Product Environmental Profile

Thermodynamic hot water heater

SPC … EVO
BC ACS … iR290

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Verifier accreditation number: VH48	Information and reference documents: www.pep-ecopassport.org
Date of issuer: 02/2024	Validity period: 5 years
Independent verification of the declaration and data in compliance with ISO 14025: 2006 Internal: External: **X**	
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)	
PEPs are compliant with XP C08-100-1:2016 or EN 50693:2019 or NF E38-500: 2022 The components of the present PEP may not be compared with components from any other program	
Document complies with ISO 14025:2010 “Environmental labels and declarations. Type III environmental declarations”	

General information

Product category

Thermo-cycle standalone device for production of stored domestic hot water, technology “unheated ambient air” and “outside air”.

Declared unit

To ensure the production of domestic hot water with a 198* liters thermodynamic, individual, standalone device for a reference lifetime of 17 years of the product
*The capacity is to be adjusted according to the product considered in the range

Functional unit

Produce 1 liter of stored domestic hot water at a temperature at 40°C equivalent according to the reference use scenario and with a product reference lifetime of 17 years.

Product information

Reference product: SPC 200 EVO - reference 7785397

Technical characteristics of the reference product

AEC (unheated ambient air) *Annual electricity consumption*	755 kWh	AEC (outside air) *Annual electricity consumption*	800 kWh
Load profile	L	**Vm** *Storage volume*	198 l
Weight without packaging*	86.7 kg	**R290 coolant fluid weight**	0.150 kg

(*) *The indicated weight corresponds to the weight of the product within the framework of the PEP and may present slight variations with the indicated weight in the technical documentation.*
AEC, according to the regulation n°811/2013

Constituent materials

Metals		Plastics		Others	
Steel	53.1 %	ABS	7.5 %	Cardboard	8.7 %
Aluminium	4.1 %	Polyurethane	4.9 %	Wood	7.3 %
Copper	2.9 %	Polypropylene	2.3 %	Enamel	2.0 %
Brass	0.6 %	Polystyrene	1.1 %	Electric cable	0.7 %
Ferrite	0.4 %	Polyamide	0.8 %	Oil	0.6 %
Other metals	<0.1 %	Other plastics	1.5 %	Other materials	1.5 %
Total	**61.1 %**		**18.1 %**		**20.8 %**

Total weight of the modeled product: 103.7 kg (including 17.0 kg of primary packaging)

Products cover by this PEP declaration

This PEP declaration covers all the products in the same environmental homogeneous family below.

Baxi Italy

“Unheated ambient air” technology

SPC 200 Plus - 7785397
SPC 200 S Plus – 7785398
SPC 250 Plus – 7785399
SPC 250 S Plus - 7785400

“Outdoor air” technology

SPC 200 Plus – 7785397 + 2 connections kits - 7789239
SPC 200 S Plus – 7785398 + 2 connections kits - 7789239
SPC 250 Plus – 7785399 + 2 connections kits - 7789239
SPC 250 S Plus – 7785400 + 2 connections kits - 7789239

Baxi Spain

“Unheated ambient air” technology

BC ACS IN 200 iR290 - 7785384
BC ACS 1EN 200 iR290 – 7785394
BC ACS IN 300 iR290 – 7785395
BC ACS 1E 300 iR290 - 7785396

“Outdoor air” technology

BC ACS IN 200 iR290 – 7785384 + 2 connections kits - 7789239
BC ACS 1EN 200 iR290 – 7785394 + 2 connections kits - 7789239
BC ACS IN 300 iR290 – 7785395 + 2 connections kits – 7789239
BC ACS 1E 300 iR290 - 7785396+ 2 connections kits - 7789239

Life Cycle Assessment methodology

Methodology

The Product Environmental Profile (PEP) is based on Life Cycle Assessment in accordance with the rules published by PEP Ecopassport program (for more information on the program, consult the website www.pep-ecopassport.org).
All system boundaries are considered (manufacturing, distribution, installation, use, end of life) as well as benefits and costs beyond the life cycle.
The results were obtained using EIME V6.1.1 software with its database "2023-02".

Manufacturing stage

Raw materials and components	The production of 99.5% of the reference product weight (materials, components and packaging), as well as the shaping and assembly processes of the components were taken into account.
Raw materials and components packaging	The production and end of life of the packaging used for the transport of materials and components from the suppliers to the production site have been recorded.
Manufacturing waste	We have identified the scrap rates and associated end of life of certain parts. For the other parts, we considered a amount of waste compliant to the PSR, i.e.: • 0.05 times for the amount of material for plastic injection processes and elastomer. • 0.3 times for the amount of material for all other materials and other shaping processes. The default end of life scenario for waste id modelling as follows: 100% of incinerated waste without energy recovery. A transport distance of 100 km is applied for the collection of waste to the treatment centre.
Product manufacturing	The modelling integrates the flows of our manufacturing site in France (energy, water, consumables of the industrial processes of the production site and the emissions of refrigerant).
Transport	The upstream transport of materials and components (with their packaging) is taken into account according to 3 models: local, intra-continental and inter-continental transport.

Distribution stage

Transport	The distribution stage includes the transport by truck of the packaged product over a distance of 3500 km from our last logistics platforms to the distributor, then to the place of implementation in Europe. No reconditioning packaging was considered.

Installation stage

Accessory	The installation phase includes a standard market safety group: material and production scrap, shaping process, packaging, end of life of scrap and transport to the place of implementation
Packaging waste	The disposal (evacuation and treatment) of the packaging of the reference product and the safety group is modelled according to the **European** scenario below.

	Cardboard & Papers	Wood	Plastics
Recycling	82%	31%	41%
Energy recovery	9%	31%	37%
Not recovered (100% buried)	9%	38%	22%

Use stage

Electricity consumption	Electricity consumption is calculated according to delegated regulation (EU) N°812/2013. $$C_{tot}\ (en\ kWh) = AEC * DVR$$ With: • AEC = annual electricity consumption, • DRV = reference lifetime The energy model of electricity used for an European use is: Electricity Mix; Production mix; Low voltage; UE-27, (reference year: 2018))
Maintenance	A biennial inspection, considering the travel of a technician over 100km, is modelled for the entire life of the product, which means 8 control visits.
Refrigerant leaks	The leak of R290 refrigerant into the air is taken into account. There's no fluid refill considered during use of the equipment.

End of life stage

Product end of life	The Thermodynamic Hot Water Heater falls within the scope of the WEEE directive (2012/19/EU). The end of life must therefore be managed by a local EEE waste treatment sector. We used The Life Cycle Inventories (LCI) developed by ECOSYSTEM **ECOSYSTEM is the organisation in charge of ensuring the extended producer responsibility for WEEE in France.*
Refrigerant end of life	The refrigerant end of life follows the following scenario: 10% of fluid not collected, 90% of the fluid collected incinerated without recovery.
Transport	The considered transport to the treatment center is 1000 km for the refrigerant and 100 km for the product.

Benefits and loads

Loads	Loads related to the use of recycled materials are considered.
Benefits	The benefits related to the recycling of the packaging (at installation stage) and the product (at end-of-life stage) are considered. The Life Cycle Inventories (LCI) developed by ECOSYSTEM were used to model product recycling.

The method EF3.0 is applied for this declaration.

Environmental impacts

Environmental impacts per device corresponding to the reference product

Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use					End of life	Benefits and loads
		A-C	A1-A3	A4	A5	B1-B7	B1	B2	B6	B3-B5,B7	C1-C4	D
Mandatory indicators												
Climate change - total (IPCC 2013)	kg CO_2 eq.	6.05E+03	4.89E+02	2.33E+01	2.01E+01	5.44E+03	0.00E+00	1.27E+02	5.31E+03	0.00E+00	7.24E+01	-1.37E+02
Climate change - fossil fuels	kg CO_2 eq.	6.02E+03	4.76E+02	2.33E+01	1.90E+01	5.43E+03	0.00E+00	1.27E+02	5.31E+03	0.00E+00	7.02E+01	-1.34E+02
Climate change - biogenics	kg CO_2 eq.	2.28E+01	1.25E+01	0.00E+00	1.04E+00	7.09E+00	0.00E+00	0.00E+00	7.09E+00	0.00E+00	2.23E+00	-2.19E+00
Climate change - land use and land use transformation	kg CO_2 eq.	5.09E-04	5.09E-04	0.00E+00	1.84E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ozone depletion (WMO 2014)	kg CFC-11 eq.	1.57E-04	2.78E-05	3.57E-08	8.13E-07	1.23E-04	0.00E+00	1.00E-04	2.27E-05	0.00E+00	5.19E-06	-6.56E-06
Acidification (AP)	kg H+ eq.	3.47E+01	3.15E+00	1.48E-01	1.00E-01	3.09E+01	0.00E+00	5.39E-01	3.03E+01	0.00E+00	4.41E-01	-2.37E+00
Freshwater eutrophication	kg P eq.	1.85E-02	2.00E-03	8.74E-06	2.13E-04	1.46E-02	0.00E+00	1.41E-05	1.45E-02	0.00E+00	1.75E-03	-2.11E-01
Marine aquatic eutrophication	kg N eq.	4.30E+00	3.96E-01	6.92E-02	1.83E-02	3.62E+00	0.00E+00	1.76E-01	3.44E+00	0.00E+00	1.92E-01	-1.89E-01
Terrestrial eutrophication	mol N eq.	5.97E+01	4.25E+00	7.59E-01	1.35E-01	5.40E+01	0.00E+00	2.20E+00	5.18E+01	0.00E+00	6.19E-01	-2.27E+00
Photochemical ozone formation	kg NMVOC eq.	1.38E+01	1.39E+00	1.91E-01	3.86E-02	1.20E+01	1.49E-03	9.08E-01	1.11E+01	0.00E+00	1.76E-01	-8.42E-01
Abiotic resource depletion - metals and minerals	kg SB eq.	1.73E-02	1.62E-02	9.18E-07	5.14E-04	3.85E-04	0.00E+00	2.20E-08	3.85E-04	0.00E+00	1.82E-04	-8.77E-03
Abiotic resource depletion - fossils	MJ	1.54E+05	1.54E+04	3.25E+02	1.41E+02	1.37E+05	0.00E+00	1.55E+03	1.35E+05	0.00E+00	8.24E+02	-8.08E+02
Water requirement	m^3	1.94E+04	2.08E+02	8.85E-02	4.39E+00	1.94E+02	0.00E+00	6.36E+00	1.88E+02	0.00E+00	1.90E+04	-5.73E+04
Optional indicators												
Emission of fine particles	Disease occurrence	2.63E-04	2.10E-05	1.20E-06	5.92E-07	2.37E-04	0.00E+00	2.08E-06	2.35E-04	0.00E+00	2.67E-06	-1.34E-05
Ionizing radiation, human health	kg U235 eq.	1.06E+04	2.41E+03	5.68E-02	3.18E+02	7.90E+03	0.00E+00	5.54E-01	7.90E+03	0.00E+00	4.51E+00	-2.38E+00
Ecotoxicity (freshwater)	CTUe	7.86E+04	1.30E+04	1.57E+01	8.53E+02	5.77E+04	1.63E-05	4.84E+02	5.72E+04	0.00E+00	7.05E+03	-1.63E+04
Human toxicity, carcinogenic effects	CTUh	9.43E-05	8.65E-05	4.10E-10	7.11E-06	6.31E-07	0.00E+00	1.13E-08	6.20E-07	0.00E+00	6.58E-08	-2.83E-06
Human toxicity, non-carcinogenic effects	CTUh	5.19E-05	1.79E-05	4.43E-08	1.68E-06	2.92E-05	4.19E-12	4.67E-06	2.46E-05	0.00E+00	3.05E-06	-2.29E-05
Impacts related to land use/soil quality	-	2.42E+02	1.29E+01	0.00E+00	1.06E+00	1.06E+02	0.00E+00	0.00E+00	1.06E+02	0.00E+00	1.23E+02	-6.49E+02

B1: Use; B2: Maintenance; B3: Repair; B4: Replacement; B5: Restoration; B6: Energy requirements; B7: Water requirements

Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use					End of life	Benefits and loads
		A-C	A1-A3	A4	A5	B1-B7	B1	B2	B6	B3-B5,B7	C1-C4	D
Resource use indicators												
Total use of primary energy during the life cycle	MJ	1.80E+05	1.58E+04	3.26E+02	1.95E+02	1.63E+05	0.00E+00	1.55E+03	1.61E+05	0.00E+00	9.06E+02	-1.16E+03
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	2.64E+04	2.70E+02	4.34E-01	5.31E+01	2.60E+04	0.00E+00	2.04E-02	2.60E+04	0.00E+00	8.15E+01	-3.06E+02
Use of renewable primary energy resources used as raw materials	MJ	2.21E+02	2.20E+02	0.00E+00	7.02E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.81E+01
Total use of renewable primary energy resources	MJ	2.66E+04	4.90E+02	4.34E-01	5.38E+01	2.60E+04	0.00E+00	2.04E-02	2.60E+04	0.00E+00	8.15E+01	-3.54E+02
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	1.53E+05	1.46E+04	3.25E+02	1.41E+02	1.37E+05	0.00E+00	1.55E+03	1.35E+05	0.00E+00	8.24E+02	-8.26E+02
Use of non-renewable primary energy resources used as raw materials	MJ	7.27E+02	7.27E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E+01
Total use of non-renewable primary energy resources	MJ	1.54E+05	1.54E+04	3.25E+02	1.41E+02	1.37E+05	0.00E+00	1.55E+03	1.35E+05	0.00E+00	8.24E+02	-8.08E+02
Use of secondary materials, water and energy resources												
Use of secondary materials	kg	2.07E+01	2.07E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of freshwater	m^3	5.43E+02	4.90E+00	2.06E-03	1.02E-01	4.53E+00	0.00E+00	1.48E-01	4.38E+00	0.00E+00	5.34E+02	-1.44E+03
Waste category indicators												
Hazardous waste disposed	kg	7.50E+02	6.11E+02	0.00E+00	3.95E+01	9.94E+01	0.00E+00	1.73E-01	9.93E+01	0.00E+00	2.09E-05	1.78E+01
Non hazardous waste disposed	kg	1.03E+03	2.55E+02	8.18E-01	1.06E+01	7.65E+02	0.00E+00	2.30E-01	7.65E+02	0.00E+00	1.75E-01	1.06E+01
Radioactive waste disposed	kg	3.62E-01	1.77E-01	5.83E-04	1.12E-03	1.83E-01	0.00E+00	2.28E-02	1.60E-01	0.00E+00	2.79E-05	7.35E-03
Output flow indicators												
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	8.21E+01	1.02E+01	0.00E+00	2.61E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.93E+01	0.00E+00
Materials for energy recovery	kg	1.29E+01	8.10E-02	0.00E+00	3.25E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.53E+00	0.00E+00
Exported Energy	MJ	2.51E+00	0.00E+00	0.00E+00	2.51E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

B1: Use; B2: Maintenance; B3: Repair; B4: Replacement; B5: Restoration; B6: Energy requirements; B7: Water requirements

Biogenic carbon content (assessment methodology 0/0)

- Biogenic carbon content of the product: 0.00E+00 kg C
- Biogenic carbon content of the associated packaging: 5.58E+00 kg C

Environmental impacts per liter at 40°C corresponding to the functional unit

This environmental declaration was drawn up on the basis of the production of 1 liter of domestic hot water stored at 40°C equivalent, for a device supplying a liter consumption corresponding to the draw-off profile chosen.
For a usage other than the reference scenario, the impacts of this declaration for the production, distribution, installation, and end-of-life stages shall be multiplied by the following coefficient: Number of liters of water produced / (consumption corresponding to the draw-off profile chosen in liter x 17 years).
The actual impact of the life cycle of the installed product in a real situation shall be calculated by the user of the declaration by multiplying the impact concerned by the total number of liters of water produced over 17 years according to the use scenario (average number of liters produced of 1 249 104 in the case of the reference scenario).

Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use					End of life	Benefits and loads
		A-C	A1-A3	A4	A5	B1-B7	B1	B2	B6	B3-B5,B7	C1-C4	D
Mandatory indicators												
Climate change - total (IPCC 2013)	kg CO_2 eq.	4.84E-03	3.91E-04	1.87E-05	1.61E-05	4.36E-03	0.00E+00	1.02E-04	4.25E-03	0.00E+00	5.80E-05	-1.09E-04
Climate change - fossil fuels	kg CO_2 eq.	4.82E-03	3.81E-04	1.87E-05	1.52E-05	4.35E-03	0.00E+00	1.02E-04	4.25E-03	0.00E+00	5.62E-05	-1.08E-04
Climate change - biogenics	kg CO_2 eq.	1.83E-05	1.00E-05	0.00E+00	8.31E-07	5.67E-06	0.00E+00	0.00E+00	5.67E-06	0.00E+00	1.78E-06	-1.75E-06
Climate change - land use and land use transformation	kg CO_2 eq.	4.07E-10	4.07E-10	0.00E+00	1.47E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ozone depletion (WMO 2014)	kg CFC-11 eq.	1.25E-10	2.23E-11	2.86E-14	6.51E-13	9.82E-11	0.00E+00	8.00E-11	1.82E-11	0.00E+00	4.16E-12	-5.25E-12
Acidification (AP)	kg H+ eq.	2.78E-05	2.52E-06	1.18E-07	8.02E-08	2.47E-05	0.00E+00	4.31E-07	2.43E-05	0.00E+00	3.53E-07	-1.89E-06
Freshwater eutrophication	kg P eq.	1.48E-08	1.60E-09	7.00E-12	1.71E-10	1.17E-08	0.00E+00	1.13E-11	1.16E-08	0.00E+00	1.40E-09	-1.69E-07
Marine aquatic eutrophication	kg N eq.	3.44E-06	3.17E-07	5.54E-08	1.46E-08	2.90E-06	0.00E+00	1.41E-07	2.76E-06	0.00E+00	1.53E-07	-1.51E-07
Terrestrial eutrophication	mol N eq.	4.78E-05	3.40E-06	6.08E-07	1.08E-07	4.32E-05	0.00E+00	1.76E-06	4.14E-05	0.00E+00	4.96E-07	-1.81E-06
Photochemical ozone formation	kg NMVOC eq.	1.10E-05	1.11E-06	1.53E-07	3.09E-08	9.58E-06	1.19E-09	7.27E-07	8.85E-06	0.00E+00	1.41E-07	-6.74E-07
Abiotic resource depletion - metals and minerals	kg SB eq.	1.39E-08	1.30E-08	7.35E-13	4.11E-10	3.08E-10	0.00E+00	1.76E-14	3.08E-10	0.00E+00	1.45E-10	-7.02E-09
Abiotic resource depletion - fossils	MJ	1.23E-01	1.23E-02	2.60E-04	1.13E-04	1.10E-01	0.00E+00	1.24E-03	1.08E-01	0.00E+00	6.60E-04	-6.47E-04
Water requirement	m^3	1.56E-02	1.66E-04	7.09E-08	3.51E-06	1.56E-04	0.00E+00	5.09E-06	1.51E-04	0.00E+00	1.52E-02	-4.59E-02
Optional indicators												
Emission of fine particles	Disease occurrence	2.10E-10	1.68E-11	9.61E-13	4.74E-13	1.90E-10	0.00E+00	1.66E-12	1.88E-10	0.00E+00	2.14E-12	-1.07E-11
Ionizing radiation, human health	kg U235 eq.	8.51E-03	1.93E-03	4.54E-08	2.54E-04	6.33E-03	0.00E+00	4.43E-07	6.33E-03	0.00E+00	3.61E-06	-1.91E-06
Ecotoxicity (freshwater)	CTUe	6.29E-02	1.04E-02	1.26E-05	6.83E-04	4.62E-02	1.31E-11	3.87E-04	4.58E-02	0.00E+00	5.65E-03	-1.31E-02
Human toxicity, carcinogenic effects	CTUh	7.55E-11	6.92E-11	3.28E-16	5.69E-12	5.05E-13	0.00E+00	9.06E-15	4.96E-13	0.00E+00	5.27E-14	-2.26E-12
Human toxicity, non-carcinogenic effects	CTUh	4.16E-11	1.43E-11	3.55E-14	1.35E-12	2.34E-11	3.35E-18	3.74E-12	1.97E-11	0.00E+00	2.44E-12	-1.84E-11
Impacts related to land use/soil quality	-	1.94E-04	1.03E-05	0.00E+00	8.46E-07	8.46E-05	0.00E+00	0.00E+00	8.46E-05	0.00E+00	9.82E-05	-5.19E-04

B1: Use; B2: Maintenance; B3: Repair; B4: Replacement; B5: Restoration; B6: Energy requirements; B7: Water requirements

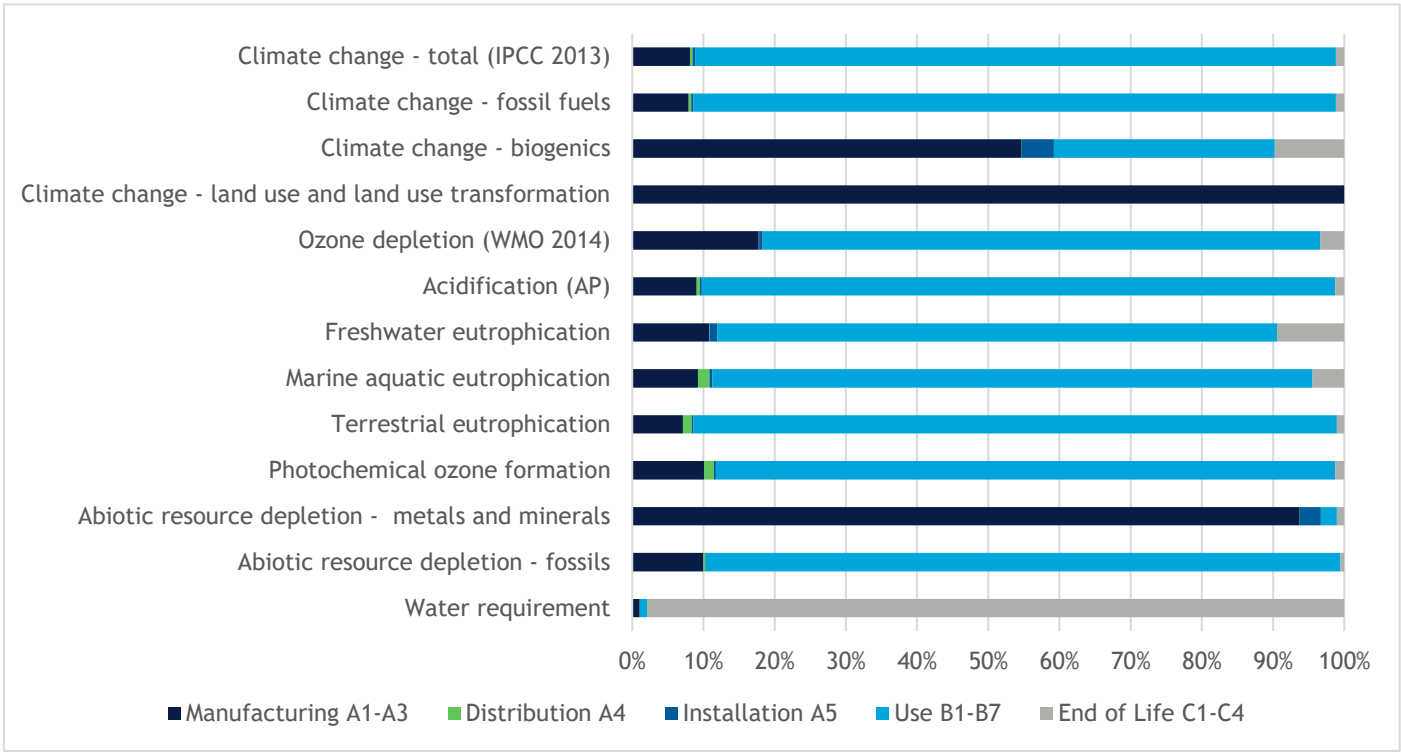
Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use					End of life	Benefits and loads
		A-C	A1-A3	A4	A5	B1-B7	B1	B2	B6	B3-B5,B7	C1-C4	D
Resource use indicators												
Total use of primary energy during the life cycle	MJ	1.44E-01	1.27E-02	2.61E-04	1.56E-04	1.30E-01	0.00E+00	1.24E-03	1.29E-01	0.00E+00	7.25E-04	-9.30E-04
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	2.11E-02	2.16E-04	3.47E-07	4.25E-05	2.08E-02	0.00E+00	1.63E-08	2.08E-02	0.00E+00	6.53E-05	-2.45E-04
Use of renewable primary energy resources used as raw materials	MJ	1.77E-04	1.76E-04	0.00E+00	5.62E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.85E-05
Total use of renewable primary energy resources	MJ	2.13E-02	3.92E-04	3.47E-07	4.31E-05	2.08E-02	0.00E+00	1.63E-08	2.08E-02	0.00E+00	6.53E-05	-2.83E-04
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	1.22E-01	1.17E-02	2.60E-04	1.13E-04	1.10E-01	0.00E+00	1.24E-03	1.08E-01	0.00E+00	6.60E-04	-6.62E-04
Use of non-renewable primary energy resources used as raw materials	MJ	5.82E-04	5.82E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-05
Total use of non-renewable primary energy resources	MJ	1.23E-01	1.23E-02	2.60E-04	1.13E-04	1.10E-01	0.00E+00	1.24E-03	1.08E-01	0.00E+00	6.60E-04	-6.47E-04
Use of secondary materials, water and energy resources												
Use of secondary materials	kg	1.66E-05	1.66E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of freshwater	m^3	4.35E-04	3.92E-06	1.65E-09	8.18E-08	3.62E-06	0.00E+00	1.18E-07	3.50E-06	0.00E+00	4.27E-04	-1.15E-03
Waste category indicators												
Hazardous waste disposed	kg	6.00E-04	4.89E-04	0.00E+00	3.16E-05	7.96E-05	0.00E+00	1.39E-07	7.95E-05	0.00E+00	1.68E-11	1.43E-05
Non hazardous waste disposed	kg	8.25E-04	2.04E-04	6.55E-07	8.51E-06	6.12E-04	0.00E+00	1.84E-07	6.12E-04	0.00E+00	1.40E-07	8.46E-06
Radioactive waste disposed	kg	2.90E-07	1.42E-07	4.66E-10	8.98E-10	1.46E-07	0.00E+00	1.82E-08	1.28E-07	0.00E+00	2.23E-11	5.88E-09
Output flow indicators												
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	6.57E-05	8.18E-06	0.00E+00	2.09E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.55E-05	0.00E+00
Materials for energy recovery	kg	1.03E-05	6.48E-08	0.00E+00	2.60E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.63E-06	0.00E+00
Exported Energy	MJ	2.01E-06	0.00E+00	0.00E+00	2.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

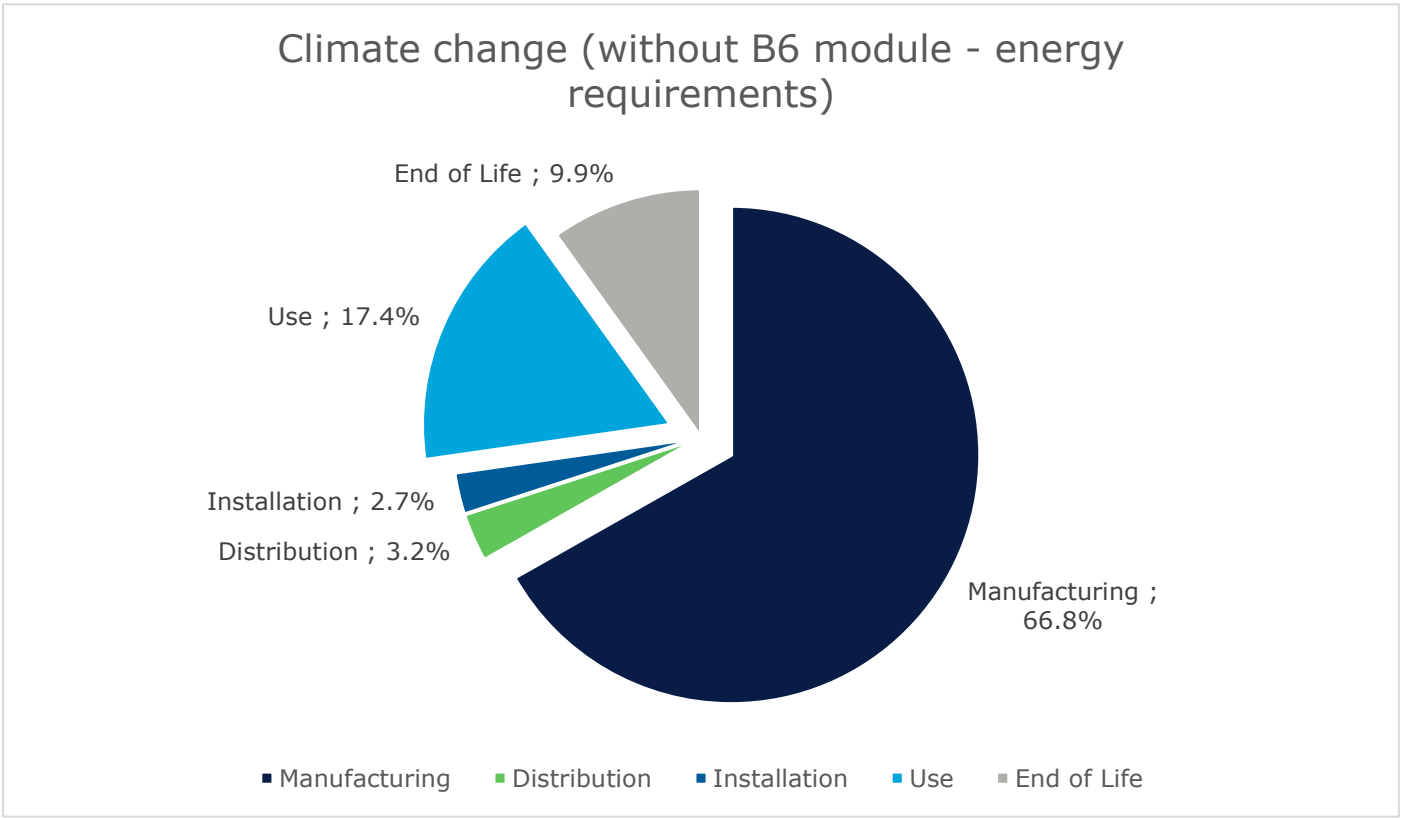
B1: Use; B2: Maintenance; B3: Repair; B4: Replacement; B5: Restoration; B6: Energy requirements; B7: Water requirements

Biogenic carbon content (assessment methodology 0/0)

- Biogenic carbon content of the product: 0.00E+00 kg C
- Biogenic carbon content of the associated packaging: 4.47E-06 kg C

Distribution of environmental impacts





Extrapolation rules

Calculation formula

At the declared unit, the environmental impacts for other covered references can be determined based on the formulas below and the data for each reference.

Phase	Extrapolation rules applied for the declared unit
Manufacturing	$\frac{\text{Mass of the tank of the product considered (kg)}}{\text{Mass of the tank of the reference product (kg)}}$
Distribution	$\frac{\text{Mass of the product considered + Mass of packaging of the product considered (kg)}}{\text{Mass of the reference product + Mass of packaging of the reference product (kg)}}$
Installation	$\frac{\text{Mass of packaging of the product considered (kg)}}{\text{Mass of packaging of the reference product (kg)}}$
Use - Emissions	1
Use - Maintenance	1
Use - Energy consumption	$\frac{\text{Energy consumption of the product considered (kWh)}}{\text{Energy consumption ofthe reference product (kWh)}}$
End of life	$\frac{\text{Mass of the tank of the product considered (kg)}}{\text{Mass of the tank of the reference product (kg)}}$
Benefits and loads	$\frac{\text{Mass of the product considered + Mass of packaging of the product considered (kg)}}{\text{Mass of the reference product + Mass of packaging of the reference product (kg)}}$
Biogenic carbon content of the associated packaging	$\frac{\text{Mass of packaging of the product considered (kg)}}{\text{Mass of packaging of the reference product (kg)}}$

To obtain the coefficients at the functional unit level, the coefficients at the declared unit level must be divided by the number of liters produced, depending on the drawn-off profile adopted on the reference lifetime of 17 years.

$$Environmental\ impacts\ from\ the\ PEP\ (for\ 1\ liter) = \frac{Environment\ impacts\ of\ reference\ product}{Number\ of\ liters\ produced}$$

Drawn-off profile	Volume of liters drawn daily	Number of liters produced during the reference lifetime
L	334.6	1 249 104
XM	547.5	1 043 793

Input data to calculate the environmental impacts of other products in the range

“Unheated ambient air” technology

SPC… BC ACS… iR290	Weight* (kg)			Storage volume (l)	Drawn-off profile	AEC (kWh) Annual electricity consumption	Ctot (kWh) Total electricity consumption
	Product (without packaging)	Product	Packaging				
…200 Plus …IN 200…	86.7	63.9	17.0	198	L	755	12835
…200 S Plus …1E 200…	105.6	82.7	17.0	188.6	L	738	12546
…250 Plus …IN 250	99.9	77.0	17.6	252.1	XL	1118	19006
…250 S Plus …1E 250…	113.9	91.0	17.6	243.5	XL	1148	19516

“Outdoor air” technology (with 2 connection kits, reference 7789239)

SPC… BC ACS… iR290	Weight* (kg)			Storage volume (l)	Drawn-off profile	AEC (kWh) Annual electricity consumption	Ctot (kWh) Total electricity consumption
	Product (without packaging)	Product	Packaging				
…200 Plus …IN 200…	88.4	63.9	20.0	198	L	800	13600
…200 S Plus …1E 200…	107.2	82.7	20.0	188.6	L	786	13362
…250 Plus …IN 250	101.5	77.0	20.6	252.1	XL	1172	19924
…250 S Plus …1E 250…	115.5	91.0	20.6	243.5	XL	1242	21114

** The indicated weight corresponds to the weight of the product within the framework of the PEP and may present slight variations with the indicated weight in the technical documentation.*

Extrapolation coefficient at the declared unit

Extrapolation coefficients are given for the environmental impact of the functional unit, i.e. the production of 1 liter of domestic hot water. For each stage of the life cycle, the environmental impacts of the product concerned are calculated by multiplying the impacts of the declaration corresponding to the reference product by the extrapolation coefficient. The "Total" column shall be calculated by adding the environmental impacts of each stage of the life cycle.

“Unheated ambient air” technology

SPC… BC ACS… iR290	…200 Plus …IN 200…	…200 S Plus …1E 200…	…250 Plus …IN 250	…250 S Plus …1E 250
Manufacturing	1.000	1.294	1.205	1.424
Distribution	1.000	1.181	1.133	1.268
Installation	1.000	1.000	1.035	1.035
Use - Emissions	1.000	1.000	1.000	1.000
Use - Maintenance	1.000	1.000	1.000	1.000
Use – Energy consumption	1.000	0.977	1.481	1.521
End of life	1.000	1.294	1.205	1.424
Benefits and loads	1.000	1.181	1.133	1.268

“Outdoor air” technology

SPC… BC ACS… iR290	…200 Plus …IN 200…	…200 S Plus …1E 200…	…250 Plus …IN 250	…250 S Plus …1E 250
Manufacturing	1.000	1.294	1.205	1.424
Distribution	1.044	1.226	1.177	1.312
Installation	1.176	1.176	1.212	1.212
Use - Emissions	1.000	1.000	1.000	1.000
Use - Maintenance	1.000	1.000	1.000	1.000
Use – Energy consumption	1.060	1.041	1.552	1.645
End of life	1.000	1.294	1.205	1.424
Benefits and loads	1.044	1.226	1.177	1.312

Further information

For any other additional information on the PEP, please contact us at **PEP-HP@BDRThermea.com**