

# Environmental Product Declaration

 **EPD**®  
THE INTERNATIONAL EPD® SYSTEM



EPD of multiple products, based on a representative product  
In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

**CHIC DOOR HINGE OVERLAP 160**  
**CHIC DOOR HINGES FLUSH 160**  
**CHIC DOOR HINGE FLUSH CTZ 160**  
**CHIC DOOR HINGES FLUSH 200 RH/LH**  
**CHIC DOOR HINGE OVERLAP 200 RH/LH**

from

**GIESSE S.p.A.**



Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0016881
Publication date:	2024-10-31
Valid until:	2029-10-30

*An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com)*



## General information

### Programme information

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
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<b>Accountabilities for PCR, LCA and independent, third-party verification</b>
<b>Product Category Rules (PCR)</b>
CEN standard EN 15804:2012+A2:2019 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Construction products, PCR 2019:14 (EN 15804:A2+A2:2019), version 1.3.4.
PCR review was conducted by: The Technical Committee of the International EPD®System. Chair: Claudia A. Peña. The review panel may be contacted via <a href="mailto:info@environdec.com">info@environdec.com</a>
<b>Life Cycle Assessment (LCA)</b>
LCA accountability: Valerio Venturi <a href="mailto:valerio.venturi@tyman.com">valerio.venturi@tyman.com</a> GIESSE S.p.A
<b>Third-party verification</b>
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:  <input checked="" type="checkbox"/> EPD verification by individual verifier  Third-party verifier: <i>Michela Gallo, University of Genoa</i>  Approved by: The International EPD® System  Procedure for follow-up of data during EPD validity involves third party verifier:  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025

## Company information

Owner of the EPD: GIESSE S.p.A.

Contact: Valerio Venturi [valerio.venturi@tyman.com](mailto:valerio.venturi@tyman.com) and Giovanni Liconti [giovanni.liconti@tyman.com](mailto:giovanni.liconti@tyman.com)

Description of the organisation: GIESSE is the brand that opens up new hardware solution frontiers for aluminium windows and doors. Technical innovation and extremely high quality are at the core of our daily work. Our focus is on achieving complete customer satisfaction, from design and production to providing our clients with a trusted partner, every step of the way.

GIESSE S.p.A. was founded in 1965 and in 2016 it was acquired by Schlegel, a leading English company in the sealing systems sector. Both companies are part of the international division of Tyman PLC, a group listed on the London stock exchange, with a commercial network capable of reaching customers in over 100 countries and offering them the highest degree of satisfaction, a wide range of standard components.

Product-related or management system-related certifications: UNI EN ISO 9001:2015 [TÜV Italia nr. 50 100 8200] and UNI EN ISO 14001:2015 [TÜV Italia nr. 50 100 8502] certifications



Name and location of production site(s): GIESSE S.p.A. Via Tubertini 1, 40054 Budrio (Bologna BO), Italy.

## Product information

Product name: Hinge CHIC DOOR FLUSH and OVERLAP

Product identification:

**00920 CHIC DOOR HINGE OVERLAP 160**

**00917 CHIC DOOR HINGES FLUSH 160**

**00763 CHIC DOOR HINGE FLUSH CTZ 160**

**009181/2 CHIC DOOR HINGES FLUSH 200 RH/LH**

**009211/2 CHIC DOOR HINGE OVERLAP 200 RH/LH**

Product description: C.H.I.C. Door is GIESSE's range of concealed hinges for doors that improves the aesthetics and increases the value of hardware while simplifying warehouse organisation. Its high load capacity, in compliance with European standards, makes products versatile and applicable to a vast range of residential and commercial solutions.

C.H.I.C. Door is extremely easy and intuitive to fit, thereby reducing installation time. The large side, height and compression adjustment range means that they can be fitted by just one person after the door has been installed

Installation is particularly simple as it only requires straightforward work on the frame. The installation of the door can take place on site in just a few steps.

CHIC DOOR HINGE OVERLAP and FLUSH adjustable in three directions:

- Side adjustment (+/- 3 mm), using an Allen key on the hinge adjusters.
- Height adjustment (- 2 /+ 3 mm), using an Allen key on the adjustment screw.
- Compression adjustment (+/- 1 mm), obtainable by turning the screws on the sash hinge body

CE marking:, 00920 CHIC DOOR HINGE OVERLAP 160, 00917 CHIC DOOR HINGES FLUSH 160, 00763 CHIC DOOR HINGE FLUSH CTZ 160 are CE marked according to EN 1935:2002/AC:2003.

Finishes: anodized

UN CPC code: 4212

Geographical scope: Global

## **LCA information**

Declared unit: 1 kg of hinge

Time representativeness: 2023

Database(s) and LCA software used: SimaPro 9.5.0.2 and Ecoinvent 3.9.1

Description of system boundaries: Cradle to gate (A1-A3), construction (A4-A5), end of life (C1-C4) and benefits beyond system boundary (D) (A1-A3 + A4-A5+ C + D)

The current EPD certificate follows the indications reported in the second option of paragraph 2.2.2.1 of the reference PCR (2019:14 Construction products v. 1.3.4), EPD of multiple products which declares the results of a representative product. The General Programme Instructions (GPI) of the International EPD System version 4.0 are also contemplated.

System diagram:

Product stage			Construction process stage		Use stage*							End of life stage				Resource recovery stage
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
auminium zinc alloy steel plastics packaging		mechanical workings surface-treatment anodizing painting assembly packaging auxiliar materials wastes														

\* Outside system boundaries

**Product stage:**

A1: This stage considers the extraction and processing of raw materials and energy consumption.

A2: The raw materials are transported to the manufacturing plant. In this case, the model includes road transportation of each raw material.

A3: This stage includes the manufacture of products and packaging. It also considers the energy consumption and waste generated at the production plant

**Construction process stage:**

A4: This stage includes transport from the production gate to the construction site where the product shall be installed. The default assumptions listed in UNI 17610 is adopted: 16-32 t truck over 3500 km.

A5

This stage describes impacts related to installing the product to the building. Since this is a manual process, no energy or fuels is needed for installation, then module analyses the recovery of packaging incurred as waste during product installation

**Use stage:**

B1, B3, B4, B6, B7: These modules were not considered

**End of Life stage:**

C1: This stage describes impacts related to dismantling the product at the product end-of-life stage. Since this is a manual process, the environmental impacts are negligible.

C2: This module describes the transport of discarded product to final disposal. Transportation distance to the closest disposal area is estimated as 100 km and the transportation method is lorry which is the most common.

C3: This module describes waste processing for reuse, recovery, or recycling. It is assumed that 90% of metals will be recycled and 35% of plastics will be recycled.

C4: The remaining 10% of metals and 23% of plastic parts are assumed to be sent to the landfill.

**Resource recovery stage:**

Energy recovery and/or recycling materials considered in module C3

**Exclusions**

- Transportation of personnel to the plant
- Capital goods
- Materials for maintenance, used in production

**Cut-off rule:**

Applied for materials for maintenance, used in production, as it was negligible  
 Cut-off rule: 1% cut-off rule was applied for input flows in the inventory

**Electricity data**

GIESSE S.p.A. has 100 percent original marked electricity. The company purchases electricity produced from renewable resources. The energy mix purchased are 100% Wind power. Climate impact for the green energy mix are 0.0035 kg CO2eq. per kWh (GWP-GHG).

**Type of EPD:**

Multiple products, based on representative product **00920 CHIC DOOR HINGE OVERLAP 160**,

More information:

Valerio Venturi [valerio.venturi@tyman.com](mailto:valerio.venturi@tyman.com) , GIESSE S.p.A:

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	x	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	EU27	ITA	GLO	GLO	ND	ND	ND	ND	ND	ND	ND	GLO	GLO	GLO	GLO	EU27
Specific data used	>90%			-	-	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	
Variation – products	+19%			-11/+2%	-24/+12%	ND	ND	ND	ND	ND	ND	ND	-	-	+23%	+9%	
Variation – sites	-			-	-	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	

## Content information

<b>00920 CHIC DOOR HINGE OVERLAP 160</b>			
<b>Product components</b>	<b>Weight, g</b>	<b>Post-consumer material, weight-%</b>	<b>Biogenic material, weight-% and kg C/kg</b>
Steel	260.2	0.0	0.0
Aluminium	465.7	48.3	0.0
Polymers	218.6	0.0	0.0
Zinc alloy	471.5	0.0	0.0
Finish	13.6	0.0	0.0
TOTAL	1229.6	18.3	0.0
<b>Packaging materials</b>	<b>Weight, g</b>	<b>Weight-% (versus the product)</b>	<b>Weight biogenic carbon, kg C/kg</b>
wood	41.7	3.4	<0.01
plastic	<0.1	< 0.1	0.0
cardboard	142.9	11.6	0.07
TOTAL	184.6	15.0	

<b>00763 CHIC DOOR HINGE FLUSH CTZ 160</b>			
<b>Product components</b>	<b>Weight, g</b>	<b>Post-consumer material, weight-%</b>	<b>Biogenic material, weight-% and kg C/kg</b>
Steel	265.5	0.0	0.0
Aluminium	530.9	42.4	0.0
Polymers	18.6	0.0	0.0
Zinc alloy	375.3	0.0	0.0
Finish	13.6	0.0	0.0
TOTAL	474.5	18.7	0.0
<b>Packaging materials</b>	<b>Weight, g</b>	<b>Weight-% (versus the product)</b>	<b>Weight biogenic carbon, kg C/kg</b>
wood	41.67	3.5	<0.01
plastic	<0.1	< 0.1	0.0
cardboard	102.88	8.6	0.05
TOTAL	144.6	12.0	

<b>00917 CHIC DOOR HINGES FLUSH 160</b>			
<b>Product components</b>	<b>Weight, g</b>	<b>Post-consumer material, weight-%</b>	<b>Biogenic material, weight-% and kg C/kg</b>
Steel	260.2	0.0	0.0
Aluminium	410.7	50.2	0.0
Polymers	18.6	0.0	0.0
Zinc alloy	387.1	0.0	0.0
Finish	13.6	0.0	0.0
TOTAL	1090.2	18.9	0.0
<b>Packaging materials</b>	<b>Weight, g</b>	<b>Weight-% (versus the product)</b>	<b>Weight biogenic carbon, kg C/kg</b>
wood	41.7	3.8	<0.01
plastic	<0.1	< 0.1	0.0
cardboard	142.9	13.1	0.07
TOTAL	184.6	16.9	

**009181/2 CHIC DOOR HINGES FLUSH 200 RH/LH**

<b>Product components</b>	<b>Weight, g</b>	<b>Post-consumer material, weight-%</b>	<b>Biogenic material, weight-% and kg C/kg</b>
Steel	316.7	0.0	0.0
Aluminium	619	39.3	0.0
Polymers	20.3	0.0	0.0
Zinc alloy	387.1	0.0	0.0
Finish	13.6		0.0
TOTAL	1356.7	17.9	0.0
<b>Packaging materials</b>	<b>Weight, g</b>	<b>Weight-% (versus the product)</b>	<b>Weight biogenic carbon, kg C/kg</b>
wood	41.7	3.1	<0.01
plastic	<0.1	< 0.1	0.0
cardboard	142.9	10.5	0.07
TOTAL	184.6	13.6	

**009211/2 CHIC DOOR HINGE OVERLAP 200 RH/LH**

<b>Product components</b>	<b>Weight, g</b>	<b>Post-consumer material, weight-%</b>	<b>Biogenic material, weight-% and kg C/kg</b>
Steel	316.7	0.0	0.0
Aluminium	709.0	37.0	0.0
Polymers	26.0	0.0	0.0
Zinc alloy	7.5	0.0	0.0
Finish	13.6	0.0	0.0
TOTAL	1356.8	17.0	0.0
<b>Packaging materials</b>	<b>Weight, g</b>	<b>Weight-% (versus the product)</b>	<b>Weight biogenic carbon, kg C/kg</b>
wood	41.7	2.7	<0.01
plastic	<0.1	< 0.1	0.0
cardboard	142.9	9.3	0.06
TOTAL	184.6	12.0	

**All products**

<b>Dangerous substances from the candidate list of SVHC for Authorisation</b>	<b>EC No.</b>	<b>CAS No.</b>	<b>Weight-% per functional or declared unit</b>
No substances	-	-	-



## Results of the environmental performance indicators

The following tables show the values of the environmental indicators for the representative product 00920 CHIC DOOR HINGE OVERLAP 160

### Mandatory impact category indicators according to EN 15804

Results per functional or declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	7.79E+00	2.72E-01	1.17E-03	0.00E+00	1.38E-01	1.58E-02	9.06E-04	-1.68E+00
GWP-biogenic	kg CO <sub>2</sub> eq.	6.99E-02	7.90E-05	1.85E-02	0.00E+00	1.38E-05	9.38E-07	2.42E-07	-1.10E-03
GWP-luluc	kg CO <sub>2</sub> eq.	6.77E-02	1.33E-04	6.48E-07	0.00E+00	1.75E-05	1.19E-07	3.61E-07	-7.44E-04
GWP-total	kg CO <sub>2</sub> eq.	7.92E+00	2.73E-01	1.97E-02	0.00E+00	1.38E-01	1.58E-02	9.07E-04	-1.69E+00
ODP	kg CFC 11 eq.	1.59E-07	5.97E-09	2.68E-11	0.00E+00	2.17E-09	1.62E-11	1.66E-11	-3.26E-08
AP	mol H <sup>+</sup> eq.	8.48E-02	1.13E-03	1.04E-05	0.00E+00	7.57E-04	3.60E-06	4.39E-06	-7.09E-03
EP-freshwater	kg P eq.	5.02E-03	1.92E-05	2.91E-07	0.00E+00	2.58E-06	4.71E-08	5.13E-08	-8.06E-04
EP-marine	kg N eq.	1.00E-02	4.30E-04	3.07E-05	0.00E+00	3.29E-04	2.05E-06	9.33E-06	-1.57E-03
EP-terrestrial	mol N eq.	1.01E-01	4.59E-03	4.14E-05	0.00E+00	3.56E-03	1.75E-05	1.80E-05	-1.68E-02
POCP	kg NMVOC eq.	3.55E-02	1.65E-03	1.82E-05	0.00E+00	1.39E-03	4.40E-06	6.32E-06	-7.97E-03
ADP-minerals&metals*	kg Sb eq.	7.81E-04	8.81E-07	2.39E-09	0.00E+00	8.89E-08	7.57E-10	8.46E-10	-1.43E-05
ADP-fossil*	MJ	1.06E+02	3.89E+00	1.30E-02	0.00E+00	1.80E+00	2.91E-03	1.44E-02	-1.79E+01
WDP*	m <sup>3</sup>	2.88E+00	1.58E-02	3.77E-04	0.00E+00	3.39E-03	7.16E-04	6.32E-04	-3.13E-01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

### Additional mandatory and voluntary impact category indicators

Results per functional or declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	7.87E+00	2.71E-01	2.04E-02	0.00E+00	1.38E-01	1.58E-02	8.86E-04	-1.68E+00

Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017

<sup>1</sup> This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

### Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	disease inc.	5.82E-07	2.23E-08	1.15E-10	0.00E+00	1.81E-08	1.81E-11	9.55E-11	-1.27E-07
IRP	kBq U235 eq.	1.17E+00	5.20E-03	3.28E-05	0.00E+00	5.94E-04	5.82E-06	1.00E-05	-6.10E-02
ETP-fw	CTUe	2.06E+02	1.92E+00	7.60E-02	0.00E+00	8.76E-01	3.12E-02	8.07E-03	-5.99E+00
HTP-nc	CTUh	2.95E-08	1.25E-10	2.09E-12	0.00E+00	2.04E-11	1.37E-12	2.57E-13	-1.05E-08
HTP-c	CTUh	4.86E-07	2.74E-09	1.19E-10	0.00E+00	3.53E-10	4.85E-11	3.87E-12	-1.85E-08
SQP	Pt	4.02E+01	2.32E+00	1.66E-02	0.00E+00	2.00E-01	8.69E-04	2.87E-02	-5.54E+00

*Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017*

### Resource use indicators

#### Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	3.01E+01	6.03E-02	4.81E-04	0.00E+00	5.34E-03	7.78E-05	9.68E-05	-1.41E+00
PERM	MJ	2.79E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3.29E+01	6.03E-02	4.81E-04	0.00E+00	5.34E-03	7.78E-05	9.68E-05	-1.41E+00
PENRE	MJ	1.06E+02	3.89E+00	1.30E-02	0.00E+00	1.80E+00	2.91E-03	1.44E-02	-1.79E+01
PENRM	MJ	3.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.06E+02	3.89E+00	1.30E-02	0.00E+00	1.80E+00	2.91E-03	1.44E-02	-1.79E+01
SM	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
RSF	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
NRSF	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
FW	m <sup>3</sup>	1.57E-01	5.54E-04	1.43E-05	0.00E+00	1.22E-04	2.26E-05	1.52E-05	-9.81E-03
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

### Waste indicators

#### Results per functional or declared unit

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	4.45E-03	2.48E-05	6.01E-08	0.00E+00	1.21E-05	1.76E-08	7.57E-08	-1.48E-04
Non-hazardous waste disposed	kg	1.99E+00	1.90E-01	2.61E-02	0.00E+00	9.08E-03	2.88E-04	9.22E-02	-7.19E-01
Radioactive waste disposed	kg	3.00E-04	1.26E-06	8.03E-09	0.00E+00	1.31E-07	1.48E-09	2.34E-09	-1.54E-05

## Output flow indicators

Results per functional or declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	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
Material for recycling	kg	1.11E-02	0.00E+00	9.95E-02	0.00E+00	0.00E+00	8.91E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	1.11E-02	0.00E+00	3.17E-02	0.00E+00	0.00E+00	6.63E-03	0.00E+00	0.00E+00
Exported energy, electricity	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
Exported energy, thermal	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

Variation of the included products referred to representative product

## Mandatory impact category indicators according to EN 15804

Results per functional or declared unit											
Indicator	A1-A3		A4		A5		C1	C2	C3	C4	D
GWP-fossil	1%	19%	-11%	2%	-12%	12%	-	-	23%	9%	-
GWP-biogenic	-11%	4%	-11%	2%	-25%	12%	-	-	23%	2%	-
GWP-luluc	-1%	33%	-11%	2%	-17%	12%	-	-	23%	2%	-
GWP-total		19%	-11%	2%	-24%	12%	-	-	23%	9%	-
ODP		21%	-11%	2%	-16%	12%	-	-	23%	1%	-
AP		20%	-11%	2%	-13%	12%	-	-	23%	1%	-
EP-freshwater	-2%	10%	-11%	2%	-12%	12%	-	-	23%	3%	-
EP-marine	-1%	13%	-11%	2%	-20%	12%	-	-	23%	19%	-
EP-terrestrial	-1%	13%	-11%	2%	-12%	12%	-	-	23%	1%	-
POCP		15%	-11%	2%	-16%	12%	-	-	23%	2%	-
ADP-minerals&metals*	-15%		-11%	2%	-15%	12%	-	-	23%	2%	-
ADP-fossil*		18%	-11%	2%	-13%	12%	-	-	23%	1%	-
WDP*	-6%	9%	-11%	2%	-35%	12%	-	-	23%	1%	-
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption										

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Additional mandatory and voluntary impact category indicators

### Modules

Indicator	A1-A3		A4		A5		C1		C2		C3		C4		D	
GWP-GHG <sup>2</sup>		19%	-11%	2%	-24%	12%		-		-		23%		9%		-

*Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017*

### Modules

Indicator	A1-A3		A4		A5		C1		C2		C3		C4		D	
PM		21%	-11%	2%	-12%	12%		-		-		23%		1%		-
IRP		16%	-11%	2%	-19%	12%		-		-		23%		3%		-
ETP-fw	-14%	-5%	-11%	2%	-25%	12%		-		-		23%		5%		-
HTP-nc	-8%	12%	-11%	2%	-13%	12%		-		-		23%		2%		-
HTP-c	-9%	2%	-11%	2%	-15%	12%		-		-		23%		6%		-
SQP	-8%	4%	-11%	2%	-12%	12%		-		-		23%		1%		-

*Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017*

## Output flow indicators

### Results per functional or declared unit

Indicator	A1-A3		A4		A5		C1		C2		C3		C4		D	
Components for re-use		-		-		-		-		-		-		-		-
Material for recycling	-12%	12%		-	-26%	12%		-		-		-		-		-
Materials for energy recovery	-12%	12%		-	-12%	12%		-		-		23%		-		-
Exported energy, electricity		-		-		-		-		-		-		-		-
Exported energy, thermal		-		-		-		-		-		-		-		-

<sup>2</sup> This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

## Additional environmental information

- Main materials used to build the accessories are recyclable.
- It is recommended that accessories, packaging, etc. are disposed of accordingly, with local disposal regulations and sent to a recycling unit for recovery and recycling
- Before sent to disposal it's recommended to separate the materials as below:
  - Steel / Stainless Steel: Ferrous metals
  - Aluminium alloy / Zinc alloy: Non-ferrous metals
  - Plastic components (PA, PP, PE, POM, etc):
- GIESSE S.p.A. is actively focused on Sustainability more details at <https://www.tyman-international.com/company/sustainability/>

## References

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