

ZENIT ITALY

PRODUCT ENVIRONMENTAL PROFILE

Environmental Product Declaration

FRAMES AND MOUNTING GRIDS OF THE ZENIT ITALY WIRING ACCESORY RANGE



ORGANIZATION ABB NIESSEN		CONTACT INFORMATION LIDE.BRITO@ES.ABB.COM			
ADDRESS FÁBRICA NIESSEN POL. IND. DE ARANGUREN, 6 20180 OIARTZUN		WEBSITE HTTPS://NEW.ABB.COM/LOW-VOLTAGE/ES/PRODUCTOS/NIESSEN			
STATUS In Review	SECURITY LEVEL Public	REGISTRATION NUMBER ABBG 0001 V01-01-EN	REV. 01	LANG. EN	PAGE 1/12
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ABB Purpose & Embedding Sustainability

ABB is passionate about creating success – together. Together means not only working together within ABB, but also with our customers, suppliers and stakeholders. ABB believes bringing together resources, knowledge and passion creates more value for a better world. ABB is working towards integrating the circular economy into its global strategy and embedding circularity across its entire operation. A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.

ABB is demonstrating their commitment to sustainability by making themselves sustainable. Across their own operations and value chain, aspiring to become a role model for others to follow. With **ABB Purpose** ABB is focusing on reducing harmful emissions, preserving natural resources and championing ethical and humane behavior to achieve this.

ABB has also taken part on the **The Ellen MacArthur Foundation's**. The Ellen MacArthur Foundation develops and promotes the idea of a circular economy. They work with, and inspire, business, academia, policymakers, and institutions to mobilize systems solutions at scale, globally.

For more information about sustainability in ABB:



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General Information

The declared product system is included in the ZEN-IT range. In general, mounting grids and frames are parts of the wiring accessory catalogue.

They are part of the final wiring accessory products, for mounting socket outlets, switches and additional functions such as USB chargers or multimedia connectors.

These frames and the mounting grids are representative products of the new Zen-it wiring accessory range of Niessen. This new range is an extension of the existing modular Zenit range, for the Italian market.

Representative products	Frames and mounting grids from the ZENIT ITALY range
Description of the products	PC based frames and mounting grids that provide protection to all the ZENIT ITALY products
Functional unit	The system consisting of the frame and the mounting grid, used to provide protection to the ZENIT ITALY range for 20 years. Protect persons during 20 years against direct contact with live parts and allow control devices in a single enclosure having the following dimensions for the frame 86 x 118 x 4mm, and for the mounting grid 70 x 102 x 19 mm.

The environmental data is representative of the following products:

Number of modules	Frames				Mounting grids					TOTAL	
	Ref.	Frame	Packaging	TOTAL (inc. packaging)	Ref.	Mounting grid	Screws	Packaging	TOTAL (inc. packaging)	Excluding packaging	Including packaging
2	Z2271.1	16.07g	7.80g	23.87g	Z2271.9	9.46g	1.69g	10.35g	21.50g	27.22g	45.37g
3	Z2373.1	20.32g	7.80g	28.12g	Z2373.9	14.48g	1.69g	12.43g	28.60g	36.49g	56.71g
4	Z2474.1	22.75g	15.60g	38.35g	Z2474.9	17.45g	1.69g	17.75g	36.89g	41.89g	75.24g
7	Z2777.1	30.38g	31.19g	61.57g	Z2777.9	23.54g	3.38g	24.85g	51.77g	57.30g	113.34g

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As a reference product:

3 module frame and mounting grid from the ZENIT ITALY range.
Includes two attachment points.



Z2373.1
Frame 1-gang/ 3M

Z2373.9
Mounting grid 1-gang/ 3M

Packaging

Screws

20.32g

14.48g

20.22g

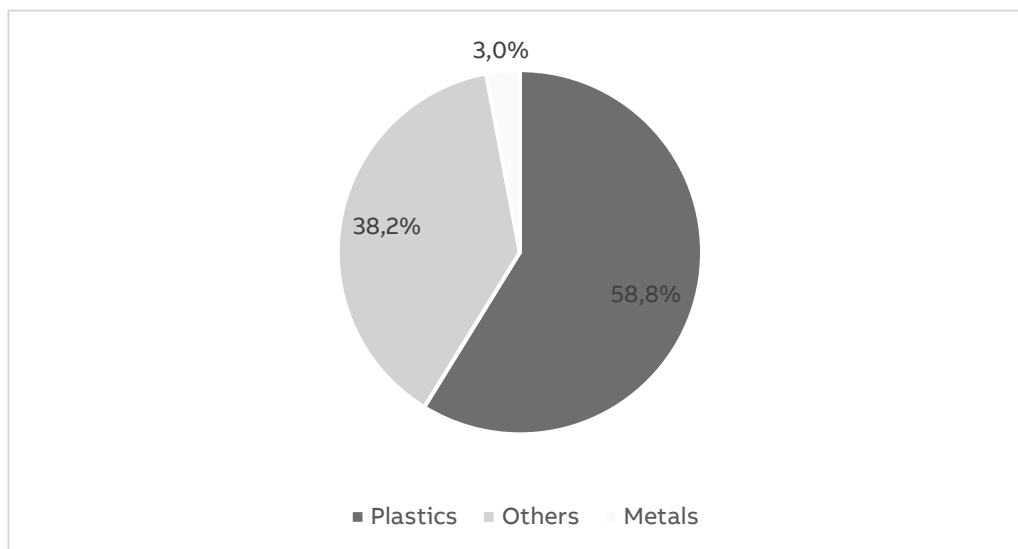
1.69g

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Constituent materials

Reference product mass with packaging	56.71g including the whole system of frame and mounting grid, its packaging and additional elements and accessories
Reference product mass (FU)	34.8g only the system including the frame and the mounting grid



conformity with the requirements of the RoHS directive and REACH.

		Frames (including packaging)		Mounting grids (including packaging)		Total	
Plastics	PC	72.3%	72.3%	45.6%	45.6%	58.8%	58.8%
Others	Paper		27.7%		43.4%		35.6%
	Glass fiber	27.7%	<0.1%	48.5%	5.1%	38.2%	2.6%
	Wood		<0.1%		<0.1%		<0.1%
Metals	Steel	<0.1%	<0.1%	5.9%	5.9%	3.0%	3.0%

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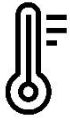


Environmental Information

Manufacturing	Manufactured at the NIESSEN factory, ISO 14001 certified ** In the manufacturing process is considered the raw material including the packaging, its transport to the manufacturing site, the manufacturing process and the transport to ABB in Milan. The information is given by the company.
Distribution	Packaging is 20.22g, consisting of a cardboard box as a primary packaging and a macro container for both the frame and the mounting grid. In both cases the macro containers stacked in pallets. The distance considered is the one between ABB in Milan to the rest of Italy, which is not available, so as the PCR-ed3-EN-2015 04 02 states, 1000km transport by lorry is taken.
Installation	For the installation of the product, only standard tools are needed. The number of screws depends on the number of modules of the system. The screws are needed for the fastening of the product to the wall, they are included in the packaging, and no electrical screwdriver is used. The installation stage includes the disposal of the packaging and the transport of packaging material to disposal.
Use	Under normal conditions of use, the product does not require special maintenance operations or consumables, so there is no impact taken into account in this stage.
End of life	No special end-of-life treatment required. According to countries' practices this product can enter the usual end-of-life treatment process. The information of the end of life of the product is not available, so as the PCR-ed3-EN-2015 04 02 states, the end of life considered is landfill, with the corresponding 1000km transport to the site.

** Products of this range are designed in conformity with the requirements of the RoHS directive (European directive 2011/65/EU) and do not contain in the authorized proportions, lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE), as mentioned in the directive.

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Environmental impacts

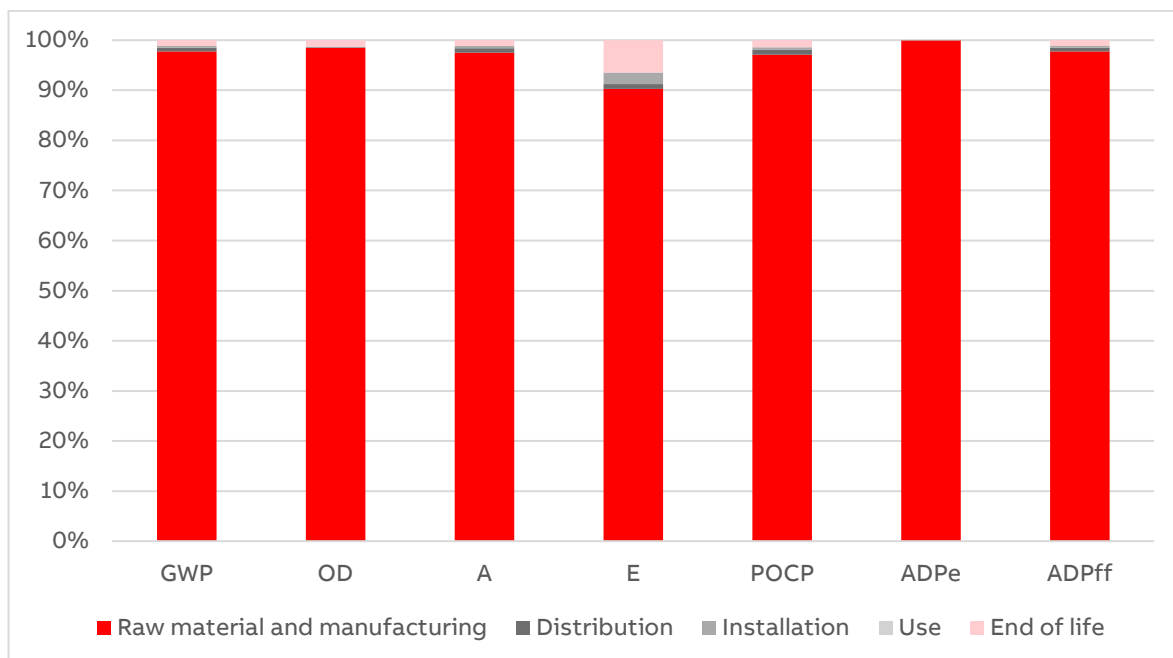
Reference lifetime	20 years			
Product category	Electrical switchgear and control gear solutions Unequipped enclosures and cabinets			
Installation elements	Depending on the attaching points of each product, the number of screws changes with each number of modules. See table in General information (pages 2&3)			
Use scenario	Non applicable for unequipped enclosures and cabinets			
Geographical representativeness	Europe			
Technological representativeness	The manufacturing processes considered are representative of both, the frames' and the mounting grids' production.			
LCA software and database	LCA calculations made with SimaPro 9.1, with the CML-IA baseline version 4.2 methodology, and Ecoinvent 3.6 and ELCD database. The methodology used for the resource indicators have been: "Cumulative Energy Demand" for the energy and "Hoekstra et al 2012 (Water scarcity) V1.02" for the water used			
Lifecycle stages taken into account	Raw material and manufacturing, distribution, installation, use and end of life			
Energy model used	Manufacturing	Installation	Use	End of life
	Electricity grid mix, AC, consumption mix, at consumer 230V ES S	Non-applicable	Non-applicable	Non-applicable

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Core Environmental Impact Indicators

Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use*	End of life
Global warming (GW)	kg CO ₂ eq.	3.74E-01	3.65E-01	2.82E-03	1.26E-03	0.00E+00	4.28E-03
Ozone depletion (OD)	kg CFC-11 eq.	8.06E-09	7.94E-09	5.72E-12	8.57E-12	0.00E+00	1.07E-10
Acidification of soil and water (A)	kg SO ₂ eq.	1.42E-03	1.38E-03	1.27E-05	6.16E-06	0.00E+00	1.64E-05
Eutrophication (E)	kg (PO ₄) ³ eq.	2.90E-04	2.61E-04	2.90E-06	6.62E-06	0.00E+00	1.87E-05
Photochemical ozone creation (POCP)	kg C ₂ H ₄ eq.	9.06E-05	8.80E-05	9.01E-07	4.34E-07	0.00E+00	1.28E-06
Depletion of abiotic resources – elements (ADPe)	kg Sb eq.	1.59E-06	1.59E-06	1.12E-10	5.38E-11	0.00E+00	2.64E-10
Depletion of abiotic resources – fossil fuels (ADPff)	MJ	5.26E+00	5.14E+00	3.97E-02	1.75E-02	0.00E+00	6.10E-02
Water pollution (WP)	m ³	2.15E-01	2.07E-01	1.53E-05	6.81E-05	0.00E+00	7.73E-03
Air pollution (AP)	m ³	4.03E+00	3.87E+00	4.08E-02	2.45E-02	0.00E+00	8.94E-02

*the stage of use is considered to have no impact, as it has no energy consumption. It represents less than 0.01% of the total life cycle of the reference flow.



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Other indicators

Inventory flow indica- tors	Unit	Total	Manufac- turing	Distribution	Installation	Use*	End of life
Total use of primary energy	MJ	9.76E+00	9.63E+00	4.24E-02	1.89E-02	0.00E+00	7.00E-02
Net use of fresh water	m ³	1.34E-02	1.34E-02	-6.22E-07	-1.05E-05	0.00E+00	-3.70E-05
Primary renewable energy resources used as energy carrier	MJ	3.90E+00	3.89E+00	4.51E-05	4.70E-5	0.00E+00	3.87E-04
Primary renewable energy resources used as raw materials	MJ	3.39E-01	3.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of primary resources- Renewable	MJ	4.23E+00	4.23E+00	4.51E-05	4.70E-05	0.00E+00	3.87E-04
Primary non- renewable energy resources used as energy carrier	MJ	4.49E+00	4.36E+00	4.23E-02	1.89E-02	0.00E+00	6.96E-02
Primary non- renewable energy resources used as raw materials	MJ	1.04E+00	1.04E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of primary resources- Non- renewable	MJ	5.53E+00	5.40E+00	4.23E-02	1.89E-02	0.00E+00	6.96E-02
Secondary materials	kg	4.12E-03	4.12E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non- renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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Waste category indicators	Unit	Total	Manufacturing	Distribution	Installation	Use*	End of life
Hazardous waste disposed	kg	5.24E-04	5.22E-04	3.51E-09	1.83E-08	0.00E+00	1.34E-07
Non-hazardous waste disposed	kg	2.78E-02	2.77E-02	0.00E+00	2.49E-05	0.00E+00	1.07E-04
Radioactive waste disposed	kg	4.15E-06	4.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Output flow indicators	Unit	Total	Manufacturing	Distribution	Installation	Use*	End of life
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for re-cycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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For products covered by the PEP other than the Reference product, the environmental impacts for each phase of the lifecycle are obtained by multiplying the values of the Reference product by the following extrapolation mass coefficients:

Model	Manufacturing	Distribution	Installation	Use	End of life
2M system	0.75	0.80	0.90	-	0.75
3M system	1.00	1.00	1.00	-	1.00
4M system	1.15	1.33	1.65	-	1.15
7M system	1.57	2.00	2.77	-	1.57

Registration number: ABBG 0001 V01-01-EN	Drafting Rules <i>PCR-ed3-EN-2015 04 02</i> Supplemented by <i>PSR -0005-ed2-EN-2016 03 29</i>
Verifier accreditation number: VH25	Program operator: PEP Ecopassport www.pep-ecopassport.org Association P.E.P11-17 rue de l'Amiral Hamelin 75783 Paris cedex 16 France
Date of issue: <i>April 2021</i>	Validity period: 5 years
Independent verification of the declaration and data, in compliance with ISO 14025: 2010	
Internal: ☐	External: ☒
Compliant with ISO 14025: 2010 Type III environmental declarations. The PCR review was conducted by an expert panel chaired by Philippe Osset (SOLINNEN)	
The content of this PEP cannot be compared with content based on another program	
In compliance with ISO 14040:2006: "Environmental management – LCA – Principles and framework" In compliance with ISO 14044:2006: "Environmental management – LCA – Requirements and guidelines" Environmental data in alignment with EN 15804:2012+A1:2013: "Sustainability of construction works - EPD's - Core rules for the product category of construction products"	

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Environmental impact indicator descriptions

Impact indicators	Description	Unit
Global warming (GW)	Indicator of potential global warming caused by emissions to air contributing to the greenhouse effect. Includes fossil and biogenic	kg CO ₂ eq.
Ozone depletion (OD)	Indicator of emissions to air that contribute to the destruction of the ozone layer	kg CFC-11 eq.
Acidification of soil and water (A)	Indicator of the potential acidification of soils and water caused by the release of certain gases to the atmosphere	kg SO ₂ eq.
Eutrophication (E)	Indicator of the contribution to eutrophication of water by the enrichment of the aquatic ecosystem with nutritional elements. e.g. industrial or domestic effluents. agriculture. etc.	kg (PO ₄) ³ eq.
Photochemical ozone creation (POCP)	Indicator of emissions of gases that affect the creation of photochemical ozone in the lower atmosphere (smog) because of the rays of the sun.	kg C ₂ H ₄ eq.
Depletion of abiotic resources – elements (ADPe)	Indicator of the depletion of natural non-fossil resources	kg Sb eq.
Depletion of abiotic resources – fossil fuels (ADPf)	Indicator of the depletion of natural fossil resources	MJ (lower heating Value)
Water pollution (WP)	Indicator of the quantity of water necessary to dilute the toxic elements poured into water in all the stages of the product life cycle.	m ³
Air pollution (AP)	Indicator of the quantity of air necessary to dilute the toxic elements emitted into the air in all the stages of the product life cycle.	m ³

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