

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-20240260-CBA1-EN
Issue date	23.09.2024
Valid to	22.09.2029

Security Revolving Door Geryon K9 dormakaba

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General Information

dormakaba

Programme holder

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

Declaration number

EPD-DOR-20240260-CBA1-EN

This declaration is based on the product category rules:

Electronic and physical Access Control Systems, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

23.09.2024

Valid to

22.09.2029

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

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Security Revolving Door Geryon K9

Owner of the declaration

dormakaba International Holding GmbH
DORMA Platz 1
58256 Ennepetal
Germany

Declared product / declared unit

1 piece of the product: Security Revolving Door Geryon K9, consisting of the following items:

- Drive and control unit (K9)
- Upper body
- Side walls
- Door leafs
- Floor bearing
- Product packaging

Scope:

This Environmental Product Declaration refers to a specific security revolving door covering the variants 120° and 180°. The production site is located in Bühl (Germany).

Green electricity with Guarantee of Origin (GoO) is being used at this production site.

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	
<input type="checkbox"/>	internally
<input checked="" type="checkbox"/>	externally

Matthias Klingler,
(Independent verifier)

Product

Product description/Product definition

The Security Revolving Door Geryon K9 is characterized by a high degree of transparency of the glass elements and a wide variety of colors of the metal parts. All models blend elegantly into the surroundings.

A sensor system according to the latest standards prevents injuries to the user. Depending on the security requirements, the door can be equipped with a contact mat. Other variants include reinforced bullet-and burglar-resistant versions that are certified according to the RC2 and RC3 standards. Options like a rotary unit with emergency exit function or night lock complete the product range.

For the Security Revolving Door the standards which can be applied are the following:

- Machinery Directive 2006/42/EC
- Directive 2014/30/EU
- ROHS Directive 2011/65/EU
- EN 60335-2-103
- EN 61000
- EN 16005
- ISO 13849
- ISO 12100

The CE-marking takes into account the proof of conformity with the respective harmonized standards based on the legal provisions above. For the application and use the respective national provisions apply.

Application

The Security Revolving Door Geryon K9 offers secure entry to:

- Sensitive areas
- Administrative buildings
- Industrial premises
- Government agencies
- Ministries
- Banks and financial institutions
- Data and research centers
- Staff entrances at airports
- Nuclear power plants

Technical Data

The Security Revolving Door Geryon K9 has following technical properties:

Name	Value	Unit
Outside diameter	1500-2000	mm
Total height	2300	mm
Passage height	2100	mm
Upper part of body	200	mm
Number of door wings	3 or 4	pieces
Rotary cycle	120 or 180	°

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 is listed below:

Name	Value	Unit
Glass	40	%
Aluminum	32	%
Steel	20	%
Plastics	6	%
Electronics	1	%
Paper	1	%

The Security Revolving Door Geryon K9 includes partial articles which contain substances listed in the *Candidate List of REACH Regulation 1907/2006/EC* (date: 23.01.2024) exceeding 0.1 percentage by mass: 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 the Security Revolving Door is about 20 years, depending on the application and frequency of use. For repairs and renewals, suitable spare parts are available. The Security Revolving Door is tested and certified to *EN 16005*, meaning they are designed to withstand a minimum of 2.000.000 cycles.

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece of product: Security Revolving Door Geryon K9 including packaging.

Name	Value	Unit
Declared unit	1	pce.
Mass of declared product without packaging	455,9	kg
Mass of packaging	3,65	kg

System boundary

Type of EPD: 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 (green electricity with Guarantee of Origin (GoO)), 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: Germany

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. 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	1.12	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂.

Transport to the building site (A4)

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

The product is transported via truck. The main distribution region is Europe. In order to allow scaling to a specific point of installation 100 km is declared.

Installation into the building (A5)

Name	Value	Unit
Waste packaging paper	3,05	kg
Waste packaging plastic	0,6	kg

Reference service life

Name	Value	Unit
Life Span according to the manufacturer	20	a

Operational energy use (B6)

Name	Value	Unit
Days per year in use	365	days
On mode per day	1	hours
Idle mode per day	15	hours
Off mode	8	hours
On mode power	56	W
Idle mode power	12,4	W
Off mode power	0	W
Electricity consumption per 1 year	88,33	kWh

End of life (C1-C4)

C1: 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 waste type	456	kg
Recycling	240	kg
Energy recovery	27.3	kg
Landfilling	189	kg

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. Glass, electromechanics and batteries are assumed to be 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 SRD Geryon K9

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	2.72E+03	4.02E+00	5.85E+00	7.15E+02	0	1.99E+00	6.96E+01	2.89E+00	-1.03E+03
GWP-fossil	kg CO ₂ eq	2.68E+03	3.84E+00	1.63E+00	7.11E+02	0	1.91E+00	6.95E+01	2.87E+00	-1.03E+03
GWP-biogenic	kg CO ₂ eq	3.13E+01	1.78E-01	4.22E+00	2.37E+00	0	8.8E-02	2.7E-02	1E-02	-3.03E+00
GWP-luluc	kg CO ₂ eq	9.27E-01	9.14E-05	1.57E-04	1.03E+00	0	4.54E-05	4E-03	8E-03	-1.65E-01
ODP	kg CFC11 eq	5.59E-09	4.06E-16	1.55E-15	1.56E-11	0	2.01E-16	3.51E-14	1.06E-14	-7.24E-09
AP	mol H ⁺ eq	1.03E+01	4E-03	1E-03	1.57E+00	0	2E-03	1.2E-02	2.1E-02	-3.7E+00
EP-freshwater	kg P eq	1.36E-03	8.22E-07	2.75E-07	2E-03	0	4.08E-07	5.59E-06	4.93E-06	-5.36E-04
EP-marine	kg N eq	1.78E+00	1E-03	4.99E-04	3.49E-01	0	6.07E-04	3E-03	5E-03	-4.98E-01
EP-terrestrial	mol N eq	1.97E+01	1.4E-02	7E-03	3.66E+00	0	7E-03	5.6E-02	5.8E-02	-5.38E+00
POCP	kg NMVOC eq	4.99E+00	3E-03	1E-03	9.55E-01	0	2E-03	8E-03	1.6E-02	-1.61E+00
ADPE	kg Sb eq	2E-02	1.15E-07	2.29E-08	2.06E-04	0	5.72E-08	4.81E-07	2.58E-07	-3E-03
ADPF	MJ	3.61E+04	5.45E+01	2.07E+00	1.25E+04	0	2.7E+01	3.22E+01	3.76E+01	-1.42E+04
WDP	m ³ world eq deprived	2.29E+02	8E-03	6.92E-01	1.55E+02	0	4E-03	7.11E+00	3.01E-01	-5.32E+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 SRD Geryon K9

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PERE	MJ	8.5E+03	1.72E-01	3.7E+01	5.54E+03	0	8.5E-02	8.75E+00	4.93E+00	-6.18E+03
PERM	MJ	3.7E+01	0	-3.66E+01	0	0	0	-3.62E-01	0	0
PERT	MJ	8.53E+03	1.72E-01	4.32E-01	5.54E+03	0	8.5E-02	8.38E+00	4.93E+00	-6.18E+03
PENRE	MJ	3.52E+04	5.45E+01	2.79E+01	1.25E+04	0	2.71E+01	9.35E+02	3.76E+01	-1.42E+04
PENRM	MJ	9.28E+02	0	-2.58E+01	0	0	0	-9.02E+02	0	0
PENRT	MJ	3.61E+04	5.45E+01	2.07E+00	1.25E+04	0	2.71E+01	3.22E+01	3.76E+01	-1.42E+04
SM	kg	2.89E+01	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	2.01E+01	3.08E-04	1.6E-02	6.41E+00	0	1.53E-04	1.7E-01	9E-03	-1.11E+01

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 SRD Geryon K9

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
HWD	kg	5.53E-05	5.29E-09	4.71E-09	5.18E-06	0	2.62E-09	1.23E-07	5.74E-07	-1.34E-04
NHWD	kg	3.93E+02	6E-03	2.94E-01	8.87E+00	0	3E-03	7.22E+00	1.89E+02	-2.31E+02
RWD	kg	1.23E+00	5.85E-05	9.8E-05	1.9E+00	0	2.9E-05	1E-03	4.28E-04	-1.48E+00
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	2.4E+02	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	9.37E+00	0	0	0	0	0	0
EET	MJ	0	0	1.84E+01	0	0	0	0	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 SRD Geryon K9

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PM	Disease incidence	9.51E-05	2.02E-08	1.02E-08	1.32E-05	0	1E-08	1.58E-07	2.55E-07	-5.95E-05
IR	kBq U235 eq	2.37E+02	8E-03	1.3E-02	3.11E+02	0	4E-03	1.08E-01	4.4E-02	-2.97E+02
ETP-fw	CTUe	2.09E+04	3.86E+01	9.13E-01	5.35E+03	0	1.92E+01	1.21E+01	2.15E+01	-4.97E+03
HTP-c	CTUh	4.7E-06	7.26E-10	5.72E-11	1.48E-07	0	3.6E-10	1.05E-09	3.19E-09	-2.24E-07
HTP-nc	CTUh	3.02E-05	3.11E-08	3.81E-09	5.44E-06	0	1.54E-08	1.06E-07	3.51E-07	-7.74E-06
SQP	SQP	2.59E+03	1.4E-01	5.74E-01	3.98E+03	0	6.9E-02	9.66E+00	7.85E+00	-4.15E+02

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 16005

EN 16005: 2013-01 and Amendment 2015-10
Power operated pedestrian door sets

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

EN 60335-2

EN 60335-2-103: 2016-05 Household and similar electrical appliances

2014/30/EU

2014/30/EU Electromagnetic Compatibility Directive OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility.

EN 61000-3-2

EN 61000-3-2: 2015-03 Electromagnetic compatibility (EMC)

European Waste Catalogue (EWC)

COMMISSION DECISION of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council

EN 61000-6-2

EN 61000-6-2: 2005 and Amendment:2011
Electromagnetic Compatibility (EMC)

Machinery Directive 2006/42/EC

DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC

EN 61000-6-3

EN 61000-6-3: 2007 and A1:2011
Electromagnetic Compatibility (EMC)

REACH

Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

ISO 12100

ISO 12100:2011-03 Safety of machinery

ISO 13849- 1

ISO 13849-1: 2016-06 Safety of machinery

ISO 13849- 2

ISO 13849-2: 2013-02 Safety of machinery

EN 15804

EN 15804+A2, Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products.

ROHS 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

Further References

ISO 9001

ISO 9001:2015-09 Quality management systems Requirements

IBU 2021

General Instructions for the EPD programme of Institut Bauen und Umwelt e.V. Version 2.0, Berlin: Institut Bauen und Umwelt

ISO 14025

e.V., 2021
www.ibu-epd.com

GaBi ts software

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\[1\]2020lcidocumentation/](https://www.gabisoftware.com/support/gabi/gabidatabase[1]2020lcidocumentation/)).

LCA-tool dormakaba

LCA tool, ESC (Entrance System Control)
Tool No.: IBU-DOR-202109-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 Report
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 on the EPD for electronic
and physical Access Control Systems, version 08/2021, Institut
Bauen und Umwelt e.V., www.ibu-epd.com.



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