ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of the Declaration	BELIMO Automation AG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-BEL-20240038-IBA1-EN
Issue date	25.09.2024
Valid to	24.09.2029

Damper Actuators CM.. / CH..

BELIMO Automation AG

Institut Bauen und Umwelt e.V.

www.ibu-epd.com | https://epd-online.com

ECO PLATFORM EPD VERIFIED

1. General Information

BELIMO Automation AG

Programme holder

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

Declaration number

EPD-BEL-20240038-IBA1-EN

This declaration is based on the product category rules:

Volume flow controllers and volume flow limiters for ventilation systems, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

25.09.2024

Valid to

24.09.2029

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

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

Damper Actuators CM.. / CH..

Owner of the declaration

BELIMO Automation AG
Brunnenbachstrasse 1
8340 Hinwil
Switzerland

Declared product / declared unit

In this EPD, the results were calculated for a representative linear actuator CH230-L100.2.

Scope:

The subject of this EPD are all HVAC control units (heating, ventilation, air conditioning) with the type designation CM.. and CH... from BELIMO Automation AG.
The EPD takes into account the production, transport and recycling of the packaging, the energy consumption in the use stage and the disposal of the HVAC control unit. This EPD contains calculations for the representative model CH230-L100.2, which has the greatest environmental impact within the product group and is therefore valid for the entire product group 'CH../ CM..'.
The product is manufactured at the plant in Hinwil, Switzerland.
The production data relates to the 2022 financial year.
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 Schulz,
(Independent verifier)

2. Product

2.1 Product description/Product definition

This EPD contains calculations for the representative model CH230-L100.2, which has the greatest environmental impact within the product group and is therefore valid for the entire product group 'CH../CM..', including the following types:

- CH230-L100.2 and is valid for the following types:
- CH230-L..
- CH230-R..
- CH24-L..
- CH24-SR..
- CH24-SX..
- CH24-T..
- CM24-F..
- CM24-L..
- CM24-MPL..
- CM24-R..
- CM24-SR..
- CM24-SX..
- CM24-T..

Customer versions and actuators with included damper blade are excluded.

Brief description:
Actuator for adjusting dampers and slide valves in technical building instalations

- Damper size up to approx. 0.8 m²
- Motor torque 2 Nm
- Actuating force linear versions 125 N
- Nominal voltage 100...240 V AC
- Nominal voltage AC/DC 24 V
- Open/close control, 3-point, modulating control, buscapable

Control method (mode of operation)
No data available.

Product that is not harmonised on the basis of the CPR but other EU regulations:
The following EU harmonisation legislation(s) apply(s) to the placing on the market of the product in the EU/EFTA (with the exception of Switzerland):
• *2014/35/EU (LVD)*
• *2014/30/EU (EMC)*
• *2011/65/EU + updates (RoHS)*

and their standard(s) harmonised on this basis:
• *SN EN 60730-1:2016-07, Automatic electrical controls - Part 1: General requirements*
• *SN EN 60730-2-1:1997-01, Automatic electrical controls for household and similar use. Part 2: Particular requirements for electrical controls for electrical household appliances*
• *SN EN IEC 61000-6-3:2021-03, Electromagnetic compatibility (EMC) - Part 6-3: Generic standards Emission standard for equipment in residential environments*
• *DIN EN IEC 61000-6-2:2019-11, Electromagnetic compatibility (EMC) - Part 6-2: Generic standards Immunity standard for industrial environments*

The CE marking is applied to the product in compliance with proof of its conformity with the following harmonised standards on the basis of the harmonisation legislation mentioned:
• *SN EN 60730-1:2016-07, Automatic electrical controls - Part 1: General requirements*
• *DIN EN IEC 60730-2-14:2023-03, Automatic electrical controls for domestic use and similar applications - Part 2-14: Particular requirements for electric actuators*
• *SN EN IEC 61000-6-3:2021-03, Electromagnetic compatibility (EMC) - Part 6-3: Generic standards Emission standard for equipment in residential environments*
• *DIN EN IEC 61000-6-2:2019-11, Electromagnetic compatibility (EMC) - Part 6-2: Generic standards Immunity standard for industrial environments*
The respective national regulations apply for use.

2.2 Application

This appliance is designed for use in stationary heating, ventilation and air conditioning systems and must not be used for applications outside the specified area of use, in particular not in aeroplanes or any other means of air transport.

2.3 Technical Data

CE according to 2014/30/EU, 2014/35/EU and 2011/65/EU + updates

Structural data
The data listed in the table refers to the reference product. Further technical data can be found in the technical data sheets (available at www.belimo.com).

Name	Value	Unit
Voltage supply	AC	V
control voltage modulating	2 - 10	V
Runtime for 90 ° rotation	75	s
power rating	1	W
power consumption	1.5	W
Protection type in operation	IP54	-
Housing shape (round/angular)	angular	-
Protection class	II	-

Product that is not harmonised on the basis of the CPR but other EU regulations:

Performance values of the product in accordance with the requirements of the other harmonisation legislation listed harmonised standards:
- Reference to the table above, which contains the corresponding performance values.

Standards to which the product is subject:
EN 60730-1:2011, Automatic electrical controls - Part 1: General requirements

EN 60730-2-14:1997+A2:2008, Automatic electrical controls for household and similar use - Part 2-14: Particular requirements for electric actuators

2.4 Delivery status

The products are sold as individual products or in multipacks. A multipack is sold on a returnable pallet, is transported and packaged in polyethylene (PE) film. The multipack is designed to hold a total of 20 units of the product. The total weight of the multipack is 1.51 kg. The total weight of a single pack is 0.082 kg.

2.5 Base materials/Ancillary materials

The product/ at least one part of the product contains substances on the ECHA list of Substances of Very High Concern (SVHC) for authorisation (date 14.06.2023), above 0.1 mass %: yes.

Part	Quantity	Substance	CAS No.	Concentration	Safety Note
Electronics	<10 *	Lead	7439-92-1	0.3...10%	Not necessary
Electronics	>10 *	Lead monoxide	1317-36-8	1...100%	Not necessary
Electronics	>10 *	Diboron trioxide	1303-86-2	0.3...10%	Not necessary
Gearwheel	1	Lead in copper alloy	7439-92-1	2.5...3.5%	Not necessary
CM... only: Stop	2	Potassium 1,1,2,2,3,3,4,4,4-nonafluoro butane-1-sulphonate in plastic	29420-49-3	0.1...0.3%	Not necessary
CH... only: Spacer sleeve	2	Lead in steel	7439-92-1	0.2...0.35%	Not necessary
CH... only: Pinion shaft	1	Lead in steel alloy	7439-92-1	0.2...0.35%	Not necessary
*) The quantity varies depending on the CM or CH model.					

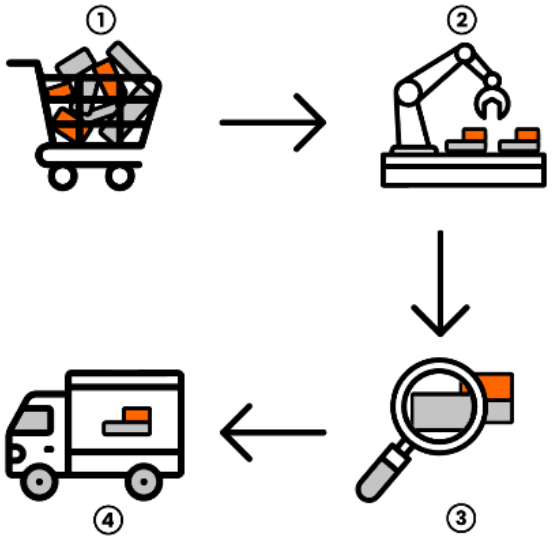
The product/at least one sub-product contains other CMR substances of category 1A or 1B that are not on the candidate list, above 0.1% by mass in at least one sub-product: no.

Biocidal products have been added to this construction product or it has been treated with biocidal products (it is therefore a treated product within the meaning of the Biocidal Products Regulation (EU) No. 528/2012): no.

2.6 Manufacture

Belimo follows a four-stage process in the provision of its products, ranging from the selection and testing of supplier components to quality control.

1. Material and component procurement: selection and testing of supplier components
2. Assembly: The various components are assembled at our specialised sites, with the main assembly site in Hinwil.
3. Quality control: Multi-stage quality checks are carried out, all in accordance with the *ISO 9001* quality management system.
4. Delivery: After successful quality control, the products are securely packed and prepared for delivery to the customer or warehouse.



This approach ensures that all Belimo products fulfil the standards for quality, reliability and performance. It serves as the basis for all our product lines and can be customised according to specific requirements.

2.7 Environment and health during manufacturing

In the course of manufacturing Belimo products, all health and safety regulations are complied with without the need for additional measures. The amount of waste is minimised through optimised material cuts, and lubricants are reused through efficient recycling processes.

2.8 Product processing/Installation

Before starting the installation, it is essential to observe the user manuals, installation instructions, operating instructions, declarations of performance and approvals. The relevant safety, processing and statutory occupational health and safety regulations for both electrical installations and ventilation technology must be observed.
Installation position: Installation according to the recommended accessibility.

1. Prepare the damper: Dampers must be mechanically prepared for installation of the actuators in accordance with the installation instructions.
2. Install the actuator: Mount the actuator according to the installation instructions.
3. Electrical connections: Ensure connection in accordance with the installation instructions.
4. Mechanical test: The actuator must function smoothly with the mechanics
5. Function test: Checking the correct reaction to control signals.
6. Set parameters: Configuration based on application requirements.

2.9 Packaging

The products are sold as individual products or in multipacks. The multipack is transported on a reusable pallet and packed in polyethylene (PE) film.

Disposal is carried out by local recycling companies.

2.10 Condition of use

The material composition of Belimo products remains stable during use, provided that there are no extreme influences such as salty liquids or chemical reactions. Our products are generally maintenance-free.

2.11 Environment and health during use

During the use of Belimo products, whether for ventilation or hydronic systems, no negative effects on the environment or health are to be expected. The maintenance-free design eliminates the need for lubrication and frequent inspections. All actuator and control mechanisms are designed so that they have no direct contact with air or fluid flows, eliminating the risk of contamination or deposits.

2.12 Reference service life

Belimo products are designed for a service life of 20 years when used properly. This specification is the result of thorough testing procedures and quality control mechanisms. It should be noted that the specified service life is only valid for standardised operating and environmental conditions. Deviating conditions, such as extreme temperatures or humidity, can have a negative impact on the product service life. The service life refers specifically to the technical and functional integrity of the product and does not take into account any special application scenarios.

2.13 Extraordinary effects

Fire

Fire protection

The topic of fire and the associated values are not relevant for the product, as it is not subject to any fire protection-specific regulations.

Name	Value
Building material class	-
Burning droplets	-
Smoke gas development	-

Water

If exposed to water that exceeds the declared IP protection rating, the product will very likely fail immediately or for a longer period of time and must be replaced. During installation, it must be ensured that the installation location is protected against unauthorised exposure to water. This also applies to the transport and storage of the product.

Mechanical destruction

Not relevant.

2.14 Re-use phase

Not relevant.

2.15 Disposal

For proper disposal of the products, the following disposal routes must be taken into account:

1. Recycling: In accordance with waste code *EWC* 16 02 14, the various components such as batteries, sensors, actuators, flow bodies and valves can be recycled separately.
2. Proper disposal: If recycling is not an option, the products should be disposed of in accordance with the locally applicable laws for the disposal of electrical products.

The locally applicable laws and regulations for the disposal of electrical products must be observed.

2.16 Further information

Additional information and detailed specifications can be found on the manufacturer's website (www.belimo.com).

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is 1 piece of CH230-L100.2 damper actuator as a representative product. This EPD contains calculations for the representative model CH230-L100.2, which has the greatest environmental impact within the product group and is therefore valid for the entire product group 'CH../CM..'.

Declared unit

Name	Value	Unit
Declared unit	1	pce.
Mass reference	0.331	kg/pce
Packaging materials	0.082	kg/Stk

Other declared units are permitted if the conversion is presented transparently.

3.2 System boundary

Type of EPD: from the cradle to the factory gate with options, modules C1-C4 and module D (A1-A3 + C + D and additional modules A5 & B6.)

A1–A3

The system boundaries for modules A1-A3 include all raw material extraction processes, the manufacture of components and transport, both for the material and energy flows used in the manufacture of products from the cradle to the factory gate. In addition, the entire manufacturing phase, including the treatment of production waste until the end-of-waste stage (EoW) is reached, is taken into account.

A5

Module A5 analyses the recycling of packaging materials. The resulting material and energy flows are allocated to Module D. The assembly of the products is not included in the analysis, as the environmental impact of assembly using manual tools is low.

B6

Module B6 balances the energy used to operate the product. Two scenarios are assumed: The first scenario (shown as B6 in the analysis) is a reference scenario according to the valid PCR for control valves of the IBU. The second scenario (shown as B6/1 in the analysis) is the product-specific scenario according to the manufacturer's specifications.

C1–C4

Module C1 describes the expenses for dismantling or demolishing the product from the building at the end of the product's life. Dismantling is carried out manually, so there are no potential environmental impacts in this phase.
Module C2 looks at the transport to the disposal processes.
Module C3 contains the necessary processes for waste treatment at the end of the product life cycle. The loads for waste treatment are defined in this module to the extent that until the end of the waste property is reached. Emissions are assigned to module C3. Material and energy flows generated in the process are assigned to module D.
Module C4 describes the expenses for the disposal of the product or its components if material or energy recovery or reuse is not possible. No landfill processes are modelled for the products under consideration. The results in Module C4 are therefore given as "0".

D

The output flows resulting from waste treatment in A5 and C3, which can be used for a downstream product system, are shown in Module D.

3.3 Estimates and assumptions

For the environmental impact, the use of green electricity was calculated taking into account the residual electricity mix for the remaining electricity. The proportion of the total electricity requirement covered by green electricity is 100%.

3.4 Cut-off criteria

The cut-off rules for taking into account the use of primary energy and mass in accordance with EN 15804 (< 1% each, < 5% in total) were observed.

3.5 Background data

The background database used is Sphera Managed LCA Content version 2023.1. ecoinvent 3.9 data records were used in some cases.

3.6 Data quality

The data quality of the background data was rated as good in terms of technical, geographical and temporal representativeness. The individual data sets are all no more than three years old.

3.7 Period under review

Production data was collected for the 2022 financial year.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Europe

3.9 Allocation

All raw materials, intermediate products and operating resources required for the production process could be allocated to the declared product. There are no by-products.

Benefits and burdens from the recycling and thermal utilisation of packaging waste and the dismantled product are reported in Module D.

The cut-off approach was selected for secondary materials. This means that they enter the system in modules A1-A3 without any loads and leave the system without being considered in module D.

To determine the energy requirement for production, an allocation was carried out based on the appliances produced in 2022 and the total energy requirement in 2022 in relation to the number of units.

3.10 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. The background database used is Sphera *Managed LCA Content* version 2023.1. *ecoinvent 3.9* data sets were used in some cases.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Information on the description of the biogenic carbon content at the plant gate

Name	Value	Unit
Biogenic carbon content in product	< 5 %	kg C
Biogenic carbon content in accompanying packaging	0.035	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

Installation in the building (A5)

Name	Value	Unit
Output substances following waste treatment on site	0.082	kg

Reference useful life

Name	Value	Unit
Life Span according to manufacturer	20	a

Operational energy (B6)

Consumption values are given per year

Name	Value	Unit
Electricity consumption scenario (B6)	9	kWh
Electricity consumption scenario (B6/1)	8.9	kWh

End of the journey through life (C1-C4)

Name	Value	Unit
Collected separately waste type	0.331	kg
Recycling	0.122	kg
Energy recovery	0.209	kg

5. LCA: Results

The results for energy consumption in the use stage in module B6 refer to a service life of 10 years and in module B6/1 to a service life of 20 years.

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	MND	X	MND	MND	MNR	MNR	MNR	X	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 Stück Linearantrieb CH230-L100.2

Parameter	Unit	A1-A3	A5	B6	B6/1	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	2.06E+00	1.44E-01	2.97E+01	5.81E+01	0	3.66E-03	4.26E-01	0	-1.75E-01
GWP-fossil	kg CO_2 eq	2.17E+00	1.62E-02	2.93E+01	5.74E+01	0	3.62E-03	4.26E-01	0	-1.74E-01
GWP-biogenic	kg CO_2 eq	-1.2E-01	1.28E-01	3.48E-01	6.83E-01	0	1.41E-05	1.23E-04	0	-1.04E-03
GWP-luluc	kg CO_2 eq	2.06E-03	7.5E-06	3.15E-03	6.17E-03	0	2.9E-05	1.26E-05	0	-1.11E-05
ODP	kg CFC11 eq	6.02E-09	8.31E-16	5.34E-10	1.05E-09	0	6.25E-16	1.33E-13	0	-1.33E-12
AP	mol H^+ eq	1E-02	4.98E-06	6.19E-02	1.21E-01	0	2.59E-05	8.29E-05	0	-2.17E-04
EP-freshwater	kg P eq	2.97E-05	3.13E-09	1.08E-04	2.12E-04	0	1.14E-08	4.03E-08	0	-2.76E-07
EP-marine	kg N eq	1.66E-03	1.95E-06	1.48E-02	2.9E-02	0	1.28E-05	2.67E-05	0	-6.29E-05
EP-terrestrial	mol N eq	1.78E-02	2.53E-05	1.55E-01	3.03E-01	0	1.42E-04	3.68E-04	0	-6.72E-04
POCP	kg NMVOC eq	5.16E-03	4.09E-06	3.95E-02	7.74E-02	0	2.45E-05	7.39E-05	0	-1.77E-04
ADPE	kg Sb eq	1.39E-04	6E-11	4.49E-06	8.8E-06	0	2.46E-10	1.12E-09	0	-1.83E-08
ADPF	MJ	3.48E+01	1.28E-02	6.1E+02	1.2E+03	0	4.9E-02	3.09E-01	0	-3.15E+00
WDP	m^3 world eq deprived	3.68E-01	1.42E-03	6.45E+00	1.27E+01	0	3.44E-05	4.35E-02	0	-1.66E-02

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 Stück Linearantrieb CH230-L100.2

Parameter	Unit	A1-A3	A5	B6	B6/1	C1	C2	C3	C4	D
PERE	MJ	9.52E+00	1.3E+00	3.64E+02	7.14E+02	0	3.46E-03	7.13E-02	0	-9.09E-01
PERM	MJ	1.29E+00	-1.29E+00	0	0	0	0	0	0	0
PERT	MJ	1.08E+01	1.27E-03	3.64E+02	7.14E+02	0	3.46E-03	7.13E-02	0	-9.09E-01
PENRE	MJ	3.08E+01	2.26E-01	6.1E+02	1.2E+03	0	4.92E-02	4.19E+00	0	-3.15E+00
PENRM	MJ	4.09E+00	-2.13E-01	0	0	0	0	-3.88E+00	0	0
PENRT	MJ	3.49E+01	1.29E-02	6.1E+02	1.2E+03	0	4.92E-02	3.09E-01	0	-3.15E+00
SM	kg	1.21E-01	0	0	0	0	0	0	0	1.4E-03
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m^3	1.69E-02	3.4E-05	2.94E-01	5.77E-01	0	3.54E-06	1.05E-03	0	-7.48E-04

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 Stück Linearantrieb CH230-L100.2

Parameter	Unit	A1-A3	A5	B6	B6/1	C1	C2	C3	C4	D
HWD	kg	3.85E-07	7.53E-14	-4.77E-08	-9.35E-08	0	1.27E-13	2.44E-12	0	-1.67E-10
NHWD	kg	1.42E-01	6.25E-05	4.46E-01	8.75E-01	0	7.45E-06	7.46E-02	0	-1.21E-03
RWD	kg	1.44E-03	1.31E-07	9.69E-02	1.9E-01	0	8.19E-08	9.89E-06	0	-2.42E-04
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	1.22E-01	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EEE	MJ	0	3.27E-02	0	0	0	0	7.71E-01	0	0

EET	MJ	0	5.82E-02	0	0	0	0	1.39E+00	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 Stück Linearantrieb CH230-L100.2

Parameter	Unit	A1-A3	A5	B6	B6/1	C1	C2	C3	C4	D
PM	Disease incidence	ND	ND	ND	ND	ND	ND	ND	ND	ND
IR	kBq U235 eq	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	ND	ND	ND	ND	ND	ND	ND	ND	ND
SQP	SQP	ND	ND	ND	ND	ND	ND	ND	ND	ND

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

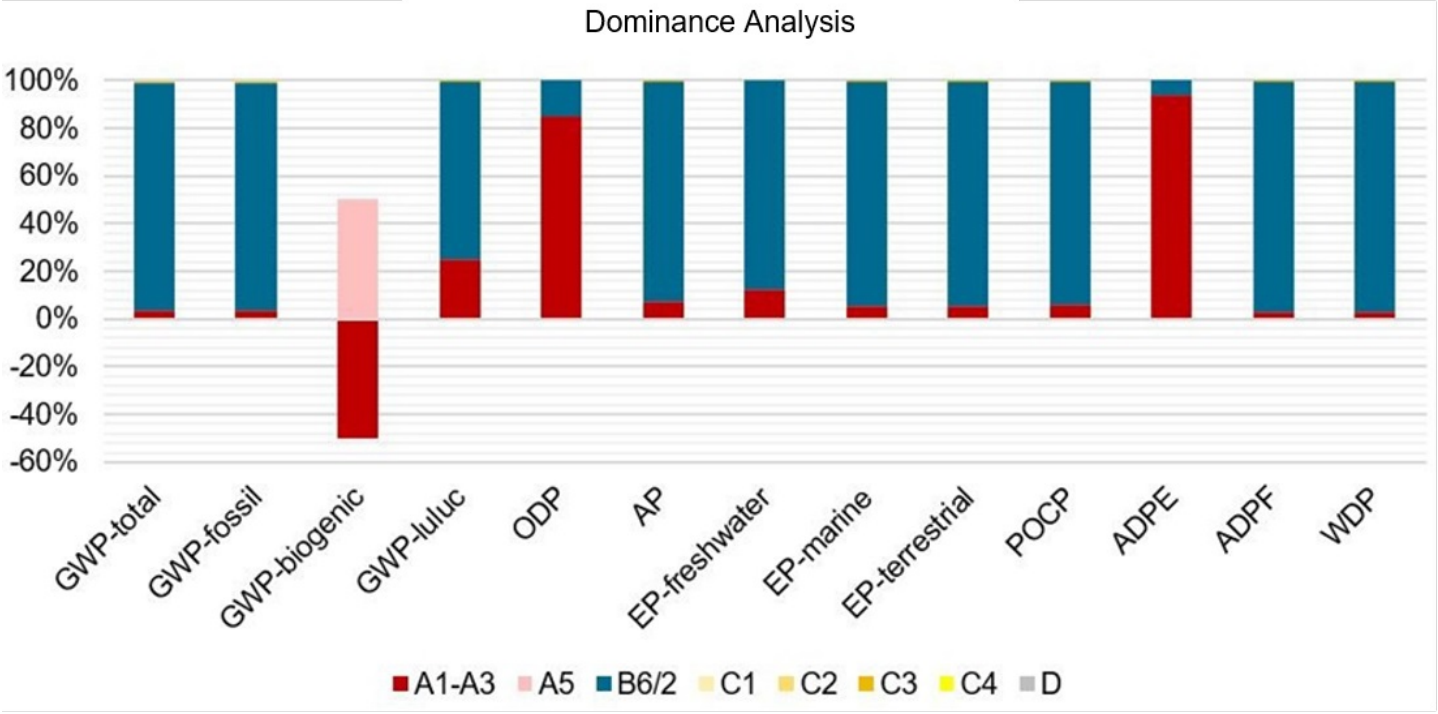
Disclaimer 1 - applies to the indicator 'Potential Human exposure efficiency relative to U235'.

This impact category mainly deals with the possible effect of low-dose ionising radiation on human health in the nuclear fuel cycle. It does not take into account effects due to possible nuclear accidents and occupational exposure, nor the disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials is also not measured by this indicator.

Disclaimer 2 - applies to the indicators: 'Abiotic depletion potential for non-fossil resources', 'Abiotic depletion potential for fossil resources', 'Water (user) deprivation potential'.

The optional environmental impact indicators are not declared because the uncertainties in these results are high or because there is only limited experience with the indicator.

6. LCA: Interpretation



The dominance analysis presented here relates to the manufacturer scenario. The dominance analysis shows that energy consumption in the use phase (B6) dominates in most of the categories analysed. This is due to the electrical energy consumed during the use phase, which comes from the European electricity mix. An exception to this are the indicators Abiotic depletion potential for non-fossil resources (ADPE), Depletion potential of the stratospheric ozone layer (ODP) and global warming potential biogenic (GWPbiogenic). GWP-biogenic results from the cardboard packaging and is thus offset again with the utilisation of the packaging in module A5. The dominance analysis also shows that the manufacturing phase A1-A3 dominates in the categories Depletion potential of the stratospheric ozone layer (ODP) and Abiotic depletion potential for non-fossil resources (ADPE). In the manufacturing phase (modules A1-A3), the printed circuit boards in particular, including assembly, have a significant impact.

7. Requisite evidence

No evidence is relevant for the declared product. According to the manufacturer, no information on hygiene and metabolisability can be provided for the product, as this does not affect the products.

8. References

Standards

ISO 9001
DIN EN ISO 9001:2015-11, Quality management systems - Requirements.

ISO 14025
ISO 14025:2006-07, Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

EN 15804
DIN EN 15804:2022-03, Sustainability of construction works - Environmental product declarations - Core rules for the product category construction products.

EN 60730-1
SN DIN EN 60730-1:2011, Automatic electrical controls - Part 1: General requirements.

EN 60730-2-14
DIN EN IEC 60730-2-14:2023-03, Automatic electrical controls for domestic use and similar applications - Part 2-14: Particular requirements for electric actuators.

EN 61000-6-2
DIN EN IEC 61000-6-2:2019-11, Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments.

EN 61000-6-3
SN EN IEC 61000-6-3+A1:2011-09, Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for equipment in residential environments.

Further references

2011/65/EU (RoHS)
DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

2014/30/EU (EMC)
DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast).

2014/35/EU (LVD)
DIRECTIVE 2014/35/EU OF THE EUROPEAN PARLIAMENT

AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.

EWC
European Waste Catalogue, Waste Catalogue Ordinance of 10 December 2001 (Federal Law Gazette I page 3379), which was last amended by Article 3 of the Ordinance of 17 July 2017 (Federal Law Gazette I page 2644).

ECHA list
List of Substances of Very High Concern for Authorisation (ECHA Candidate List), dated 14.06.2023, published in accordance with Article 59(10) of the REACH Regulation. Helsinki: European Chemicals Agency.

ecoinvent 3.9
ecoinvent, Allocation, cut-off by classification, ecoinvent database version 3.9 (2022).

Managed LCA Content
Managed LCA Content. Content Version 2023.1. Leinfeld-Echterdingen: Sphera Solutions GmbH.

PCR Part A
Product Category Rules for Building-Related Products and Services. Part A: Calculation rules for the life cycle assessment and requirements for the project report, Version 1.3. Berlin: Institut Bauen und Umwelt e.V. (ed.), 31 August 2022.

PCR: Volume flow controllers and volume flow limiters for ventilation systems
PCR guidance texts for building-related products and services. Part B: Requirements for the EPD for volume flow controllers, volume flow limiters and pressure regulators for ventilation systems. Berlin: Institut Bauen und Umwelt e.V. (ed.), 19 December 2023.

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

brands & values GmbH
Hollerallee 14A
28209 Bremen
Germany

+49 421 70 90 84 33
info@brandsandvalues.com
www.brandsandvalues.com

Owner of the Declaration

BELIMO Automation AG
Brunnenbachstrasse 1
8340 Hinwil
Switzerland

+41 43 843 61 11
info@belimo.ch
www.belimo.com