ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of the Declaration	OGRO Beschlagtechnik GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-OGR-20240052-CBA5-EN
Issue date	18.06.2024
Valid to	17.06.2029

Aluminium lever and window handle CORE/PREMIUM

OGRO

Institut Bauen und Umwelt e.V.

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ECO PLATFORM EPD VERIFIED

General Information

OGRO

Programme holder

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

Declaration number

EPD-OGR-20240052-CBA5-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

18.06.2024

Valid to

17.06.2029

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

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

Aluminium lever and window handle CORE/PREMIUM

Owner of the declaration

OGRO Beschlagtechnik GmbH
Donnenberger Straße 2
42553 Velbert
Germany

Declared product / declared unit

The declared unit is one (1 piece) aluminium lever handle from the OGRO PREMIUM and CORE series, including packaging materials. The average fitting including packaging weighs 763 g.

Scope:

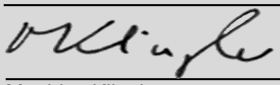
This Environmental Product Declaration refers to a specific aluminium lever handle manufactured by OGRO. The EPD is also representative for aluminium window handles. The production site is located in Velbert (Germany).
Data represents the year 2023.

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



Matthias Klingler,
(Independent verifier)

Product

Product description/Product definition
OGRO Beschlagtechnik GmbH manufactures door and window fittings made of stainless steel or aluminium for the premium real estate market. This EPD declares OGRO Premium and CORE lever and window handles made of aluminium.

For the placing the lever handles on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the following legal provisions apply:

- *EN 179*

For the placing the window handles on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the following legal provisions apply:

- *EN 13126-3*

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 door and window handles are suitable for practically all applications.
Lever handles:

- For use on doors which are subject to frequent force, e.g. football stadiums, military barracks, schools, public toilets
- For extremely high-traffic areas and intensive use in buildings
- Use in public buildings, e.g. hospitals or administrative buildings
- Manifold barrier-free applications
- Use on glass doors
- Use on mechanically high-strength apartment entrance doors with requirements incl. in accordance with *DIN 18257*
- Use on panic, escape, rescue and fire safety doors
- Use on doors with electronic access control

Window handles:

- For use on wooden, plastic or aluminium profiles
- For high-traffic areas and intensive use in buildings
- Use in public buildings, e.g. hospitals or administrative buildings
- Suitable for all standard window handle gears with variable pin adjustment
- Simple operation with forces according to EN standards

Technical Data
The aluminium lever and window handles comply with following standards:

- *DIN 17440: Steel and steel alloys*
- *EN 179: Locks and fittings*
- *EN 1125: Locks and fittings*
- *EN 1634: Fire resistance and smoke control tests for door and shutter assemblies*
- *EN 1906: Requirements and test methods for lever handles and knob furniture*
- *EN 13126-3: Building hardware - Hardware for windows and door height windows*
- *DIN 18082, Part 1: Fire protection barriers, steel doors T 30-1*
- *DIN 18095, Parts 1 + 2: Smoke control doors*
- *DIN 18255: Building hardware*
- *DIN 18257: Security plates*
- *DIN 18273: Lever handle units for fire doors and smoke control doors*
- *DIN 4102, Parts 5 + 18: Fire behaviour of building materials and building components*
- *DIN 18040: Construction of accessible buildings*

Performance data of the products with respect to its characteristics in accordance with the relevanttechnical provision which can be applied arementioned above.

Base materials/Ancillary materials
The major material composition including the packaging of the product is listed below:

- Aluminium: 58%
- Steel: 24%
- Cardboard: 13%
- Plastics: 4%
- Stainless steel: 1%

The lever and window handles include partial articles which contain substances listed in the Candidate List of REACH Regulation *1907/2006/EC* (date: 14.06.2023) exceeding 0.1 percentage bymass: 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 aluminium lever handles amount to 40 years and depends on the application and frequency of use. For repairs or renewals, suitable spare parts are available. The lever handles are tested according to *EN 1906*, meaning they are designed to withstand a minimum of 1.000.000 cycles. The reference service life of the aluminium window handles amount to 20 years and depends on the application and frequency of use. For repairs or renewals, suitable spare parts are available. The window handles are tested according to *EN 13126-3*, meaning they are designed to withstand a minimum of 25.0000 cycles.

LCA: Calculation rules

Declared Unit
The declared unit is 1 piece of the product: Aluminium lever and window handle

Name	Value	Unit
Declared unit	1	piece/product
Mass of declared Product excluding packaging	0.667	kg
Packaging	0.098	kg

Other declared units are allowed if the conversion is shown transparently.

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, Dand 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, deconstruction, 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 ts, SP40, CUP 2020.1

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	-	kg C
Biogenic carbon content in accompanying packaging	0.04	kg C

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	100	km
Capacity utilisation (including empty runs)	55	%

Transport distance is declared for 100km by truck in order to allow scaling to a specific point of installation.

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (packaging)	0.098	kg

Reference service life

Name	Value	Unit
Reference service life	40	a

End of life (C1-C4)
C1: The product dismantling from the building is done manually without environmental burden.
C2: Transport to waste treatment at end of life is 50 km.

Name	Value	Unit
Collected separately waste type	0.667	kg
Recycling	0.638	kg
Energy recovery	0.029	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information
The collection rate is 100%.

Name	Value	Unit
Recycling	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

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	7.89E+00	7E-03	1.39E-01	0	3E-03	7.9E-02	0	-2.83E+00
GWP-fossil	kg CO_2 eq	8E+00	6E-03	3E-03	0	3E-03	7.9E-02	0	-2.82E+00
GWP-biogenic	kg CO_2 eq	-1.26E-01	2.96E-04	1.35E-01	0	1.29E-04	1.84E-06	0	-9E-03
GWP-luluc	kg CO_2 eq	1E-02	1.52E-07	2.29E-06	0	6.64E-08	4.45E-06	0	-5.13E-04
ODP	kg CFC11 eq	1.19E-12	6.75E-19	2.5E-17	0	2.94E-19	3.97E-17	0	-2.27E-11
AP	mol H^+ eq	2.8E-02	6.4E-06	3.89E-05	0	2.79E-06	1.4E-05	0	-1.1E-02
EP-freshwater	kg P eq	1.83E-05	1.37E-09	4.9E-09	0	5.97E-10	6.34E-09	0	-1.45E-06
EP-marine	kg N eq	5.01E-03	2.04E-06	1.41E-05	0	8.88E-07	3.16E-06	0	-1E-03
EP-terrestrial	mol N eq	5.01E-02	2.26E-05	1.75E-04	0	9.87E-06	6.39E-05	0	-1.5E-02
POCP	kg NMVOC eq	1.3E-02	5.76E-06	3.72E-05	0	2.51E-06	8.75E-06	0	-4E-03
ADPE	kg Sb eq	1.6E-05	1.92E-10	3.96E-10	0	8.36E-11	5.45E-10	0	-1.72E-06
ADPF	MJ	1.01E+02	9.1E-02	4.4E-02	0	4E-02	3.7E-02	0	-4.08E+01
WDP	m^3 world eq deprived	8.35E-01	1.25E-05	1.7E-02	0	5.46E-06	8E-03	0	-1.36E-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

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	4.69E+01	2.86E-04	1.18E+00	0	1.25E-04	9E-03	0	-1.95E+01
PERM	MJ	1.18E+00	0	-1.18E+00	0	0	0	0	0
PERT	MJ	4.81E+01	2.86E-04	8E-03	0	1.25E-04	9E-03	0	-1.95E+01
PENRE	MJ	1E+02	9.1E-02	4.4E-02	0	4E-02	4.99E-01	0	-4.08E+01
PENRM	MJ	4.62E-01	0	0	0	0	-4.62E-01	0	0
PENRT	MJ	1.01E+02	9.1E-02	4.4E-02	0	4E-02	3.7E-02	0	-4.08E+01
SM	kg	2.05E-01	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	7.1E-02	5.13E-07	4.06E-04	0	2.24E-07	1.93E-04	0	-3.4E-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

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.03E-07	8.81E-12	6.47E-11	0	3.84E-12	1.39E-10	0	-1.75E-08
NHWD	kg	1.22E+00	9.28E-06	4E-03	0	4.05E-06	8E-03	0	-7.6E-01
RWD	kg	7E-03	9.74E-08	2.31E-06	0	4.25E-08	1.36E-06	0	-5E-03
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	6.36E-01	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	2.1E-01	0	0	1.46E-01	0	0
EET	MJ	0	0	3.81E-01	0	0	3.35E-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

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	3.64E-07	3.37E-11	2.16E-10	0	1.47E-11	1.79E-10	0	-1.74E-07
IR	kBq U235 eq	9.51E-01	1.39E-05	3.57E-04	0	6.07E-06	1.22E-04	0	-9.35E-01
ETP-fw	CTUe	3.6E+01	6.4E-02	2.1E-02	0	2.8E-02	1.4E-02	0	-1.55E+01
HTP-c	CTUh	1.3E-08	1.21E-12	1.1E-12	0	5.27E-13	1.19E-12	0	-8.11E-10
HTP-nc	CTUh	7.92E-08	5.17E-11	4.77E-11	0	2.25E-11	1.2E-10	0	-2.02E-08
SQP	SQP	4.17E+01	2.33E-04	1.2E-02	0	1.02E-04	1.1E-02	0	-1.32E+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 15804
EN 15804+A2:2019+AC:2021, Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products

ISO 14025
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ECHA
European Chemicals Agency: https://echa.europa.eu/de/home
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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

PCR Part A
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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

EN 10088
EN 100088:2014: Steel and steel alloys

EN 179
EN 179:2008-04: Building hardware - Emergency exit devices operated by a lever handle or push pad, for use on escape routes - Requirements and test methods

EN 1125
EN 1125:2008-04: Building hardware - Panic exit devices operated by a horizontal bar, for use on rescue routes - Requirements and test methods

EN 1634
EN 1634-1:2018-04: Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire-resistance test for door and shutter assemblies and openable windows

EN 1906
EN 1906:2012-12: Building hardware - Lever handles and knob furniture - Requirements and test
methods

EN 13126-3
EN 13126-3:2023-04: Building hardware - Hardware for windows and door height windows -
Requirements and test methods - Part 3: Handles, primarily for tilt and turn, Tilt-first and turn-only hardware

DIN 18082
DIN 18082-1:T1EErl MV:1993-02-03: Fire-resistant single-leaf steel doors (T 30-1 doors) – Dimensions and requirements

DIN 18095, Parts 1 + 2
DIN 18095-1:1988-10: Smoke control doors; Concepts and requirements

DIN 18095-2:1991-03: Smoke control doors; Type testing for durability and leakage

DIN 18255
DIN 18255:2020-05: Building hardware - Door lever handles, backplates and escutcheons - Definitions, dimensions, requirements and marking

DIN 18257
DIN 18257:2022-02: Building hardware - Security plates - Definitions, measurements, requirements, marking

DIN 18273
DIN 18273:2015-07: Building hardware - Lever handle units for fire doors and smoke control doors - Terms and definitions, dimensions, requirements, testing and marking

DIN 4102
DIN 4102-1:1998-05 Fire behaviour of building materials and building components – Part 1: Building materials, concepts, requirements and tests

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

OGRO Beschlagtechnik GmbH
Donnenberger Straße 2
42553 Velbert
Germany

+49 (0)2053 495-0
info@ogro.de
www.ogro.de