

ENVIRONMENTAL PRODUCT DECLARATION



In accordance with
EN 15804+A2
& ISO 14025 / ISO 21930

Service connection valve, brass

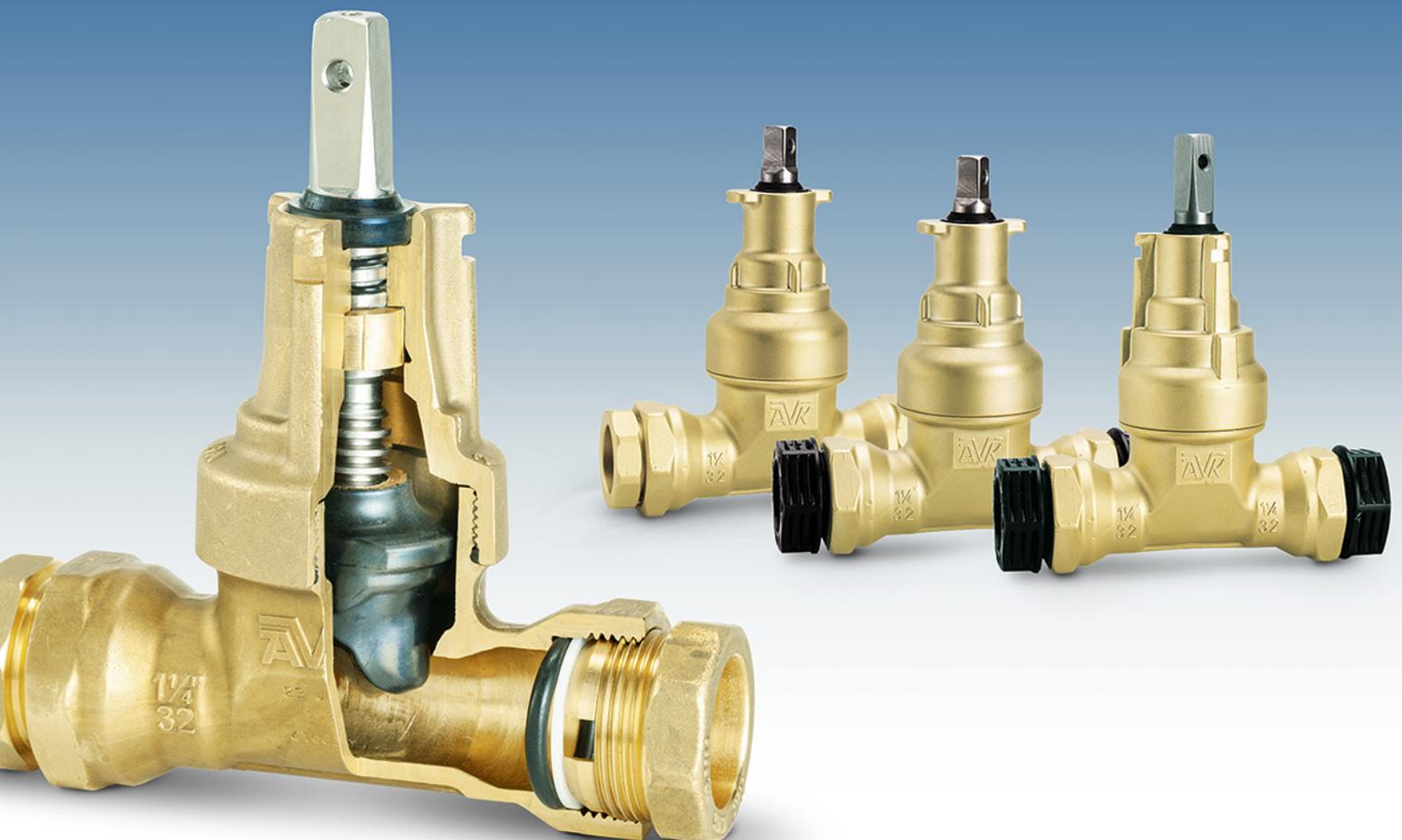
AVK International A/S

EPD HUB, HUB-2963

Published on 03.03.2025, last updated on 03.03 2025, valid 03.02.2030.



Created with One Click LCA



GENERAL INFORMATION

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

ABOUT THE MANUFACTURER

AVK International A/S is part of the AVK Group, a privately owned Danish company employing +5,300 people worldwide. At AVK International A/S, we manufacture valves and accessories, and thanks to additional product types from other AVK factories, we are able to offer a very wide selection of high-quality products.

AVK is certified according to the internationally accepted ISO 14001 and ISO 50001 standards, which provide a foundation for eco-management and energy management, as well as to the ISO 9001, ISO 29001 and ISO 45001 standards.

MANUFACTURER	
Manufacturer	AVK International A/S
Address	Smedeskovej 40, 8464 Galten, Denmark
Contact details	julvib@avk.dk
Website	www.avkvalves.eu

EPD STANDARDS, SCOPE AND VERIFICATION	
Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Julie Vibe, AVK International A/S
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Magaly Gonzalez Vazquez, as an authorized verifier acting for EPD Hub Limited

PRODUCT	
Product name	Service connection valve, brass
Additional labels	Series 16
Product reference	See annex
Place of production	Galten, Denmark
Period for data	01/10/2022 - 30/09/2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	+0,81%/-1,84%

ENVIRONMENTAL DATA SUMMARY	
Declared unit	1 kg of brass service connection valve
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	8,68E+00
GWP-total, A1-A3 (kgCO ₂ e)	8,61E+00
Secondary material, inputs (%)	37.2
Secondary material, outputs (%)	43.8
Total energy use, A1-A3 (kWh)	39.5
Net freshwater use, A1-A3 (m ³)	0.21

PRODUCT AND MANUFACTURER

PRODUCT DESCRIPTION

AVK International's brass service connection valves are designed for underground installation, with their primary function being the facilitation of the distribution of drinking water. The valves are part of the intermediate distribution system utilized in combination with the piping system. The valves within this study do not embody any motorized or electric components. AVK International's valves require no maintenance or inspection once installed and are only assumed to need repair/replacement if exterior damage is inflicted upon them.

The EPD is an average EPD covering the brass valves in series 16. The EPD was generated using a representative product as the averaging method. The results of the EPD are calculated based on data for the variant 16/05-010 DN32, as this was determined to be the most representative variant.

Further information can be found at www.avkvalves.eu.

PRODUCT RAW MATERIAL MAIN COMPOSITION		
Raw material category	Amount, mass %	Material origin
Metals	97	ROW
Minerals	-	-
Fossil materials	3	EU
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate	
Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0.023

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of brass service connection valve
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN VP-027-C

Substances of very high concern	EC	CAS
Brass: lead (Pb)	231-100-4	7439-92-1



PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
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	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The service connection valve is composed of primarily brass along with components of steel, rubber and plastic. The body, bonnet and wedge made of brass are casted and sourced from European suppliers. The steel is received as rods and processed into the stem component. Smaller brass components are manufactured and processed on site from brass rods. Steel and brass raw materials are sourced from Asia and Europe. Rubber and plastic components are sourced and received as finished components and assembled into the valve. Rubber and plastic parts are moulded and sourced primarily from local suppliers.

The A2 transport of the A1 materials is based on actual distances between the supplier and AVK International A/S.

The assembled valve consists of the following components:

- Brass body and bonnet
- Stainless steel stem
- Brass and rubber wedge
- Brass thrust collar
- Rubber seals and rings
- POM or brass coupling

Following the assembly of the valve, the valve is pressure tested and packaged. The manufacturing process requires electricity and fuels for the different equipment as well as natural gas for heating. Ancillary materials used for manufacturing includes mineral oils and tap water. Production losses have been estimated from production waste accounts. All production waste is sent directly to recycling facilities. The wastewater treatment is also considered. A wooden pallet, fiberboard and cardboard are used as a packaging material for transporting the product from the factory gate.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

An average sales weighted distance for the transportation has been calculated based on sales data with location, transport mode and mass. Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. To be conservative, empty returns are included in this study as implemented through an average load factor in the Ecoinvent transport datapoints. Transportation does not cause losses as product is packaged properly.

Environmental impacts from installation into the building include generation of waste packaging materials (A5) and release of biogenic carbon dioxide from wood pallets. The impacts of material production, its processing

and disposal as installation waste are also included. Installation is carried out underground at an installation depth of 1,2 m and requires excavation. The excavation activity has been calculated based on estimated volume of the valve and the required installation depth.

PRODUCT USE AND MAINTENANCE (B1-B7)

The use phase is not relevant for the life cycle emissions of this product and is therefore not accounted into the assessment. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

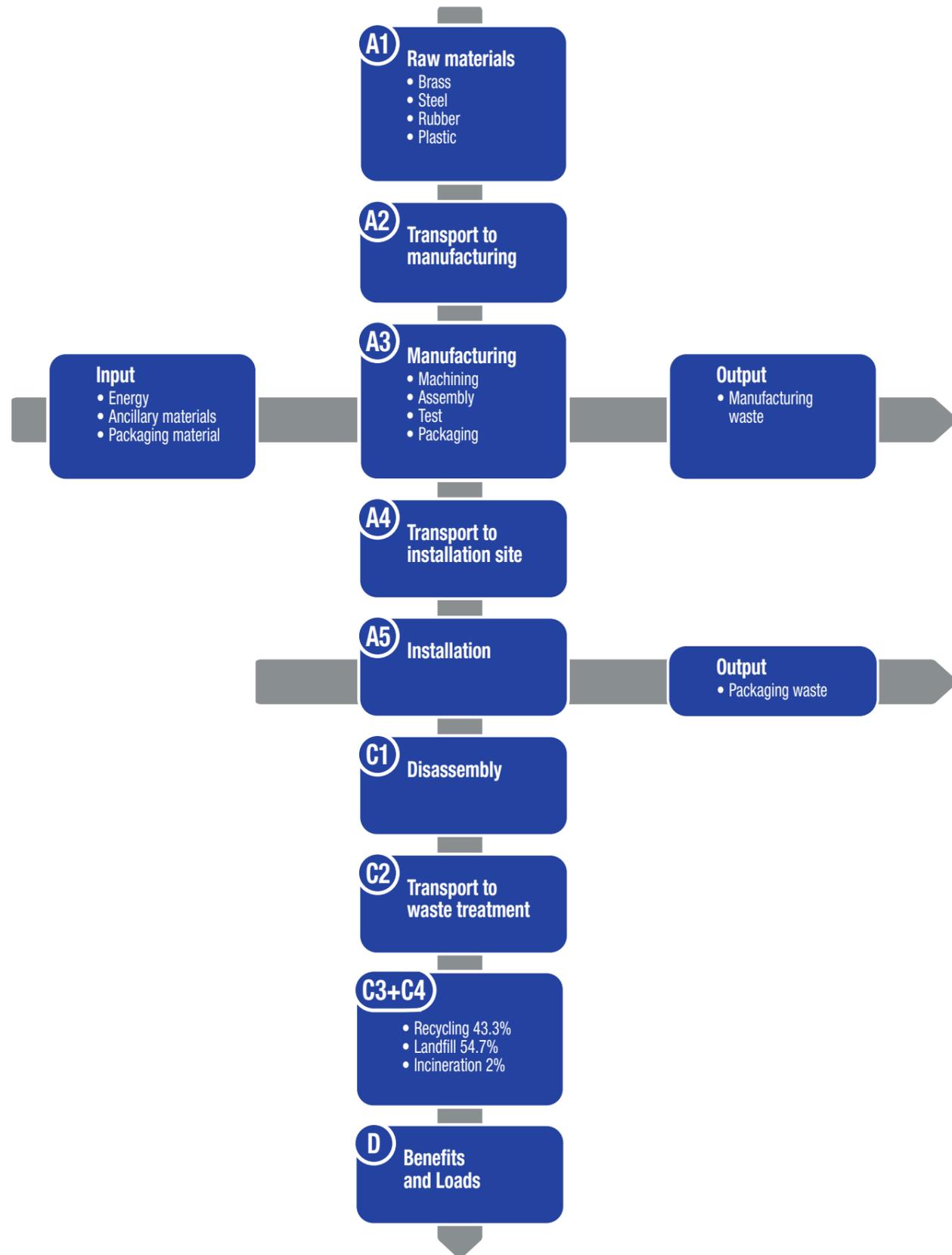
The deconstruction of the valve is expected to mirror the installation (A5). The deconstruction is assumed to be carried out by professionals and the valve is sent to a waste handling site intact, where the disassembly and sorting of materials is carried out. The end-of-life product is assumed to be sent to the closest facilities by lorry and is assumed to be 50 km away (C2). Of the end-of-life product, 43.7% is sent to recycling and 1.9% to incineration facilities (C3). 54.4% of the end-of-life product goes to landfill (C4).

Due to the recycling and incineration potential of metals, plastics and rubber, parts of the end-of-life product is converted into recycled materials, while energy and heat is produced from material incineration (D). The benefits and loads of waste packaging materials in A5 are also considered in module D.



MANUFACTURING PROCESS

Life cycle stages



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

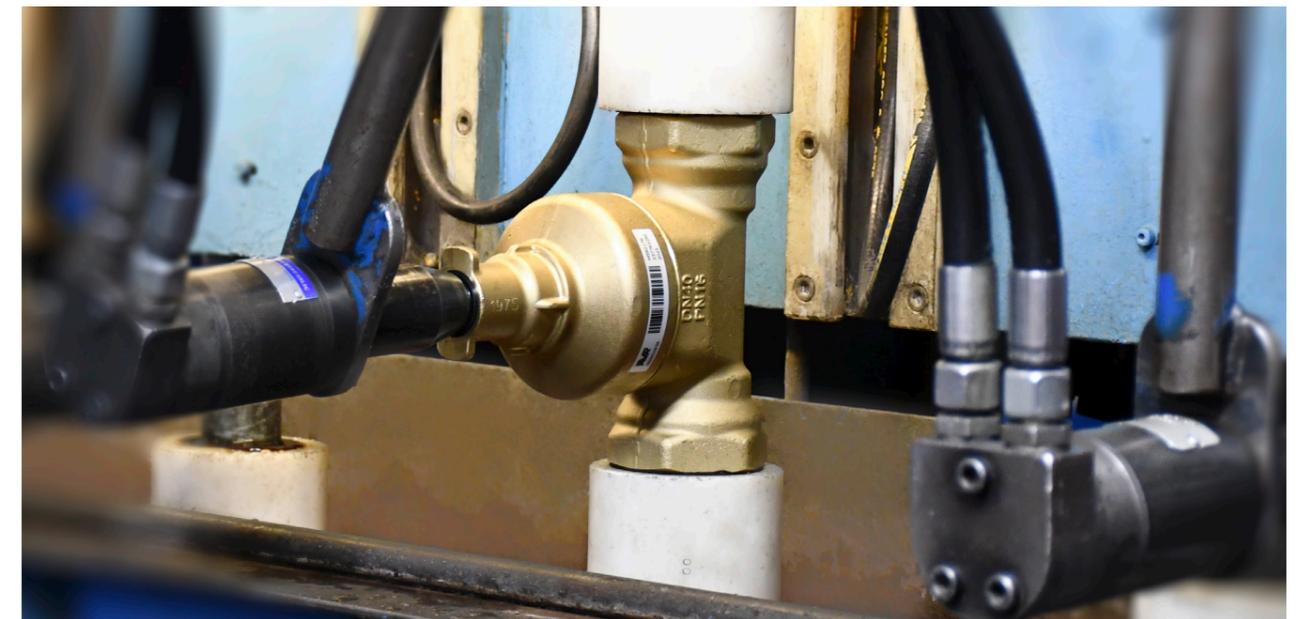
DATA TYPE	ALLOCATION
Raw materials	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY	
Type of average	Multiple products
Averaging method	Representative product
Variation in GWP-fossil for A1-A3	+0,81%/-1,84%

Among the products declared in this EPD, the Service Connection Valve 16/05-010 DN32 has been used as the representative valve. From calculation it was concluded that this valve had the most average weighted distribution of materials and was consequently chosen as the most representative valve. Primary data represents the manufacturing of the 16/05-010 DN32 valve. The data was used to calculate representative impacts for the range of products declared. The valve connection varies in type and materials, but the manufacturing process and the overall material distribution is similar for all included product variants. The variability of the primary data or the emissions between the products did not amount to more than +0.81%/-1.84% of the relevant data.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1 and One Click LCA databases as sources of environmental data.



ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	8,27E+00	1,44E-01	1,89E-01	8,61E+00	2,55E-02	9,03E-02	MND	5,38E-03	9,67E-03	7,09E-02	3,54E-03	-1,86E+00						
GWP – fossil	kg CO ₂ e	8,26E+00	1,44E-01	2,73E-01	8,68E+00	2,55E-02	6,22E-03	MND	5,38E-03	9,67E-03	7,09E-02	3,54E-03	-1,85E+00						
GWP – biogenic	kg CO ₂ e	0,00E+00	0,00E+00	-8,41E-02	-8,41E-02	0,00E+00	8,41E-02	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00						
GWP – LULUC	kg CO ₂ e	1,57E-02	6,27E-05	4,60E-04	1,62E-02	1,26E-05	1,27E-06	MND	7,14E-07	3,42E-06	1,32E-05	1,95E-06	-4,37E-03						
Ozone depletion pot.	kg CFC ₋₁₁ e	9,02E-08	2,61E-09	8,25E-09	1,01E-07	4,17E-10	9,32E-11	MND	7,71E-11	1,92E-10	1,51E-10	9,87E-11	-1,97E-08						
Acidification potential	mol H ⁺ e	4,78E-01	5,35E-04	8,23E-04	4,79E-01	5,36E-04	5,31E-05	MND	4,77E-05	3,02E-05	1,27E-04	2,42E-05	-1,44E-01						
EP-freshwater ²⁾	kg Pe	4,35E-02	1,06E-05	1,21E-04	4,36E-02	1,10E-06	5,92E-07	MND	2,27E-07	6,41E-07	6,58E-06	2,81E-07	-1,14E-02						
EP-marine	kg Ne	2,60E-02	1,36E-04	1,63E-04	2,63E-02	1,34E-04	3,13E-05	MND	2,19E-05	1,02E-05	3,10E-05	1,25E-05	-7,35E-03						
EP-terrestrial	mol Ne	3,50E-01	1,49E-03	1,48E-03	3,53E-01	1,48E-03	2,63E-04	MND	2,40E-04	1,11E-04	3,37E-04	1,01E-04	-1,03E-01						
POCP ("smog") ³⁾	kg NMVOCe	9,96E-02	6,93E-04	6,68E-04	1,01E-01	4,20E-04	7,91E-05	MND	7,13E-05	4,74E-05	9,83E-05	3,61E-05	-2,87E-02						
ADP-minerals & metals ⁴⁾	kg Sbe	6,44E-03	4,02E-07	1,83E-06	6,44E-03	3,96E-08	4,54E-09	MND	2,48E-09	3,16E-08	7,00E-07	5,43E-09	-2,01E-03						
ADP-fossil resources	MJ	1,08E+02	2,15E+00	5,13E+00	1,16E+02	3,33E-01	8,36E-02	MND	7,02E-02	1,36E-01	1,43E-01	8,36E-02	-2,44E+01						
Water use ⁵⁾	m ³ e depr.	6,34E+00	1,06E-02	8,67E-02	6,44E+00	1,20E-03	8,95E-04	MND	2,45E-04	6,67E-04	5,72E-03	2,42E-04	-1,63E+00						

1) GWP = Global Warming Potential;

2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3.07 to get PO4e;

3) POCP = Photochemical ozone formation;

4) ADP = Abiotic depletion potential;

5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional

indicators except Particulate matter and Ionizing radiation, human health.

The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1,18E-06	1,36E-08	4,22E-09	1,20E-06	1,29E-09	1,44E-09	MND	1,34E-09	7,61E-10	1,69E-09	5,50E-10	-3,09E-07						
Ionizing radiation ⁶⁾	kBq U235e	1,07E+00	2,15E-03	7,57E-02	1,15E+00	2,39E-04	1,24E-04	MND	3,97E-05	1,73E-04	1,14E-03	5,27E-05	-2,55E-01						
Ecotoxicity (freshwater)	CTUe	6,45E+02	2,74E-01	5,50E-01	6,46E+02	2,98E-02	7,98E-03	MND	4,56E-03	1,78E-02	1,82E-01	1,25E-02	-2,02E+02						
Human toxicity, cancer	CTUh	5,32E-08	2,43E-11	1,02E-10	5,33E-08	5,04E-12	1,23E-12	MND	7,31E-13	1,65E-12	1,07E-11	6,43E-13	-1,54E-08						
Human tox. non-cancer	CTUh	5,01E-06	1,35E-09	2,47E-09	5,01E-06	1,29E-10	4,42E-11	MND	1,05E-11	8,53E-11	6,38E-10	1,79E-11	-1,50E-06						
SQP ⁷⁾	-	1,66E+02	2,08E+00	4,55E+00	1,72E+02	1,36E-01	2,23E-02	MND	5,33E-03	8,10E-02	2,64E-01	1,65E-01	-4,90E+01						

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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;

7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	2,66E+01	3,14E-02	9,98E-01	2,77E+01	3,57E-03	-6,31E-01	MND	6,07E-04	2,35E-03	2,52E-02	8,10E-04	-7,60E+00						
Renew. PER as material	MJ	0,00E+00	0,00E+00	5,13E-01	5,13E-01	0,00E+00	-5,13E-01	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00						
Total use of renew. PER	MJ	2,66E+01	3,14E-02	1,51E+00	2,82E+01	3,57E-03	-1,14E+00	MND	6,07E-04	2,35E-03	2,52E-02	8,10E-04	-7,60E+00						
Non-re. PER as energy	MJ	1,08E+02	2,15E+00	4,98E+00	1,15E+02	3,33E-01	8,36E-02	MND	7,02E-02	1,36E-01	-6,76E-01	2,54E-02	-2,45E+01						
Non-re. PER as material	MJ	8,24E-01	0,00E+00	2,70E-02	8,51E-01	0,00E+00	-2,70E-02	MND	0,00E+00	0,00E+00	-7,54E-01	-6,98E-02	0,00E+00						
Total use of non-re. PER	MJ	1,08E+02	2,15E+00	5,01E+00	1,15E+02	3,33E-01	5,66E-02	MND	7,02E-02	1,36E-01	-1,43E+00	-4,43E-02	-2,45E+01						
Secondary materials	kg	3,72E-01	9,24E-04	2,91E-03	3,75E-01	1,54E-04	6,05E-05	MND	5,03E-05	6,22E-05	1,88E-04	2,11E-05	2,29E-01						
Renew. secondary fuels	MJ	3,43E-03	1,13E-05	1,39E-02	1,73E-02	8,66E-07	1,51E-07	MND	8,35E-08	7,85E-07	7,88E-06	4,36E-07	-6,76E-04						
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00						
Use of net fresh water	m ³	2,10E-01	3,13E-04	2,69E-03	2,13E-01	3,20E-05	-8,12E-05	MND	6,02E-06	1,83E-05	1,31E-04	8,06E-05	-7,25E-02						

8) PER = Primary energy resources.

ENVIRONMENTAL IMPACT DATA

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	2,89E+00	3,36E-03	7,95E-03	2,90E+00	4,56E-04	2,25E-04	MND	1,25E-04	1,95E-04	2,19E-03	9,26E-05	-8,77E-01						
Non-hazardous waste	kg	1,56E+02	6,37E-02	9,26E-01	1,57E+02	7,26E-03	1,39E-01	MND	1,62E-03	4,11E-03	5,45E-02	1,01E-02	-3,66E+01						
Radioactive waste	kg	2,82E-04	5,36E-07	1,96E-05	3,02E-04	5,94E-08	3,13E-08	MND	9,88E-09	4,33E-08	2,93E-07	1,30E-08	-6,74E-05						

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00						
Materials for recycling	kg	0,00E+00	0,00E+00	3,51E-01	3,51E-01	0,00E+00	1,65E-02	MND	0,00E+00	0,00E+00	4,38E-01	0,00E+00	0,00E+00						
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,61E-02	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00						
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,84E-01	MND	0,00E+00	0,00E+00	3,95E-01	0,00E+00	0,00E+00						

ENVIRONMENTAL IMPACTS – EN 15804+A1. CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	8,29E+00	1,43E-01	2,72E-01	8,70E+00	2,53E-02	7,44E-03	MND	5,35E-03	9,61E-03	7,09E-02	3,50E-03	-1,85E+00						
Ozone depletion Pot.	kg CFC ₁₁ e	7,56E-08	2,08E-09	6,73E-09	8,44E-08	3,31E-10	7,41E-11	MND	6,12E-11	1,53E-10	1,26E-10	7,83E-11	-1,65E-08						
Acidification	kg SO ₂ e	4,19E-01	4,26E-04	6,88E-04	4,20E-01	4,28E-04	3,76E-05	MND	3,36E-05	2,30E-05	1,02E-04	1,79E-05	-1,27E-01						
Eutrophication	kg PO ₄ ³⁻ e	2,17E-02	8,28E-05	4,61E-04	2,22E-02	4,90E-05	9,38E-06	MND	7,80E-06	5,84E-06	1,59E-05	5,82E-06	-5,85E-03						
POCP ("smog")	kg C ₂ H ₄ e	1,77E-02	3,42E-05	5,43E-05	1,78E-02	2,20E-05	3,14E-06	MND	2,54E-06	2,19E-06	6,18E-06	1,71E-06	-5,25E-03						
ADP-elements	kg Sbe	6,43E-03	3,92E-07	1,82E-06	6,44E-03	3,89E-08	4,35E-09	MND	2,41E-09	3,09E-08	6,96E-07	5,32E-09	-2,01E-03						
ADP-fossil	MJ	9,17E+01	2,11E+00	3,80E+00	9,76E+01	3,30E-01	8,15E-02	MND	6,96E-02	1,33E-01	1,23E-01	8,28E-02	-2,06E+01						

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	8,27E+00	1,44E-01	2,73E-01	8,69E+00	2,55E-02	6,22E-03	MND	5,38E-03	9,67E-03	7,09E-02	3,54E-03	-1,86E+00						

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO₂ is set to zero.



VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter?
Read more online

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

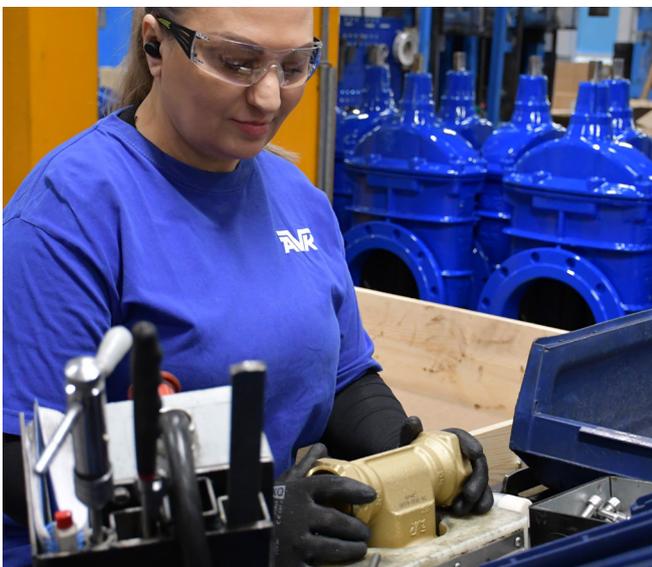
I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Magaly Gonzalez Vazquez, as an authorized verifier acting for EPD Hub Limited



ANNEX



INCLUDED VALVE VARIANTS

- 16/00-010
- 16/02-001
- 16/05-010
- 16/05-015
- 16/20-010
- 16/20-015
- 16/21-010
- 16/25-010
- 16/25-015
- 16/26-010
- 16/30