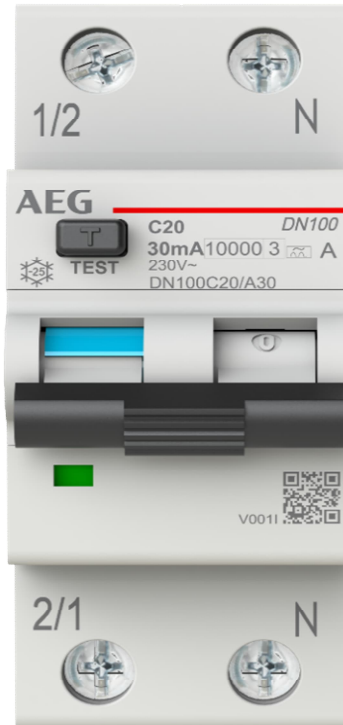


DN100 Residual Current Circuit Breaker with Overcurrent Protection

# PEP ecopassport®

## Product Environmental Profile



Registration number:	ABBG-00530-V01.02-EN	Drafting rules:	PCR-ed4-EN-2021 09 06
Contact information:	EPD_ELSB@abb.com	Supplemented by:	PSR-0005-ed3-EN-2023 06 06
Verifier accreditation number:	VH50	Information and reference documents:	www.pep-ecopassport.org
Date of issue:	June-24	Validity period:	5 years
<b>Independent verification of the declaration and data in compliance with ISO 14025: 2006</b>			
Internal:	<input type="checkbox"/>	External:	<input checked="" type="checkbox"/>
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (Ddemain)			
PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500 :2022 The components of the present PEP may not be compared with components from any other program.			
Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"			



## Purpose & Embedding Sustainability

Committed to continually promoting and embedding sustainability accros operations and value chain, aspiring to become a role model for others to follow. Focusing with this Purpose on reducing harmful emissions, preserving natural resources championing ethical and humane behaviour.

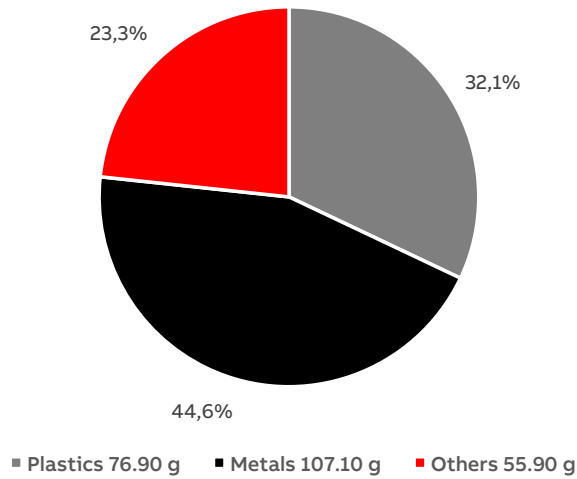


## General information

Reference product	2CSR975131R1204 - DN100C20/A30
Description of the product	The DN / DX RCBOs products are universal Residual Current Circuit Breaker with Overcurrent Protection; the devices are designed for the protection of end user single-phase circuits against overload and short-circuit currents; it also provides protection against the effects of sinusoidal alternating earth fault currents and against indirect contacts and additional protection against direct contacts
Functional unit	The functional unit is designed to protect the installation from overloads and short circuits in a circuit with rated voltage 230 V, rated current 20 A, with 1P+N poles, a rated breaking capacity 6kA, and the tripping curve A, in the Household/Commercial application area, and during the reference service life of the product of 20 years.
Other products covered	DN / DX RCBOs homogeneous family Ue [V] 230 In [A] from 4 to 40 Np 1P+N Icn [A] 4,5/6/10 kA Cd A / AC / AI / F Rated Sensitivity [mA] 10/30/100/300
Manufacturing address	Viale dell'Industria, 18 20009 Vittuone (MI) - Italy <a href="http://www.aeg-low-voltage.com">www.aeg-low-voltage.com</a>



# Constituent Materials



Total weight of reference product and packaging

239,9

g

Plastics as % of weight		Metals as % of weight		Others as % of weight	
Name and CAS number	Weight%	Name and CAS number	Weight%	Name and CAS number	Weight%
PA	19,5	STEEL	35,5	CARDBOARD	12,2
Glass fiber	9,0	COPPER	6,7	WOOD	7,1
PC	3,2	Ferrous metal	1,2	Other	3,0
PP	0,3	Aluminium	0,8	PAPER	0,5
PE	0,1	OTHER METALS	0,5	PCB	0,5

Total weight of the reference product 192,2 g plus packaging 47,7g



## Additional Information

<b>Manufacturing</b>	The manufacturing stage includes the production and transportation to the manufacturer's last logistic platform of DN100 and its packaging. The production occurs at the Factory located in Santa Palomba (RM).
<b>Distribution</b>	The transport from the Factory to the Regional Distribution Centre in Worms (Germany) was taken into account. For the distribution of the product from Worms to the final customer, the intracontinental transport scenario provided by PCR-ed4-EN-2021 09 06 standard was adopted, considering the European macro-area.
<b>Installation</b>	The installation phase only implies manual activities and no energy is consumed. This phase also includes the disposal of the packaging of the product. Statistical average data from Eurostat databases were considered for the disposal of the product and its packaging.
<b>Use</b>	During the use phase, the product dissipate some electricity due to power losses. The average power loss of the switch has been calculated following the assumption indicated in the PSR-0005-ed3-EN-2023 06 06: <ul style="list-style-type: none"><li>• Nominal current load rate @15% (Household/Commercial scenario)</li><li>• RSL of 20 years.</li><li>• Functioning time of 30% of the RSL (<math>\alpha</math>).No maintenance is planned for the product.</li></ul>
<b>End of life</b>	The default end of life scenario provided by the IEC/TR 62635 document has been adopted, considering the product transport by lorry over 1000 km and its disposal.
<b>Benefits and loads beyond the system boundaries</b>	No benefits and loads beyond the system boundaries has been considered.



# Environmental Impacts

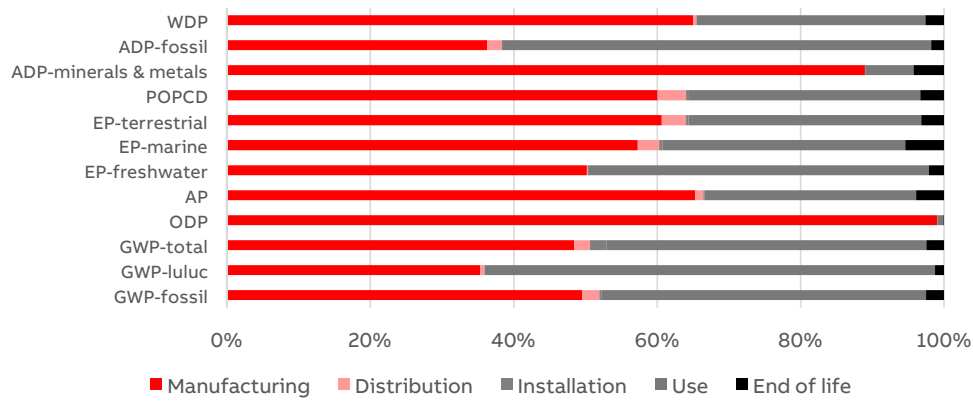
Reference lifetime	20 years
Product category	Residual Current Circuit Breaker with Overcurrent Protection
Installation elements	No installation materials are required in the life cycle of the product.
Use scenario	The calculation of the use stage electricity consumption from the average power consider the following assumptions: - Nominal current load rate as 15% (Household / Commercial); - RSL of 20 years; - Functioning time of 30% of the RSL. No maintenance is planned for the product
Geographical representativeness	Europe
Technological representativeness	Technological representativeness refers to the specific production process for primary data.
Software and database used	SimaPro 9.4.0.2, ecoinvent 3.9

## Energy model used

Manufacturing	ABB GO energy mix 2022. The energy-related processes used for the remaining inputs are those included in the ecoinvent v3.9.1 datasets.
Installation	No energy consumption occur during the installation stage.
Use	Electricity, low voltage [RER] market group for electricity, low voltage   Cut-off, S
End of life	The energy-related processes used for the inputs of the end-of-life stage are those included in the ecoinvent datasets selected for the analysis.

# Common base of mandatory indicators

% Environmental Impact per Life Cycle Stage of Reference Product



## Environmental impact indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
GWP	Total	kg CO2 eq. 5,19E+00	2,51E+00	1,17E-01	1,20E-01	2,31E+00	1,29E-01	0,00E+00
	Fossil	kg CO2 eq. 4,92E+00	2,44E+00	1,17E-01	1,23E-02	2,23E+00	1,24E-01	0,00E+00
	Biogenic	kg CO2 eq. 2,56E-01	6,76E-02	8,71E-05	1,07E-01	7,68E-02	4,51E-03	0,00E+00
	Luluc	kg CO2 eq. 8,87E-03	3,13E-03	5,53E-05	5,66E-06	5,57E-03	1,12E-04	0,00E+00
ODP	kg CFC-11 eq.	4,89E-06	4,84E-06	2,57E-09	1,91E-10	4,26E-08	1,78E-09	0,00E+00
AP	H+ eq.	4,33E-02	2,83E-02	4,85E-04	5,25E-05	1,28E-02	1,69E-03	0,00E+00
EP	Freshwater	kg P eq. 4,45E-03	2,23E-03	8,37E-06	1,07E-06	2,11E-03	9,48E-05	0,00E+00
	Marine	kg N eq. 6,11E-03	3,50E-03	1,84E-04	2,74E-05	2,07E-03	3,30E-04	0,00E+00
	Terrestrial	mol N eq. 5,77E-02	3,50E-02	1,96E-03	2,09E-04	1,87E-02	1,85E-03	0,00E+00
POPCD	kg NMVOC eq.	1,87E-02	1,12E-02	7,37E-04	7,35E-05	6,02E-03	6,17E-04	0,00E+00
ADP	Minerals & metals	kg SB eq. 4,04E-04	3,60E-04	3,17E-07	3,77E-08	2,71E-05	1,73E-05	0,00E+00
	Fossil	MJ 8,51E+01	3,09E+01	1,72E+00	1,54E-01	5,08E+01	1,52E+00	0,00E+00
WDP	m³ eq. depr.	1,78E+00	1,16E+00	8,20E-03	7,56E-04	5,69E-01	4,65E-02	0,00E+00

## Resource use indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
PERE	MJ	1,74E+01	5,85E+00	2,52E-02	2,83E-03	1,14E+01	1,77E-01	0,00E+00
PERM	MJ	7,14E-01	7,14E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,82E+01	6,57E+00	2,52E-02	2,83E-03	1,14E+01	1,77E-01	0,00E+00
PENRE	MJ	8,23E+01	2,82E+01	1,72E+00	1,54E-01	5,08E+01	1,51E+00	0,00E+00
PENRM	MJ	2,75E+00	2,75E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	8,51E+01	3,09E+01	1,72E+00	1,54E-01	5,08E+01	1,51E+00	0,00E+00

## Common base of mandatory indicators

### Use of secondary materials, water, and energy resources

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
SM	kg	1,87E-02	1,87E-02	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
NRSF	MJ	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>	7,85E-02	3,56E-02	2,70E-04	3,18E-05	4,11E-02	1,47E-03	0,00E+00

### Waste category indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
HWD	kg	4,02E-04	2,91E-04	1,07E-05	9,76E-07	8,92E-05	1,01E-05	0,00E+00
N-HWD	kg	1,10E+00	5,74E-01	1,51E-01	1,64E-02	2,04E-01	1,57E-01	0,00E+00
RWD	kg	4,20E-04	4,83E-05	5,24E-07	5,54E-08	3,66E-04	4,58E-06	0,00E+00

### Output flow indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
CfRu	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MfR	kg	2,78E-01	1,47E-01	0,00E+00	3,02E-02	0,00E+00	1,01E-01	0,00E+00
MfER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE	MJ	1,21E-01	2,49E-02	0,00E+00	4,56E-02	0,00E+00	5,04E-02	0,00E+00

### Other indicators

Indicator	Unit	Total
Biogenic Carbon	Product	kg of C 0,00E+00
	Packaging	kg of C 1,28E-02

### Optional indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
Tot PE	MJ	1,03E+02	3,75E+01	1,74E+00	1,57E-01	6,21E+01	1,69E+00	0,00E+00
Efp	Dise inc	2,38E-07	1,67E-07	1,21E-08	9,65E-10	4,69E-08	1,06E-08	0,00E+00
IrHH	kBq U-235 eq	1,64E+00	1,90E-01	2,17E-03	2,27E-04	1,43E+00	1,79E-02	0,00E+00
ETX FW	CTUe	5,16E+01	4,03E+01	8,27E-01	1,02E-01	8,53E+00	1,83E+00	0,00E+00
HTX CE	CTUh	1,22E-08	8,46E-09	5,09E-11	8,21E-12	1,05E-09	2,62E-09	0,00E+00
HTX N-CE	CTUh	3,42E-07	2,72E-07	1,23E-09	1,26E-10	4,18E-08	2,70E-08	0,00E+00
IrLS	Pt	3,67E+01	2,39E+01	1,75E+00	9,09E-02	9,90E+00	1,09E+00	0,00E+00

# Extrapolation Factors

For other products than the Reference product covered by this PEP, the environmental impacts for each phase of the lifecycle are obtained by a linear correlation with respect to weight for the production, distribution, and end-of-life phase and with respect to average power loss for the use phase. Each environmental indicator value shall be calculated using the following formulas:

For the manufacturing stage, distribution stage and end-of-life stage:  $y = ax1 + b$  where  $x1$  is the weight of the product  
 For the use stage:  $y = ax2 + b$  where  $x2$  is the average power loss of the product

\* if the coefficient is 11, the impacts of the phase of the life cycle are assimilated to the Reference product, meaning that the impacts are unchanged in comparison to the Reference product

Impact Category	Manufacturing		Distribution		Installation		Use		End of Life	
	a1	b1	a2	b2	a3	b3	a4	b4	a5	b5
GWP-total	1,19E-02	2,32E-01	4,88E-04	2,33E-02	0,00E+00	1,20E-01	1,93E+01	-3,11E-15	6,70E-04	1,53E-05
GWP-fossil	1,18E-02	1,82E-01	4,87E-04	2,32E-02	0,00E+00	1,23E-02	1,86E+01	6,66E-15	6,45E-04	1,47E-05
GWP-biogenic	1,04E-04	4,76E-02	3,63E-07	1,73E-05	0,00E+00	1,07E-01	6,40E-01	0,00E+00	2,35E-05	5,37E-07
GWP-luluc	1,25E-05	7,42E-04	2,31E-07	1,10E-05	0,00E+00	5,66E-06	4,64E-02	1,73E-18	5,82E-07	1,33E-08
ODP	2,52E-08	6,95E-09	1,07E-11	5,11E-10	0,00E+00	1,91E-10	3,55E-07	0,00E+00	9,27E-12	2,12E-13
AP	1,35E-04	2,30E-03	2,02E-06	9,65E-05	0,00E+00	5,25E-05	1,07E-01	-3,47E-18	8,81E-06	2,01E-07
EP-freshwater	1,10E-05	1,15E-04	3,49E-08	1,66E-06	0,00E+00	1,07E-06	1,76E-02	1,30E-18	4,94E-07	1,13E-08
EP-marine	1,61E-05	4,20E-04	7,67E-07	3,66E-05	0,00E+00	2,74E-05	1,72E-02	3,90E-18	1,72E-06	3,92E-08
EP-terrestrial	1,60E-04	4,21E-03	8,19E-06	3,90E-04	0,00E+00	2,09E-04	1,56E-01	2,43E-17	9,63E-06	2,20E-07
POCP	5,20E-05	1,24E-03	3,07E-06	1,47E-04	0,00E+00	7,35E-05	5,01E-02	2,60E-18	3,21E-06	7,33E-08
ADPE	1,78E-06	1,81E-05	1,32E-09	6,31E-08	0,00E+00	3,77E-08	2,25E-04	3,73E-20	9,02E-08	2,06E-09
ADPF	1,48E-01	2,55E+00	7,17E-03	3,42E-01	0,00E+00	1,54E-01	4,23E+02	7,11E-14	7,89E-03	1,80E-04
WDP	5,53E-03	9,58E-02	3,42E-05	1,63E-03	0,00E+00	7,56E-04	4,74E+00	-5,55E-16	2,42E-04	5,53E-06
CRU	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	4,24E-04	6,55E-02	4,24E-04	6,55E-02	0,00E+00	3,02E-02	0,00E+00	0,00E+00	5,24E-04	1,20E-05
MER	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EE	0,00E+00	2,49E-02	0,00E+00	2,49E-02	0,00E+00	4,56E-02	0,00E+00	0,00E+00	2,63E-04	6,00E-06
PM	7,87E-10	1,61E-08	5,04E-11	2,40E-09	0,00E+00	9,65E-10	3,91E-07	3,97E-23	5,52E-11	1,26E-12
IRP	9,11E-04	1,53E-02	9,05E-06	4,32E-04	0,00E+00	2,27E-04	1,19E+01	-1,33E-15	9,30E-05	2,12E-06
PENRE	1,48E-01	-2,09E-01	7,17E-03	3,42E-01	0,00E+00	1,54E-01	4,23E+02	-2,13E-14	7,89E-03	1,80E-04
PENRM	0,00E+00	2,75E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	1,48E-01	2,54E+00	7,17E-03	3,42E-01	0,00E+00	1,54E-01	4,23E+02	-2,13E-14	7,89E-03	1,80E-04
PERE	1,53E-02	2,92E+00	1,05E-04	5,01E-03	0,00E+00	2,83E-03	9,49E+01	-7,11E-15	9,22E-04	2,11E-05
PERM	0,00E+00	7,14E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	1,53E-02	3,63E+00	1,05E-04	5,01E-03	0,00E+00	2,83E-03	9,49E+01	-7,11E-15	9,22E-04	2,11E-05
PE	1,63E-01	6,18E+00	7,28E-03	3,47E-01	0,00E+00	1,57E-01	5,18E+02	-3,55E-14	8,81E-03	2,01E-04
SM	0,00E+00	1,87E-02	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	0,00E+00	0,00E+00	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	0,00E+00	0,00E+00	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	1,52E-04	6,41E-03	1,13E-06	5,37E-05	0,00E+00	3,18E-05	3,42E-01	6,94E-18	7,68E-06	1,75E-07
HWD	1,40E-06	2,17E-05	4,46E-08	2,12E-06	0,00E+00	9,76E-07	7,43E-04	2,71E-20	5,28E-08	1,21E-09
NHWD	2,72E-03	5,18E-02	6,29E-04	3,00E-02	0,00E+00	1,64E-02	1,70E+00	8,33E-17	8,17E-04	1,86E-05
RWD	2,31E-07	3,91E-06	2,19E-09	1,04E-07	0,00E+00	5,54E-08	3,05E-03	1,08E-19	2,38E-08	5,44E-10
ETP-fw	1,99E-01	1,99E+00	3,45E-03	1,64E-01	0,00E+00	1,02E-01	7,11E+01	8,88E-15	9,54E-03	2,18E-04
HTP-c	4,04E-11	6,98E-10	2,12E-13	1,01E-11	0,00E+00	8,21E-12	8,74E-09	3,52E-24	1,36E-11	3,11E-13
HTP-nc	1,29E-09	2,36E-08	5,15E-12	2,46E-10	0,00E+00	1,26E-10	3,48E-07	1,99E-23	1,41E-10	3,21E-12
SQP	5,88E-02	1,26E+01	7,29E-03	3,47E-01	0,00E+00	9,09E-02	8,25E+01	3,20E-14	5,70E-03	1,30E-04
BCProd	4,65E-07	1,30E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
BCPack	0,00E+00	6,87E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

# Extrapolation Factors

Code of the specific product	Name	Weight of the product [g]	Average power loss @15%In [w]
2CSR245054R1064	C/DDM45+ AC 06/0,03	191	0,06
2CSR245054R1104	C/DDM45+ AC 10/0,03	191	0,06
2CSR245054R1164	C/DDM45+ AC 16/0,03	189	0,11
2CSR245054R1204	C/DDM45+ AC 20/0,03	189	0,12
2CSR245054R1254	C/DDM45+ AC 25/0,03	197	0,1
2CSR245054R1324	C/DDM45+ AC 32/0,03	199	0,12
2CSR245054R1404	C/DDM45+ AC 40/0,03	199	0,18
2CSR255154R1104	C/DDM45+ A 10/0,03	191	0,06
2CSR255154R1164	C/DDM45+ A 16/0,03	189	0,11
2CSR975131R1065	DN100B06/A30	191	0,06
2CSR975131R1105	DN100B10/A30	191	0,06
2CSR975131R1135	DN100B13/A30	191	0,07
2CSR975131R1165	DN100B16/A30	189	0,11
2CSR975131R1205	DN100B20/A30	189	0,12
2CSR975131R1255	DN100B25/A30	197	0,1
2CSR975131R1325	DN100B32/A30	199	0,12
2CSR975131R1405	DN100B40/A30	199	0,18
2CSR975131R1064	DN100C06/A30	191	0,06
2CSR975131R1104	DN100C10/A30	191	0,06
2CSR975131R1134	DN100C13/A30	191	0,07
2CSR975131R1164	DN100C16/A30	189	0,11
2CSR975131R1204	DN100C20/A30	192	0,12
2CSR975131R1254	DN100C25/A30	197	0,1
2CSR975131R1324	DN100C32/A30	199	0,12
2CSR975131R1404	DN100C40/A30	199	0,18
2CSR975531R1065	DN100B06/F30	191	0,06
2CSR975531R1105	DN100B10/F30	191	0,06
2CSR975531R1135	DN100B13/F30	191	0,07
2CSR975531R1165	DN100B16/F30	189	0,11
2CSR975531R1205	DN100B20/F30	189	0,12
2CSR975531R1255	DN100B25/F30	197	0,1
2CSR975531R1325	DN100B32/F30	199	0,12
2CSR975531R1405	DN100B40/F30	199	0,18
2CSR975531R1064	DN100C06/F30	191	0,06
2CSR975531R1104	DN100C10/F30	191	0,06
2CSR975531R1134	DN100C13/F30	191	0,07
2CSR975531R1164	DN100C16/F30	189	0,11
2CSR975531R1204	DN100C20/F30	189	0,12
2CSR975531R1254	DN100C25/F30	197	0,1
2CSR975531R1324	DN100C32/F30	199	0,12
2CSR975531R1404	DN100C40/F30	199	0,18
2CSR975131R2105	DN100B10/A100	191	0,06
2CSR975131R2165	DN100B16/A100	189	0,11
2CSR975131R2205	DN100B20/A100	189	0,12
2CSR975131R2104	DN100C10/A100	191	0,06
2CSR975131R2164	DN100C16/A100	189	0,11
2CSR975131R2204	DN100C20/A100	189	0,12
2CSR945032R1064	DX45C06/AC30	191	0,06
2CSR945032R1104	DX45C10/AC30	191	0,06
2CSR945032R1164	DX45C16/AC30	189	0,11
2CSR945032R1204	DX45C20/AC30	189	0,12
2CSR945032R1254	DX45C25/AC30	197	0,1
2CSR945032R1324	DX45C32/AC30	199	0,12
2CSR945032R1404	DX45C40/AC30	199	0,18
2CSR945132R1064	DX45C06/A30	191	0,06
2CSR945132R1104	DX45C10/A30	191	0,06
2CSR945132R1164	DX45C16/A30	189	0,11
2CSR945132R1204	DX45C20/A30	189	0,12
2CSR945132R1254	DX45C25/A30	197	0,1
2CSR945132R1324	DX45C32/A30	199	0,12
2CSR945132R1404	DX45C40/A30	199	0,18
2CSR945532R1064	DX45C06/F30	191	0,06
2CSR945532R1104	DX45C10/F30	191	0,06
2CSR945532R1164	DX45C16/F30	189	0,11
2CSR945532R1204	DX45C20/F30	189	0,12
2CSR945532R1254	DX45C25/F30	197	0,1
2CSR945532R1324	DX45C32/F30	199	0,12

# Extrapolation Factors

Code of the specific product	Name	Weight of the product [g]	Average power loss @15%in [w]
2CSR945532R1404	DX45C40/F30	199	0,18
2CSR955032R1044	DX60C04/AC30	186	0,06
2CSR955032R1064	DX60C06/AC30	191	0,06
2CSR955032R1104	DX60C10/AC30	191	0,06
2CSR955032R1164	DX60C16/AC30	189	0,11
2CSR955032R1204	DX60C20/AC30	189	0,12
2CSR955032R1254	DX60C25/AC30	197	0,1
2CSR955032R1324	DX60C32/AC30	199	0,12
2CSR955032R1404	DX60C40/AC30	199	0,18
2CSR955032R3064	DX60C06/AC300	191	0,06
2CSR955032R3104	DX60C10/AC300	191	0,06
2CSR955032R3164	DX60C16/AC300	189	0,11
2CSR955032R3204	DX60C20/AC300	189	0,12
2CSR955032R3254	DX60C25/AC300	197	0,1
2CSR955032R3324	DX60C32/AC300	199	0,12
2CSR955032R3404	DX60C40/AC300	199	0,18
2CSR955132R0104	DX60C10/A10	191	0,06
2CSR955132R0164	DX60C16/A10	189	0,11
2CSR955132R0204	DX60C20/A10	189	0,12
2CSR955132R1065	DX60B06/A30	191	0,06
2CSR955132R1105	DX60B10/A30	191	0,06
2CSR955132R1135	DX60B13/A30	191	0,07
2CSR955132R1165	DX60B16/A30	189	0,11
2CSR955132R1205	DX60B20/A30	189	0,12
2CSR955132R1255	DX60B25/A30	197	0,1
2CSR955132R1325	DX60B32/A30	199	0,12
2CSR955132R1405	DX60B40/A30	199	0,18
2CSR955132R1044	DX60C04/A30	186	0,06
2CSR955132R1064	DX60C06/A30	191	0,06
2CSR955132R1104	DX60C10/A30	191	0,06
2CSR955132R1134	DX60C13/A30	191	0,07
2CSR955132R1164	DX60C16/A30	189	0,11
2CSR955132R1204	DX60C20/A30	189	0,12
2CSR955132R1254	DX60C25/A30	197	0,1
2CSR955132R1324	DX60C32/A30	199	0,12
2CSR955132R1404	DX60C40/A30	199	0,18
2CSR955432R1064	DX60C06/AI30	191	0,06
2CSR955432R1104	DX60C10/AI30	191	0,06
2CSR955432R1164	DX60C16/AI30	189	0,11
2CSR955432R1204	DX60C20/AI30	189	0,12
2CSR955432R1254	DX60C25/AI30	197	0,1
2CSR955432R1324	DX60C32/AI30	199	0,12
2CSR955432R1404	DX60C40/AI30	199	0,18
2CSR955532R1064	DX60C06/F30	191	0,06
2CSR955532R1104	DX60C10/F30	191	0,06
2CSR955532R1164	DX60C16/F30	189	0,11
2CSR955532R1204	DX60C20/F30	189	0,12
2CSR955532R1254	DX60C25/F30	197	0,1
2CSR955532R1324	DX60C32/F30	199	0,12
2CSR955532R1404	DX60C40/F30	199	0,18
2CSR955132R3064	DX60C06/A300	191	0,06
2CSR955132R3104	DX60C10/A300	191	0,06
2CSR955132R3164	DX60C16/A300	189	0,11
2CSR955132R3204	DX60C20/A300	189	0,12
2CSR955132R3254	DX60C25/A300	197	0,1
2CSR955132R3324	DX60C32/A300	199	0,12
2CSR955132R3404	DX60C40/A300	199	0,18
2CSR975032R1064	DX100C06/AC30	191	0,06
2CSR975032R1104	DX100C10/AC30	191	0,06
2CSR975032R1164	DX100C16/AC30	189	0,11
2CSR975032R1204	DX100C20/AC30	189	0,12
2CSR975032R1254	DX100C25/AC30	197	0,1
2CSR975032R1324	DX100C32/AC30	199	0,12
2CSR975032R1404	DX100C40/AC30	199	0,18
2CSR975132R0104	DX100C10/A10	191	0,06
2CSR975132R0164	DX100C16/A10	189	0,11
2CSR975132R0204	DX100C20/A10	189	0,12
2CSR975132R1065	DX100B06/A30	191	0,06
2CSR975132R1105	DX100B10/A30	191	0,06

## Extrapolation Factors

Code of the specific product	Name	Weight of the product [g]	Average power loss @15%In [w]
2CSR975132R1135	DX100B13/A30	191	0,07
2CSR975132R1165	DX100B16/A30	189	0,11
2CSR975132R1205	DX100B20/A30	189	0,12
2CSR975132R1255	DX100B25/A30	197	0,1
2CSR975132R1325	DX100B32/A30	199	0,12
2CSR975132R1405	DX100B40/A30	199	0,18
2CSR975132R1044	DX100C04/A30	186	0,06
2CSR975132R1064	DX100C06/A30	191	0,06
2CSR975132R1104	DX100C10/A30	191	0,06
2CSR975132R1134	DX100C13/A30	191	0,07
2CSR975132R1164	DX100C16/A30	189	0,11
2CSR975132R1204	DX100C20/A30	189	0,12
2CSR975132R1254	DX100C25/A30	197	0,1
2CSR975132R1324	DX100C32/A30	199	0,12
2CSR975132R1404	DX100C40/A30	199	0,18
2CSR975432R1064	DX100C06/AI30	191	0,06
2CSR975432R1104	DX100C10/AI30	191	0,06
2CSR975432R1164	DX100C16/AI30	189	0,11
2CSR975432R1204	DX100C20/AI30	189	0,12
2CSR975432R1254	DX100C25/AI30	197	0,1
2CSR975432R1324	DX100C32/AI30	199	0,12
2CSR975432R1404	DX100C40/AI30	199	0,18
2CSR975532R1064	DX100C06/F30	191	0,06
2CSR975532R1104	DX100C10/F30	191	0,06
2CSR975532R1164	DX100C16/F30	189	0,11
2CSR975532R1204	DX100C20/F30	189	0,12
2CSR975532R1254	DX100C25/F30	197	0,1
2CSR975532R1324	DX100C32/F30	199	0,12
2CSR975532R1404	DX100C40/F30	199	0,18
2CSR975132R2105	DX100B10/A100	191	0,06
2CSR975132R2165	DX100B16/A100	189	0,11
2CSR975132R2205	DX100B20/A100	189	0,12
2CSR975132R2064	DX100C06/A100	191	0,06
2CSR975132R2104	DX100C10/A100	191	0,06
2CSR975132R2164	DX100C16/A100	189	0,11
2CSR975132R2204	DX100C20/A100	189	0,12
2CSR975132R2254	DX100C25/A100	197	0,1
2CSR975132R2324	DX100C32/A100	199	0,12
2CSR975132R2404	DX100C40/A100	199	0,18
2CSR975132R3064	DX100C06/A300	191	0,06
2CSR975132R3104	DX100C10/A300	191	0,06
2CSR975132R3164	DX100C16/A300	189	0,11
2CSR975132R3204	DX100C20/A300	189	0,12
2CSR975132R3254	DX100C25/A300	197	0,1
2CSR975132R3324	DX100C32/A300	199	0,12
2CSR975132R3404	DX100C40/A300	199	0,18

# Extrapolation Factors

Code of the specific product	Name	Weight of the product [g]	Average power loss @15%In [w]
2CSR955131R10104	DN60C10/A10	191	0.06
2CSR955131R10164	DN60C16/A10	189	0.11
2CSR955131R1044	DN60C04/A30	186	0.06
2CSR955131R1064	DN60C06/A30	191	0.06
2CSR955131R1104	DN60C10/A30	191	0.06
2CSR955131R1134	DN60C13/A30	191	0.07
2CSR955131R1164	DN60C16/A30	189	0.11
2CSR955131R1204	DN60C20/A30	189	0.12
2CSR955131R1254	DN60C25/A30	197	0.10
2CSR955131R1324	DN60C32/A30	199	0.12
2CSR955131R1404	DN60C40/A30	199	0.18
2CSR955131R3064	DN60C06/A300	191	0.06
2CSR955131R3104	DN60C10/A300	191	0.06
2CSR955131R3164	DN60C16/A300	189	0.11
2CSR955131R3204	DN60C20/A300	189	0.12
2CSR955131R3254	DN60C25/A300	197	0.10
2CSR955131R3324	DN60C32/A300	199	0.12
2CSR955131R3404	DN60C40/A300	199	0.18
2CSR955131R1065	DN60B06/A30	191	0.06
2CSR955131R1105	DN60B10/A30	191	0.06
2CSR955131R1135	DN60B13/A30	191	0.07
2CSR955131R1165	DN60B16/A30	189	0.11
2CSR955131R1205	DN60B20/A30	189	0.12
2CSR955131R1255	DN60B25/A30	197	0.10
2CSR955131R1325	DN60B32/A30	199	0.12
2CSR955131R1405	DN60B40/A30	199	0.18
2CSR955031R1044	DN60C04/AC30	186	0.06
2CSR955031R1064	DN60C06/AC30	191	0.06
2CSR955031R1104	DN60C10/AC30	191	0.06
2CSR955031R1164	DN60C16/AC30	189	0.11
2CSR955031R1204	DN60C20/AC30	189	0.12
2CSR955031R1254	DN60C25/AC30	197	0.10
2CSR955031R1324	DN60C32/AC30	199	0.12
2CSR955031R1404	DN60C40/AC30	199	0.18
2CSR955031R3064	DN60C06/AC300	191	0.06
2CSR955031R3104	DN60C10/AC300	191	0.06
2CSR955031R3164	DN60C16/AC300	189	0.11
2CSR955031R3204	DN60C20/AC300	189	0.12
2CSR955031R3254	DN60C25/AC300	197	0.10
2CSR955031R3324	DN60C32/AC300	199	0.12
2CSR955031R3404	DN60C40/AC300	199	0.18
2CSR975131R3064	DN100C06/A300	191	0.06
2CSR975131R3104	DN100C10/A300	191	0.06
2CSR975131R3164	DN100C16/A300	189	0.11
2CSR975131R3204	DN100C20/A300	189	0.12
2CSR975131R3254	DN100C25/A300	197	0.10
2CSR975131R3324	DN100C32/A300	199	0.12
2CSR975131R3404	DN100C40/A300	199	0.18
2CSR975031R1064	DN100C06/AC30	191	0.06
2CSR975031R1104	DN100C10/AC30	191	0.06
2CSR975031R1164	DN100C16/AC30	189	0.11
2CSR975031R1204	DN100C20/AC30	189	0.12
2CSR975031R1254	DN100C25/AC30	197	0.10
2CSR975031R1324	DN100C32/AC30	199	0.12
2CSR975031R1404	DN100C40/AC30	199	0.18
2CSR945031R1064	DN45C06/AC30	191	0.06
2CSR945031R1104	DN45C10/AC30	191	0.06
2CSR945031R1164	DN45C16/AC30	189	0.11
2CSR945031R1204	DN45C20/AC30	189	0.12
2CSR945031R1254	DN45C25/AC30	197	0.10
2CSR945031R1324	DN45C32/AC30	199	0.12
2CSR945031R1404	DN45C40/AC30	199	0.18
2CSR945131R1064	DN45C06/A30	191	0.06
2CSR945131R1104	DN45C10/A30	191	0.06
2CSR945131R1164	DN45C16/A30	189	0.11
2CSR945131R1204	DN45C20/A30	189	0.12
2CSR945131R1254	DN45C25/A30	197	0.10
2CSR945131R1324	DN45C32/A30	199	0.12
2CSR945131R1404	DN45C40/A30	199	0.18
2CSR945531R1064	DN45C06/F30	191	0.06

## Extrapolation Factors

Code of the specific product	Name	Weight of the product [g]	Average power loss @15%In [w]
2CSR945531R1104	DN45C10/F30	191	0.06
2CSR945531R1164	DN45C16/F30	189	0.11
2CSR945531R1204	DN45C20/F30	189	0.12
2CSR945531R1254	DN45C25/F30	197	0.10
2CSR945531R1324	DN45C32/F30	199	0.12
2CSR945531R1404	DN45C40/F30	199	0.18
2CSR955431R1064	DN60C06/AI30	191	0.06
2CSR955431R1104	DN60C10/AI30	191	0.06
2CSR955431R1164	DN60C16/AI30	189	0.11
2CSR955431R1204	DN60C20/AI30	189	0.12
2CSR955431R1254	DN60C25/AI30	197	0.10
2CSR955431R1324	DN60C32/AI30	199	0.12
2CSR955431R1404	DN60C40/AI30	199	0.18
2CSR955531R1064	DN60C06/F30	191	0.06
2CSR955531R1104	DN60C10/F30	191	0.06
2CSR955531R1164	DN60C16/F30	189	0.11
2CSR955531R1204	DN60C20/F30	189	0.12
2CSR955531R1254	DN60C25/F30	197	0.10
2CSR955531R1324	DN60C32/F30	199	0.12
2CSR955531R1404	DN60C40/F30	199	0.18
2CSR975431R1064	DN100C06/AI30	191	0.06
2CSR975431R1104	DN100C10/AI30	191	0.06
2CSR975431R1164	DN100C16/AI30	189	0.11
2CSR975431R1204	DN100C20/AI30	189	0.12
2CSR975431R1254	DN100C25/AI30	197	0.10
2CSR975431R1324	DN100C32/AI30	199	0.12
2CSR975431R1404	DN100C40/AI30	199	0.18

## Glossary

---

### Environmental impact Indicators

---

GWP-total	Global Warming Potential total (Climate change)
GWP-fossil	Global Warming Potential fossil
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
EP-freshwater	Eutrophication potential - freshwater 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-m&m	Abiotic Depletion for non-fossil resources potential
ADP-fossil	Abiotic Depletion for fossil resources potential, WDP
WDP	Water deprivation potential

---

### Resource indicators

---

PENRE	Use of non-renewable primary energy excluding renewable primary energy resources used as raw material
PENRM	Use of non-renewable primary energy resources used as raw material
PENRT	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)
PERE	Use of renewable primary energy excluding non-renewable primary energy resources used as raw material.
PERM	Use of renewable primary energy resources used as raw material
PERT	Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)

---

#### Secondary materials, water and energy resources

SM	Use of secondary materials
RSF	Use of renewable secondary fuels
NRSF	Use of non-renewable secondary fuels
FW	Net use of fresh water

---

#### Waste category indicators

HWD	Hazardous waste disposed
N-HWD	Non-hazardous waste disposed
RWD	Radioactive waste disposed

---

#### Output flow indicators

CfRu	Components for re-use
MfR	Materials for recycling
MfER	Materials for energy recovery
EE	Exported Energy

---

#### Optional indicators

Tot PE	Total use of primary energy during the life cycle
Efp	Emissions of Fine particles
IrHH	Ionizing radiation, human health
ETX FW	Ecotoxicity, freshwater
HTX CE	Human toxicity, carcinogenic effects
HTX N-CE	Human toxicity, non-carcinogenic effects
IrLS	Impact related to Land use / soil quality

## References

---

- [1] PEP ecopassport® PROGRAM. PCR-ed4-EN-2021 09 06. Product Category Rules for Electrical, Electronic and HVAC-R Products.
- [2] PEP ecopassport® PROGRAMME. PSR-0005-ed3-EN-2023 06 06. Specific rules for Electrical switchgear and control gear Solutions
- [3] PRé Consultants. Software Simapro 9.4.0.2. 2022 ([www.simapro.com](http://www.simapro.com)).
- [4] ISO 14040:2006/Amd 1:2020. Life cycle assessment. Environmental management. Principles and Framework. International Organization for Standardization. 2020.
- [5] ISO 14044:2006/Amd 1:2017/Amd 2:2020. Life cycle assessment. Environmental management. Requirements and guidelines. International Organization for Standardization. 2020.
- [6] Ecoinvent. 2023. Swiss Centre for Life Cycle Assessment. v 3.9.1 ([www.ecoinvent.ch](http://www.ecoinvent.ch)).
- [7] EN 50693:2019 Product category rules for life cycle assessments of electronic and electrical products
- [8] UNI EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- [9] Google Maps. <https://www.google.it/maps/preview>.
- [10] Sea Rates. <https://www.searates.com/>.
- [11] ABB. 2022. Cert GSE GO 2022 ABB SPA
- [12] Eurostat. [https://ec.europa.eu/eurostat/web/products-datasets/-/ENV\\_WASPAC](https://ec.europa.eu/eurostat/web/products-datasets/-/ENV_WASPAC). (aug23)
- [13] International Electrotechnical Commission. IEC/TR 62635 Ed. 1.0 en:2012. Guidelines For End-Of-Life Information Provided By Manufacturers And Recyclers And For Recyclability Rate Calculation Of Electrical And Electronic Equipment. 2012. ISBN 978-2-83220-413-9.
- [14] ITSB-00530-V01.01-EN DN100 LCA Report to support PEP Ecopassport for DN100C20/A30