

# Environmental Product Declaration

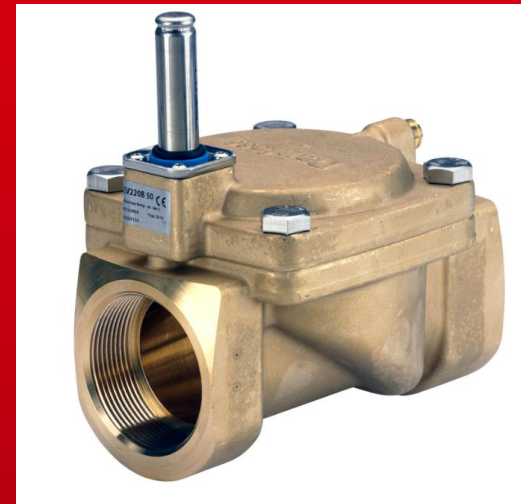


## Solenoid Valve EV220BW / EV228BW 15-50 made from Eco-Brass

<b>EPD owner</b>	Danfoss A/S
<b>EPD registration number</b>	EPD-IES-0031619:001
<b>Programme</b>	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
<b>Programme operator</b>	EDP International AB
<b>EPD Type</b>	Cradle to gate with options, modules A4-A5, module B6, modules C1-C4, and module D, EPD for multiple products based on worse case results
<b>Version date</b>	2026-05-08
<b>Validity date</b>	2031-05-08

Environmental Product Declaration in accordance with EN 15804:2012+A2:2019/AC:2021 and ISO 14025:2006

*An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see [www.environdec.com](http://www.environdec.com)*



# General information

<b>EPD author</b>	Danfoss organization
<b>Declared unit</b>	One product over its Reference Service Life
<b>Product included</b>	Solenoid Valve 132U2410 with Solenoid Coil 018F7397
<b>Product covered by the EPD</b>	List of products covered located in annex
<b>Manufacturing Location</b>	Grodzisk, Poland
<b>Use Location</b>	Europe
<b>Application</b>	Water applications, heating installations and others such as indirect cooling, steam and laundry
<b>Mass</b>	4,704 kg valve and coil without packaging 5,120 kg valve and coil with packaging
<b>Dimensions (H×W×D)</b>	172 x 162 x 113 mm
<b>Verification</b>	[X] External [ ] Internal [ ] None
<b>Produced to</b>	PCR 2019:14 version 2.0.1
<b>External verifier</b>	Bureau Veritas Certification Sweden, accredited by SWEDAC accr. No. 1236

## Programme information

<b>Programme</b>	The International EPD® System
<b>Address</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>E-mail</b>	support@environdec.com



# General information

## Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR): Construction products PCR 2019:14 v. 2.0.1, CPC code: 439

PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Rob Rouwette, Greendesk (on behalf of EPD International AB). Contact via support@environdec.com

## Verification

External and independent ('third-party') verification of the declaration and data, according to ISO 14025:2006, via:

✓ EPD verification through an EPD process certification without a pre-verified LCA/EPD tool

Third-party verifier Bureau Veritas Certification Sweden

Accredited by SWEDAC with accreditation number 1236

\*EPD Process Certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on [www.environdec.com](http://www.environdec.com). International EPD System

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

## Ownership and limitations on use of the EPD

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison

The EPD owner has the sole ownership, liability, and responsibility for the EPD.





# Company Information

## EPD owner information

EPD owner	Danfoss A/S
Address	Nordborgvej 81 6430 Nordborg Denmark
E-mail	epd_danfoss@danfoss.com

Danfoss is empowering its customers to make decisions in favor of decarbonization by providing an EPD on its products

By providing transparency in our products, Environmental Product Declarations support data driven decision-making for customers wishing to drive the green transition. Compliant with wide-reaching regulations, EPDs support the credibility of our products footprint through verification.

## Find more on our annual report:

[Danfoss annual report 2025](#) | [Download the latest annual report](#) | [Danfoss](#)

# Product information

The reference product used for this EPD is representative of **Solenoid Valve 132U2410 with Solenoid Coil 018F7397** presented in annex of this EPD. The reference product was chosen based on highest weight and power consumption. The production location is the Danfoss plant in **Grodzisk, Poland**. See more information about the solenoid valve(132U2410) on the [Danfoss Product Store](#) and the solenoid coil(018F7397) on [Danfoss Product Store](#).

Danfoss direct servo-operated solenoid valves are an easy way to control and shut off fluids in fluctuating pressure conditions. The valve type is designed with EPDM seals in, lead-free dezincification resistant Eco-Brass for drinking water applications such as water supply / main inlet shut-off in housing and industrial applications.

## Product information

**UNCPC code** 439

The product does not contain any substances from the Candidate List of Substances of Very High Concern for Authorisation of the European Union's REACH Regulation (EC 1907/2006) above the threshold of 0.1% weight/weight.

This Environmental Product Declaration (EPD) follows the PCR 2.0.1 Construction products. These rules provide a consistent framework for calculating and reporting the environmental performance of Danfoss' product and is aligned with relevant standards, particularly ISO 14025:2006, EN 15804+A2: 2019 and EN 50598-3:2015.

This document has been produced by Danfoss A/S and an external third-party verification is conducted.



Figure 1: Solenoid Valve 132U2410 with Solenoid Coil 018F7397

# Content declaration

Table 1: Product composition

Material	Mass (kg)	%	Post-consumer scrap (%)
<b>Metals</b>	<b>4.6E+00</b>	97.7%	<b>0%</b>
Steel (excl. stainless steel)	1.0E-01	2.0%	0%
Stainless steel	3.0E-01	6.3%	0%
Copper and its alloys (Brass)	4.2E+00	89.1%	0%
<b>Plastics &amp; Rubbers</b>	<b>1.1E-01</b>	2.36%	0%
Plastic with no GF	2.0E-02	0.3%	<b>0%</b>
Plastic with GF	9.0E-02	1.9%	0%
Rubbers	0.0E+00	0.1%	0%
<b>Natural materials</b>	<b>3.9E-03</b>	0.1%	<b>0%</b>
Paper and cardboard	3.9E-03	0.1%	0%
Magnet NdFeB	2.5E-03	0.1%	0%
<b>Total product</b>	<b>4.7E+00</b>	100.0%	<b>0%</b>

Table 2: Packaging composition

Material	Mass (kg)	Mass versus product (%)
Paper and cardboard	4.1E-01	8.7%
Polyethylene	1.0E-02	0.2%
<b>Packaging Total</b>	<b>4.2E-01</b>	8.9%
<b>Total (Product + Packaging)</b>	<b>5.1E+00</b>	

Figure 2: Product material composition overview

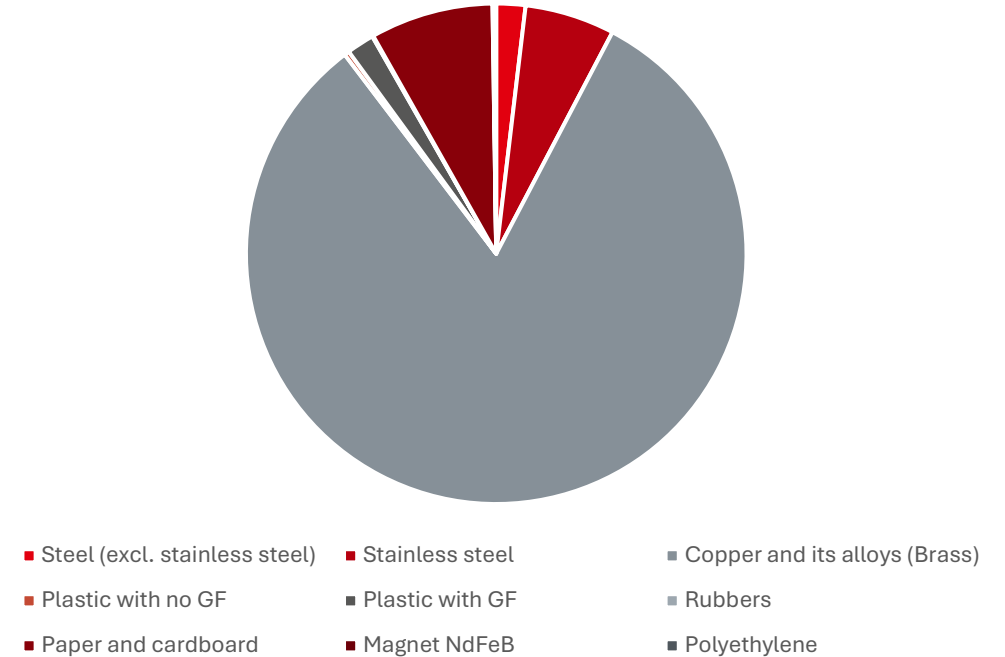


Table 3: Biogenic and recycled content overview

<b>Biogenic content in the product [kg]</b>	<b>0</b>
<b>Biogenic content in the packaging [kg]</b>	<b>1.8E-01</b>

# LCA Information

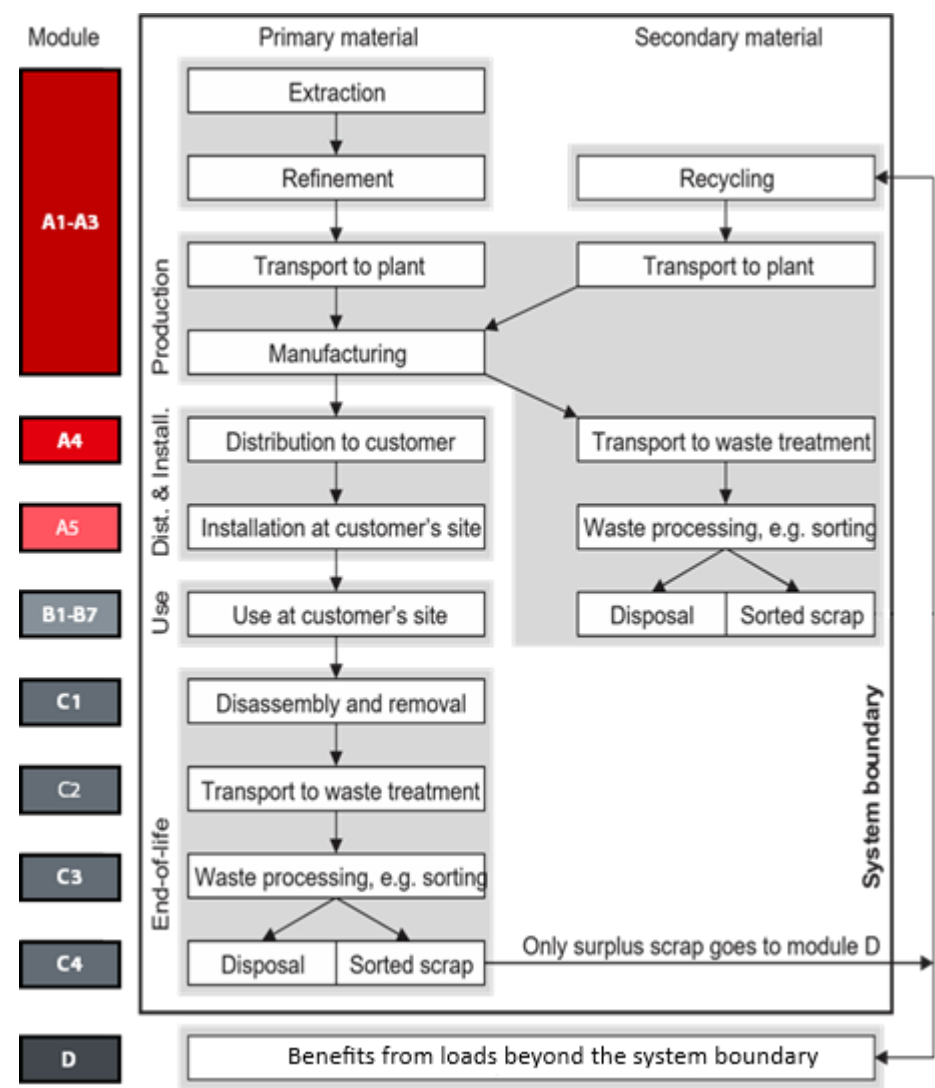
An EPD is a document used to communicate transparently, the quantified environmental impacts of a product over its lifecycle stages. This quantification is done by performing a Life Cycle Assessment (LCA) in line with a consistent set of rules known as a PCR (Product Category Rules).

This EPD is of the type 'cradle-to-gate with options' and includes all relevant modules: production (A1-A3), shipping (A4) and installation (A5); operational energy use (B6); deconstruction (C1), waste collection and transport (C2), treatment (C3) and disposal (C4). It also includes potential net benefits to future products from recycling or reusing post-consumer waste (D). The codes in brackets are the module labels from EN 15804+A2. Modules concerning use, maintenance, repair, replacement, refurbishment (B1-B5) and operational water use (B7) are excluded, following the cut-off rules from EN 15804.

Table 4: Module of the product's life cycle included in the EPD

	Production stage		Installation		Use stage							End-of-life-stage				Benefits	
	Raw materials	Transport	Manufacture	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Optional energy use	Optional water use	De-installation	Transport	Waste processing	Disposal	Benefits and loads outside system boundaries
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Module declared	X	X	X	X	X	X	ND	ND	ND	ND	X	ND	X	X	X	X	X
Geography	EU-27	EU-27	PL	EU-27	EU-27	EU-27	-	-	-	-	EU-27	-	EU-27	EU-27	EU-27	EU-27	EU-27
Primary data used	8.55%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation products	80%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation sites	0 %		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Figure 3: Modular structure used in this EPD (EN15804+A2)



# LCA Information

## Product and packaging (A1-A3)

Final manufacturing occurs in the Grodzisk plant, Poland. The facility is certified according to IATF 16949 compliant, ISO 14001, ISO 9001, PED/PESR, UL & MID Where waste generated on-site is recyclable, it is separated and recycled. For further information, see here. The product is shipped in the packaging. All packaging materials can be safely recycled or incinerated if appropriate local facilities are available. The on-site data was gathered for 2024. The site uses PV electricity with a GWPT 2,73E-02 kgCO<sub>2</sub>eq/kWh

## Shipping and installation (A4-A5)

Distribution is assumed to occur to customers within central Europe, Stuttgart. Transportation at 1140 km distance by truck is assumed between the factory Poland Grodzisk and the final customer.

Module A5 includes disposal of packaging materials only. The product is assumed to be installed by hand. Energy use in handheld tools during installation is not included as it falls under the cut-off criteria.

Table 5: Overview of LCA study

Assumptions	
<b>Reference service life</b>	10 years
<b>Intended market</b>	EU-27 – The baseline scenario involves the distribution, installation, and end-of-life in Europe
<b>Use-phase</b>	One average EU-27 factor has been applied, representing a conservative scenario as the grid will decarbonize over time
<b>Use of Proxy and supplier specific data</b>	No supplier specific data was used. Due to lack of datasets in the Lca software used, proxy data
Data	
<b>Data</b>	LCA for Experts (Sphera) database version 2025.2.
<b>Data quality</b>	A data quality assessment that complies with EN 15941 and EN15804 annex E, was performed and reported in the LCA report per dataset. Data quality of the selected datasets is generally assessed as good and very good in terms of geographical, time and technology representativeness and applicability. The data was collected for a period from January to December 2024.
<b>Allocation and cut-off criteria</b>	The allocation is done in accordance with EN 15804+A2. All major raw materials and essential energy are included. All hazardous materials and substances are considered in the inventory. Data sets within the system boundary are complete and fulfil the criteria for the exclusion of inputs and output criteria.

# LCA Information

Table 6: Share of primary data, of GWP-GHG in A1-A3

Process	Source type	Source	Reference year	Data category	Primary data share (%)
Generation of electricity used in manufacturing of product	Database	Sphera my professional database 2025.2	2024	Primary data	<b>0,05%</b>
Transport of raw materials to manufacturing site	Database	Sphera my professional database 2025.2	2024	Primary data	<b>8,50%</b>
Other	Database	Sphera my professional database 2025.2	2024	Secondary data	<b>0%</b>
<b>Total share of primary data, of GWP-GHG results for A1-A3</b>					<b>8,55%</b>

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

# LCA Information

## Use phase (B1-B7)

The use phase is bound on the application and customer usage; therefore, three duty rates have been defined (0,1%, 1% & 10%) and the overall consumption over its lifetime of 10 years. The results in this EPD express duty rate of 10%. This range of duty rates (0,1%, 1% & 10%) is typical for leak detection, shut-off, heating installations, water inlet, steam, and laundry amongst other applications.

For the purpose of this assessment, use within Europe is assumed and an average EU-27 CO<sub>2</sub> factor from LCA for Experts database (2025.2) is applied. Sales also occur outside of European market, which is important to note considering the impact the electricity grid mix can have on the emissions in the use phase. However, for the purpose of this assessment, an average EU-27 CO<sub>2</sub> factor from LCA for Experts© database version 2025.2. is applied. This factor will differ, depending on the country and share of renewables and fossil energy sources in the corresponding local electricity grid.

The CO<sub>2</sub> emissions for the baseline scenario in EU-27 is 4.31E+00 kg CO<sub>2</sub> eq.

# LCA Information

## End-of-life (C1-C4)

In line with EN 15804+A2, only the 'net scrap' (i.e., the leftover recyclable materials remaining after inputs of recycled content required in the manufacturing phase are first satisfied) is used to calculate the benefits and loads beyond the system boundary (Module D). For this EPD the 100% recycling scenario has been applied, due to being the most conservative in comparison to 100% landfill (based on sensitivity analysis). This is due to the composition of the product, that results in lower GWPT from landfill in comparison to recycling (processing of waste).

## Benefits and loads beyond the system boundary (D)

Module D considers the net benefit of recycling of materials in the product and packaging, taking account of losses in the recycling process and the recycled material used in the production of the product. Module D covers the end-of-life scenario, as described above.

Table 7: Characterization methods of environmental performance

Environmental impact indicators	Characterization methods
<b>GWPT</b>	Carbon footprint-total, GWP100, EN 15804. Version: August 2021
<b>GWPF</b>	Carbon footprint-fossil, GWP100, EN 15804. Version: August 2021
<b>GWPB</b>	Carbon footprint-biogenic, GWP100, EN 15804. Version: August 2021
<b>GWPLULUC</b>	Carbon footprint-land use and land use change, GWP100, EN 15804. Version: August 2021
<b>ODP</b>	Depletion potential of the stratospheric ozone layer, ODP, EN 15804. Version: August 2021
<b>AP</b>	Acidification potential, AP, CML 2001 non baseline (fate not included). Version: January 2016
<b>EPfw</b>	Eutrophication potential- aquatic freshwater, Ep, aquatic marine, EUTREND model EN 15804. Version: August 2021
<b>Epmar</b>	Eutrophication potential- aquatic marine, EP, aquatic marine, EUTREND model EN 15804. Version: August 2021
<b>Epter</b>	Eutrophication potential- terrestrial, EP, aquatic marine, EUTREND model EN 15804. Version: August 2021
<b>POCP</b>	Photochemical ozone creation potential, POPCP, LOTOS-EUROS as applied in ReCiPe, EN15804. Version: August 2021
<b>ADPE</b>	Depletion of abiotic resources – minerals and metals, EPD minerals & metals, EN 15804, Version: August 2021.
<b>ADPF</b>	Depletion of abiotic resources – fossil fuels, EPD fossil resources, EN 15804, Version: August 2021.
<b>WDP</b>	Water deprivation potential (deprivation-weighted water consumption), Water deprivation (Available water remaining (AWARE), EN 15804

# Environmental performance

This section presents the environmental performance of one-unit solenoid valve 132U2410 with a one-unit solenoid coil 018F7397. Figure 4 presents the environmental impact of the one-unit 132U2410 with one-unit 018F7397 across a number of environmental impact categories (following EN 15804+A2:2019) per life cycle stage, over its full 10 years life cycle, including Global Warming Potential.

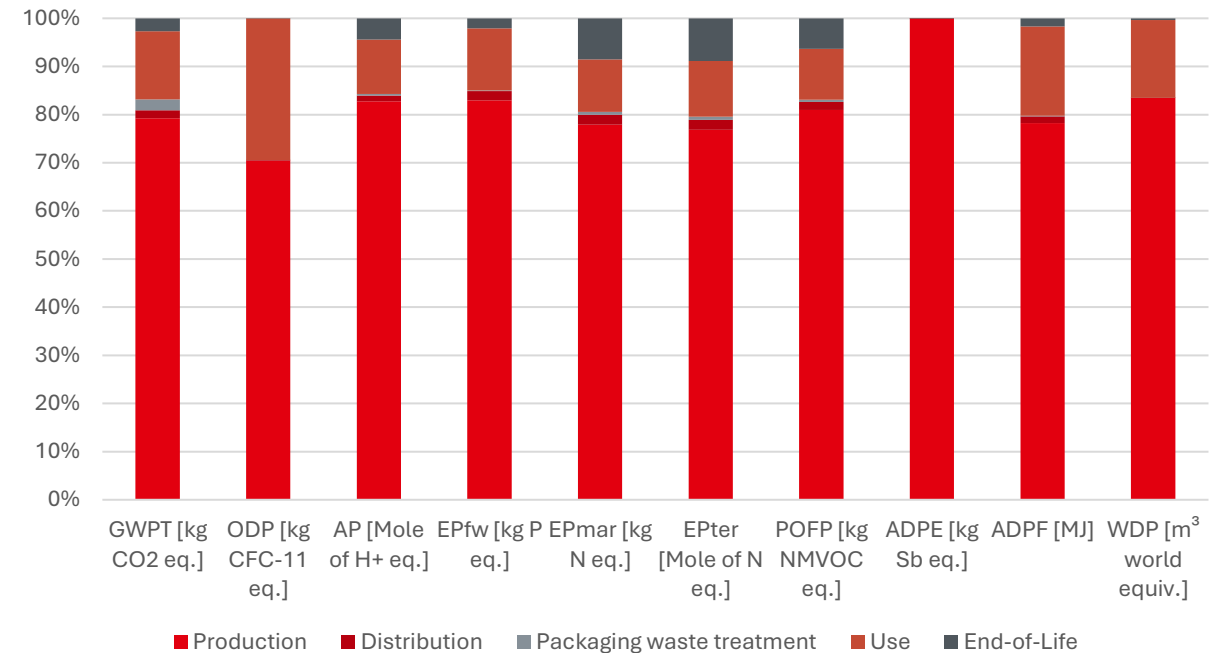
The environmental performance results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. The results of the end-of-life stage (module C) should be considered when using the results of the production stage (modules A1-A3).

Table 8: Environmental impact indicators results per declared unit

Acronym	Indicator
<b>GWPT</b>	Carbon footprint (Global Warming Potential) – total
<b>ODP</b>	Depletion potential of the stratospheric ozone layer
<b>AP</b>	Acidification potential
<b>EPfw</b>	Eutrophication potential – aquatic freshwater
<b>EPmar</b>	Eutrophication potential – aquatic marine
<b>EPter</b>	Eutrophication potential – terrestrial
<b>POFP</b>	Summer smog (photochemical ozone formation potential)
<b>ADPE*</b>	Depletion of abiotic resources – minerals and metals
<b>ADPF*</b>	Depletion of abiotic resources – fossil fuels
<b>WDP*</b>	Water deprivation potential (deprivation-weighted water consumption)

**\*Disclaimer for ADPE, ADPF, WDP:** 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 experienced with the indicator.

Figure 4: Breakdown of environmental impacts by life cycle stages with Module D is not included. (See Table 8 for descriptions of environmental impact indicators)



# Environmental performance

Of one-unit **Solenoid Valve 132U2410 with Solenoid Coil 018F7397**

Production	Distribution	Packaging waste treatment	Use	End-of-Life				Benefits & Loads
A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Manufacture of the product from 'cradle-to-gate'	Transport of the product to the customer	Installation of the product and disposal of used packaging	Use of the product over its lifetime e.g. 10 years	Deinstallation of the product from the site	Transport of the product to waste treatment	Processing waste for recycling	Disposal of waste that cannot be recycled (through landfill and incineration)	Potential benefits and loads beyond the system boundary due to reuse, recycling, and energy recovery

Impact category	Environmental Impact indicators	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Global Warming Potential	Total (GWPT)	kg CO <sub>2</sub> eq.	2.4E+01	5.1E-01	6.9E-01	4.3E+00	0.0E+00	4.7E-02	7.7E-01	0.0E+00	-1.3E+01
	Fossil (GWPF)	kg CO <sub>2</sub> eq.	2.5E+01	5.0E-01	4.3E-02	4.3E+00	0.0E+00	4.7E-02	7.7E-01	0.0E+00	-1.3E+01
	Biogenic (GWPB)	kg CO <sub>2</sub> eq.	-6.4E-01	0.0E+00	6.4E-01	4.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Land use & change (GWPLULUC)	kg CO <sub>2</sub> eq.	5.4E-02	5.2E-03	2.3E-05	1.4E-02	0.0E+00	1.2E-06	5.5E-03	0.0E+00	-2.1E-02
	Greenhouse gases (GWP-GHG)	kg CO <sub>2</sub> eq.	2.5E+01	5.1E-01	4.3E-02	4.3E+00	0.0E+00	4.7E-02	7.7E-01	0.0E+00	-1.3E+01
Ozone Depletion Potential	ODP	kg CFC-11 eq.	2.3E-10	8.4E-14	9.2E-15	9.7E-11	0.0E+00	5.6E-18	1.4E-13	0.0E+00	-1.6E-10
Acidification of soils and water	AP	Mole of H+ eq.	6.8E-02	9.7E-04	2.6E-04	9.3E-03	0.0E+00	6.7E-05	3.5E-03	0.0E+00	-4.5E-02
Eutrophication	Freshwater (EPfw)	kg P eq.	5.9E-05	1.4E-06	8.1E-08	9.1E-06	0.0E+00	1.0E-08	1.5E-06	0.0E+00	-2.5E-05
	Marine (EPmar)	kg N eq.	1.6E-02	4.2E-04	1.3E-04	2.2E-03	0.0E+00	2.6E-05	1.7E-03	0.0E+00	-7.4E-03
	Terrestrial (EPter)	Mole of N eq.	1.7E-01	4.5E-03	1.4E-03	2.5E-02	0.0E+00	2.9E-04	1.9E-02	0.0E+00	-8.1E-02
Photochemical ozone formation	POFP (POFP)	kg NMVOC eq.	4.2E-02	8.8E-04	2.4E-04	5.5E-03	0.0E+00	6.2E-05	3.3E-03	0.0E+00	-2.1E-02
Depletion of abiotic resources	Minerals, metals (ADPE)	kg Sb eq.	5.2E-03	3.4E-08	7.1E-09	8.8E-07	0.0E+00	1.7E-09	3.7E-08	0.0E+00	-4.4E-03
	Fossil fuels (ADPF)	MJ	3.6E+02	6.5E+00	5.7E-01	8.6E+01	0.0E+00	6.9E-01	7.2E+00	0.0E+00	-2.0E+02
Water deprivation	WDP	m <sup>3</sup> world equiv.	5.4E+00	2.3E-03	6.0E-04	1.1E+00	0.0E+00	8.1E-05	2.2E-02	0.0E+00	-3.1E+00

Table 9: Environmental impact indicators results per declared unit

# Environmental performance

Of one-unit **Solenoid Valve 132U2410 with Solenoid Coil 018F7397**

Resource Use indicator	Unit	Production	Distribution	Packaging waste treatment	Use	End-of-Life				Benefits & Loads
		A1-A3	A4	A5	B6	C1	C2	C3	C4	D
<b>Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)</b>	MJ	1.8E+02	4.9E-01	2.3E-02	5.9E+01	0.0E+00	2.3E-03	5.6E-01	0.0E+00	-8.8E+01
<b>Use of renewable primary energy resources used as raw materials (PERM)</b>	MJ	5.8E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
<b>Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)</b>	MJ	1.8E+02	4.9E-01	2.3E-02	5.9E+01	0.0E+00	2.3E-03	5.6E-01	0.0E+00	-8.8E+01
<b>Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)</b>	MJ	3.6E+02	6.5E+00	5.7E-01	8.6E+01	0.0E+00	6.9E-01	7.2E+00	0.0E+00	-2.0E+02
<b>Use of non-renewable primary energy resources used as raw materials (PENRM)</b>	MJ	1.8E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
<b>Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)</b>	MJ	3.6E+02	6.5E+00	5.7E-01	8.6E+01	0.0E+00	6.9E-01	7.2E+00	0.0E+00	-2.0E+02
<b>Use of secondary material (SM)</b>	kg	4.5E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
<b>Use of renewable secondary fuels (RSF)</b>	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
<b>Use of non-renewable secondary fuels (NRSF)</b>	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
<b>Net use of fresh water (FW)</b>	m <sup>3</sup>	1.6E-01	2.4E-04	2.5E-05	4.6E-02	0.0E+00	3.7E-06	7.2E-04	0.0E+00	-9.5E-02
<b>Waste categories and output flows indicators</b>	<b>Unit</b>									
<b>Hazardous waste disposed (HWD)</b>	kg	4.5E-07	2.6E-10	9.7E-11	1.1E-07	0.0E+00	4.8E-12	3.3E-10	0.0E+00	-1.7E-04
<b>Non-hazardous waste disposed (NHWD)</b>	kg	8.2E-01	9.1E-04	5.8E-05	6.7E-02	0.0E+00	6.9E-05	8.3E-01	0.0E+00	6.8E-02
<b>Radioactive waste disposed (RWD)</b>	kg	3.1E-02	1.2E-05	1.8E-06	1.4E-02	0.0E+00	7.4E-07	1.6E-05	0.0E+00	-1.9E-02
<b>Components for reuse (CRU)</b>	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
<b>Materials for recycling (MFR)</b>	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E+00	0.0E+00	0.0E+00
<b>Materials for energy recovery (MER)</b>	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
<b>Exported energy (electrical) (EEE)</b>	MJ	2.4E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
<b>Exported energy (thermal) (EET)</b>	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Table 10: Resource use, waste categories, and output flows result per declared unit.

# Environmental performance

Of one-unit **Solenoid Valve 132U2410 with Solenoid Coil 018F7397**

Additional indicators	Unit	Production	Distribution	Packaging waste treatment	Use	End-of-Life				Benefits & Loads
		A1-A3	A4	A5	B6	C1	C2	C3	C4	D
Potential incidence of disease due to particulate matter emissions (PM)	Disease incidences	1.0E-06	8.3E-09	1.6E-09	7.7E-08	0.0E+00	4.0E-10	2.4E-08	0.0E+00	-5.0E-07
Potential human exposure efficiency relative to U235 (IRP)**	kBq U235 eq.	4.5E+00	1.8E-03	1.5E-04	2.2E+00	0.0E+00	1.1E-04	2.3E-03	0.0E+00	-2.8E+00
Potential Comparative Toxic Unit for ecosystems (fresh water) (ETPfw)*	[CTUe]	1.2E+02	8.5E+00	4.1E-01	1.5E+01	0.0E+00	5.1E-01	9.1E+00	0.0E+00	-6.3E+01
Potential Comparative Toxic Unit for humans (cancer) (HTPc)*	CTUh	1.6E-08	1.1E-10	6.5E-12	1.4E-09	0.0E+00	9.3E-12	1.3E-10	0.0E+00	-2.5E-08
Potential Comparative Toxic Unit for humans (non-cancer) (HTPnc)*	CTUh	2.0E-07	6.4E-09	2.1E-10	2.9E-08	0.0E+00	3.1E-10	6.9E-09	0.0E+00	-1.2E-07
Potential soil quality index (SQP)*	Dimensionless	2.0E+02	2.9E+00	8.5E-02	3.5E+01	0.0E+00	1.8E-03	3.1E+00	0.0E+00	-5.9E+01

Table 11: Additional indicators\* results per declared unit.

\***Disclaimer for ADPE, ADPF, WDP, ETPfw, HTPc, HTPnc, SQP:** 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 experienced with the indicator.

\*\***Disclaimer for ionizing radiation:** 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

\*\*\***GWP-GHG** environmental indicator is calculated without the biogenic global warming potential (GWPB), the formula is  $GWP-GHG = GWP + GWPLULUC$



# References

**CEN (2015). EN 50598-3:2015:**

Ecodesign for power drive systems, motor starters, power electronics and their driven applications – Part 3: Quantitative eco design approach through life cycle assessment including product category rules and the content of environmental declarations.  
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**ISO (2006a). ISO 14025:2006:**

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**ISO (2006b). ISO 14040:2006:**

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Environmental management – Life cycle assessment – Requirements and guidelines.  
Geneva, Switzerland: International Organization for Standardization.



# Abbreviations

## Abbreviation

EPD

LCA

EoL

GHG

GWP

ISO

PCR

## Definition

Environmental Product Declaration

Life Cycle Assessment

End-of-Life

Greenhouse Gas

Global Warming Potential

International Organization for  
Standardization

Product Category Rule



SUMMARY



INTRO



PRODUCT



LCA



RESULTS



ADDITIONAL INFORMATION



REFERENCES



Table A1: Global Warming Potential values

			EV220BW/EV228BW 15-50 Eco Brass									
			kg CO <sub>2</sub> e									
Size	Code number	Valve function	GWPT from A1-A3	GWPT without B6 Global Warming Potential Without Use Phase	Use Phase - B6							
					Duty rate 0,1%	Duty rate 0,1%	Duty rate 1%	Duty rate 1%	Duty rate 10%	Duty rate 10%	UN Latching ***	
					11W coil*	16W coil**	11W coil*	16W coil**	11W coil*	16W coil**	16W** coil	
G1/2	132U1500	Normally closed (NC)	4.95	5.37	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U1501	Normally open (NO)	4.89	5.30	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U2400	Latching (UN)	4.92	5.33	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
G3/4	132U2000	Normally closed (NC)	6.10	6.61	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U2001	Normally open (NO)	6.08	6.58	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U2402	Latching (UN)	6.07	6.57	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
G1	132U2500	Normally closed (NC)	8.33	9.03	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U2501	Normally open (NO)	8.30	9.00	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U2404	Latching (UN)	8.25	8.94	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
G1 1/4	132U3200	Normally closed (NC)	12.15	13.17	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U3201	Normally open (NO)	12.14	13.16	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U2406	Latching (UN)	12.15	13.17	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
G 1 1/2	132U4000	Normally closed (NC)	16.82	18.23	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U4001	Normally open (NO)	16.86	18.27	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U2408	Latching (UN)	16.74	18.14	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
G2	132U5000	Normally closed (NC)	23.87	25.87	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	132U5001	Normally open (NO)	23.97	25.98	0.03	0.04	0.30	0.43	2.96	4.31	0.02	
	<b>132U2410</b>	<b>Latching (UN)</b>	24.11	26.13	0.03	0.04	0.30	0.43	2.96	4.31	0.02	

\* Represented by 11W 230V 50Hz coil (018F7351)

\*\* Represented by 16W 24 V DC coil (018F7397)

\*\*\* UN Latching has very low power consumption and equals less than 0,05% duty rate on 24V DC coil (018F7397)

**How to read the table and determine the GWPT (Global Warming Potential Total) of the valve and coil based on the duty rate.**

1. Identify the code number for the specific valve size
2. Determine what type of coil is used (11W coil or 16W coil)
3. Determine what duty rate will be used (0,1%, 1%, 10%)
4. Add up the value from GWPT (A1-C4 without B6) corresponding to the code number and the value from the coil with its specific duty rate

**Example :** Global Warming Potential Total (GWPT) [kg CO<sub>2</sub> eq.]

132U2000 with a 16W coil at 10% duty rate

Sales code: 132U2000

GWPT A1-C4 without B6: 6,61 kgCO<sub>2</sub>eq (refer table Annex 1)

6,5W coil at 10% duty rate Use phase B6: 4,31 kgCO<sub>2</sub>eq (refer table Annex 1)

Climate change A1-C4 : GWPT A1-C4 without B6 + B6 use phase duty rate 6,5 W coil 10% = 6,61+4,31 kgCO<sub>2</sub>eq = **10,92 kgCO<sub>2</sub> total (GWPT)**

Table A2: Factors to determine the rest of environmental impact indicators

				EV220BW/EV228BW 15-50 Eco Brass							
				Factors							
Size	Code number	Valve function	Weight with packaging [kg]	GWPT without B6 - Factor Global Warming Potential Without Use Phase	Use Phase Factor - B6						UN Latching ***
					Duty rate 0,1%	Duty rate 0,1%	Duty rate 1%	Duty rate 1%	Duty rate 10%	Duty rate 10%	
					11W coil*	16W coil**	11W coil*	16W coil**	11W coil*	16W coil**	16W** coil
G1/2	132U1500	Normally closed (NC)	1.052	0.21	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U1501	Normally open (NO)	1.038	0.20	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U2400	Latching (UN)	1.044	0.20	0.007	0.01	0.07	0.1	0.69	1	0.005
G3/4	132U2000	Normally closed (NC)	1.296	0.25	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U2001	Normally open (NO)	1.290	0.25	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U2402	Latching (UN)	1.288	0.25	0.007	0.01	0.07	0.1	0.69	1	0.005
G1	132U2500	Normally closed (NC)	1.769	0.35	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U2501	Normally open (NO)	1.763	0.34	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U2404	Latching (UN)	1.751	0.34	0.007	0.01	0.07	0.1	0.69	1	0.005
G1 1/4	132U3200	Normally closed (NC)	2.581	0.50	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U3201	Normally open (NO)	2.579	0.50	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U2406	Latching (UN)	2.580	0.50	0.007	0.01	0.07	0.1	0.69	1	0.005
G 1 1/2	132U4000	Normally closed (NC)	3.573	0.70	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U4001	Normally open (NO)	3.581	0.70	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U2408	Latching (UN)	3.555	0.69	0.007	0.01	0.07	0.1	0.69	1	0.005
G2	132U5000	Normally closed (NC)	5.110	0.99	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U5001	Normally open (NO)	5.091	0.99	0.007	0.01	0.07	0.1	0.69	1	0.005
	132U2410	Latching (UN)	5.120	1.00	0.007	0.01	0.07	0.1	0.69	1	0.005

Reference products used in the EPD

\* Represented by 11W 230V 50Hz coil (018F7351)

\*\* Represented by 16W 24 V DC coil (018F7397)

\*\*\* UN Latching has very low power consumption and equals less than 0,05% duty rate on 24V DC coil (018F7397)

**How to read the table and determine the rest of the environmental impact indicators for GWP of the valve/coil and use phase.**

- Identify the code number for the specific valve
- Determine what type of coil is used (11W coil or 16W coil)
- Determine what duty rate will be used (0,1%, 1%, 10%)
- Multiply the specific GWPT(A1-C4) without the B6 **Factor** corresponding to the code number with the specific environmental impact indicator from Table 5 **Excluding B6**
- Based on points 2 & 3 Factor multiply the corresponding factor with the specific environmental impact indicator (same as point 4) B6
- Add the values from point 4&5.

**Example** - Depletion potential of the stratospheric ozone layer (ODP) [kg CFC-11 eq.]

132U2000 with a 16W coil at 10% duty rate

Sales code: 132U2000

Conversion factor: 0,25 (refer table Annex 2)

16W coil at 10% duty rate factor: 1 (refer table Annex 2)

$$0,25*((A1-A3)+A4+A5+C1+C2+C3+C4)+ 1*B6 = 0,25*(2.3E-10+8.4E-14+9.2E-15+0.0E+00+5.6E-18+1.4E-13+0.0E+00)+1*9.7E-11 = 5.76E-11+9.70E-11 > \mathbf{1.55E-10 \text{ kg CFC-11}}$$

**eq** over its life cycle

- You could calculate for individual life cycle stages without doing the SUM of A1-D, and instead pick individual values associated with the life cycle stage.
- Extract from Table 5

Life cycle stages based on EN 15804+A2	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
ODP [kg CFC-11 eq.]	2.3E-10	8.4E-14	9.2E-15	9.7E-11	0.0E+00	5.6E-18	1.4E-13	0.0E+00	-1.6E-10



# Version history

**Original version of the EPD, 2026-05-08**

