



VIMAR FOR THE ENVIRONMENT

One of Vimar's strategic choices is to protect and respect the environment by optimising consumption, reducing waste, using energy production systems from highly efficient alternative sources. In addition, Vimar pays particular attention to research into materials and production processes which allow waste to be recovered and reduced and promoting the development of a circular economy to be applied also outside of the company. To implement all the above, Vimar operates in an integrated manner, respecting the environment in compliance with ISO 14001.

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PRODUCT INFORMATION

The functional unit describes a flush mounting junction box with white cover and fixing screws, which is the reference product reported in the table below.

FUNCTIONAL UNIT
Flush mounting junction box (154x195x70 mm), allows the installation of home automation and domestic electrical devices or similar appliances inside masonry walls ensuring the protection of people during 20 years against direct contact with live parts once the electrical equipment is installed, while protecting against mechanical impacts (IK07) and the the penetration of solid objects and liquids (IP40). The reference product is conformed to standard EN 60670-1.
REFERENCE PRODUCT DESCRIPTION

V70006 Flush junction box 195x154x70mm



COVERED COMMERCIAL REFERENCES

The environmental declaration is also representative of the following product:

V70006 - Flush junction box 195x154x70mm

V70001 - Flush junction box 92x92x50 mm

V70002 - Flush junction box 116x92x50 mm

V70003 - Flush junction box 116x92x70 mm

V70004 - Flush junction box 154x92x70 mm

V70005 - Flush junction box 154x128x70 mm

V70007 - Flush junction box 287x154x70 mm
V70008 - Flush junction box 391x154x70 mm
V70009 - Flush junction box 479x154x70 mm
V70010 - Flush junction box 515x201x80 mm
V70011 - Flush junction box 515x292x80 mm
V70207 - Flush junction box 248x248x120 mm
V70211 - Flush junction box 515x248x120 mm

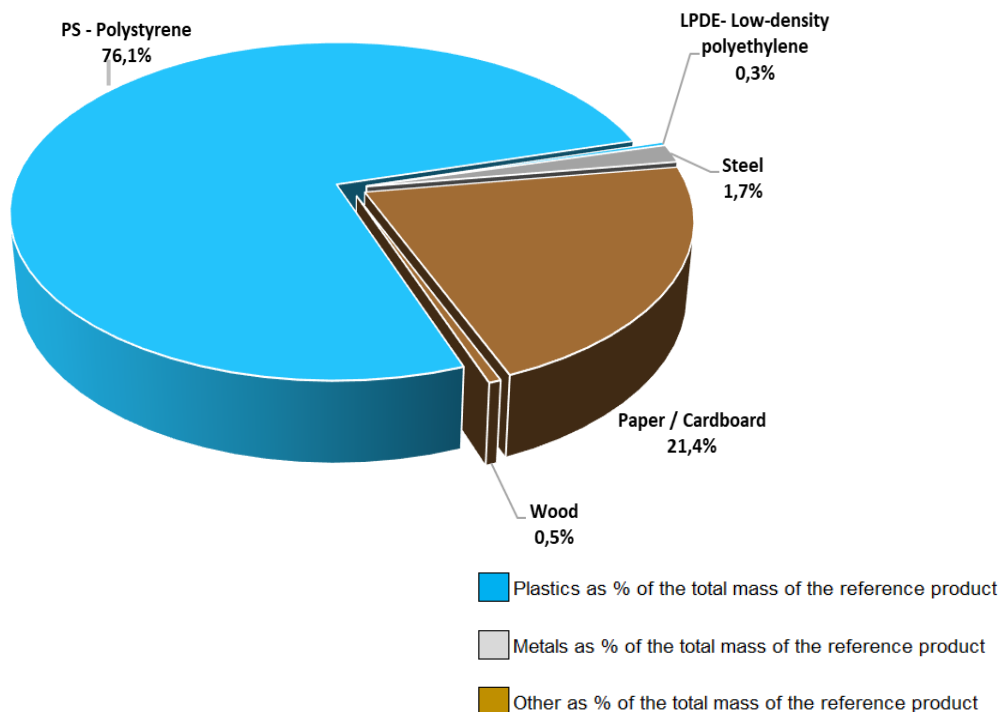


MATERIALS COMPOSITION

The products do not contain any of the restricted substances in compliance with REACH Regulation (EU) n.1907/2006 and RoHS Directive 2011/65/EU according to the latest updates.

TOTAL MASS OF THE REFERENCE PRODUCT INCLUDING ITS PACKAGING

301 g



The recycled content in the packaging material is **9%** of the reference product mass



MANUFACTURING STAGE

The product of interest is manufactured and assembled in a site certified according to ISO 9001.



DISTRIBUTION STAGE

The distribution phase is implemented considering the products' market. The distance and the means of transportation adopted are in accordance with PEP-PCR-ed4-EN-2021 09 06.

The packaging materials are compliant with Directive 2004/12/CE.



INSTALLATION STAGE

In the installation phase there are no significant environmental impacts since the installation takes place through interlocking of the devices. The installation phase concerns only the management of the packaging waste (e.g., cardboard packs and containers, pallets), which consists in collection, transport, and treatment up to the final disposal.



USE STAGE

The products do not require assistance, maintenance or additional products under normal conditions of use.



END-OF-LIFE STAGE

Vimar products are designed to be easily disassembled and recycled into every component at the end of their life.



LIFE CYCLE IMPACT ASSESSMENT

The life cycle impact assessment considers all the life stages from “cradle to grave”, according to the PEP-PCR-ed4-EN-2021 09 06, and it is representative of the production, marketing, and use of products at global level.

The latter represent the geographical boundaries within which technological boundaries are also defined. The life cycle stages considered are:

Manufacturing stage¹	The manufacturing phase considers: 1. Production (extraction, treatment, transformation, etc.), transportation and packaging of raw materials and components that constitute the reference product, including packaging, the waste generated and its disposal. 2. Industrial processes to manufacture and assemble the reference product and packaging components. 3. Transport of the packaged product from the factory to the manufacturer's last logistics platform.
Distribution stage	The distribution phase considers the transport of the product in its packaging from the last logistics platform of the manufacturer to the distributor and from the distributor to the place of installation.
Installation stage²	The installation phase concerns only the management of waste generated at the installation site (collection and treatment up to the final disposal) due to product packaging and the production of waste associated with the installation processes.
Use stage³	The use phase considers product operation under normal conditions of use and refers to the energy consumption and other flows of the products during their use in the Reference Life Time (RLT) according to the load conditions indicated in the PSR-0005-ed2-EN-2016 03 29 §3.9 - Unequipped enclosures and cabinets. In particular the scenario was modeled considering no energy consumption during the useful life of 20 years.
End-of-life stage⁴	The end-of-life phase considers: 1. Transport required to collect the products at end-of-life and transport them from the installation site to the final treatment site. 2. Treatment processes of items to be sent to special end-of-life product treatment facilities until final treatment.

¹ For the Manufacturing stage are considered the following energy models:

- Extraction of raw materials: Electricity, medium voltage {RoW} market for.
- Production: Energy, medium voltage {IT} market for, Cut-off-U.

These models use an average market energy mix of the respective geographical areas.

² For the Installation stage no energy model is considered, because there are no energy consuming operations.

³ For the Use stage there are no associated consumptions.

⁴ For the End-of-life stage the energy mixes considered are related to the waste treatment processes according to the actual distribution of products within the system boundaries.

The reference product is characterized by a potential recyclability rate of **35%** divided into:

- Plastic materials: 15%
- Metallic materials: 1%
- Packaging materials: 19%

Values are estimated according to EN 50693, PEP-PCR-ed4-EN-2021 09 06 and ISPRA Waste Report 380/2022.

For LCA modelling the following tools are used:

- **LCA Software:** SIMAPRO v. 9.3.0.2
- **Database:** Ecoinvent v. 3.8



ENVIRONMENTAL IMPACTS – RESULTS

The environmental impacts are calculated for a flush mounting junction box with white cover and fixing screws.

TOTAL	Manufacturing stage		Distribution stage		Installation stage		Use stage		End-of-life stage	
MANDATORY ENVIRONMENTAL INDICATORS										
Climate change – total expressed in kg CO ₂ eq.										
1,22E+00	9,93E-01	81,4%	4,01E-02	3,3%	1,18E-01	9,7%	0,00E+00	0*	6,80E-02	5,6%
Climate change - fossil fuels expressed in kg CO ₂ eq.										
1,12E+00	9,82E-01	87,3%	4,00E-02	3,6%	3,45E-02	3,1%	0,00E+00	0*	6,78E-02	6,0%
Climate change - biogenics expressed in kg CO ₂ eq.										
9,49E-02	1,09E-02	11,5%	1,03E-04	<1%	8,38E-02	88,3%	0,00E+00	0*	1,27E-04	<1%
Climate change - land use and land use transformation expressed in kg CO ₂ eq.										
4,18E-04	3,01E-04	72,0%	1,62E-05	3,9%	5,04E-05	12,1%	0,00E+00	0*	5,04E-05	12,1%
Ozone depletion expressed in kg CFC-11 eq.										
8,34E-08	5,66E-08	67,8%	9,27E-09	11,1%	4,51E-09	5,4%	0,00E+00	0*	1,31E-08	15,7%
Acidification Potential expressed in mol H+ eq.										
4,69E-03	3,91E-03	83,3%	2,35E-04	5,0%	1,88E-04	4,0%	0,00E+00	0*	3,62E-04	7,7%
Freshwater eutrophication expressed in kg P eq.										
1,21E-04	8,86E-05	73,0%	2,57E-06	2,1%	1,86E-05	15,3%	0,00E+00	0*	1,16E-05	9,6%
Marine aquatic eutrophication expressed in kg N eq.										
8,93E-04	6,56E-04	73,5%	7,71E-05	8,6%	4,89E-05	5,5%	0,00E+00	0*	1,11E-04	12,4%
Terrestrial eutrophication expressed in mol N eq.										
9,45E-03	6,86E-03	72,6%	8,44E-04	8,9%	5,37E-04	5,7%	0,00E+00	0*	1,21E-03	12,8%
Photochemical ozone formation expressed in kg NMVOC eq.										
2,50E-03	1,88E-03	75,1%	2,06E-04	8,2%	1,21E-04	4,8%	0,00E+00	0*	2,94E-04	11,8%
Abiotic resource depletion - metals and minerals expressed in kg Sb eq.										
3,38E-06	2,74E-06	81,0%	1,38E-07	4,1%	8,63E-08	2,6%	0,00E+00	0*	4,17E-07	12,3%
Abiotic resource depletion - fossil fuels or fossil resource expressed in MJ										
2,15E+01	1,93E+01	89,6%	6,06E-01	2,8%	6,12E-01	2,8%	0,00E+00	0*	1,02E+00	4,8%
Water requirement expressed in m³ of equivalent deprivation worldwide										
6,11E-01	5,97E-01	97,7%	1,75E-03	<1%	4,37E-03	<1%	0,00E+00	0*	7,95E-03	1,3%

OPTIONAL ENVIRONMENTAL INDICATORS

Total use of primary energy during the life cycle expressed in MJ

2,32E+01	2,06E+01	88,9%	6,14E-01	2,6%	8,96E-01	3,9%	0,00E+00	0*	1,06E+00	4,6%
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Emission of fine particles expressed in incidence of diseases

3,87E-08	2,96E-08	76,3%	2,83E-09	7,3%	1,64E-09	4,2%	0,00E+00	0*	4,73E-09	12,2%
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Ionizing radiation, human health expressed in kBq U-235 eq.

6,27E-02	4,24E-02	67,7%	3,10E-03	4,9%	1,08E-02	17,3%	0,00E+00	0*	6,36E-03	10,1%
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Ecotoxicity (fresh water) expressed in CTUe

8,08E+00	5,20E+00	64,4%	4,72E-01	5,8%	1,34E+00	16,6%	0,00E+00	0*	1,07E+00	13,2%
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Human toxicity, cancer effects expressed in CTUh

4,83E-10	4,21E-10	87,0%	1,56E-11	3,2%	1,56E-11	3,2%	0,00E+00	0*	3,15E-11	6,5%
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Human toxicity, non-cancer effects expressed in CTUh

6,56E-09	4,31E-09	65,7%	4,88E-10	7,4%	5,61E-10	8,6%	0,00E+00	0*	1,20E-09	18,3%
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Impacts related to land use/soil quality expressed in Pt

5,25E+00	2,82E+00	53,7%	4,23E-01	8,1%	1,21E+00	23,1%	0,00E+00	0*	7,93E-01	15,1%
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* represents less than 0,01% of the total life cycle of the reference flow.

Vimar S.p.A. guarantees that the sum of the percentage values, for each category, is 100%. The notation "<1%" was chosen for a reason of data relevance.

The manufacturing stage is the life cycle phase which has the greatest impact on most environmental indicators.

TOTAL	Manufacturing stage	Distribution stage	Installation stage	Use stage	End-of-life stage
MANDATORY INVENTORY FLOWS INDICATOR					
Use of renewable primary energy non used as raw materials expressed in MJ					
9,62E-01	8,71E-01	90,6%	6,28E-03	<1%	5,63E-02
5,9%	0,00E+00	0*	2,79E-02	2,9%	
Use of renewable primary energy resources used as raw materials expressed in MJ					
7,84E-01	7,84E-01	100,0%	0,00E+00	0*	0,00E+00
0*	0,00E+00	0*	0,00E+00	0*	0,00E+00
Total use of renewable primary energy resources expressed in MJ					
1,75E+00	1,66E+00	94,8%	6,28E-03	<1%	5,63E-02
3,2%	0,00E+00	0*	2,79E-02	1,6%	
Use of non-renewable primary energy non used as raw materials expressed in MJ					
1,98E+01	1,76E+01	88,7%	6,06E-01	3,1%	6,12E-01
3,1%	0,00E+00	0*	1,02E+00	5,2%	
Use of non-renewable primary energy resources used as raw materials expressed in MJ					
1,72E+00	1,72E+00	100,0%	0,00E+00	0*	0,00E+00
0*	0,00E+00	0*	0,00E+00	0*	0,00E+00
Total use of non-renewable primary energy resources expressed in MJ					
2,15E+01	1,93E+01	89,6%	6,06E-01	2,8%	6,12E-01
2,8%	0,00E+00	0*	1,02E+00	4,8%	
Use of secondary materials expressed in kg					
1,18E-01	1,18E-01	100,0%	0,00E+00	0*	0,00E+00
0*	0,00E+00	0*	0,00E+00	0*	0,00E+00
Use of renewable secondary fuels expressed in MJ					
0,00E+00	0,00E+00	0*	0,00E+00	0*	0,00E+00
0*	0,00E+00	0*	0,00E+00	0*	0,00E+00
Use of non-renewable secondary fuels expressed in MJ					
0,00E+00	0,00E+00	0*	0,00E+00	0*	0,00E+00
0*	0,00E+00	0*	0,00E+00	0*	0,00E+00
Net use of fresh water expressed in m³					
1,48E-02	1,46E-02	98,4%	6,23E-05	<1%	-7,08E-05
0*	0,00E+00	0*	2,46E-04	1,7%	

Hazardous waste disposed of expressed in kg

3,10E-05	2,65E-05	85,5%	1,56E-06	5,0%	7,14E-07	2,3%	0,00E+00	0*	2,24E-06	7,2%
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Non-hazardous waste disposed of expressed in kg

4,47E-01	4,33E-02	9,7%	3,05E-02	6,8%	3,01E-02	6,8%	0,00E+00	0*	3,43E-01	76,7%
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Radioactive waste disposed of expressed in kg

3,22E-05	1,79E-05	55,6%	4,10E-06	12,7%	4,02E-06	12,5%	0,00E+00	0*	6,15E-06	19,1%
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Components for reuse expressed in kg

0,00E+00	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*
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Materials for recycling expressed in kg

4,74E-02	3,65E-03	7,7%	0,00E+00	0*	4,37E-02	92,3%	0,00E+00	0*	0,00E+00	0*
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Materials for energy recovery expressed in kg

7,45E-03	3,50E-03	47,0%	0,00E+00	0*	3,95E-03	53,0%	0,00E+00	0*	0,00E+00	0*
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Exported energy expressed in MJ

0,00E+00	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*
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Biogenic carbon content of the product expressed in kg C

0,00E+00	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*
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Biogenic carbon content of the associated packaging expressed in kg C

2,97E-02	2,97E-02	100,0%	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*	0,00E+00	0*
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* represents less than 0,01% of the total life cycle of the reference flow.

Vimar S.p.A. guarantees that the sum of the percentage values, for each category, is 100%. The notation "< 1%" was chosen for a reason of data relevance.

In order to consider the potential environmental impacts of the covered commercial references, for representational purposes, the multiplicative coefficients (C_e) for the worst-case configuration are shown below.

To obtain the result of a n-th environmental impact category, the following formula shall be applied:

$$Environmental\ Impact_n = C_{e,i} \times Environmental\ Impact_{i,n}$$

C_e = extrapolation rule coefficient

i = i-th Life Cycle Stage

n = n-th Environmental Impact

Specifically, the product with the greatest environmental impact is the following:

- V70211:** Flush junction box 515x248x120 mm

Impact category	Unit	Total	Manufacturing stage	Distribution stage	Installation stage	Use stage	End-of-life stage
Climate change - total	kg CO2 eq	5,79	5,83	6,00	5,28	1,00	6,00
Climate change - fossil fuels	kg CO2 eq	5,84	5,84	6,00	5,21	1,00	6,00
Climate change - biogenics	kg CO2 eq	5,26	4,93	6,00	5,30	1,00	6,00
Climate change - Land use and LU change	kg CO2 eq	5,31	5,16	6,00	5,26	1,00	6,00
Ozone depletion	kg CFC11 eq	6,17	6,31	6,00	5,26	1,00	6,00
Acidification	mol H+ eq	5,82	5,82	6,00	5,26	1,00	6,00
Freshwater eutrophication	kg P eq	5,93	6,06	6,00	5,26	1,00	6,00
Marine aquatic eutrophication	kg N eq	5,84	5,83	6,00	5,26	1,00	6,00
Terrestrial eutrophication	mol N eq	5,88	5,89	6,00	5,26	1,00	6,00

Photochemical ozone formation	kg NMVOC eq	5,88	5,89	6,00	5,26	1,00	6,00
Abiotic resource depletion - metals	kg Sb eq	4,84	4,60	6,00	5,25	1,00	6,00
Abiotic resource depletion - fossil	MJ	6,15	6,19	6,00	5,26	1,00	6,00
Water requirement	m3 depriv.	5,93	5,93	6,00	5,24	1,00	6,00
Renewable - Non Raw Material	MJ	6,13	6,19	6,00	5,26	1,00	6,00
Renewable - Raw Material	MJ	5,41	3,80	1,00	1,00	1,00	1,00
Renewable - Total	MJ	5,81	5,06	8,02	26,56	1,00	7,86
Non Renewable - Non Raw Material	MJ	5,81	5,81	6,00	5,26	1,00	6,00
Non Renewable - Raw Material	MJ	10,04	10,04	1,00	1,00	1,00	1,00
Non Renewable - Total	MJ	6,15	6,19	6,00	5,26	1,00	6,00
Use of secondary Material	kg	5,84	5,84	1,00	1,00	1,00	1,00
Use of renewable secondary fuels	MJ	1,00	1,00	1,00	1,00	1,00	1,00
Use of non-renewable secondary fuels	MJ	1,00	1,00	1,00	1,00	1,00	1,00
Net Use of Fresh Water	m3	5,76	5,76	6,00	5,31	1,00	6,00
Hazardous waste disposed	kg	4,61	4,40	6,00	5,26	1,00	6,00
Non-hazardous waste disposed	kg	5,97	6,24	6,00	5,29	1,00	6,00
Radioactive waste disposed	kg	6,16	6,46	6,00	5,26	1,00	6,00
Components for re-use	kg	1,00	1,00	1,00	1,00	1,00	1,00
Materials for recycling	kg	5,21	4,47	1,00	5,28	1,00	1,00
Materials for energy recovery	kg	4,39	3,60	1,00	5,10	1,00	1,00
Exported energy	MJ	1,00	1,00	1,00	1,00	1,00	1,00
Biogenic carbon content in product	kg C	1,00	1,00	1,00	1,00	1,00	1,00
Biogenic carbon content in packaging	kg C	5,31	5,31	1,00	1,00	1,00	1,00
Total use of primary energy	MJ	6,14	6,19	6,00	5,26	1,00	6,00
Emission of fine particles	disease inc.	5,79	5,77	6,00	5,26	1,00	6,00
Ionizing radiation, human health	kBq U-235 eq	6,11	6,36	6,00	5,26	1,00	6,00
Ecotoxicity (fresh water)	CTUe	5,61	5,59	6,00	5,25	1,00	6,00
Human toxicity, cancer effects	CTUh	4,50	4,30	6,00	5,25	1,00	6,00
Human toxicity, non-cancer effects	CTUh	5,71	5,66	6,00	5,24	1,00	6,00
Land use	Pt	5,98	6,28	6,00	5,26	1,00	6,00

$$Total\ Environmental\ Impact_n = \sum_{i=1}^6 C_{e,i} \times Environmental\ Impact_{i,n}$$

C_e = extrapolation rule coefficient

i = i -th Life Cycle Stage

n = n -th Environmental Impact

Registration number: VMAR-70006 -V01.01-EN		Drafting Rules: «PCR-ed4-EN-2021 09 06» Supplemented by «PSR-0005-ed2-EN-2016 03 29»	
Verifier accreditation number: VH42		Information and reference documents: www.pep-ecopassport.org	
Date of issue: 06-2023		Validity period: 5 years	
Independent verification of the declaration and data, in compliance with ISO 14025 : 2006			
Internal: ☐		External: ☒	
The PCR review was conducted by a pannel of experts chaired by Julie ORGELET (DDemain)			
PEP are compliant with XP C08-100-1:2016 or EN 50693:2019			
The components of the present PEP may not be compared with components from any other program.			
Document in compliance with ISO 14025 : 2006 «Environmental labels and declarations. Type III environmental declarations».			