN 1154: 2003--04:
Building hardware – Controlled doorclosing devices Requirements and test methods (includesamendment A1:2002); German version / EN 1154:1996 +A1:2002

EN 1155
DIN EN 1155: 2003-04:
Building hardware – Electrically powered hold-open devices for swing doors – Requirementsand test methods (includes amendment A1:2002); German version /EN 1155:1997 + A1:2002

EN 1158
DIN EN 1158: 2003-04:
Building hardware – Door coordinatordevices – Requirements and test methods (includesamendment A1:2002); German version /EN 1158:1997 +A1:2002

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

DIN 18040
DIN 18040-1 (2010):Construction of accessible buildings - Design principles

ECHA
European Chemical Agency

ISO 14025
DIN EN ISO 14025:201110, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

Further References

IBU 2021
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

GaBi
Sphera Solutions GmbH
Gabi Software System and Database for Life Cycle Engineering 19922020
Version 10.0.0.71
University of Stuttgart
Leinfelden-Echterdingen

GaBi ts documentation
GaBi life cycle inventory data documentation (https://www.gabisoftware.com/support/gabi/gabidatabase- 2020-lcidocumentation/).

LCA-tool dormakaba
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Developed by Sphera Solutions GmbH

PCR Part A
PCR – Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Re-port according to EN 15804+A2:2019,
Version 1.0, 2020, Institut Bauen und Umwelt e.V., www.ibu-epd.com.

PCR Part B
PCR – Part B: Requirements on the EPD for Building Hardware product, version 08/2021, Institut Bauen und Umwelt e.V., www.ibu-epd.com.

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