ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

SPIROTRAP MB3 22 mm
Spirotech BV

EPD HUB, HUB-2166
Published on 10.11.2024, last updated on 10.11.2024, valid until 10.11.2029.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Spirotech BV
Address	Postbus 207, 5700 AE Helmond, Nederland
Contact details	info@spirotech.com
Website	https://www.spirotech.com/

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
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Johannes Spaas, Mantis Consulting
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Silvia Vilčeková, as an authorized verifier acting for EPD Hub Limited

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.

PRODUCT

Product name	SPIROTRAP MB3 22 mm
Additional labels	
Product reference	UE022WJ
Place of production	Helmond, NL
Period for data	2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 SPIROTRAP MB3 22mm
Declared unit mass	2.048 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1,62E+01
GWP-total, A1-A3 ($kgCO_2e$)	1,59E+01
Secondary material, inputs (%)	26.8
Secondary material, outputs (%)	61.7
Total energy use, A1-A3 (kWh)	64.7
Net freshwater use, A1-A3 (m^3)	0.38

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Spirotech is an expert and market leader in the field of system water quality in heating and cooling systems. Our products have been prescribed for many years by international boiler and heat pump manufacturers, installers and consultants in residential and non-residential projects.

As a Helmond family business, we were the first in the Netherlands to start developing air and dirt separators for use in heating and cooling installations/systems. With an air and dirt separator you not only save energy, but you also prevent wear and tear on the (often) expensive components in your system, such as the heating boiler or heat pump.

Our products are mostly produced in the Netherlands with high-quality materials such as brass and steel. In addition, we use high-quality magnets to remove all the harmful magnetite. We also produce and supply products for vacuum degassing, pressure maintenance, hydraulic distributors and additives. We also provide tailor-made advice on the basis of an extensive water analysis.

PRODUCT DESCRIPTION

The SPIROTRAP MB3 22 mm is a brass dirt separator with magnet and a 22 mm universal connection.
It is assembled from brass, steel, plastic and copper pieces, and includes a magnet.

Its main benefits are:

- Very small particles, from 5 µm (= 0.005 mm) are separated and removed
- Including a magnet for extra protection and highly efficient removal of magnetite
- Dirt can be drained while the system is in operation
- No shut-off valves or bypass required
- Applicable with 50/50 Ethylene Glycol / Water (Volume)
- Constant low pressure drop
- Maintenance only takes a few seconds and is not a dirty job compared to a filter solution
- No unnecessary downtime

This EPD is for the SPIROTRAP MB3 with 22 mm connection. The SPIROTRAP MB3 product range includes products with connections with the following diameters: 28 mm, 0.75 in, 1 in, 1.25 in, 1.5 in, and 2 in. A scaling table for the products with connections with different diameters is included in the annex.

Pressure rating: Up to 10 bar
Temperature range: Up to 110 °C

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	94.8	
Minerals	0	
Fossil materials	5.2	
Bio-based materials	0	

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0.0693

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 SPIROTRAP MB3 22mm
Mass per declared unit	2.048 kg
Functional unit	1 SPIROTRAP MB3 22mm
Reference service life	20

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

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

Modules not declared = MND. Modules not relevant = MNR

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 SPIROTRAP MB3 is a brass dirt separator with magnet and a 22 mm universal connection. It is assembled from brass, steel, plastic and copper pieces, and includes a magnet. The main components along with brass and steel are

Main components along with bronze and brass are copper, EPDM (O-rings, gaskets), neodynium (magnet), and plastics (polyethylene, polyamide 6, polycarbonate).
The manufacturing process requires electricity for the different equipment, and only soldering fluid is used as ancillary material. As the production concerns assembly, there are no significant production losses.

The product is packed with a manual (paper) in a cardboard box. Per 6 units, the products are packed in a larger cardboard box.

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.

The average weighted distance of transportation from production plant to the retail site is 372 km and the transportation method is assumed to be lorry. 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). The impacts of material production, its processing and disposal as installation waste are also included.

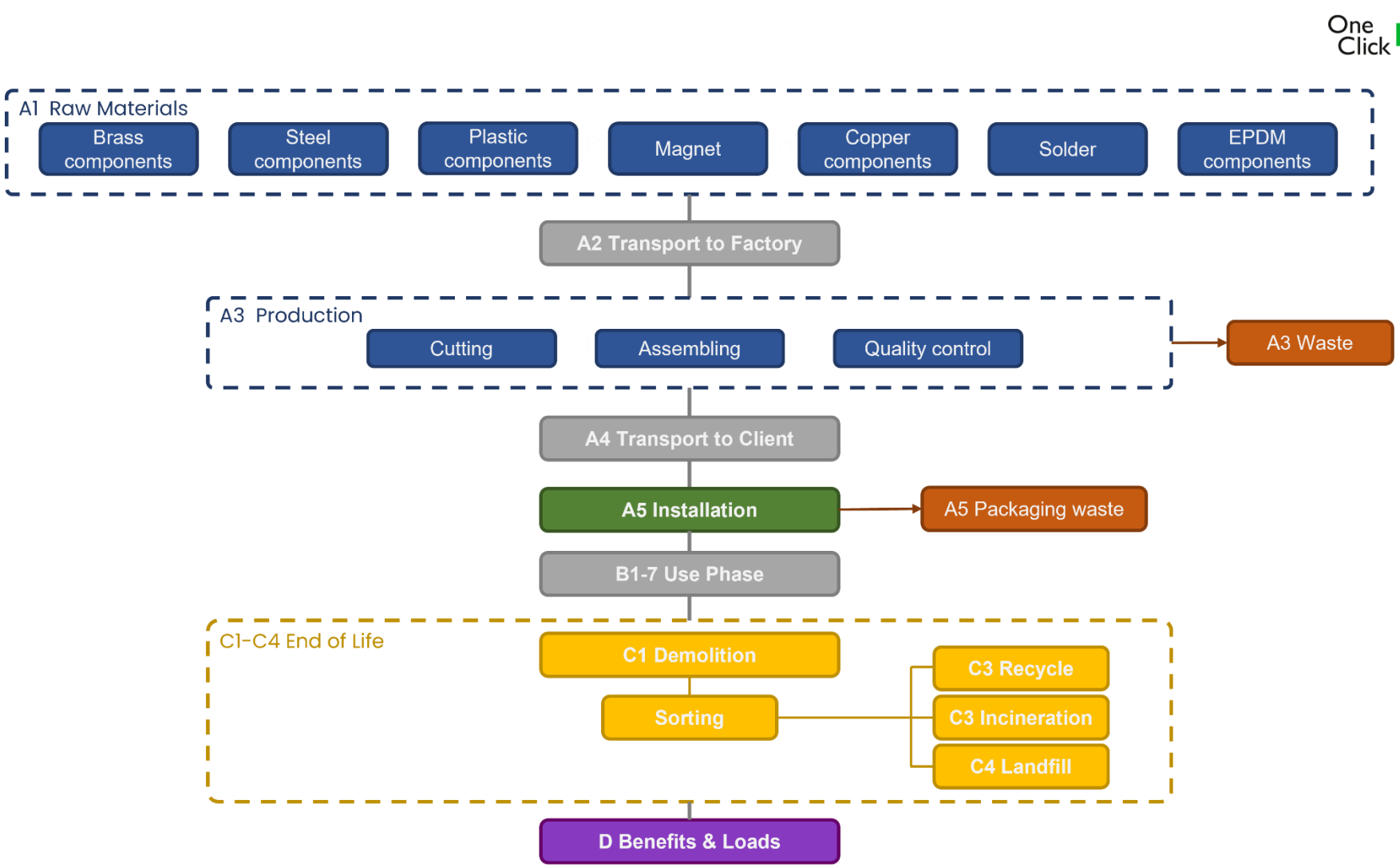
PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The consumption of energy for disassembling the product at EoL is assumed to be negligible (C1). 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). 59% of the product is sent to recycling and 3% to incineration facilities (C3). 38% of the end-of-life product goes to landfill (C4). Due to the recycling and incineration potential of metals and plastics, 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 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	No allocation
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	%

This EPD is product and factory specific and does not contain average calculations.

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 v3.8, Plastics Europe, Federal LCA Commons 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_2e	1,53E+01	4,32E-01	1,68E-01	1,59E+01	7,46E-02	2,59E-01	MND	MND	MND	MND	MND	MND	MND	MNR	8,91E-03	1,53E-01	7,27E-03	-4,55E+00
GWP – fossil	kg CO_2e	1,53E+01	4,32E-01	4,21E-01	1,62E+01	7,46E-02	5,38E-03	MND	MND	MND	MND	MND	MND	MND	MNR	8,91E-03	1,53E-01	7,27E-03	-4,54E+00
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-2,54E-01	-2,54E-01	0,00E+00	2,54E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO_2e	2,86E-02	2,99E-04	1,14E-03	3,01E-02	2,90E-05	3,27E-06	MND	MND	MND	MND	MND	MND	MND	MNR	3,34E-06	3,91E-05	4,15E-06	-8,13E-03
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	8,95E-07	8,74E-08	1,79E-08	1,00E-06	1,75E-08	3,90E-10	MND	MND	MND	MND	MND	MND	MND	MNR	2,22E-09	4,08E-09	1,72E-09	-2,39E-07
Acidification potential	mol H^+e	7,64E-01	1,27E-02	2,61E-03	7,79E-01	2,43E-04	2,37E-05	MND	MND	MND	MND	MND	MND	MND	MNR	2,84E-05	3,68E-04	4,04E-05	-3,95E-01
EP-freshwater[2)]	kg Pe	3,43E-03	1,77E-06	4,25E-05	3,48E-03	6,32E-07	1,37E-07	MND	MND	MND	MND	MND	MND	MND	MNR	6,36E-08	1,52E-06	1,45E-07	-1,64E-03
EP-marine	kg Ne	9,18E-02	3,12E-03	6,10E-04	9,55E-02	5,34E-05	4,21E-05	MND	MND	MND	MND	MND	MND	MND	MNR	6,26E-06	8,45E-05	1,72E-05	-1,78E-02
EP-terrestrial	mol Ne	5,69E-01	3,46E-02	4,60E-03	6,08E-01	5,93E-04	6,86E-05	MND	MND	MND	MND	MND	MND	MND	MNR	6,95E-05	9,65E-04	1,53E-04	-2,70E-01
POCP ("smog")[3)]	kg NMVOCe	1,58E-01	9,01E-03	1,12E-03	1,68E-01	2,30E-04	2,54E-05	MND	MND	MND	MND	MND	MND	MND	MNR	2,74E-05	2,63E-04	4,52E-05	-7,39E-02
ADP-minerals & metals[4)]	kg Sbe	1,87E-02	6,46E-07	1,31E-06	1,87E-02	1,82E-07	5,43E-08	MND	MND	MND	MND	MND	MND	MND	MNR	2,18E-08	3,56E-06	1,03E-08	-1,01E-02
ADP-fossil resources	MJ	1,86E+02	5,56E+00	4,93E+00	1,96E+02	1,17E+00	4,57E-02	MND	MND	MND	MND	MND	MND	MND	MNR	1,42E-01	3,88E-01	1,18E-01	-5,62E+01
Water use[5)]	m^3e depr.	1,16E+01	1,76E-02	1,41E-01	1,18E+01	5,22E-03	1,96E-03	MND	MND	MND	MND	MND	MND	MND	MNR	6,57E-04	9,93E-03	3,96E-04	-4,00E+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.

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	3,87E+01	4,14E-02	1,59E+00	4,03E+01	1,32E-02	3,61E-03	MND	MND	MND	MND	MND	MND	MND	MNR	1,84E-03	6,61E-02	1,11E-03	-1,77E+01
Renew. PER as material	MJ	0,00E+00	0,00E+00	2,24E+00	2,24E+00	0,00E+00	-2,24E+00	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	3,87E+01	4,14E-02	3,83E+00	4,26E+01	1,32E-02	-2,23E+00	MND	MND	MND	MND	MND	MND	MND	MNR	1,84E-03	6,61E-02	1,11E-03	-1,77E+01
Non-re. PER as energy	MJ	1,82E+02	5,56E+00	4,91E+00	1,93E+02	1,17E+00	4,57E-02	MND	MND	MND	MND	MND	MND	MND	MNR	1,42E-01	3,88E-01	1,18E-01	-5,54E+01
Non-re. PER as material	MJ	3,26E+00	0,00E+00	1,83E-02	3,28E+00	0,00E+00	-1,83E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	-2,40E+00	-8,58E-01	0,00E+00
Total use of non-re. PER	MJ	1,86E+02	5,56E+00	4,93E+00	1,96E+02	1,17E+00	2,73E-02	MND	MND	MND	MND	MND	MND	MND	MNR	1,42E-01	-2,01E+00	-7,40E-01	-5,54E+01
Secondary materials	kg	5,49E-01	2,41E-03	1,68E-01	7,19E-01	3,24E-04	8,38E-05	MND	MND	MND	MND	MND	MND	MND	MNR	4,01E-05	5,02E-04	2,56E-05	8,23E-01
Renew. secondary fuels	MJ	4,48E-03	7,97E-06	1,19E-02	1,64E-02	3,27E-06	4,19E-07	MND	MND	MND	MND	MND	MND	MND	MNR	3,54E-07	2,14E-05	7,09E-07	-1,51E-03
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	3,65E-01	4,03E-04	9,37E-03	3,75E-01	1,51E-04	3,15E-05	MND	MND	MND	MND	MND	MND	MND	MNR	1,89E-05	2,87E-04	1,29E-04	-1,85E-01

8) PER = Primary energy resources.

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	3,83E+00	7,56E-03	4,02E-02	3,87E+00	1,54E-03	9,55E-04	MND	MND	MND	MND	MND	MND	MND	MNR	1,53E-04	2,68E-03	1,27E-02	-1,44E+00
Non-hazardous waste	kg	2,21E+02	6,95E-02	1,62E+00	2,22E+02	2,53E-02	1,00E-02	MND	MND	MND	MND	MND	MND	MND	MNR	2,65E-03	1,32E-01	7,71E-01	-1,14E+02
Radioactive waste	kg	2,36E-03	3,91E-05	6,02E-06	2,41E-03	7,87E-06	2,34E-07	MND	MND	MND	MND	MND	MND	MND	MNR	9,82E-07	2,12E-06	0,00E+00	-1,93E-04

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	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,40E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,21E+00	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	1,60E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	5,12E-02	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,64E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	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_2e	1,51E+01	4,29E-01	4,26E-01	1,60E+01	7,39E-02	2,31E-02	MND	MND	MND	MND	MND	MND	MND	MNR	8,83E-03	1,52E-01	6,59E-03	-4,43E+00
Ozone depletion Pot.	kg CFC_{-11}e	7,68E-07	6,92E-08	1,51E-08	8,52E-07	1,39E-08	3,21E-10	MND	MND	MND	MND	MND	MND	MND	MNR	1,76E-09	3,44E-09	1,36E-09	-2,00E-07
Acidification	kg SO_2e	6,69E-01	1,01E-02	2,13E-03	6,81E-01	1,97E-04	1,85E-05	MND	MND	MND	MND	MND	MND	MND	MNR	2,30E-05	2,93E-04	3,06E-05	-3,47E-01
Eutrophication	kg PO_4^3e	2,27E-01	1,14E-03	1,48E-03	2,30E-01	4,31E-05	1,58E-04	MND	MND	MND	MND	MND	MND	MND	MNR	4,88E-06	1,28E-04	3,62E-04	-1,02E-01
POCP (“smog”)	kg C_2H_4e	2,60E-02	2,63E-04	9,71E-05	2,64E-02	9,08E-06	5,20E-06	MND	MND	MND	MND	MND	MND	MND	MNR	1,07E-06	1,13E-05	1,70E-06	-1,31E-02
ADP-elements	kg Sbe	1,86E-02	6,33E-07	1,14E-06	1,87E-02	1,77E-07	5,35E-08	MND	MND	MND	MND	MND	MND	MND	MNR	2,12E-08	3,54E-06	1,02E-08	-1,01E-02
ADP-fossil	MJ	1,85E+02	5,56E+00	4,91E+00	1,96E+02	1,17E+00	4,57E-02	MND	MND	MND	MND	MND	MND	MND	MNR	1,42E-01	3,88E-01	1,18E-01	-5,61E+01

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.

Silvia Vilčeková, as an authorized verifier acting for EPD Hub Limited

10.11.2024

ANNEX

This EPD is for the SPIROTRAP MB3 with 22 mm connection. The SPIROTRAP MB3 22 mm represents over 50% of the sales volume of the SPIROTRAP MB3 product range.

Next to the SPIROTRAP MB3 with 22 mm connection, the SPIROTRAP MB3 product range includes products with connections with the following diameters: 28 mm, 0.75 in, 1 in, 1.25 in, 1.5 in, and 2 in.

The life cycle impacts of the design variations within this product range were calculated. The Environmental Data Summary (p.2) of each of the designs is included in the scaling table below. Insights into the changes in other life cycle impact categories due to design variations can be provided by Spirotech on request.

Connection	22 mm	28 mm	0.75 in	1 in	1.25 in	1.5 in	2 in
Unit mass (kg)	2.048	2.122	2.012	2.202	3.712	3.792	4.072
GWP-fossil, A1-A3 ($kgCO_2e$)	16.2	16.8	15.8	17.5	28.8	29.5	32.1
GWP-total, A1-A3 ($kgCO_2e$)	15.9	16.6	15.6	17.3	28.6	29.3	31.8
Secondary material, inputs (%)	26.8	27.0	26.7	27.3	28.2	28.3	28.7
Secondary material, outputs (%)	61.7	61.7	61.8	61.6	61.1	61.1	61
Total energy use, A1-A3 (kWh)	64.7	67.5	63.4	70.5	120	123	133
Net freshwater use, A1-A3 (m^3)	0.38	0.39	0.37	0.41	0.73	0.74	0.81