

ENVIRONMENTAL PRODUCT DECLARATION



According to ISO 14025 and EN 15804

Registered under the scope of mutual recognition between
The International EPD® System and The Norwegian EPD Foundation

Program operator: The Norwegian EPD Foundation

Publisher: International EPD® System

Declaration number: NEPD-2147-970-EN

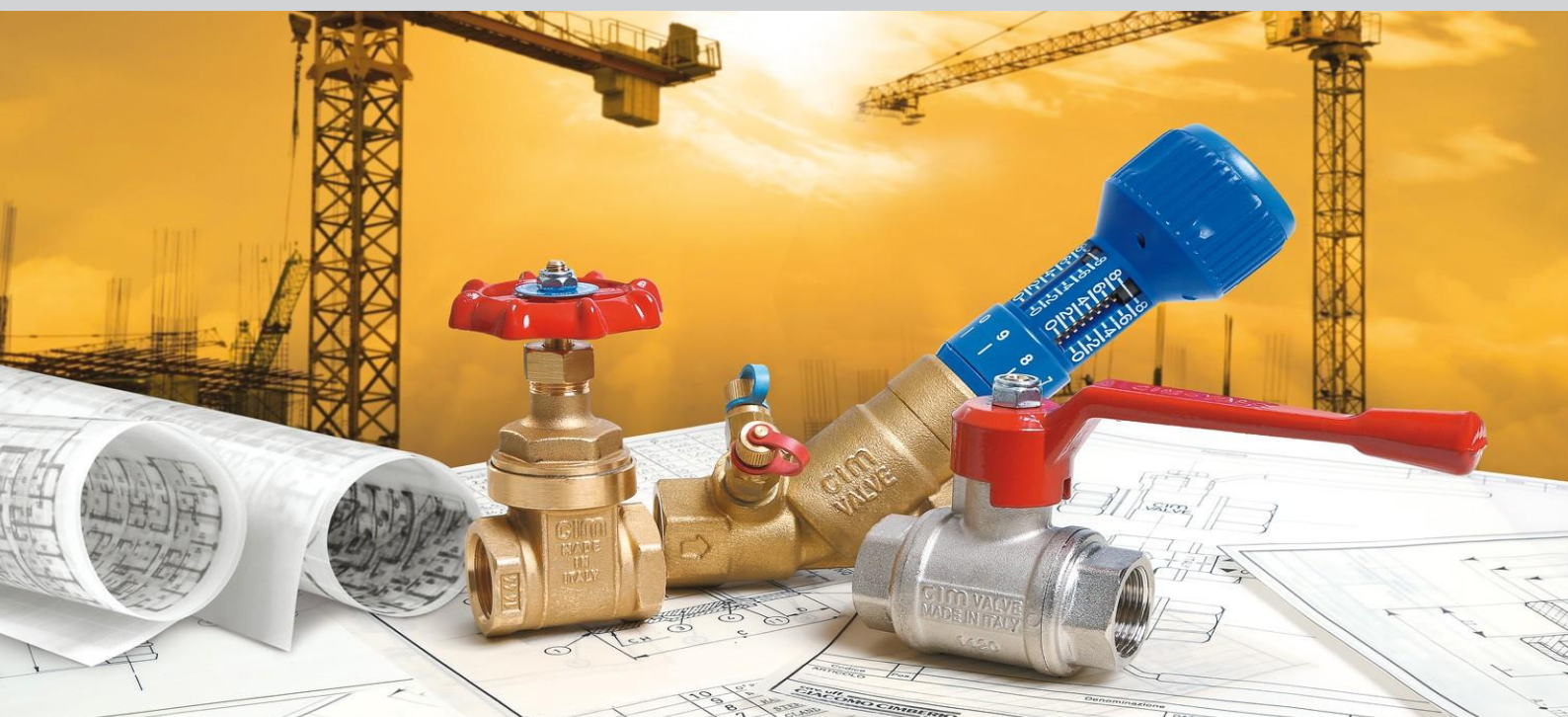
Registration number: S-P-02103

Issue date: 2020-04-29

Valid to: 2025-04-29

Revision date: 2021-04-20

Product-specific Type III EPD of Cimberio valves Cav. Uff. Giacomo Cimberio S.p.A.



General Information

Product

1 kg of valves for system plants of different sectors

Program holder

The Norwegian EPD Foundation
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Declaration number

NEPD-2147-970-EN

ECO Platform reference number

-

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+a2:2019 serves as core PCR
"Products and Services - Part B: Requirements on the EPD for
Bathroom fittings and showers" of Institut Bauen und Umwelt
e.V. (IBU)

Statements

The owner of the declaration shall be liable for the underlying
information and evidence.
EPD Norway shall not be liable with respect to manufacturer,
life cycle assessment data and evidences.

Declared unit

1 kg of valves (motorized valves excluded)

Declared unit with option

-

Functional unit

1 kg of valves (motorized valves excluded)

Verification

Independent verification of the declaration and data,
according to ISO14025:2010

☐ internal

☒ external

Third party verifier:



Ing. Vito D'Incognito – Take Care International
(Independent verifier approved by EPD Norway)

Owner of the declaration

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Manufacturer

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Place of production

Via Torchio, 57- C.P. 106 - 28017, San Maurizio d'Opaglio
(NO) - Italy

Management system

ISO 9001, ISO 14001, ISO 45001, ISO 50001, PAS 99,
SA 8000

Organization no:

VAT nr: IT 00122640030

Issue date

29.04.2020

Valid to

29.04.2025

Year of study

2018

Comparability

EPD of construction products may not be comparable if they
not comply with EN 15804 and seen in a plants context.

The EPD has been worked out by

Arch. Ph.D. Ganassali Sara (A2life)



Approved

Product

Product description

Different types of valves for system plants of different sectors. The process starts with the manufacturing of raw brass and bronze pieces for valves obtained from casting and hot-moulding (activities carried out by external subcontractors); then the pieces are mechanically worked and assembled with valves components (e.g. handles, gaskets, balls, fittings, etc.). Some pieces and valve components are coated with chrome and powder, according to the valve typologies in which they are used.

Declared unit refer to different numbers and types of valves; every valve typology contains valves with different dimensions and weights. However, the same manufacturing process and the similarities of valves allow a declared unit based on mass unit of products.

Motorized valves are excluded from this EPD.

Technical data

valves tested according to EN 12266-1 standard. Brass alloys used for valves comply with standard EN 12165. Brass alloys contains low percentage of lead (less than admitted by DM 174/2004).

Market

Italy, Norway, rest of World (mainly where manufacturer's branches are located)

Reference service life

average reference service life (RSL) of 12 years. The average RSL is the average value between valves warranty (5 years)

Product specification

Product specification per 1 kg of valves is given below.

Materials	kg	%
Brass	0,895	89,5
Aluminium	0,0450	4,50
Steel	0,0192	1,92
PTFE	0,00748	0,75
Bronze	0,00580	0,58
PA	0,00269	0,27
EPDM and NBR	0,00246	0,25
Other materials	0,0223	2,23

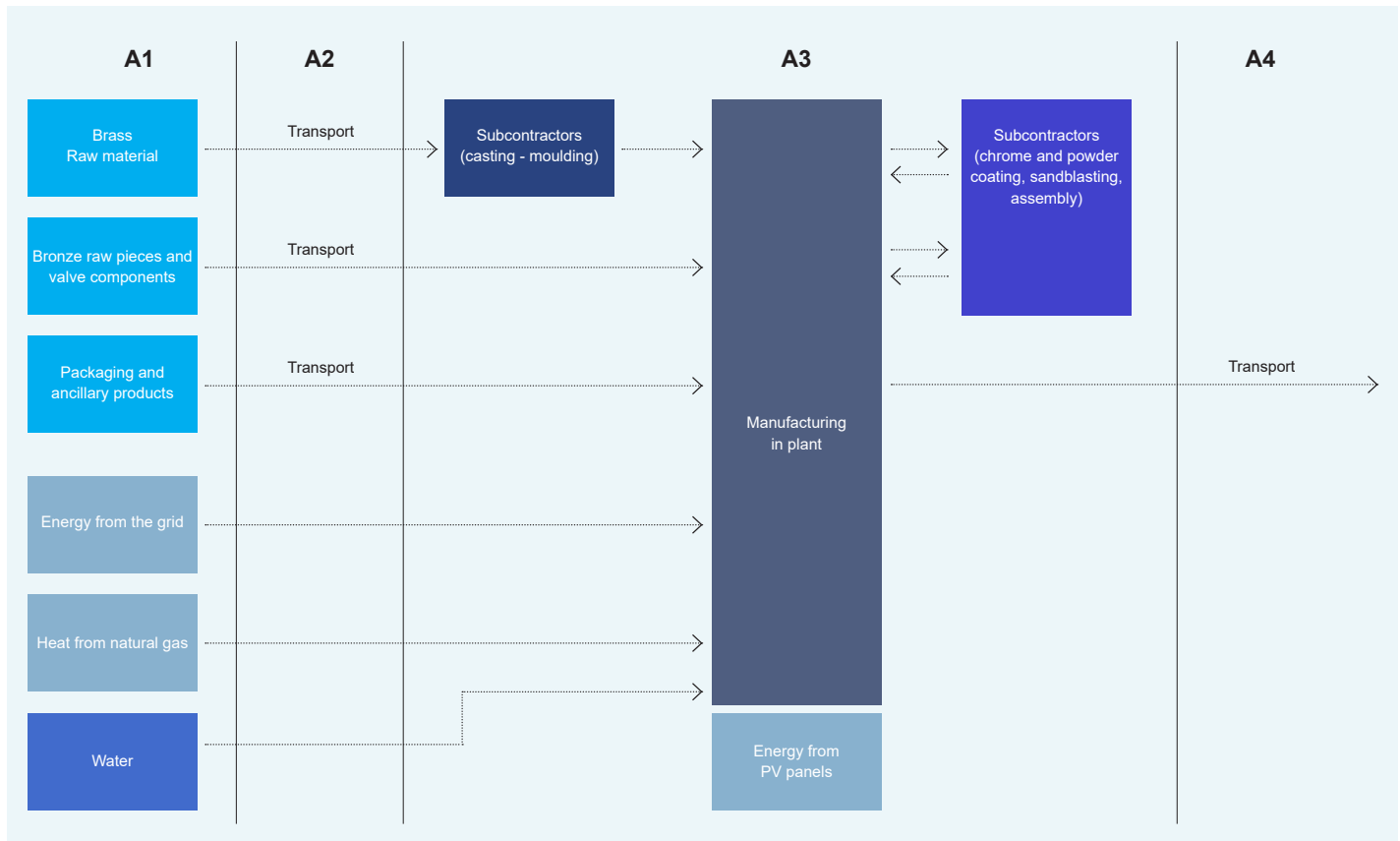
LCA: Calculation rules

Declared unit

1 kg of valves (motorized valves excluded)

Technical data

Cradle-to-gate system boundaries with transportation towards manufacturer's Norwegian warehouse. All processes from raw materials extraction (module A1) to transports (module A2) and production at the manufacturing site (module A3) are included in the analysis (Product stage, modules A1-3). Transport towards Norway is illustrated in module A4.



Data quality

General requirements and guidelines concerning use of generic and specific data and the quality of those are as described in EN 15804:2012 + A2:2019, clause 6.3.8. The data is representative according to temporal, geographical and technological requirements.

Temporal: data used in module A3 is provided by the manufacturer and refers to 2018 total use of materials and energy consumption for production of 1 kg of valves. Generic data and data gaps have been created and/or taken from Ecoinvent 3.6 in SimaPro software.

Geographical: the geographic region of the production sites for raw materials included in the calculation is Europe and rest of World (according to specific raw material); the geographic region of energy and water consumption used in manufacturing site is Europe and Italy.

Technological: data represents technology in use.

Allocation

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials allocated to the main product in which the material was used (the recycling process and transportation of the material is not considered in this analysis with cradle-to-gate boundaries).

Cut-off criteria

All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transportation toward Norwegian manufacturer's branch warehouse is described in the following Table.

Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Truck	92,5%	Lorry Truck 24 ton	2250	0,015 l/tkm	0,357 l/km

LCA: Results

The environmental impacts generated in the life cycle stages assessed within the system boundaries are calculated using the Simapro Software, version 9.0.0.49. Background data is from Simapro database (Ecoinvent 3.6). The impact assessment methodologies used are CML-IA Baseline (according to EN 15804:2012), EDIP 2003, Cumulative Energy Demand and AWARE (for water depletion).

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Environmental Impacts

Parameter	Unit	A1	A2	A3	A1-3	A4	
GWP	kg CO ₂ -eqv	6,39E+00	1,55E-02	7,64E-01	7,17E+00	3,65E-01	
ODP	kg CFC11-eqv	3,26E-05	3,01E-09	1,03E-07	3,27E-05	6,72E-08	
POCP	kg C ₂ H ₄ -eqv	7,75E-03	2,52E-06	2,89E-04	8,04E-03	5,45E-05	
AP	kg SO ₂ -eqv	1,91E-01	5,46E-05	6,86E-03	1,98E-01	8,61E-04	
EP	kg PO ₄ ³⁻ -eqv	1,24E-01	1,26E-05	1,26E-03	1,26E-01	1,93E-04	
ADPM	kg Sb-eqv	2,94E-03	2,79E-08	2,83E-06	2,94E-03	1,04E-06	
ADPE	MJ	6,95E+01	2,46E-01	9,66E+00	7,94E+01	5,50E+00	

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

Resource use

Parameter	Unit	A1	A2	A3	A1-3	A4	
RPEE	MJ	1,20E+01	2,72E-03	3,23E+00	1,52E+01	6,21E-02	
RPEM	MJ	-	-	-	-	-	
TPE	MJ	1,20E+01	2,72E-03	3,23E+00	1,52E+01	6,21E-02	
NRPE	MJ	9,67E+01	2,66E-01	1,23E+01	1,09E+02	5,94E+00	
NRPM	MJ	-	-	-	-	-	
TRPE	MJ	9,67E+01	2,66E-01	1,23E+01	1,09E+02	5,94E+00	
SM	kg	6,76E-01	-	-	6,76E-01	-	
RSF	MJ	-	-	-	-	-	
NRSF	MJ	-	-	-	-	-	
W	m ³	2,97E+00	1,47E-03	4,62E-01	3,43E+00	2,91E02	

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

End of life - Waste

Parameter	Unit	A1	A2	A3	A1-3	A4	
HW	kg	1,15E-03	1,37E-07	1,09E-02	1,21E-02	3,29E-06	
NHW	kg	1,26E+00	2,12E-02	1,10E-01	1,39E+00	2,68E-01	
RW	kg	2,67E-04	1,70E-06	3,70E-05	3,06E-04	3,79E-05	

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

End of life - Output flows

Parameter	Unit	A1	A2	A3	A1-3	A4	
CR	kg	-	-	-	-	-	
MR	kg	3,76E-02	-	5,44E-01	5,82E-01	-	
MER	kg	-	-	-	-	-	
EEE	MJ	-	-	5,58E-02	5,58E-02	-	
ETE	MJ	-	-	-	-	-	

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009

Additional Norwegian requirements

Greenhous gas emission from the use of electricity in the manufacturing phase

National production mix from import, low woltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing proses (A3).

Data source	Amount	Unit
Ecoinvent 3.6 (April 2020)	0,364	kgCO ₂ -eqv/kWh

Dangerous substances

- The product contains no substances given by the REACH Candidate list or the Norwegian priority list
- ☐ The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- ☒ The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- ☐ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforsiften, Annex III), see table.

Name	CAS no.	Amount
Lead	7439-92-1	0,1% - 2,4% (in brass alloys)

Indoor environment

The product meets the requirements for low emissions according to EN15251: 2007 Appendix E.

No tests have been carried out on the product concerning indoor climate - Not relevant

Carbon footprint





Carbon footprint has not been worked out for the product

Bibliography

ISO 14025:2010	<i>Environmental labels and declarations - Type III environmental declarations - Principles and procedures</i>
ISO 14044:2006	<i>Environmental management - Life cycle assessment - Requirements and guidelines</i>
EN 15804:2012+A2:2019	<i>Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products</i>
PCR	<i>Product Category Rules "Products and Services - Part B: Requirements on the EPD for Bathroom fittings and showers".</i>
LCI Report	<i>Cimberio LCI / LCA Report – A2life</i>
Ecoinvent center	<i>Ecoinvent v. 3.6</i>

Differences versus previous versions

Revision 2021-04-20: Changed title from "Generic EPD of valves" to "Product-specific Type III EPD of Cimberio valves"

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