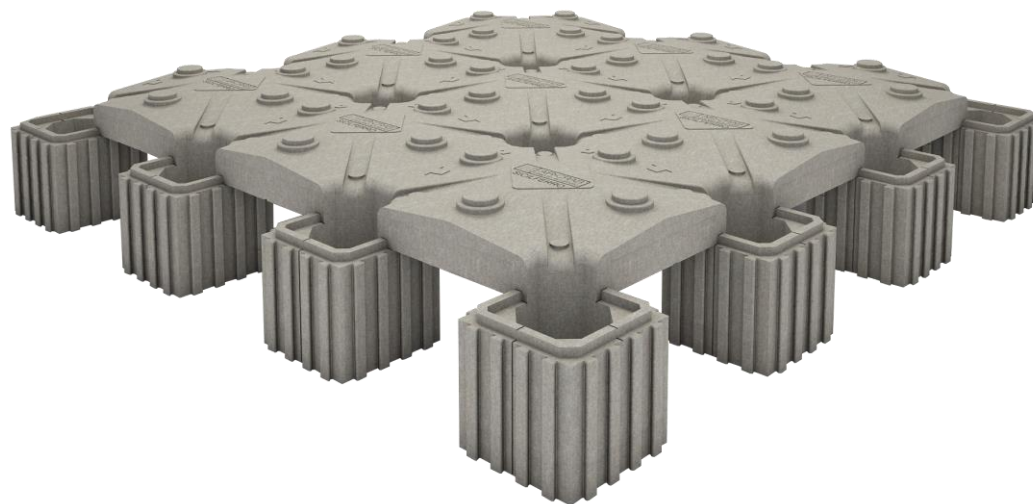




PRODUCT CARBON FOOTPRINT

IN ACCORDANCE WITH ISO 14067 & ISO 14025

Air Crab H70
Sicilferro Torrenovese SRL



EPD HUB, Carbon footprint number-1111

Publishing on 14.02.2024, last updated on 14.02.2024, valid until 14.02.2029.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Sicilferro Torrenovese SRL
Address	Via Pietra di Roma, SNC
Contact details	info@sicilferro.it
Website	https://scfssystem.it/

STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	ISO 14067 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022 EN 16783 Thermal insulation products
Sector	Construction product
Scope	Cradle to gate with options, A5, and modules C1-C4, D
Author	Mauro Scurria
Verification	Independent verification of this carbon footprint and data, according to ISO 14025: ☐ Internal certification ☒ External verification
Verifier	Haiha Nguyen, as an authorized verifier acting for EPD Hub Limited

The manufacturer has the sole ownership, liability, and responsibility for the carbon footprint.

PRODUCT

Product name	Air Crab H70
Additional labels	STD, CAM, ECO30, ECO100+
Product reference	H70
Place of production	Torrenova (ME) - Italy
Period for data	2022
Averaging	No averaging
Variation in GWP-fossil for A1-A3	49 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m ²
Declared unit mass	3.851 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	2,00E+01
GWP-total, A1-A3 (kgCO ₂ e)	2,00E+01
Secondary material, inputs (%)	0.00501
Secondary material, outputs (%)	0.0
Total energy use, A1-A3 (kWh)	68.4
Total water use, A1-A3 (m ³ e)	2,71E-01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Sicilferro Torrenovese SRL was founded in 1982, in Torrenova, along the northern coast of Sicily. Operating in the construction sector for two generations with an approach focused on the offer of innovative construction solutions, in 1998 the company started a new division, the SCF Sistemi Costruttivi Futuri with the industrial intent of proposing on the market a leading company in the EPS construction products sector. SCF developed EPS slabs, sheet, wall and ventilated crawlspace. The company is certified in accordance to UNI EN 1090-2:2018, UNI EN ISO 3834-1:2021, UNI EN ISO 9001:2015, UNI EN ISO 14001:2015, PAS 2060 Carbon Neutrality.

PRODUCT DESCRIPTION

Modular formwork system for the construction of iso-ventilated crawl spaces in Sintered Expanded Polystyrene (EPS) improved thermal transmittance, additived with Neopor® type graphite, for buildings for civil, industrial, commercial and tertiary sector in general. The dome-shaped element is equipped with special joints that allow it to be fixed to underlying UP-Crab elements. The latter, available in various heights, can be stacked in relation to each other at the finished height of the crawl space to be built. The Stop-Crab element completes the AirCrab® system by covering a dual function closure and lateral compensation which, together with the UP-Crab base, determines the total isolation of the foundations. The elements of the AirCrab® system can be used both for new construction and for those of energy efficiency and improvement, resulting in significant increases in the thermal resistance values of the floors against the ground, roofing or inter-floor slabs. Supplied with CE mark according to UNI EN 13163:2017. The formwork panel can be supplied in the version that meets the Minimum Environmental Criteria

(C.A.M.) according to the D.M. 23/06/2022. The formwork covered by the following LCA is the Air Crab H70, with a sistem thickness of 70 cm.

RECYCLED MATERIAL IN THE PRODUCT

The formwork sistem Air Crab is made up of EPS. In the following LCA analysis, virgin Expandable Polystyrene was considered, which does not contain any recycled material. It can be supplied with % recycled material meeting C.A.M. criteria, or with 30% recycled material in the ECO30 version or with 100% recycled material in the ECO100+ version.

LCA INFORMATION

This LCA complies with the regulations EN 16783:2017 Thermal insulation products - Product category rules (PCR) for factory made and in-situ formed products for preparing environmental product declarations.

This LCA study includes the provision of all materials, transportation, energy and emission flows, and end of life processing of product. The use phase is not covered, assuming there are no use emissions or replacements. For easier modelling and because of lack of accuracy in available modelling resources, some constituents under 1% of product mass are excluded. These include some materials which are used in the product manufacturing only in very small amounts and have a negligible impact on the emissions of the product, for example grease and lubricating oil consumed at plant.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

Further information can be found at <https://scfssystem.it/>.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	-	-
Minerals	-	-
Fossil materials	100	Europe
Bio-based materials	-	-

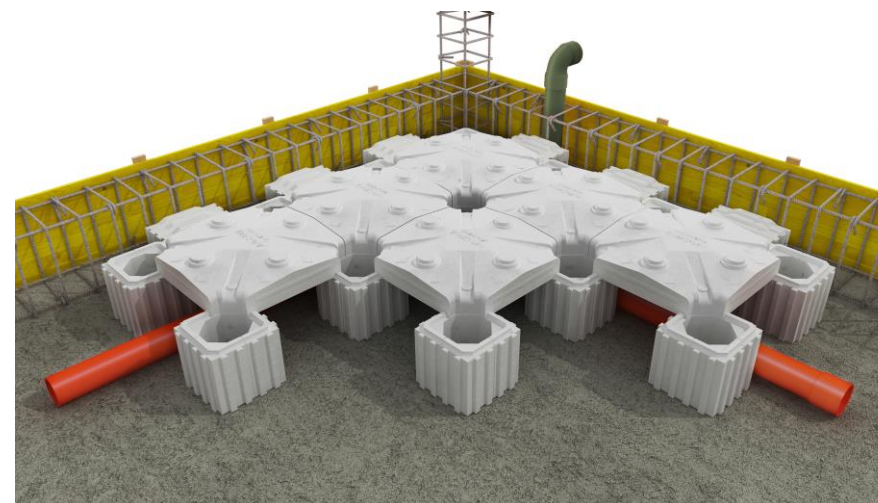
BIOGENIC CARBON CONTENT

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

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m ²
Mass per declared unit	3.851 kg
Functional unit	-
Reference service life	-



PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This carbon footprint 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	MND	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	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 raw materials is expandable polystyrene. The process begins with the pre-expansion of the expandable polystyrene granules using steam produced by boilers. The pre-expanded granules are stored in silos for seasoning. Last step is the moulding phase, through which the various components of the crawl space are given shape by extrusion. No packaging materials are used as the materials are supplied without.

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 transportation phase is not object of the analysis. In the assembly stage there is no request for materials.

PRODUCT USE AND MAINTENANCE (B1-B7)

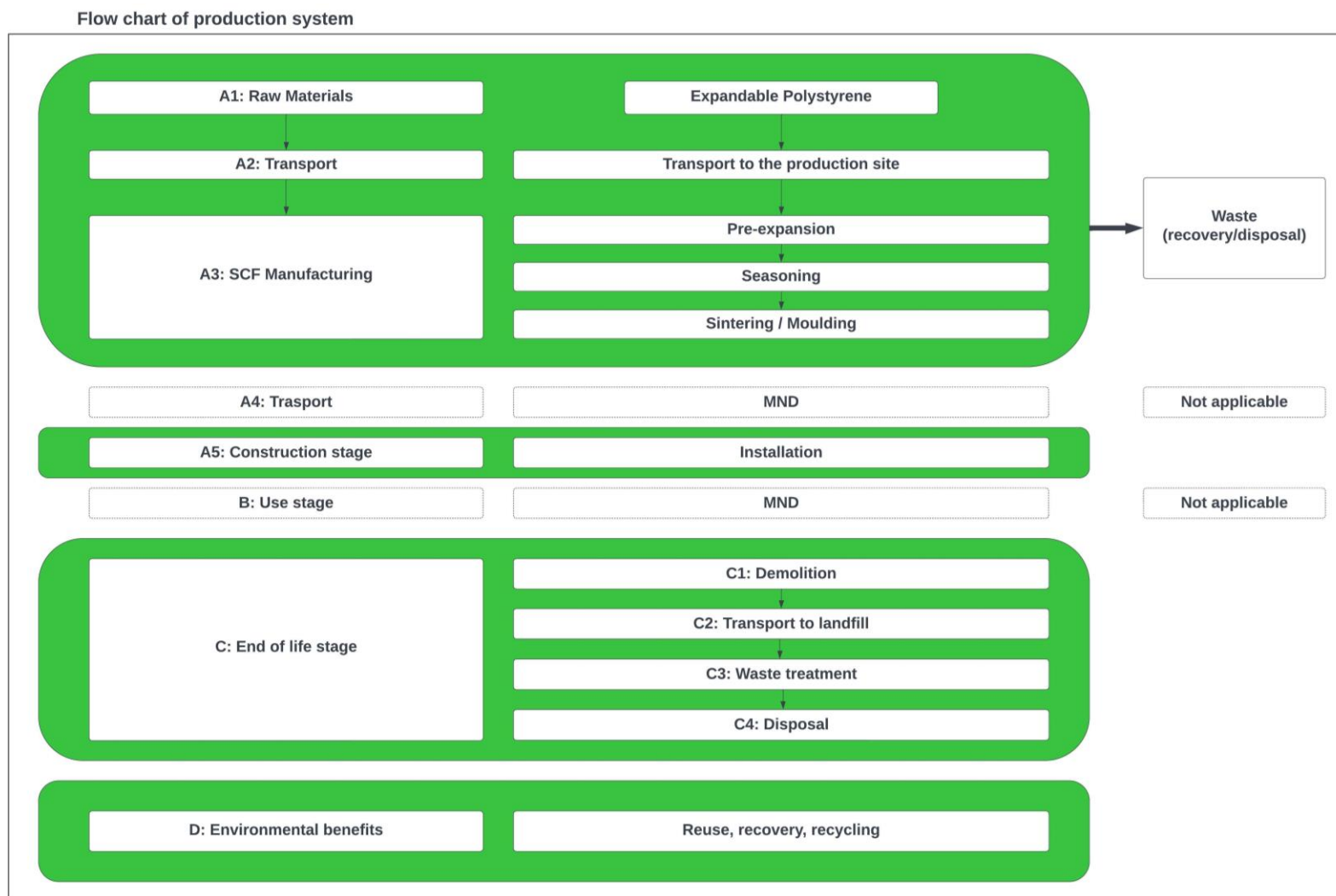
This carbon footprint does not cover the use phase.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Demolition is assumed to consume 0,01 kWh/kg of product. The source of energy is diesel fuel used by construction machines (C1). The distance for transportation to disposal is assumed as 200 km and the transportation method is assumed to be lorry (C2). The EOL of EPS is assumed to be incinerated by 80% and by 20% landfilled waste without reuse, recovery or recycling, according to the AIPE (Italian Expanded Polystyrene Association) (C3,C4). Module D includes the benefits due to the EPS incineration.

MANUFACTURING PROCESS AND SYSTEM BOUNDARY



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 materials	Not applicable
Ancillary materials	Allocation by mass or volume
Manufacturing energy and waste	Allocation by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	49 %

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

LCA SOFTWARE AND BIBLIOGRAPHY

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



ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	1,45E+01	1,22E+00	4,36E+00	2,00E+01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,27E-02	1,65E-01	9,81E+00	1,20E-01	-6,54E+00
GWP – fossil	kg CO ₂ e	1,44E+01	1,22E+00	4,35E+00	2,00E+01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,27E-02	1,65E-01	9,81E+00	1,20E-01	-6,51E+00
GWP – biogenic	kg CO ₂ e	5,58E-02	4,86E-04	5,70E-03	6,20E-02	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	2,34E-06	7,48E-05	1,37E-04	6,79E-05	-2,69E-02
GWP – LULUC	kg CO ₂ e	3,01E-05	4,79E-04	3,76E-04	8,86E-04	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,27E-06	7,77E-05	9,75E-05	8,72E-06	-1,07E-03

1) GWP = Global Warming Potential.

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

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	1,34E+01	1,21E+00	4,33E+00	1,89E+01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,26E-02	1,64E-01	9,80E+00	9,74E-02	-6,39E+00

VERIFICATION PROCESS FOR THIS CARBON FOOTPRINT

This carbon footprint 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 Product Carbon Footprint
- The Life-Cycle Assessment used in this carbon footprint
- The digital background data for this carbon footprint

Why does verification transparency matter? Read more online

This carbon footprint 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 Carbon Footprint of a Product, 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 carbon footprint, 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 owner of the carbon footprint 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 carbon footprint 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 carbon footprint and have no conflicts of interest regarding this verification.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
14.02.2024



ANNEX I – SCALING TABLE

AIR CRAB SYSTEM		H15	H20	H25	H30	H35	H40	H45	H50
HV - Sistem Thickness		15 cm	20 cm	25 cm	30 cm	35 cm	40 cm	45 cm	50 cm
Product Weight per 1 m ²		1,9 kg/m ²	2,1 kg/m ²	2,3 kg/m ²	2,5 kg/m ²	2,6 kg/m ²	2,8 kg/m ²	3,0 kg/m ²	3,2 kg/m ²
Elements	Cupole	4	4	4	4	4	4	4	4
	Up Crab	H 5 x 4	H 10 x 4	H 15 x 4	H 20 x 4	H 25 x 4	H 30 x 4	(H15x4)+(H20x4)	H 20 x 8
	Base	4	4	4	4	4	4	4	4
HT - Total Thickness		20 cm	25 cm	30 cm	35 cm	40 cm	45 cm	50 cm	55 cm
Rs - Thermal resistance [m ² K/W]		2,72	2,93	3,14	3,34	3,55	3,76	3,97	4,17
Impact Category		A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3
GWP - total		0,50	0,55	0,59	0,64	0,68	0,73	0,77	0,82
GWP - fossil		0,50	0,55	0,59	0,64	0,68	0,73	0,77	0,82
GWP - biogenic		0,50	0,50	0,67	0,67	0,67	0,83	0,83	0,83
GWP - LULUC		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

AIR CRAB SYSTEM		H55	H60	H65	H70	H75	H85	H95
HV - Sistem Thickness		55 cm	60 cm	65 cm	70 cm	75 cm	85 cm	95 cm
Product Weight per 1 m ²		3,3 kg/m ²	3,5 kg/m ²	3,7 kg/m ²	3,9 kg/m ²	4,0 kg/m ²	4,4 kg/m ²	4,7 kg/m ²
Elements	Cupole	4	4	4	4	4	4	4
	Up Crab	(H20x4)+(H25x4)	H 25 x 8	(H25x4)+(H30x4)	H 30 x 8	(H20x8)+(H25x4)	H 25 x 12	(H25x4)+(H30x8)
	Base	4	4	4	4	4	4	4
HT - Total Thickness		60 cm	65 cm	70 cm	75 cm	80 cm	90 cm	100 cm
Rs - Thermal resistance [m ² K/W]		4,38	4,59	4,80	5,00	5,21	5,63	6,04
Impact Category		A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3
GWP - total		0,86	0,91	0,95	1,00	1,04	1,13	1,22
GWP - fossil		0,86	0,91	0,95	1,00	1,04	1,13	1,22
GWP - biogenic		0,83	1,00	1,00	1,00	1,00	1,17	1,33
GWP - LULUC		0,00	0,00	0,00	1,00	0,00	0,00	0,00

AIR CRAB MAXXI SYSTEM		H20	H25	H30	H35	H40	H45	H50
HV - Sistem Thickness		20 cm	25 cm	30 cm	35 cm	40 cm	45 cm	50 cm
Product Weight per 1 m ²		3,1 kg/m ²	3,3 kg/m ²	3,5 kg/m ²	3,7 kg/m ²	3,8 kg/m ²	4,0 kg/m ²	4,2 kg/m ²
Elements	Cupole	4	4	4	4	4	4	4
	Up Crab	H 5 x 4	H 10 x 4	H 15 x 4	H 20 x 4	H 25 x 4	H 30 x 4	(H15x4)+(H20x4)
	Base	4	4	4	4	4	4	4
HT - Total Thickness		25 cm	30 cm	35 cm	40 cm	45 cm	50 cm	55 cm
Rs - Thermal resistance [m ² K/W]		4,43	4,63	4,84	5,05	5,26	5,46	5,67
Impact Category		A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3
GWP - total		0,81	0,86	0,90	0,95	0,99	1,04	1,08
GWP - fossil		0,81	0,86	0,90	0,95	0,99	1,04	1,08
GWP - biogenic		0,83	0,83	1,00	1,00	1,00	1,00	1,17
GWP - LULUC		0,00	0,00	0,00	0,00	0,00	0,00	0,00

AIR CRAB MAXXI SYSTEM		H55	H60	H65	H70	H75	H80	H90
HV - Sistem Thickness		55 cm	60 cm	65 cm	70 cm	75 cm	80 cm	90 cm
Product Weight per 1 m ²		4,3 kg/m ²	4,5 kg/m ²	4,7 kg/m ²	4,9 kg/m ²	5,0 kg/m ²	5,2 kg/m ²	5,6 kg/m ²
Elements	Cupole	4	4	4	4	4	4	4
	Up Crab	H 20 x 8	(H20x4)+(H25x4)	H 25 x 8	(H25x4)+(H30x4)	H 30 x 8	(H20x8)+(H25x4)	H 25 x 12
	Base	4	4	4	4	4	4	4
HT - Total Thickness		60 cm	65 cm	70 cm	75 cm	80 cm	85 cm	95 cm
Rs - Thermal resistance [m ² K/W]		5,88	6,09	6,29	6,50	6,71	6,92	7,33
Impact Category		A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3
GWP - total		1,13	1,17	1,22	1,26	1,31	1,35	1,44
GWP - fossil		1,13	1,17	1,22	1,26	1,31	1,35	1,44
GWP - biogenic		1,17	1,17	1,33	1,33	1,33	1,33	1,50
GWP - LULUC		0,00	0,00	0,00	0,00	0,00	0,00	0,00

HV = Altezza totale del vespaio

HT = Altezza totale della fondazione con caldana da 5 cm

Rs = Resistenza termica definita come la resistenza termica media ponderata delle resistenze (Ri) relativa ad ogni sezione (Si) caratterizzante il muro portante gettato in opera, escludendo dal calcolo le finiture ed il contributo degli strati liminari, $R = \sum R_i S_i / \sum S_i$

