

ENVIRONMENTAL PRODUCT DECLARATION

CL700 AND C800 SERIES CYLINDRICAL LOCKS



The C800 and CL700 are high quality ANSI cylindrical locksets for applications where ANSI/BHMA A156.2 Series 4000 products are required. The C800 is a heavy duty ANSI Grade 1 cylindrical lock featuring a freewheeling/clutching lever design, and the CL700 is DORMA's premium Grade 2 cylindrical lockset.



*Registered under the scope
of mutual recognition between
UL Environment and
Institut Bauen und Umwelt e.V.*



DORMA IS THE TRUSTED GLOBAL PARTNER FOR PREMIUM ACCESS SOLUTIONS & SERVICES ENABLING BETTER BUILDINGS

With over 100 years of experience, the company offers comprehensive solutions covering all facets of your opening – from locks, closers, and floor springs to automatic door systems and access control components. DORMA also supplies horizontal sliding wall systems, revolving doors and glass wall systems.

DORMA maintains major production plants in Europe, Singapore, Malaysia, China, and North and South America.

Our commitment to a sustainable future

We are committed to sustainable development as one of our key business objectives. DORMA's aim is to ensure energy-saving and resource-conserving production, to maintain a high recycled content ratio and to provide products with a long service life. With expert advice, innovative products and international service coverage we are able to make significant contributions to energy efficiency and to drive cost savings derived from sustainable building concepts. Through our involvement in national organizations around the world, we at DORMA support the idea of the World Green Building Council.

For more information visit:

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ENVIRONMENTAL PRODUCT DECLARATION



DORMA Deutschland GmbH
CL700 and C800 Series
Cylindrical Locks

According to EN 15804 and ISO 14025

Dual Recognition by UL Environment and Institut Bauen und Umwelt e.V.

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. **Exclusions:** EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. **Accuracy of Results:** EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. **Comparability:** EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.



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PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	DORMA Deutschland GmbH
ULE DECLARATION NUMBER	4786548204.107.1
IBU DECLARATION NUMBER	EPD-DOR-20140195-CBC1-EN
DECLARED PRODUCT	CL700 and C800 Series Cylindrical Locks
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CONTENTS OF THE DECLARATION	General information Product / Product description LCA calculation rules LCA scenarios and further technical information LCA results References
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The PCR review was conducted by:	IBU – Institut Bauen und Umwelt e.V.
	PCR was approved by the Independent Expert Committee (IEC) of IBU

The CEN Norm EN 15804 serves as the core PCR. This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories <input type="checkbox"/> INTERNAL <input checked="" type="checkbox"/> EXTERNAL	
	Wade Stout




This life cycle assessment was independently verified in accordance with EN 15804 and the reference PCR by:	IBU – Institut Bauen und Umwelt e.V.
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Disclaimer

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General Information

<p>DORMA</p> <hr/> <p>Programme holder IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany</p> <hr/> <p>Declaration number EPD-DOR-20140195-CBC1-EN</p> <hr/> <p>This Declaration is based on the Product Category Rules: Locks and fittings , 07.2014 (PCR tested and approved by the independent expert committee (IEC))</p> <hr/> <p>Issue date 28.10.2014</p> <hr/> <p>Valid to 27.10.2019</p> <hr/> <p></p> <hr/> <p>Prof. Dr.-Ing. Horst J. Bossenmayer (President of Institut Bauen und Umwelt e.V.)</p> <hr/> <p></p> <hr/> <p>Dr. Burkhard Lehmann (Managing Director IBU)</p>	<p>CL700 and C800 Series Cylindrical Locks</p> <hr/> <p>Owner of the Declaration DORMA Deutschland GmbH DORMA Platz 1 58256 Ennepetal Germany</p> <hr/> <p>Declared product / Declared unit The declaration represents one lock unit.</p> <hr/> <p>Scope: The declaration and the background LCA represent DORMA's CL700 and C800 Series cylindrical locks. Raw materials and components are provided by suppliers and shipped to DORMA, where the locks are assembled at DORMA's Reamstown, PA facility.</p> <hr/> <p>Verification</p> <table border="1"> <tr> <td colspan="2">The CEN Norm EN 15804 serves as the core PCR</td> </tr> <tr> <td colspan="2">Independent verification of the declaration according to ISO 14025</td> </tr> <tr> <td><input type="checkbox"/> internally</td> <td><input checked="" type="checkbox"/> externally</td> </tr> </table> <hr/> <p></p> <hr/> <p>Dr.-Ing. Wolfram Trinius (Independent verifier appointed by IEC)</p>	The CEN Norm EN 15804 serves as the core PCR		Independent verification of the declaration according to ISO 14025		<input type="checkbox"/> internally	<input checked="" type="checkbox"/> externally
The CEN Norm EN 15804 serves as the core PCR							
Independent verification of the declaration according to ISO 14025							
<input type="checkbox"/> internally	<input checked="" type="checkbox"/> externally						

Product

Product description

DORMA's CL700 and C800 Series cylindrical locks are versatile locksets that provide exceptional security, enhanced aesthetics, and rugged dependability. The cylindrical locks feature upwards of 20 functions, suitable for a wide range of applications. Their high-performance cylindrical chassis is available with a range of lever and knob trim designs.

Application

The CL700 and C800 Series are suitable for a wide range of applications. They are best suited for use in commercial applications such as schools, universities, office buildings, apartment buildings, retail spaces, and more.



Technical Data

The CL700 and C800 Series are easy to install in both wood and hollow metal doors. The CL700 Series adjusts easily to accommodate door thicknesses from 1.37 to 1.75 inches, while the C800 Series accommodates doors from 1.75 to 2.25 inches thick.

Both series are certified to /ANSI A156.2/ Series 4000 –CL700 to Grade 2 and C800 to Grade 1. Other certifications include /ANSI A156.115/, /ANSI A117.1/, and /UL 10C/.

Base materials / Ancillary materials

Name	Value	Unit
Steel	42	%
Zinc	41	%
Brass	16	%
Polypropylene	1	%

Reference service life

No use stage modules are reported; as such, declaration of the reference service life (RSL) is voluntary. The RSL is not reported for the CL700 and C800 Series locks.

LCA: Calculation rules

Declared Unit

The declared unit of this analysis is one cylindrical lock.

Declared unit

Name	Value	Unit
Declared unit (1 lock)	1	1 piece/product
Mass of system (without packaging)	2.1	kg
Conversion factor to 1 kg	0.48	-

System boundary

Type of EPD: cradle-to-gate - with options. The following modules were considered in the analysis:

Product stage:

- Raw material supply (A1)
- Inbound transport (A2)
- Manufacturing (A3)

Construction process stage:

- Distribution (A4)
- Installation (A5)

End-of-life stage:

- Disposal (C4)

Beyond system boundaries:

- Reuse, recovery, recycling potential (D)

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.

LCA: Scenarios and additional technical information

Additional information is provided for declared modules, including A4, A5, C4, and D. In order to represent DORMA'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 cylindrical lock sales), which is used in the analysis, along with the variation in that distance. Additionally, estimated global average recycling rates are used to represent product disposal.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel (truck)	31	l/100km
Fuel economy (truck)	7.6	mpg
Transport distance (SI)	2400 - 22800	km
Average transport distance (SI)	2,830	km
Transport distance (imperial)	1,500 - 14,200	mi
Average transport distance (imperial)	1,760	mi
Capacity utilisation (including empty runs)	85	%

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (packaging)	0.25	kg

End of life (C1-C4)

Name	Value	Unit
Recycling	1.4	kg
Landfilling	0.69	kg

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

Name	Value	Unit
Recycling rate, brass	52	%
Recycling rate, paper	90	%
Recycling rate, plastics	14	%
Recycling rate, steel	88	%
Recycling rate, zinc	52	%



LCA: Results

The table below summarizes which modules are declared (as indicated by an "X"), and which are not declared (as indicated with "MND"). Environmental performance results are shown for one (1) cylindrical lock.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

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	MND	MND	MND	MND	MND	MND	MND	MND	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 lock (2.1kg)*

CML-IA version 4.2, released april 2013						
Parameter	Unit	A1 - A3	A4	A5	C4	D
Global warming potential	[kg CO ₂ -Eq.]	1.254E+1	2.540E-1	5.290E-2	3.080E-2	-3.630E+0
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.126E-8	1.790E-12	3.320E-14	6.430E-13	-7.170E-9
Acidification potential of land and water	[kg SO ₂ -Eq.]	7.732E-2	1.490E-3	6.270E-5	1.400E-4	-2.640E-2
Eutrophication potential	[kg (PO ₄) ³⁻ -Eq.]	5.496E-3	2.910E-4	2.810E-5	1.630E-5	-1.600E-3
Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	4.945E-3	-3.300E-4	1.920E-5	1.360E-5	-1.820E-3
Abiotic depletion potential for non fossil resources	[kg Sb Eq.]	4.531E-3	1.070E-8	6.220E-10	1.210E-8	-8.580E-4
Abiotic depletion potential for fossil resources	[MJ]	1.564E+2	3.470E+0	2.430E-2	4.710E-1	-4.290E+1
TRACI 2.1						
Parameter	Unit	A1 - A3	A4	A5	C4	D
Global warming potential	[kg CO ₂ -Eq.]	1.25E+01	2.54E-01	5.29E-02	3.08E-02	-3.63E+00
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.23E-08	1.90E-12	3.53E-14	6.84E-13	-7.80E-09
Acidification potential of land and water	[kg SO ₂ -Eq.]	7.60E-02	1.84E-03	9.95E-05	1.49E-04	-2.54E-02
Eutrophication potential	[kg N-Eq.]	3.02E-03	1.15E-04	2.38E-05	2.07E-05	-7.69E-04
Ground-level smog formation potential	[kg O ₃ -Eq.]	9.45E-01	3.71E-02	4.00E-04	2.81E-03	-2.62E-01

RESULTS OF THE LCA - RESOURCE USE: 1 lock (2.1kg)*

Parameter	Unit	A1 - A3	A4	A5	C4	D
Renewable primary energy as energy carrier	[MJ]	1.992E+1	1.330E-1	1.160E-3	2.250E-2	-5.140E+0
Renewable primary energy resources as material utilization	[MJ]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Total use of renewable primary energy resources	[MJ]	1.992E+1	1.330E-1	1.160E-3	2.250E-2	-5.140E+0
Non renewable primary energy as energy carrier	[MJ]	1.898E+2	3.740E+0	2.710E-2	5.260E-1	-4.980E+1
Non renewable primary energy as material utilization	[MJ]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Total use of non renewable primary energy resources	[MJ]	1.898E+2	3.740E+0	2.710E-2	5.260E-1	-4.980E+1
Use of secondary material	[kg]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Use of renewable secondary fuels	[MJ]	-8.758E-3	2.590E-5	2.770E-5	5.370E-4	1.560E-3
Use of non renewable secondary fuels	[MJ]	-9.463E-2	2.720E-4	6.310E-5	1.230E-3	1.580E-2
Use of net fresh water	[m ³]	7.068E+1	1.010E-1	-7.360E-2	-1.490E+0	-1.440E+1

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1 lock (2.1kg)*

Parameter	Unit	A1 - A3	A4	A5	C4	D
Hazardous waste disposed	[kg]	1.002E-2	9.790E-6	6.250E-7	1.210E-5	-1.570E-5
Non hazardous waste disposed	[kg]	1.025E+0	4.220E-4	2.690E-2	6.800E-1	2.580E-1
Radioactive waste disposed	[kg]	8.300E-3	6.820E-6	3.110E-7	6.040E-6	-1.550E-3
Components for re-use	[kg]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Materials for recycling	[kg]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Materials for energy recovery	[kg]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Exported electrical energy	[MJ]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0
Exported thermal energy	[MJ]	0.000E+0	0.000E+0	0.000E+0	0.000E+0	0.000E+0

* 1kg = 2.204 lbs.

Cylindrical lock environmental impacts are dominated by the product stage (A1-A3) for all impact categories. The production of raw materials such as steel, in particular, are key drivers of environmental performance. The one exception is ozone depletion potential, for which Module D is negative and represents a relevant portion of environmental impact. This is due to the high content of stainless steel in the product; both primary and secondary routes to producing stainless steel lead to high ozone-depleting emissions, although the credit given for primary steel production outweighs any burdens from recycling scrap stainless steel.



Compared to the product stage, distribution accounts for a small fraction of cylindrical lock environmental impact. Distribution is modeled assuming a sales-weighted average based on the countries and regions in which the lock is sold. Finished products are shipped from DORMA's facility in Reamstown, PA to various locations in Eurasia and the Americas. While the results represent DORMA's specific situation as of 2013, they can be reevaluated for a specific country or region.

At the end-of-life, DORMA's locks are modeled as being recycled. A portion of each material type is recovered and the remainder landfilled. In this case, proxy data are used as often, global average or even regional specific data are not available. Waste disposal (Module C4) is consistently a minor contributor to environmental impact so dataset choice is not anticipated to affect conclusions.

References

ISO 14025

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

EN 15804

EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

ANSI A117.1

ANSI A117.1 - 2009, Accessible and usable buildings and facilities

ANSI A156.115

ANSI/BHMA A156.115 - 2006, Hardware preparation in steel doors or steel frames

ANSI A156.2

ANSI/BHMA A156.2 - 2011, Bored and preassembled locks and latches

GaBi 6

PE INTERNATIONAL; GaBi 6: Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, Echterdingen, 1992-2013.

GaBi 6 Documentation

GaBi 6: Documentation of GaBi 6: Software-System

and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, Echterdingen, 1992-2013. <http://documentation.gabi-software.com/>

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

PCR Part A

Institut Bauen und Umwelt e.V. (Ed.): PCR Guidance-Texts for Building-Related Products and Services. Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report. 2013. www.bau-umwelt.com

PCR Part B

Institut Bauen und Umwelt e.V. (Ed.): PCR Guidance-Texts for Building-Related Products and Services. Part B: Requirements on the EPD for Locks and fittings. 07-2014. www.bau-umwelt.com

UL 10C

UL 10C, Positive pressure fire tests of door assemblies



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