

ENVIRONMENTAL PRODUCT DECLARATION

Structural Bearings for bridges

Product: Structural Bearings by MK4
(Including POT, spherical, elastomeric, lifting and guide bearings)

DAPcons®.100.270

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

EPD of multiple products

According to the standards:

ISO 14025 and UNE-EN 15804:2012+A2:2020/AC:2021

DECLARACIÓN AMBIENTAL DE PRODUCTO ENVIRONMENTAL PRODUCT DECLARATION

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According to the standards:

ISO 14025 and UNE-EN 15804:2012+A2:2020/AC:2021



GENERAL INFORMATION

Product

Structural bearings by MK4

Company

MK4

Product description

The MK4 structural supports include a wide variety of supports including POT, spherical, elastomeric, lifting and guide bearings.

Reference RCP

RCP 100 (version 3.2 - 21/12/2023) Construction products in general

Production plant

The manufacturing plant under study in this project is the following: MK4 World Wide, S.L. C/ Can Nadal S/N, Warehouse 1-A2, 08185 Lliçà de Vall, Barcelona, Spain.

Validity

From: 31/03/2026 Until: 31/03/2031

The validity of DAPcons®.100.270 is subject to the conditions of the regulation DAPcons®. The current edition of this DAPcons® is the one that appears in the registry maintained by Cateb; for informational purposes, it is included on the Program website www.dapcons.com

EXECUTIVE SUMMARY

Structural bearings by MK4



DAPconstruction® Programme Operator

Environmental Product Declarations in the Construction sector
www.dapcons.com



Programme Manager

Colegio de la Arquitectura Tècnica de Barcelona (Cateb)
 Bon Pastor, 5 · 08021 Barcelona www.cateb.cat



Owner of the declaration

MK4 WORLD WIDE SL
 Calle Can Nadal, s/n – Nave 1, A-2 08185 - LLIÇÀ DE VALL (Espanya)
www.mekano4.com



Author of the Life cycle assessment:

ITeC - Institut de Tecnologia de la Construcció de Catalunya
 Carrer de Wellington, 19, 08018 - BARCELONA, BARCELONA, Espanya
<https://itec.es/>

Declared product

Structural bearings by MK4

Geographic representation

Production: Spain.
 End of life: Global.

Variability between different products

The declared values refer to an average product that groups the products detailed in section 1, whose coefficient of variation of the environmental indicator "GWP-total" is 13,53% for modules A1–A3.

Declaration number

DAPcons®.100.270

Issue date

09/01/2026

Validity

This verified declaration authorizes its holder to carry the logo of the operator of the ecolabelling program DAPconstruction®. The declaration is applicable exclusively to the mentioned product and for five years from the date of registration. The information contained in this statement was provided under the responsibility of: **MK4**

WORLD WIDE SL

Programme Administrator Signature

Celestí Ventura Cisternas. President of Cateb

Verifier Signature

JULIA CHABRERA GÓMEZ-BARQUERO. OPTINOOS PROJECT,
 S.L. Verifier accredited by the administrator of the DAPcons®
 Programme

ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND USE

The MK4 structural supports include:

- POT supports (EN1337-5): these are structural devices used to support and transmit vertical and horizontal loads in structures such as bridges and buildings. They allow limited rotations around any horizontal axis, facilitating controlled movement of the structures and contributing to their stability and durability. They are divided into three individual products: PG, PM, and PF.
- Spherical supports with PTFE (EN1337-7): these are components used in load transmission and support systems in various industrial applications. These supports combine the structure of a spherical bearing with a PTFE layer, offering additional advantages in terms of performance and durability. They are divided into three individual products: SG, SM, and SF.
- Guide bearings (EN1337-8): these are components designed to provide control over the movement of structures, especially in bridges and buildings that require precise management of horizontal displacements and rotations. They consist of a single individual product: SK.
- Elastomeric supports (EN1337-3): these are devices used in the construction of bridges and other structures to transmit vertical loads and allow horizontal movements and rotations, contributing to the stability and durability of the structures. They are divided into three individual products: RL, RV, and RS.
- Spherical and cylindrical supports made from specially developed material (ETA23/0869): these are structural components designed to offer advanced solutions in load support and transmission in various applications, thanks to the technology and advanced materials used in their manufacture. These supports are designed to offer superior performance under demanding conditions, thanks to their specially developed material, which gives them greater load capacity, durability, and wear resistance compared to other types of traditional supports. They are divided into three individual products: SG, SM, and SF.

1.1 Content information

Product components

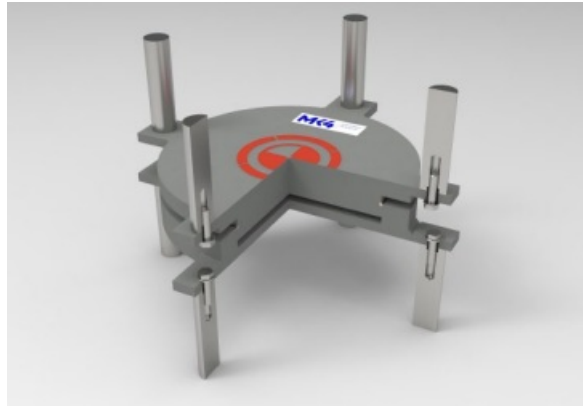
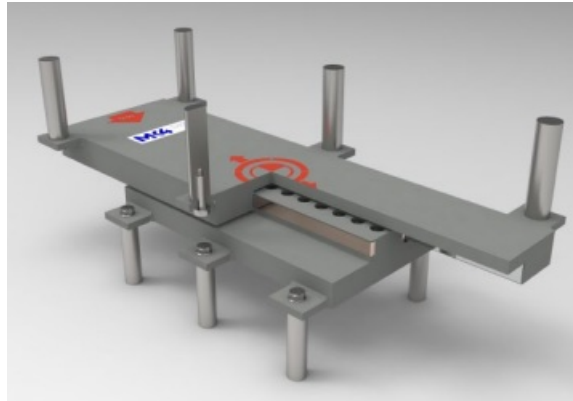
The raw materials from which the components incorporated in the MK4 structural supports are manufactured are:

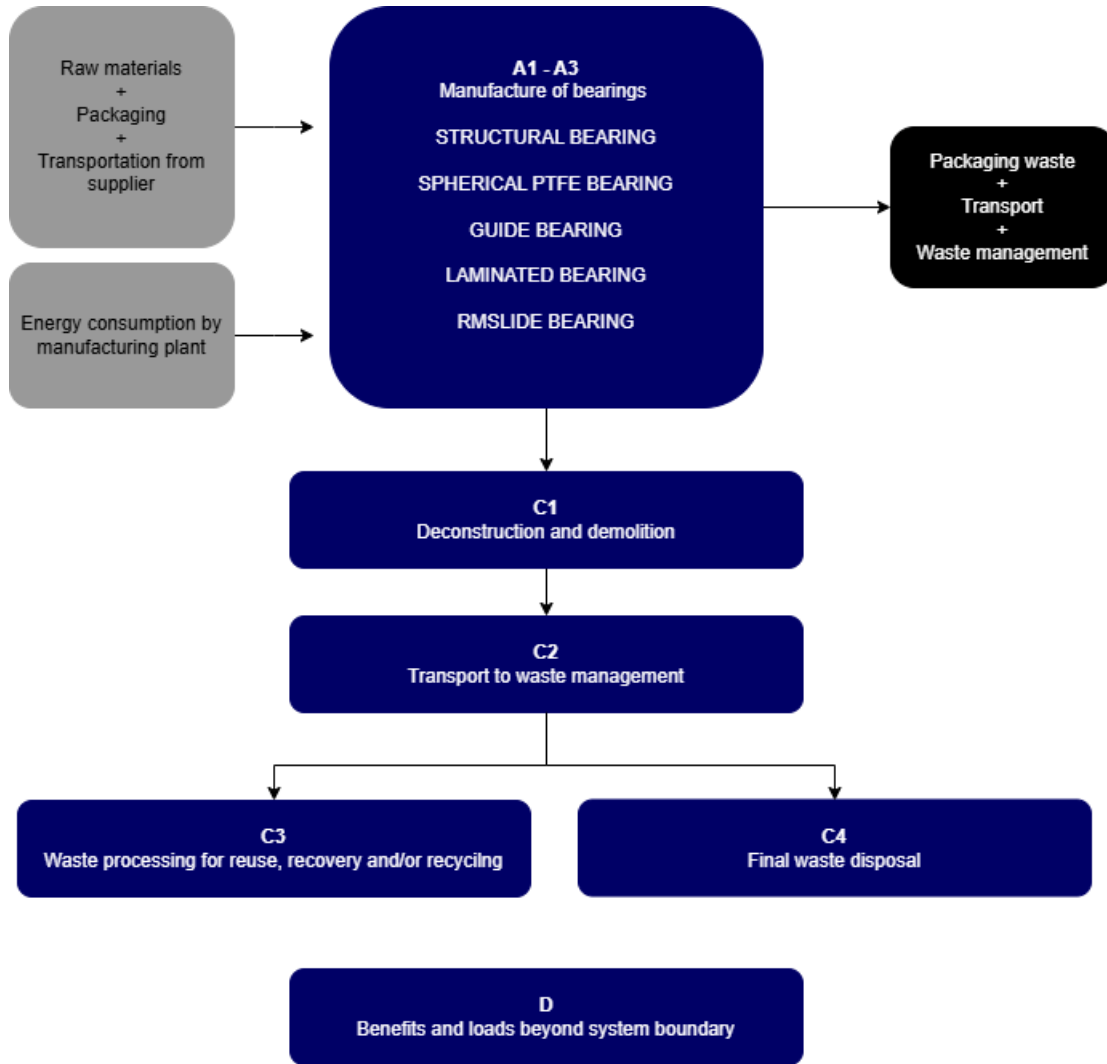
- Steel: 84% (59,6% virgin origin and 40,4% recycled origin)
- Alloy steel: 4% (81% virgin origin and 19% recycled origin)
- Stainless steel: <1,5% (17% virgin origin and 83% recycled origin)
- PTFE (polytetrafluoroethylene): <0,5%
- MKSM (specially developed MK4 material): <0,1%
- NR (natural rubber): <5% (84% virgin origin and 16% recycled origin)
- CR (synthetic rubber): <5% (84% virgin origin and 16% recycled origin)
- Brass: <0,1% (30% virgin origin and 70% recycled origin)
- Du-B: <0,1%
- Lubricating grease: <0,1%
- Paint: <1,5%

Packaging materials

The materials used in the packaging per declared unit are:

- Wrapping film: 0,002 kg
- Wooden pallet: 0,016 kg





2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

The components that form the product come from external manufacturers. The impacts produced by the raw materials of the components have been considered, taking into account production yield, as well as the impacts produced by the packaging of the raw materials.

For the transport of the raw materials, a generic EURO VI truck of 16–32 tons has been considered.

Manufacturing (A3)

The manufacturing phase of the product consists of the manual assembly of the various components that form the MK4 structural supports, which are received ready for assembly on the production line. After completing the assembly, quality control is carried out and the product is packaged.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

Undeclared

Product installation process and construction (A5)

Undeclared

2.3. Product use (B1-B7)

Use (B1)

Undeclared

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

Operational energy use (B6)

Undeclared

Operational water use (B7)

Undeclared

2.4. End of life (C1-C4)

Deconstruction and demolition (C1)

The environmental impacts attributed to the product's disassembly at the end of its service life are associated with an electric consumption of 0,01 kWh/kg.

Transport to waste processing (C2)

It has been considered that the product residues obtained in the previous phase are transported by a 16–32-ton EURO VI truck over a distance of 123,78 km to the transfer center responsible for their processing.

Waste processing for reuse, recovery and/or recycling (C3)

In this information module, the environmental impact produced in the management and processing of waste for recycling and recovery is taken into account. The scenario considers 51,92% destined for recycling and 1,69% for energy recovery.

Disposal (C4)

In this information module, the environmental impact of the 46,21% of waste destined for landfill and the 0,13% of waste destined for incineration without energy recovery is accounted for.

2.5. Reuse/recovery/recycling potential (D)

The environmental loads and benefits generated by the incineration processes with energy recovery and by the recycling of the removed product for the manufacture of other materials substituting virgin raw material have been accounted for.

3. LIFE CYCLE ASSESSMENT

The life cycle assessment model on which this declaration is based has been carried out in accordance with ISO 14040:2006, ISO 14044:2006, ISO 14025:2010 and EN 15804:2012+A2:2020/AC:2021 standards, as well as the Product Category Rules document PCR 100 for construction products in general. The Ecoinvent v3.10 (2024) database has been used to obtain the inventory data of generic processes.

The declaration is of the “cradle to gate” type with modules C1–C4 and module D. The Life Cycle Assessment covers from the manufacturing of the ventilation equipment until it leaves the plant, considering the end-of-life stage and the benefits and loads beyond the system boundaries.

Specific data from the MK4 World Wide, S.L. plant (C/ Can Nadal S/N, Warehouse 1-A2, 08185 Lliçà de Vall, Barcelona, Spain) corresponding to the year 2024 have been used to inventory the manufacturing stage.

3.1. Declared Unit

The declared unit is: 1 kg of MK4 structural support.

Additional comments

The declared values are valid for the commercial MK4 structural support products. It is considered that the service life of the product is 100 years, due to its nature as supports for large civil engineering works, especially bridges.

3.2. Scope and modules that are declared

Table 2. Declared modules

Product stage			Construction Process Stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw materials supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	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	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

X = Declared module **MND** = Undeclared module

3.3. LCA results of potential environmental impact referred to the declared unit (ACV)

Table 3. Parameters of environmental impact

Parameter	Unit	Life cycle stage														Module D	
		Product stage	Construction Process Stage			Use stage							End of life stage				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		
Climate change - total (GWP-total)	kg CO2 eq	4,04E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,38E-03	1,92E-02	5,19E-02	4,56E-02	-1,09E+00
Climate change - fossil (GWP-fossil)	kg CO2 eq	4,03E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,38E-03	1,92E-02	5,19E-02	4,56E-02	-1,08E+00
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	1,22E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,16E-07	4,72E-07	2,02E-06	2,92E-06	-3,02E-03
Ozone layer depletion (ODP)	kg CFC 11 eq	1,18E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,32E-11	3,92E-10	5,18E-11	2,87E-10	-4,79E-06
Acidification (AP)	mol H+ eq	1,41E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,16E-05	4,78E-05	1,58E-05	6,00E-05	-3,88E-03
Eutrophication of fresh water (EP-freshwater)	kg P eq	1,75E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,19E-09	1,61E-08	7,51E-08	1,76E-07	-4,73E-05
Eutrophication of sea water (EP-marine)	kg N eq.	2,84E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,49E-05	1,83E-05	4,27E-06	1,73E-05	-7,68E-04
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	2,88E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,63E-04	2,01E-04	4,71E-05	1,93E-04	-7,72E-03
Photochemical ozone formation (POCP)	kg NMVOC eq	1,25E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,84E-05	8,35E-05	1,52E-05	7,33E-05	-2,95E-03
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	2,11E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,41E-10	6,35E-10	3,91E-10	8,10E-10	-7,69E-06
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	5,90E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	2,54E-01	4,37E-02	2,13E-01	-1,35E+01
Water consumption (WDP)	m3 worldwide eq. private	1,13E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,51E-05	1,08E-04	1,26E-04	1,17E-03	-2,55E-01
Eco-toxicity - freshwater (ETP-fw)	CTUe	9,61E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,54E-03	8,61E-03	8,36E-02	1,05E+00	-3,07E+01
Human toxicity, cancer effect (HTP-c)	CTUh	3,14E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,36E-13	1,44E-12	9,52E-12	6,22E-11	-1,02E-07
Human toxicity, non-cancer effects (HTP-nc)	CTUh	3,64E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,35E-12	1,27E-10	3,32E-11	1,82E-10	-1,12E-08
The Indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This Indicator is thus equal to the GWP Indicator originally defined in EN 15804:2012+A1:2013. Can be obtained from IPCC characterization factors.																	
Global Warming Potential (GHP)	kg CO2 eq	4,04E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,38E-03	1,92E-02	5,19E-02	4,56E-02	-1,09E+00

A1 Supply of raw materials. A2 Transport to waste processing. A3 Manufacturing. A4 Transport to waste processing. A5 Installation and construction processes. B1 Use. B2 Maintenance. B3 Repair. B4 Replacement. B5 Refurbishment. B6 Operational energy use. B7 Operational water use. C1 Deconstruction and demolition. C2 Transport to waste processing. C3 Waste management for reuse, recovery and recycling. C4 Fine removal. D Environmental benefits and burdens beyond the system boundary. MND Undeclared module.

Table 4. Parameters for the use of resources, waste and output material flows

Parameter	Unit	Life cycle stage														Module D	
		Product stage	Construction Process Stage			Use stage							End of life stage				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ, net calorific value	1,91E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,97E-05	8,98E-04	2,50E-03	4,66E-03	-1,50E+00
Use of renewable primary energy used as raw material	MJ, net calorific value	4,97E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	1,96E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,97E-05	8,98E-04	2,50E-03	4,66E-03	-1,50E+00
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	6,29E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,73E-02	2,70E-01	4,66E-02	2,26E-01	-1,44E+01
Use of non-renewable primary energy used as raw material	MJ, net calorific value	5,51E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	6,30E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,73E-02	2,70E-01	4,66E-02	2,26E-01	-1,44E+01
Use of secondary materials	kg	3,73E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ, net calorific value	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	MJ, net calorific value	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of freshwater resources	m3	3,46E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,40E-06	6,51E-06	5,33E-05	4,02E-05	-8,83E-03
Hazardous waste removed	kg	5,55E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,05E-07	1,68E-06	4,03E-07	2,09E-06	-9,51E-05
Non-hazardous waste eliminated	kg	1,23E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,30E-06	7,73E-06	8,44E-04	4,55E-01	-3,59E-02
Radioactive waste disposed of	kg	1,22E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,27E-09	2,38E-08	5,56E-08	1,29E-07	-2,98E-05
Components for reuse	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,63E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	5,19E-01	0,00E+00	0,00E+00
Materials for energy recovery (energy recovery)	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,69E-02	0,00E+00	0,00E+00
Exported energy	MJ by energy vector	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,56E-01	0,00E+00	0,00E+00
Exported electrical energy (AEE)	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET)	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,56E-01	0,00E+00	0,00E+00

A1 Supply of raw materials. A2 Transport to waste processing. A3 Manufacturing. A4 Transport to waste processing. A5 Installation and construction processes. B1 Use. B2 Maintenance. B3 Repair. B4 Replacement. B5 Refurbishment. B6 Operational energy use. B7 Operational water use. C1 Deconstruction and demolition. C2 Transport to waste processing. C3 Waste management for reuse, recovery and recycling. C4 Fine removal. D Environmental benefits and burdens beyond the system boundary. MND Undeclared module.

Table 5. Kg of biogenic carbon

Carbon content (biogenic) - packaging	1,02E-02
Carbon content (biogenic) - product	0,00E+00

3.4. Recommendations of this EPD

Environmental product declarations from different Type III ecolabelling systems may not be directly comparable, as the calculation rules may differ, even when based on the EN 15804 standard. This declaration represents the performance of the MK4 structural supports manufactured by MK4 World Wide, S.L.

3.5. Cut-off rules

More than 99% of all mass and energy inputs and outputs of the system have been considered (more than 95% of all mass and energy inputs and outputs per module), excluding from the analysis diffuse emissions in the manufacturing plants, emissions produced by the construction or assembly of manufacturing infrastructure such as machinery and industrial equipment, emissions and waste generated by maintenance activities of the production plant and the machinery used, and transport carried out by workers on the home-to-factory-to-home commute.

3.6. Additional environmental information

The product is defined as a non-hazardous substance in accordance with legislation No. 1907/2006 (REACH) of 1 June 2007.

ISO 14001: Production plant certified and the Environmental Management System implemented.

3.7. Other data

The biogenic carbon contained in the packaging allocated to module A1–A3 would result in a value of 3,76E-02 kg CO₂ eq for the GWP-biogenic indicator. However, this value is offset within module A1–A3 itself, since the present life cycle assessment does not include phase A5 (construction), which leads to a net value of 0,00E+00 kg CO₂ eq for this indicator.

4. ADDITIONAL TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport to the building site (A4)

Undeclared

4.2. Installation processes (A5)

Undeclared

4.3. Reference life (B1)

Undeclared

4.4. Maintenance (B2), Repair (B3), Replacement (B4), or Refurbishment (B5)

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

4.6. Operational energy use (B6) and operational water use (B7)

Undeclared

4.7. End of life (C1-C4)

	Process				
	Collection processes (specified by types)	Recovery systems (specified by type)			Elimination
	kg collected with mixed construction waste	kg for reuse	kg for recycling	kg for energy recovery	kg for final disposal
	1	0	0.5192	0.0169	0.4634
Assumptions for scenario development	The scenario considers 51,92% destined for recycling, 1,69% for energy recovery, and the remaining 46,34% destined for disposal, consisting of 46,21% to landfill and 0.13% to incineration without energy recovery.				

5. ADDITIONAL INFORMATION

Manufactured with a Quality System according to ISO 9001:2015.

Environmental management system in accordance with ISO 14001:2015.

Manufactured in compliance with the standards: EN ISO 4287, EN ISO 4288, EN ISO 6507-2 and EN ISO 1337-5.

6. PCR AND VERIFICATION

This statement is based on Document

RCP 100 (version 3.2 - 21/12/2023) Construction products in general

Independent verification of the declaration and data, in accordance with ISO 14025 and IN RCP 100 (version 3.2 - 21/12/2023)



External

Third party Verifier

JULIA CHABRERA GÓMEZ-BARQUERO

Accredited by the administrator of the DAPcons®
Programme



Verification date:

31/03/2026

References

- Life cycle analysis: Structural supports MK4. LCA report carried out by ITeC – Institute of Construction Technology of Catalonia. March 2026. (Unpublished).
- UNE-EN 15804:2012+A2:2020/AC:2021, Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products.
- ISO 14025:2010, Environmental labels and declarations – Type III environmental declarations – Principles and procedures (identical to ISO 14025:2006).
- ISO 21930:2017, Sustainability of construction works – Environmental declaration of building products (referenced by - UNE-EN 15804:2012+A2:2020/AC:2021).
- ISO 14040:2006, Environmental management – Life cycle assessment – Principles and framework.
- ISO 14044+A1:2018, Environmental management – Life cycle assessment – Requirements and guidelines.
- PD CEN/TR 16970:2016, Sustainability of construction works. Guidance for the implementation of UNE-EN 15804:2012+A2:2020/AC:2021.
- NBN/DTD B 08-001:2017, Sustainability of construction works – EPD.
- PCR 100 – general construction products, v3.2 (21/12/2023), for preparing an Environmental Product Declaration (DAPcons®) for construction products, from the DAP®construction Programme.

Programme Manager

Colegio de la Arquitectura Técnica de Barcelona
(Cateb)

Bon Pastor, 5 · 08021 Barcelona www.cateb.cat



