

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	dormakaba International Holding AG
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20220158-CBA1-EN
Issue date	29.11.2022
Valid to	28.11.2027

DL200/300 Mortise Lock Series dormakaba

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General Information

dormakaba

Programme holder

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Germany

Declaration number

EPD-DOR-20220158-CBA1-EN

This declaration is based on the product category rules:

Building Hardware products, 11.2017
(PCR checked and approved by the SVR)

Issue date

29.11.2022

Valid to

28.11.2027



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



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

DL 200/300 Mortise Lock Series

Owner of the declaration

dormakaba International Holding AG
Hofwisenstr. 24
CH-8153 Rümlang
Switzerland

Declared product / declared unit

1 Mortise Lock (1 piece) of the DL 300 Series, consisting of the following items:

- one (1) mortise lock DL 300
- one (1) closed case
- one (1) forend
- packaging

Scope:

This declaration is a specific product declaration for the Mortise Lock Series DL 300 manufactured by dormakaba production facility Wah Yuet. The production site is located in Guangdong Province, China. This Environmental Product Declaration is also representative for the DL 200 Mortise Lock Series. The underlying life cycle assessment is based on the entire life cycle of this specific mortise lock series. Data represents the year 2021.

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 14025:2010*

☐ internally ☒ externally



Dr.-Ing. Wolfram Trinius
(Independent verifier)

Product

Product description/Product definition

dormakaba mortise lock series DL 200/300 for timber and steel doors. DL 200/300 is a complementary Euro-Size lockset series. A range of mechanically operated locks for doors in buildings. A complete range of high-quality products and functional reliability. With the use of high-grade materials, precise production techniques and a comprehensive quality management system, all dormakaba locks meet demanding technical specifications.

Locks are supplied complete with fixing screws, strike plate and dust box.

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

apply. dormakaba locks are subject to strict quality requirements and are tested and certified according to:

- *EN 12209:2003*
- *DIN 18251:2020-04*

For applications with increased security requirements the locks are tested and certified in accordance with national and international standards.

Application

dormakaba locks can be used universally on standard doors by changing the latch handing, without using a tool. Moreover, they offer precision by simple,

compatible assembling in standard door cuts. As well as for applications with increased security requirements. dormakaba locks are as well fire-tested and Certifire-approved.

Technical Data

The DL 200/300 Mortise Lock Series fulfills following technical properties:

Features	300 CE Premier	300 Project	200 CE Contract	200 Standard
Grade EN 12209	3	3	2	2
CE	●	—	●	—
DIN 18251-1	●	●	●	●
Door Application for:	Public	Public	Office	Office
Latch handing	Reversible	Reversible	Reversible	Reversible
Latch	Satin stainless steel	Satin stainless steel	Satin stainless steel	Solid metal nickel plated
Follower 8 mm	Clamp	Clamp	Standard	Standard
Follower bearing	Steel bushes	Steel bushes	Formed	Formed
Dead bolt	Satin stainless steel	Satin stainless steel	Satin stainless steel	Solid metal nickel plated
Anti-saw protection	●	●	—	—
Anti-picking shield	●	●	—	—
Fixing holes	Bushed	Bushed	Unbushed	Unbushed
Forend	Screwed	Screwed	Screwed	Screwed
Forend SSS	AISI 316	AISI 316	AISI 304	AISI 304

● yes — no

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision which can be applied are mentioned above.

Delivery status:

One (1) serial standard DL 300 Mortise Lock includes one (1) DL 300 lock, one (1) closed case and one forend.

Including packaging the DL 300 Mortise Lock will be supplied with a weight of 1,35 kg.

Base materials/Ancillary materials

The material composition of the product is the following:

Name	Value	Unit
Stainless steel	23,0	%
Steel	57,0	%
Paper	0,7	%
Plastic	19,3	%

These figures are also representative for the DL 200 Mortise Lock system.

The DL 200/300 Mortise Lock system contains articles which contain substances listed in the *Candidate List of REACH Regulation 1907/2006/EC* (date: 10.06.2022) 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

dormakaba DL 200/300 Mortise Lock Series are certified according to EN 12209 up to 200.000 cycles of use. Under normal conditions and depending on cycle frequency, door weight and environmental conditions a duration of 15 years can be secured.

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece of the product: DL 300 Mortise Lock Series.

Declared unit

Name	Value	Unit
Declared unit	1	piece/product
Mass of declared Product	1.35	kg

System boundary

The type of EPD is according to *EN 15804*: "cradle to gate with options, modules C1–C4, and module D". The following modules are declared: A1-A3, C1-C4, 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, waste 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.

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 Information on biogenic Carbon

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic Carbon Content in accompanying packaging	0.09	kg C

Additional technical information for the declared modules.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel (per 1kg)	0.00276	l/100km
Transport distance plane	6496	km
Transport distance truck	168	km
Capacity utilisation (including empty runs) average	55	%

The product is transported via plane and truck. The sales markets have been considered to calculate the transport distances.

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site Waste packaging (paper)	0.25575	kg

End of life (C1-C4)

C1: The product dismantling from the building is done manually without environmental burden.

Name	Value	Unit
Collected separately	1.1	kg
Recycling	1.09	kg
Energy recovery	0.0081	kg

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

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

Name	Value	Unit
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The collection rate is 100 %.

LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = 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	ND	ND	MNR	MNR	MNR	ND	ND	ND	X	X	ND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: DL200/300 Mortise Lock Series

Core Indicator	Unit	A1-A3	A4	A5	C2	C3	D
Global warming potential - total	[kg CO ₂ -Eq.]	3.87E+0	3.29E-1	3.64E-1	5.00E-3	1.90E-2	-2.61E+0
Global warming potential - fossil fuels	[kg CO ₂ -Eq.]	4.27E+0	3.28E-1	1.10E-2	5.00E-3	1.90E-2	-2.62E+0
Global warming potential - biogenic	[kg CO ₂ -Eq.]	-4.07E-1	1.00E-3	3.54E-1	2.11E-4	4.44E-7	5.00E-3
GWP from land use and land use change	[kg CO ₂ -Eq.]	4.93E-3	6.88E-6	6.05E-6	1.09E-7	1.08E-6	-3.00E-3
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	2.84E-12	2.41E-17	6.61E-17	4.82E-19	9.61E-18	-1.67E-15
Acidification potential, accumulated exceedance	[mol H ⁺ -Eq.]	1.70E-2	1.00E-3	1.02E-4	4.57E-6	3.39E-6	-9.00E-3
Eutrophication, fraction of nutrients reaching freshwater end compartment	[kg PO ₄ -Eq.]	1.16E-5	5.40E-8	1.29E-8	9.78E-10	1.53E-9	-1.99E-6
Eutrophication, fraction of nutrients reaching marine end compartment	[kg N-Eq.]	2.50E-3	5.76E-4	3.67E-5	1.46E-6	7.65E-7	-1.00E-3
Eutrophication, accumulated exceedance	[mol N-Eq.]	3.11E-2	6.00E-3	4.58E-4	1.62E-5	1.55E-5	-1.50E-2
Formation potential of tropospheric ozone photochemical oxidants	[kg NMVOC-Eq.]	8.02E-3	2.00E-3	9.74E-5	4.12E-6	2.12E-6	-5.00E-3
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	1.10E-4	9.28E-9	1.04E-9	1.37E-10	1.32E-10	-5.99E-5
Abiotic depletion potential for fossil resources	[MJ]	4.72E+1	4.45E+0	1.15E-1	6.50E-2	9.00E-3	-2.84E+1
Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	[m ³ world-Eq deprived]	8.44E-1	5.02E-4	4.50E-2	8.96E-6	2.00E-3	-6.51E-1

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: DL200/300 Mortise Lock Series

Indicator	Unit	A1-A3	A4	A5	C2	C3	D
Renewable primary energy as energy carrier	[MJ]	1.24E+1	1.10E-2	3.09E+0	2.04E-4	2.00E-3	-3.17E+0
Renewable primary energy resources as material utilization	[MJ]	3.07E+0	0.00E+0	-3.07E+0	0.00E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	[MJ]	1.55E+1	1.10E-2	2.10E-2	2.04E-4	2.00E-3	-3.17E+0
Non-renewable primary energy as energy carrier	[MJ]	4.70E+1	4.45E+0	1.41E-1	6.50E-2	3.34E-1	-2.84E+1
Non-renewable primary energy as material utilization	[MJ]	3.51E-1	0.00E+0	-2.60E-2	0.00E+0	-3.25E-1	0.00E+0
Total use of non-renewable primary energy resources	[MJ]	4.73E+1	4.45E+0	1.15E-1	6.50E-2	9.00E-3	-2.84E+1
Use of secondary material	[kg]	2.94E-1	0.00E+0	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	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	0.00E+0
Use of net fresh water	[m ³]	3.40E-2	2.09E-5	1.00E-3	3.67E-7	4.66E-5	-2.40E-2

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: DL200/300 Mortise Lock Series

Indicator	Unit	A1-A3	A4	A5	C2	C3	D
Hazardous waste disposed	[kg]	2.41E-7	4.25E-10	1.71E-10	6.29E-12	3.37E-11	-1.28E-6
Non-hazardous waste disposed	[kg]	2.02E-1	4.51E-4	1.20E-2	6.63E-6	2.00E-3	-1.40E-2
Radioactive waste disposed	[kg]	9.75E-4	3.69E-6	6.04E-6	6.96E-8	3.28E-7	-2.45E-4
Components for re-use	[kg]	0.00E+0	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	0.00E+0	1.09E+0	0.00E+0
Materials for energy recovery	[kg]	0.00E+0	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	5.51E-1	0.00E+0	0.00E+0	0.00E+0
Exported thermal energy	[MJ]	0.00E+0	0.00E+0	1.00E+0	0.00E+0	0.00E+0	0.00E+0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: DL200/300 Mortise Lock Series

Indicator	Unit	A1-A3	A4	A5	C2	C3	D
Potential incidence of disease due to PM emissions	[Disease Incidence]	2.55E-7	4.21E-9	5.66E-10	2.40E-11	4.33E-11	-1.61E-7
Potential Human exposure efficiency relative to U235	[kBq U235-Eq.]	1.21E-1	5.04E-4	9.33E-4	9.95E-6	2.96E-5	-1.60E-2
Potential comparative toxic unit for ecosystems	[CTUe]	1.83E+1	3.16E+0	5.50E-2	4.60E-2	3.00E-3	-9.20E+0
Potential comparative toxic unit for humans - cancerogenic	[CTUh]	4.30E-7	5.93E-11	2.90E-12	8.64E-13	2.87E-13	-2.47E-9
Potential comparative toxic unit for humans - not cancerogenic	[CTUh]	6.04E-8	3.25E-9	1.27E-10	3.70E-11	2.91E-11	-1.94E-8
Potential soil quality index	[-]	5.43E+1	9.00E-3	3.10E-2	1.67E-4	3.00E-3	-2.47E+0

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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from 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 or as there is limited experienced with the indicator.

References

DIN 18251

DIN 18251:2020-04 - Locks - Mortise locks and multipoint locks - Terms, definitions and dimensions

EN 12209

EN 12209:2003 Building hardware – locks and latches – mechanically operated locks, latches and locking plates – requirements and methods

EN 15804

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

ISO 14025

ISO 14025:2006;
Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

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

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 1992-2020
Version 10.0.0.71
University of Stuttgart
Leinfelden-Echterdingen

GaBi ts documentation

GaBi life cycle inventory data documentation (<https://www.gabi-software.com/support/gabi/gabidatabase-2020-lci-documentation/>).

LCA-tool dormakaba

LCA-tool: DHW.
Tool no.: IBU-DOR-202104-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, 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 1.2, Institut Bauen und Umwelt e.V., www.ibu-epd.com, 2017.

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