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-20220318-CBA3-EN
Issue date	14.04.2023
Valid to	13.04.2028

ED 100/250
dormakaba

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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

General Information

dormakaba

Programme holder

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

Declaration number

EPD-DOR-20220318-CBA3-EN

This declaration is based on the product category rules:

Drive systems for automatic doors and gates, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

14.04.2023

Valid to

13.04.2028

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

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

ED 100/250

Owner of the declaration

dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

Declared product / declared unit

1 piece of the product: Automatic Swing Door Operator ED 100, consisting of the following items:
- ED 100 swing door operator
- ED slide channel set
- ED basic cover
- Product packaging

Scope:

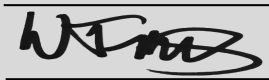
This Environmental Product Declaration refers to a specific ED 100 automaic swing door operator manufacutred by dormakaba. This EPD is also representative for the ED 250. The production site is located in Ennepetal (Germany). Green electricity is being used at the production site.

Data represents the year 2022.
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 automatic swing door operators manufactured by dormakaba are electromechanical swing door operators designed for single- or double leaf doors. Depending on the width and weight of the door leaf, the ED 100 or the ED 250 is required. Both operators can be mounted with standard arm as push-version and with slide channel as pull-version. Apart from the extended cover, an integrated door coordinator is also available for double-leaf operators, which is also easily fitted. By using the dormakaba upgrade card, the functional scope can be adapted to a variety of door situations.

Features

- Flexible configuration of the functions actually required
- Inexpensive transport and easy assembly thanks to lower weights
- Low-noise application thanks to multi-stage gear
- Elegant design: dormakaba Contur Design with an operator height of only 70 mm

For the use and application of the product the respective national provisions at the place of use apply.

- *ISO 13849-1*
- *DIN 18650-1*
- *DIN 18650-2*
- *EN 16005*
- *EN 60335-1*
- *2011/65/EU ROHS3 Directive*
- *Machinery Directive 2006/42/EC*

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

Application

dormakaba swing door operators are suitable for various applications:

- For single- or double- leaf swing doors
- Assembly on smoke or fire doors: as pull- version with slide channels and as push- version with standard arm
- Automation of doors with low traffic capacity (Low-Energy Mode) and heavily frequented doors (Full-Energy Mode)
- High torque for full-automatic swing doors with radar detector control
- Suitable for internal and external doors

Technical Data

The ED 100/250 has the following technical properties:

Name	Value	Unit
Height	240	mm
Installation depth	152	mm
Maximum door weight ED 100	272	kg
Opening speed maximum	50	cm/s
Closing speed maximum	40	cm/s
Hold open time maximum	60	s
Supply voltage, frequency maximum	60	Hz
Power consumption	175	W
Class of protection	20	IP

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

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

Name	Value	Unit
Steel	33	%
Aluminium	19	%
Paper	14	%
Zinc	14	%
Plastic	10	%
Electronics	9	%
Brass	1	%

The ED100/250 includes partial articles which contain substances listed in the Candidate List of REACH Regulation *1907/2006/EC* (date: 17.01.2023) exceeding 0.1 percentage by mass: yes

- Lead (Pb): 7439-92-1 (CAS-No) is used in the steel alloy. The concentration of lead in the alloy does not exceed 0,35% (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 ED 100 and ED 250 amounts to 10 years and depends on the application and frequency of use. Regular maintenance is advised to ensure the life expectancy of 10 years. For repairs or renewals, suitable spare parts are available. The swing door operators are tested and certified to *EN 16005*, meaning they are designed to withstand a minium of 1.000.000 cycles.

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece of the product: ED 100/250

Name	Value	Unit
Declared unit	1	pce.
Mass reference	13.54	kg/pce

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 + B6)

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.

Use stage - Module B6
The use stage related to the operation of the building includes:
— B6, operational energy use

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

Information on describing the Biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic carbon content in product	0.27	kg C
Biogenic carbon content in accompanying packaging	0.41	kg C

Additional technical information for the declared modules.

Transport from the gate to the site (A4)

Name	Value	Unit
Litres of fuel (per 1 kg)	0.00276	l/100km
Capacity utilisation (including empty runs)	55	%
Transport distance via medium truck	100	km

The product is transported via truck. The product is stored in the dormakaba logistic center in Germany.

Installation into the building (A5)

Name	Value	Unit
Waste packaging (paper and plastic)	1,11	kg

Reference service life

Name	Value	Unit
Life Span according to the manufacturer	10	a

Operational energy use (B6)
The use stage is declared for 10 years

Name	Value	Unit
Electricity consumption ED 100 for 1 year	70.42	kWh
Days per year in use	365	days
On mode per day	1.8	h
Idle mode per day	22.2	h
On mode power	22.09	W
Idle mode power	6.9	W

End of life (C1-C4)
C1: The product dismantling from the building is done manually without environmental burden.

Name	Value	Unit
Collected separately waste type	12.43	kg
Recycling	8.18	kg
Energy recovery	1.89	kg
Landfilling	2.36	kg
Transport to waste management	50	km

The product is disassembled in a recycling process. Material recycling is then assumed for the metals and electronics. The plastic components are assumed to be incinerated with energy recovery. Electromechanics and minor proportions of residues arising from the recycling process are landfilled.
Region for the End of Life is: Global.

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

Name	Value	Unit
Recycling	100	%

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	X	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece ED 100_250

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	5.01E+01	1.18E-01	1.57E+00	2.85E+02	0	6.2E-02	6.22E+00	4.2E-02	-1.39E+01
GWP-fossil	kg CO_2 eq	5.27E+01	1.13E-01	3.9E-02	2.83E+02	0	5.9E-02	4.89E+00	4.2E-02	-1.38E+01
GWP-biogenic	kg CO_2 eq	-2.72E+00	5E-03	1.53E+00	9.45E-01	0	3E-03	1.33E+00	1.43E-04	-3.6E-02
GWP-luluc	kg CO_2 eq	6.7E-02	2.69E-06	2.58E-05	4.11E-01	0	1.4E-06	2.88E-04	1.21E-04	-7E-03
ODP	kg CFC11 eq	4.49E-09	1.2E-17	2.83E-16	6.24E-12	0	6.22E-18	2.62E-15	1.55E-16	-2.62E-11
AP	mol H^+ eq	2.14E-01	1.13E-04	4.39E-04	6.26E-01	0	5.89E-05	1E-03	3.01E-04	-5.3E-02
EP-freshwater	kg P eq	2.04E-04	2.42E-08	5.53E-08	7.57E-04	0	1.26E-08	4.16E-07	7.2E-08	-2.37E-05
EP-marine	kg N eq	3.8E-02	3.61E-05	1.59E-04	1.39E-01	0	1.88E-05	2.58E-04	7.74E-05	-7E-03
EP-terrestrial	mol N eq	4E-01	4.01E-04	2E-03	1.46E+00	0	2.09E-04	5E-03	8.5E-04	-7.9E-02
POCP	kg NMVOC eq	1.19E-01	1.02E-04	4.2E-04	3.81E-01	0	5.3E-05	7.12E-04	2.34E-04	-2.6E-02
ADPE	kg Sb eq	1.12E-02	3.4E-09	4.46E-09	8.21E-05	0	1.77E-09	3.63E-08	3.76E-09	-3E-03
ADPF	MJ	8.17E+02	1.61E+00	4.95E-01	4.98E+03	0	8.35E-01	2.55E+00	5.5E-01	-1.9E+02
WDP	m^3 world eq deprived	9.42E+00	2.22E-04	1.94E-01	6.18E+01	0	1.15E-04	6.37E-01	4E-03	-1.88E+00

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 ED 100_250

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PERE	MJ	1.92E+02	5E-03	1.34E+01	2.21E+03	0	3E-03	9.52E+00	7.2E-02	-4.87E+01
PERM	MJ	2.22E+01	0	-1.33E+01	0	0	0	-8.88E+00	0	0
PERT	MJ	2.14E+02	5E-03	9E-02	2.21E+03	0	3E-03	6.41E-01	7.2E-02	-4.87E+01
PENRE	MJ	7.36E+02	1.61E+00	4.95E-01	4.98E+03	0	8.36E-01	8.33E+01	5.5E-01	-1.9E+02
PENRM	MJ	8.08E+01	0	0	0	0	0	-8.08E+01	0	0
PENRT	MJ	8.17E+02	1.61E+00	4.95E-01	4.98E+03	0	8.36E-01	2.55E+00	5.5E-01	-1.9E+02
SM	kg	5.66E+00	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m^3	3.25E-01	9.08E-06	5E-03	2.55E+00	0	4.72E-06	1.5E-02	1.39E-04	-9.5E-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 ED 100_250

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
HWD	kg	3.63E-05	1.56E-10	7.3E-10	2.06E-06	0	8.11E-11	8.81E-09	8.39E-09	-3.9E-06
NHWD	kg	3.33E+00	1.64E-04	4.9E-02	3.54E+00	0	8.55E-05	5.16E-01	2.77E+00	-6.13E-01
RWD	kg	2.8E-02	1.73E-06	2.6E-05	7.56E-01	0	8.97E-07	1E-04	6.26E-06	-1.3E-02
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	6.55E+00	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	2.37E+00	0	0	0	1.11E+01	0	0
EET	MJ	0	0	4.3E+00	0	0	0	2.45E+01	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 ED 100_250

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PM	Disease incidence	2.07E-06	5.96E-10	2.43E-09	5.25E-06	0	3.1E-10	1.2E-08	3.72E-09	-6.78E-07
IR	kBq U235 eq	3.34E+00	2.46E-04	4E-03	1.24E+02	0	1.28E-04	1E-02	6.44E-04	-2.1E+00
ETP-fw	CTUe	3.71E+02	1.14E+00	2.35E-01	2.13E+03	0	5.92E-01	9.74E-01	3.14E-01	-6.43E+01
HTP-c	CTUh	2.96E-08	2.14E-11	1.24E-11	5.89E-08	0	1.11E-11	8.17E-11	4.66E-11	2.28E-08
HTP-nc	CTUh	1.55E-06	9.15E-10	5.38E-10	2.17E-06	0	4.76E-10	7.72E-09	5.13E-09	2.7E-06
SQP	SQP	4.67E+02	4E-03	1.31E-01	1.59E+03	0	2E-03	7.57E-01	1.15E-01	-1.51E+01

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

ISO 14025
DIN EN ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

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

EN 18650
EN 18650-1:2010, Powered pedestrian doors - Part 1: Product requirements and test methods

EN 18650
EN 18650-2:2010, Powered pedestrian doors - Part 2: Safety at powered pedestrian doors

EN 16005
EN 16005: 2013-01, Power operated pedestrian doorsets - Safety in use - Requirements and test methods

EN 60335
EN 60335-1, -2-103:2020-08, Household and similar electrical appliances - Safety - Part 1: General requirements

EN 61000
EN 61000-1-2:2017-07, Electromagnetic compatibility (EMC) - Part 1-2: General - Methodology for the achievement of functional safety of electrical and electronic systems including equipment with regard to electromagnetic phenomena

EN ISO 13849
EN ISO 13849-1:2021-08, Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design

Machinery Directive
Directive 2006/42/EC of the European Parliament and of the Council on machinery, and amending Directive 95/16/EC

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 1992-2020 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-lci-documentation/)

LCA-tool dormakaba
LCA tool, version ENS (drive system) Tool No.: IBU-DOR-202108-LT1-EN 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, Institut Bauen und Umwelt e.V., www.ibu-epd.com

PCR Part B
PCR – Part B: Requirements for the EPD for Drive systems for automatic doors and gates, version 08/2021, Institut Bauen und Umwelt e.V., www.ibu-epd-com.

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

2011/65/EU ROHS3 Directive
Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

European Chemicals Agency (ECHA)
https:echa.europa.eu/de/home

Publisher

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Programme holder

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Author of the Life Cycle Assessment

dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

+49 2333 793-0
info.de@dormakaba.com
www.dormakaba.com

Owner of the Declaration

dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

+49 2333 793-0
info.de@dormakaba.com
www.dormakaba.com