Environmental Product Declaration

Stainless Steel Door Hardware

EPD of multiple products, based on worst-case results

Programme	The International EPD® System, www.environdec.com
Programme operator	EPD International AB
Geographical scope	Global
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In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

pba

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THE INTERNATIONAL EPD® SYSTEM

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Programme information

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)

Product Category Rules (PCR): PCR 2019:14 - Construction products (EN 15804+A2), version 1.3.4
C-PCR-020 (TO PCR 2019:14) - BUILDING HARDWARE (EN 17610:2022)
CPC code 4291 - Domestic metal products.

PCR review was conducted by: Claudia A. Peña
The Technical Committee of the International EPD System. A full list of members available on www.environdec.com.
The review panel may be contacted via info@environdec.com.

The International EPD® System: EPD International AB Box 210 60 SE-100 31Stockholm, Sweden, www.environdec.com

Life Cycle Assessment (LCA) - LCA accountability: ambiente S.p.A.

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
EPD process certification EPD verification by individual verifier [X]

Procedure for follow-up of data during EPD validity involves third party verifier:
Yes No [X]

The EPD owner has the sole ownership, liability, and responsibility for the EPD.
EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Third party verifier: Mr. Guido Croce

Approved by: The International EPD® System Technical Committee

Programme and Programme Operator	The International EPD® System, www.environdec.com EPD International AB Box 210 60 SE-100 31 Stockholm, Sweden

Company information

Owner of the EPD: pba S.p.A.

Contact: Lorenzo Frison (sustainability@pba.it)

Description of the organisation: pba is a premier brand of elegant, robust and reliable architectural hardware with a wide collection of pulls, millwork pulls, levers, ladder locking pulls, mortise locks, lockset for glass door, all the accessories for a “life safe and without barriers”: the Design for All bathroom accessories, and the Hand-Rail collections.

Product-related or management system-related certifications: N.A.

Name and location of production site:	pba S.p.A. Via Enrico Fermi, 1 36056 Tezze sul Brenta (Vicenza) Italia

LCA Consultant: Habitech - Distretto Tecnologico Trentino S.c.a r.l. (Piazza Manifattura, 1 38068 Rovereto, TN, Italy) e ambiente S.p.A. (Via Frassina, 21 – 54033 Carrara, MS, Italy).

How to read this EPD

An Environmental Product Declaration (EPD) is an ISO Type III Environmental Declaration based on ISO 14025 standard. An EPD transparently reports the environmental performance of products or services from a lifecycle perspective. The preparation of an EPD includes different stages, from acquiring raw materials to the end of life of the final product/service. EPDs are based on international standards and consider the entire value chain. Additionally, EPD is a third-party verified document. This EPD includes several sections described below.

General and Program Information

The first part of an EPD has information about the name of the manufacturer and product/ service and other general information such as the validity and expiration dates of the document, the name of the program operator, geographical scope, etc. The second page states the standards followed and gives information about the program operator, third-party verifier, etc. The followed Product Category Rule (PCR) is indicated on the second page.

Company and Product Information

Information about the company and the investigated product is given in this section. It summarizes the characteristics of the product provided by the manufacturer. It also includes information about the product such as product composition and packaging.

LCA Information

LCA information is one of the most important parts of the EPD as it describes the functional/declared unit, time representativeness of the study, database(s) and LCA software, along with system boundaries. The table presented in this part has columns for each stage in the life cycle. The considered stages are marked 'X' whereas the ones that are not considered are labeled as 'NR'. Not all EPDs consider the full life cycle assessment for a product's entire life stages.

The 'System Boundary' page is also the place where one can find detailed information about the stages and the assumptions made.

LCA Results

The results of the Life Cycle Assessment analysis are presented in table format. The first column in each table indicates the name of the impact category and their measurement units are presented in the second column. These tables show an amount at each life cycle stage to see the impact of different indicators on different stages. Each impact can be understood as what is released through the production of the declared unit of the material - in this case, 1 kg of Everyone Millwork Pull. The benefits of reuse/recycling of the declared product are reflected in this section.The first impact in the table is global warming potential (GWP), which shows how much CO_2 is released at each stage. Other impacts include eutrophication potential, acidification potential, ozone layer depletion, land use related impacts, etc. The second table provides results for resource use and the third table is about the waste produced during production.
The fourth and final table shows the results for the GWP-GHG indicator, which is almost equivalent to the GWP-Total indicator mentioned previously. The only difference is that this indicator excludes the biogenic carbon content by following a certain methodology.

About the company

We are pba
We are the ones who open doors of universities, stores, hospitals, and buildings, that shifted from places to icons. We are the ones who "even a pull tells who we are, so let’s do it even better"; those who "sustainability is consistency unveiling in the long term, so let’s pay attention now". We are the ones who team up with the best partners, and those where women are leaders. We are the ones who embellish the function of a grab bar in a bathroom, of a drawer pull. Strong as steel, constantly-changing as copper. We are the ones who let you in and out, go, stay and come back. We are the ones who never make just for the sake of making, but always moved by the ambition of creating "good" objects for all.

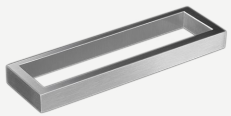
Sustainability
Imagine, develop, manufacture, and introduce into the world something that wasn’t there before is a carefully pondered responsibility. We need to take a step back, and give up the idea of filling the whole space to make room for something else: other needs, other cultures, other desires. Because the Earth and its resources are not something we inherited from our fathers, but something we are borrowing from our sons. If the purpose of an action changes, the action itself shifts from what it was.

Inclusivity
Inclusiveness is for everyone, it does not identify a specific skill, it does not seek solutions that flatten needs in a vision of “common necessity”, on the contrary it values the beauty, the variety and the uniqueness of people. Only universal values can lay the foundation of such an ambitious building: inclusiveness, beauty for all, responsibility for the choices made on what, with whom and how, and sustainability. Because we cannot avoid to be sustainable if we truly believe in the “for all”.

Product information

pba is a premier brand of elegant, robust and reliable architectural hardware with a wide collection of pulls, millwork pulls, levers, ladder locking pulls, mortise locks, lockset for glass door and accessories made of 316L stainless steel. This EPD covers a group of locking and non-locking pulls, door pulls, appliance pulls, levers for doors and windows, levers on plate, recessed pulls, knobs and accessories as doorstops and signage, mortise locks, millwork pulls and hands-free pulls. Full range of products identified by item codes are presented below. Products listed are made of mainly stainless steel and differ by design or finishing. Due to shape, dimensions or composition, environmental performances between products may differ more than 10%, therefore the worst-case scenario is declared (referring to the millwork pull GMP.D01.0005.44 as "**worst case product**").
Product codes covered by EPD: KL*, 2C*, ST*, 2M*, *IT*, PVD*, HG*, GHF*, GMP*, TOC*, GOH*, GBD*

Stainless Steel Door Hardware



Model:
GMP.D01.0005.44
Everyone Millwork Pull

UN CPC code:
4291 - Domestic metal products

Geographical scope:
Europe (A1 – A3 modules)
Global (End of Life modules)

Covered by this declaration

System boundary

A1
Raw material supply

This stage includes materials extraction and pre-treatment processes before production. Main materials used in the product are stainless steel, brass and zamak. Environmental impacts of these materials are considered at this stage.

A2
Transport

This stage is relevant for the delivery of materials to the production plant.
Transportation is almost exclusively by road and transport distances are provided by the manufacturer.

A3
Manufacturing

This stage includes manufacturing related impacts. The following processes are included: (cutting, assembly, powder coating).

System boundary

C1
Deconstruction and demolition

This stage includes the impacts during the dismantling of the Everyone Millwork Pull. Manual dismantling is assumed, thus no energy or additional material are needed for the dismantling of the product. Therefore, this stage is considered non relevant.

C2
Transport

This stage includes the transportation of discarded products to the waste processing/ disposal area. 50 km distance by trucks is assumed.

C3
Waste processing

Worst-case scenario was chosen: end-of-life scenario involving 100% disposal in landfills was considered. Thus, no waste processing is needed. *

C4
Disposal

Landfilling impacts are calculated at this stage.

D
Reuse, recycling, and recovery potential

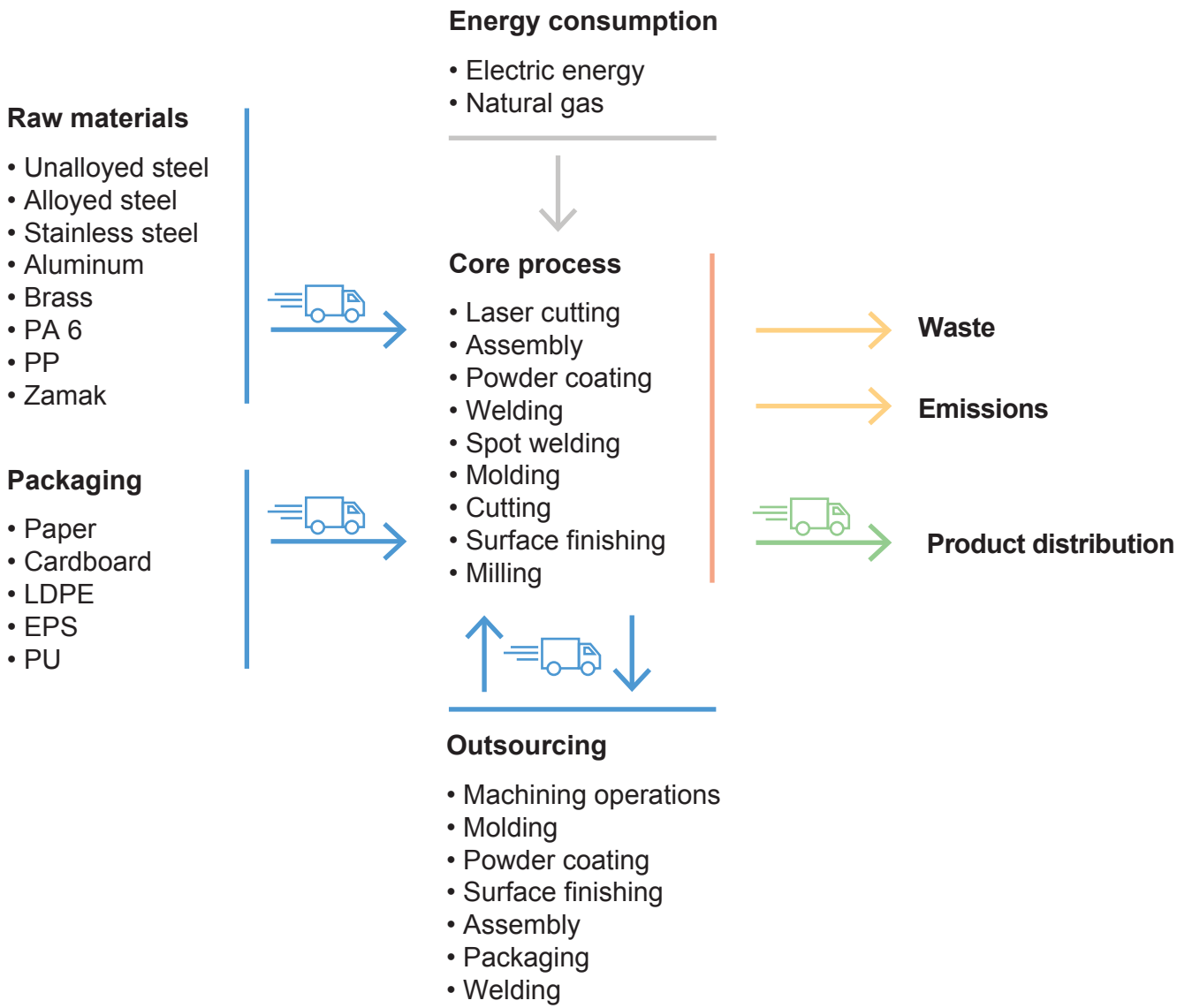
The worst case scenario used does not provide environmental benefits in this module.

* In this EPD the worst-case scenario is considered, assuming the product will be fully disposed. However it must be underlined that the products have been designed and produced to be fully disassembled and 100% recyclable at the end of their life.

LCA information

Declared product mass	The declared unit is 1 kg of the product. Declared product mass is 0.149 kg.
Reference service life:	n.r.
System boundary	Cradle to gate with options, modules C1–C4 and module D.
Database and LCA software	Ecoinvent 3.9.1 and OpenLCA 2.0.2.
Period under review	All primary data collected from pba is for the year 2022.
Electricity mix	Purchased electricity used in manufacturing process of module A3 is modeled with Ecoinvent dataset “electricity, medium voltage, residual mix, IT”. Its impacts is 0.619 kg CO_2eq/kWh (GWP-GHG).
Cut-off criteria	Life cycle inventory data for a minimum of 99% of total material and energy input flows have been included in the life cycle analysis.

System diagram



	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport of raw materials	Manufacturing	Transport to customer	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to waste processing	Waste processing	Disposal	Reuse – Recovery - Recycling potential
	A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Declared Modules	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	IT										GLO	GLO	GLO	GLO	GLO
Specific data used	26.5%																
Variation/products	-53%																
Variation/site	N.A.																

X = Included in LCA, ND= Not declared

Content information

Product components	Weight, kg	Pre-consumer material, weight-%	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Stainless steel	1.000	0%	54%	---
TOTAL	1			

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Cardboard	0.366	36.6%	0.50
LDPE	0.047	4.7%	---
...			
TOTAL	0.413	41.3%	

LCA results

Mandatory impact category indicators according to EN 15804
Results per functional or declared unit

Impact category	Unit	A1-A3	C1	C2	C3	C4	D	Variation best case
GWP-fossil | Environment: Global warming potential	kg CO_2 eq	9.05E+00	0.00E+00	5.72E-03	0.00E+00	6.08E-03	0.00E+00	-53%
GWP-biogenic | Environment: Global warming potential	kg CO_2 eq	5.04E-02	0.00E+00	1.64E-06	0.00E+00	2.63E-06	0.00E+00	-42%
GWP-luluc | Environment: Global warming potential	kg CO_2 eq	9.57E-03	0.00E+00	2.98E-06	0.00E+00	3.67E-06	0.00E+00	-34%
GWP-total | Environment: Global warming potential	kg CO_2 eq	9.11E+00	0.00E+00	5.72E-03	0.00E+00	6.08E-03	0.00E+00	-53%
ODP | Environment: Ozone depletion potential	kg CFC-11 eq	1.83E-07	0.00E+00	9.05E-11	0.00E+00	1.76E-10	0.00E+00	-67%
AP | Environment: Acidification potential	mol H^+ eq	4.09E-02	0.00E+00	2.51E-05	0.00E+00	4.58E-05	0.00E+00	-27%
EP-freshwater | Environment: Eutrophication potential	kg P eq	2.75E-03	0.00E+00	4.65E-07	0.00E+00	5.06E-07	0.00E+00	-37%
EP-marine | Environment: Eutrophication potential	kg N eq	8.06E-03	0.00E+00	9.01E-06	0.00E+00	1.72E-05	0.00E+00	-27%
EP-terrestrial | Environment: Eutrophication potential	mol N eq	8.40E-02	0.00E+00	9.86E-05	0.00E+00	1.88E-04	0.00E+00	-19%
POCP | Environment: Photochemical ozone creation potential	kg NMVOC eq	3.05E-02	0.00E+00	3.39E-05	0.00E+00	6.56E-05	0.00E+00	-29%
ADPE | Environment: Abiotic depletion potential (elements)	kg Sb eq	1.40E-04	0.00E+00	1.89E-08	0.00E+00	8.61E-09	0.00E+00	-84%
ADPF | Environment: Abiotic depletion potential (fossils)	MJ	1.22E+02	0.00E+00	8.15E-02	0.00E+00	1.53E-01	0.00E+00	-57%
WDP | Environment: Water deprivation potential	m^3 world eq	3.15E+00	0.00E+00	3.84E-04	0.00E+00	4.74E-04	0.00E+00	-47%

Additional mandatory and voluntary impact category indicators
Results per functional or declared unit

Impact category	Unit	A1-A3	C1	C2	C3	C4	D	Variation best case
GWP-GHG | Environment: Global warming potential [1]	kg CO_2 eq	9.10E+00	0.00E+00	5.72E-03	0.00E+00	6.08E-03	0.00E+00	-53%

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators
Results per functional or declared unit

Impact category	Unit	A1-A3	C1	C2	C3	C4	D	Variation best case
PERE | Primary energy: Renewable (energy use)	MJ	2.48E+01	0.00E+00	1.03E-03	0.00E+00	1.28E-03	0.00E+00	-50%
PERM | Primary energy: Renewable (material use)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
PERT | Primary energy: Renewable (total)	MJ	2.48E+01	0.00E+00	1.03E-03	0.00E+00	1.28E-03	0.00E+00	-50%
PENRE | Primary energy: Non-renewable (energy use)	MJ	1.22E+02	0.00E+00	8.15E-02	0.00E+00	1.53E-01	0.00E+00	-57%
PENRM | Primary energy: Non-renewable (material use)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
PENRT | Primary energy: Non-renewable (total)	MJ	1.22E+02	0.00E+00	8.15E-02	0.00E+00	1.53E-01	0.00E+00	-57%
SM | Resource: Secondary materials	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
RSF | Resource: Renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
NRSF | Resource: Non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
FW | Resource: Net use of fresh water	m^3	8.74E-02	0.00E+00	9.89E-06	0.00E+00	1.58E-04	0.00E+00	-48%

Waste indicators
Results per functional or declared unit

Impact category	Unit	A1-A3	C1	C2	C3	C4	D	Variation best case
HWD | Waste: Hazardous waste disposed	kg	5.12E+00	0.00E+00	9.27E-05	0.00E+00	1.05E-04	0.00E+00	-45%
NHWD | Waste: Non-hazardous waste disposed	kg	5.96E+00	0.00E+00	3.94E-03	0.00E+00	1.00E+00	0.00E+00	-46%
RWD | Waste: Radioactive waste disposed	kg	2.15E-04	0.00E+00	1.64E-08	0.00E+00	2.24E-08	0.00E+00	-59%

Output flow indicators

Results per functional or declared unit

Impact category	Unit	A1-A3	C1	C2	C3	C4	D	Variation best case
CRU | Output: Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
MFR | Output: Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
MER | Output: Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
EEE | Output: Exported energy (electrical)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%
EET | Output: Exported energy (thermal)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%

References

GPI / General Programme Instructions of the International EPD® System. Version 4.0.

Product Category Rules (PCR): PCR 2019:14 - Construction products (EN 15804+A2), version 1.3.4

C-PCR-020 (TO PCR 2019:14) - BUILDING HARDWARE (EN 17610:2022)

UNI EN ISO 14025:2010 - Environmental labels and declarations -Type III environmental declarations - Principles and procedures

ISO 21930:2017 - Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services

ISO 14040:2021 - Environmental management — Life cycle assessment — Principles and framework

ISO 14044:2021 - Environmental management — Life cycle assessment — Requirements and guidelines

The International EPD ® System / The International EPD ® System is a programme for type III environmental declarations. maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. www.environdec.com

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