

FN200 (REFERENCE PRODUCT FN263/A30) BLOCKS AND DIFFERENTIAL SWITCHES

PEP ecopassport®

Product Environmental Profile



Registration number:	ABBG-00612-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:	VH51	Information and reference documents:	www.pep-ecopassport.org
Date of issue:	April-24	Validity period:	5 years
Independent verification of the declaration and data in compliance with ISO 14025: 2006			
Internal:	<input type="checkbox"/>	External:	<input checked="" type="checkbox"/>
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (Ddomain)			
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.

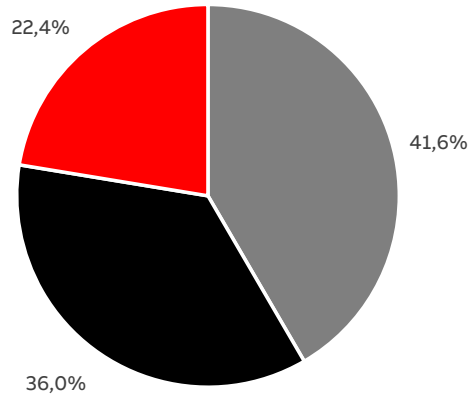


General information

Reference product	2CSF702156R1630 FN263/A30
Description of the product	The RCCBs FN200 family assures protection to people and installations against fault current to earth. A large offer for standard instantaneous and selective AC, A, F and other types types.
Functional unit	The functional unit is to protect the installation against overloads and short circuits and protect people and premises at risk of fire or explosion against insulation defects in a circuit with rated voltage U_e 230V, rated current $I_n = 63A$, with $N_p = 2$ poles, a rated breaking capacity $I_{cn} = 6kA$, the sensitivity $S = 30mA$, and the differential protection type $T_p A$, in the Household/Commercial application areas, according to the appropriate use scenario, and during the reference service life of the product of 20 years.'
Other products covered	FN200 environmental homogeneous family: Family: FN, EXI, DAG, DCG, DV, DH Sizes: 2 and 4 poles Rated Current [A]: 25, 40, 63, 80, 100 Rated Sensitivity [A]: 0.03, 0.1, 0.3, 0.5 Type of differential protection: A/F/AC/Ai/AS/F/G/PN/Si
Manufacturing address	Viale dell'Industria, 18 20009 Vittuone (MI) - Italy www.aeg-low-voltage.com



Constituent Materials



■ Plastics 94,85 g ■ Metals 81,97 g ■ Others 51,07 g

Total weight of reference product and packaging

228,0

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%
PA6 part, glass filled	23,7	steel	16,1	Carton and carton box	14,5
PBT part, glass filled	6,1	Copper	10,3	Magnetic core	4,0
PA66 part, glass filled	5,6	Brass	7,2	Magnetic relay	2,5
PPS part, glass filled	3,2	Stainless steel	1,8	Cellulose part	0,7
other plastics	3,0	other metals	0,6	Other	0,7

Total weight of the reference product 195 g plus packaging is 228g.



Additional Information

Manufacturing	<p>The manufacturing stage includes the production and transportation to the manufacturer's last logistic platform of FN200 and its packaging. The production occurs at the factory located in Santa Palomba (RM).</p> <p>The transport from Santa Palomba factory to Vignate, Milan was taken into account.</p>
Distribution	<p>For the distribution of the product from Vignate to the final customer, the intracontinental transport scenario provided by PCR-ed4-EN-2021 09 06 standard was adopted, considering the European macro-area.</p>
Installation	<p>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.</p>
Use	<p>FN200 dissipate some electricity due to power losses. The average power loss of the switch has been calculated as follow:</p> <ul style="list-style-type: none">- Nominal current load rate as 15% (Household / Commercial);- RSL of 20 years;- Functioning time of 30% of the RSL (α). <p>No maintenance is planned for the product.</p>
End of life	<p>As the end-of-life treatment is inherently unknown, the default scenario from the reference PCR was used. This includes the default assumption of transportation of 1000 km by lorry and the assumption that the product components are disposal of via landfill (P.E.P. Association, PCR-ed4-EN-2021 09 06. page 25/78).</p>
Benefits and loads beyond the system boundaries	<p>The potential benefits derives from the impacts prevented by recycling and waste to energy recovery of the packaging in the installation phase</p>



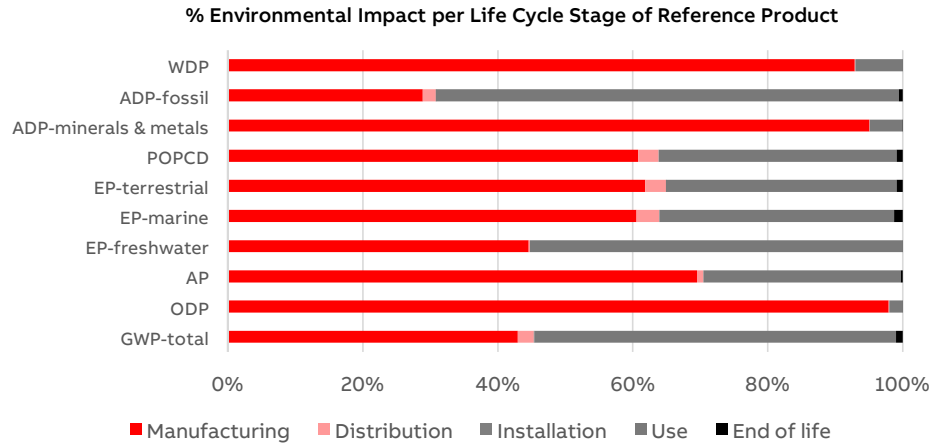
Environmental Impacts

Reference lifetime	20 years
Product category	Differential circuit-breakers
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 9.5 and ecoinvent 3.9.1

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 indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
GWP	Total	kg CO2 eq. 6,38E+00	2,74E+00	1,53E-01	7,27E-03	3,41E+00	6,43E-02	-4,90E-02
	Fossil	kg CO2 eq. 6,26E+00	2,67E+00	1,53E-01	1,52E-03	3,38E+00	5,50E-02	-4,41E-02
	Biogenic	kg CO2 eq. 1,00E-01	6,37E-02	5,45E-05	5,75E-03	2,13E-02	9,31E-03	-3,90E-03
	Luluc	kg CO2 eq. 1,28E-02	4,43E-03	7,35E-05	0*	8,30E-03	2,11E-05	-1,02E-03
ODP	kg CFC-11 eq.	3,22E-06	3,16E-06	3,26E-09	0*	6,34E-08	9,03E-10	-1,03E-09
AP	H+ eq.	6,52E-02	4,53E-02	6,18E-04	0*	1,91E-02	1,79E-04	-2,89E-04
EP	Freshwater	kg P eq. 5,96E-04	2,66E-04	1,20E-06	0*	3,29E-04	3,52E-07	-9,86E-06
	Marine	kg N eq. 6,91E-03	4,18E-03	2,34E-04	6,95E-06	2,39E-03	8,96E-05	-1,43E-04
	Terrestrial	mol N eq. 8,17E-02	5,05E-02	2,52E-03	2,13E-05	2,79E-02	7,23E-04	-9,68E-04
POPCD	kg NMVOC eq.	2,03E-02	1,23E-02	6,23E-04	6,90E-06	7,14E-03	1,85E-04	-1,63E-04
ADP	Minerals & metals	kg SB eq. 8,29E-04	7,89E-04	4,82E-07	0*	4,03E-05	1,30E-07	-1,74E-07
	Fossil	MJ 1,10E+02	3,19E+01	2,13E+00	1,52E-02	7,57E+01	6,05E-01	-5,71E-01
WDP	m³ eq. depr.	1,23E+01	1,14E+01	8,49E-03	0*	8,61E-01	4,44E-03	-5,55E-02

Resource use indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
PERE	MJ	2,17E+01	4,67E+00	3,30E-02	0*	1,70E+01	9,67E-03	-2,96E-01
PERM	MJ	6,92E-01	6,92E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,42E-02
PERT	MJ	2,24E+01	5,36E+00	3,30E-02	0*	1,70E+01	9,67E-03	-3,10E-01
PENRE	MJ	1,26E+02	3,51E+01	2,17E+00	1,67E-02	8,84E+01	6,17E-01	-6,70E-01
PENRM	MJ	2,66E+00	2,66E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,29E+02	3,77E+01	2,17E+00	1,67E-02	8,84E+01	6,17E-01	-6,70E-01

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	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
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 ³	3,28E-01	2,67E-01	2,40E-04	0*	6,09E-02	1,15E-04	-1,43E-03

Waste category indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
HWD	kg	1,22E-03	1,22E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
N-HWD	kg	3,43E-05	3,43E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RWD	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	2,71E-02	0,00E+00	0,00E+00	2,71E-02	0,00E+00	0,00E+00	0,00E+00
MfER	kg	2,97E-03	0,00E+00	0,00E+00	2,97E-03	0,00E+00	0,00E+00	0,00E+00
EE	MJ	4,73E-02	0,00E+00	0,00E+00	4,73E-02	0,00E+00	0,00E+00	0,00E+00

Other indicators

Indicator		Unit	Total
Biogenic Carbon	Product	kg of C	2,20E-04
	Packaging	kg of C	1,45E-02

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 !1, 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	1,14E-02	1,38E-01	6,72E-04	-1,89E-15	0,00E+00	0,00E+00	1,90E+01	3,37E-02	2,84E-04	-5,22E-04
GWP-fossil	1,13E-02	1,05E-01	6,71E-04	-2,00E-15	0,00E+00	0,00E+00	1,88E+01	3,34E-02	2,43E-04	-4,47E-04
GWP-biogenic	1,34E-04	3,30E-02	2,39E-07	8,13E-20	0,00E+00	0,00E+00	1,18E-01	2,10E-04	4,12E-05	-7,45E-05
GWP-luluc	1,88E-05	1,46E-04	3,22E-07	9,89E-19	0,00E+00	0,00E+00	4,62E-02	8,20E-05	9,32E-08	-1,71E-07
ODP	1,39E-08	-2,04E-08	1,43E-11	-5,79E-24	0,00E+00	0,00E+00	3,52E-07	6,25E-10	3,99E-12	-7,32E-12
AP	1,97E-04	3,73E-04	2,71E-06	1,18E-17	0,00E+00	0,00E+00	1,06E-01	1,88E-04	7,91E-07	-1,45E-06
EP-freshwater	1,15E-06	3,53E-06	5,27E-09	-2,12E-21	0,00E+00	0,00E+00	1,83E-03	3,25E-06	1,56E-09	-2,86E-09
EP-marine	1,80E-05	7,60E-05	1,03E-06	8,13E-19	0,00E+00	0,00E+00	1,33E-02	2,36E-05	3,96E-07	-7,27E-07
EP-terrestrial	2,15E-04	1,58E-03	1,10E-05	3,04E-18	0,00E+00	0,00E+00	1,55E-01	2,76E-04	3,20E-06	-5,86E-06
POCP	5,31E-05	2,15E-04	2,73E-06	-1,31E-17	0,00E+00	0,00E+00	3,97E-02	7,05E-05	8,17E-07	-1,50E-06
ADPE	3,46E-06	-1,29E-06	2,12E-09	2,01E-21	0,00E+00	0,00E+00	2,24E-04	3,98E-07	5,77E-10	-1,06E-09
ADPF	1,35E-01	1,14E+00	9,34E-03	-8,88E-15	0,00E+00	0,00E+00	4,21E+02	7,47E-01	2,68E-03	-4,91E-03
WDP	4,95E-02	1,37E-01	3,72E-05	7,63E-17	0,00E+00	0,00E+00	4,79E+00	8,50E-03	1,96E-05	-3,60E-05
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	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
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	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
PM	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
IRP	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
PENRE	1,48E-01	1,39E+00	9,50E-03	-4,44E-16	0,00E+00	0,00E+00	4,91E+02	8,72E-01	2,73E-03	-5,00E-03
PENRM	1,18E-02	-2,14E-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
PENRT	1,59E-01	1,37E+00	9,50E-03	-4,44E-16	0,00E+00	0,00E+00	4,91E+02	8,72E-01	2,73E-03	-5,00E-03
PERE	1,55E-02	1,14E+00	1,45E-04	6,25E-17	0,00E+00	0,00E+00	9,44E+01	1,68E-01	4,28E-05	-7,84E-05
PERM	2,92E-03	2,58E-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
PERT	1,84E-02	1,16E+00	1,45E-04	6,25E-17	0,00E+00	0,00E+00	9,44E+01	1,68E-01	4,28E-05	-7,84E-05
PE	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
SM	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
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	1,16E-03	3,19E-03	1,05E-06	-3,09E-18	0,00E+00	0,00E+00	3,39E-01	6,02E-04	5,08E-07	-9,31E-07
HWD	5,37E-06	-7,84E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NHWD	1,51E-07	-2,21E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RWD	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
ETP-fw	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
HTP-c	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
HTP-nc	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
SQP	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
BCProd	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
BCPack	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

Extrapolation Factors

Product Code	Product Name	Weight [g]	Average power loss [W] 15% In
2CSF704056R1250	FN425/AC30	367	0,079
2CSF702056R1250	FN225/AC30	228	0,032
2CSF704056R3250	FN425/AC300	367	0,079
2CSF702056R3250	FN225/AC300	228	0,032
2CSF704056R1400	FN440/AC30	367	0,205
2CSF702056R1400	FN240/AC30	228	0,079
2CSF704056R3400	FN440/AC300	367	0,205
2CSF702056R3400	FN240/AC300	228	0,079
2CSF704056R1630	FN463/AC30	396	0,331
2CSF702056R1630	FN263/AC30	228	0,178
2CSF704056R3630	FN463/AC300	396	0,331
2CSF702056R3630	FN263/AC300	228	0,178
2CSF704156R1250	FN425/A30	367	0,079
2CSF702156R1250	FN225/A30	228	0,032
2CSF702656R1400	FN240/G30	228	0,079
2CSF704156R3250	FN425/A300	367	0,079
2CSF702156R3250	FN225/A300	228	0,032
2CSF704156R4250	FN425/A500	367	0,079
2CSF704156R1400	FN440/A30	367	0,205
2CSF702156R1400	FN240/A30	228	0,079
2CSF704156R3400	FN440/A300	367	0,205
2CSF702156R3400	FN240/A300	228	0,079
2CSF704156R4400	FN440/A500	367	0,205
2CSF704156R1630	FN463/A30	396	0,331
2CSF702156R1630	FN263/A30	228	0,178
2CSF704156R3630	FN463/A300	396	0,331
2CSF702156R3630	FN263/A300	228	0,178
2CSF704156R4630	FN463/A500	396	0,331
2CSF704256R3400	FN440/AS300	367	0,205
2CSF704256R3400	FN440/AS300	367	0,205
2CSF704256R3630	FN463/AS300	396	0,331
2CSF704256R4630	FN463/AS500	396	0,331
2CSF704356R1400	FN440/F30	367	0,205
2CSF702356R1400	FN240/F30	228	0,079
2CSF704356R1630	FN463/F30	396	0,331
2CSF702356R1630	FN263/F30	228	0,178
2CSF704456R1250	FN425/Ai30	367	0,079
2CSF702456R1250	FN225/Ai30	228	0,032
2CSF704456R1400	FN440/Ai30	367	0,205
2CSF702456R1400	FN240/Ai30	228	0,079
2CSF704456R1630	FN463/Ai30	396	0,331
2CSF702456R1630	FN263/Ai30	228	0,178

Extrapolation Factors

Product Code	Product Name	Weight [g]	Average power loss [W] 15% In
2CSF704656R1250	FN425/G30	367	0,079
2CSF704656R1400	FN440/G30	367	0,205
2CSF704656R2400	FN440/G100	367	0,205
2CSF704756R3250	FN425/Si300	367	0,079
2CSF702756R3250	FN225/Si300	228	0,032
2CSF704756R3400	FN440/Si300	367	0,205
2CSF702756R3400	FN240/Si300	228	0,079
2CSF704756R3630	FN463/Si300	396	0,331
2CSF702756R3630	FN263/Si300	228	0,178
2CSF702054R1250	EXI225/AC30	228	0,032
2CSF702054R1250	EXI225/AC30	228	0,032
2CSF702054R1250	EXI225/AC30	228	0,032
2CSF704054R1250	EXI425/AC30	367	0,079
2CSF702054R2250	EXI225/AC100	228	0,032
2CSF704054R2250	EXI425/AC100	367	0,079
2CSF702054R3250	EXI225/AC300	228	0,032
2CSF702054R3250	EXI225/AC300	228	0,032
2CSF704054R3250	EXI425/AC300	367	0,079
2CSF702054R4250	EXI225/AC500	228	0,032
2CSF704054R4250	EXI425/AC500	367	0,079
2CSF702054R1400	EXI240/AC30	228	0,079
2CSF702054R1400	EXI240/AC30	228	0,079
2CSF702054R1400	EXI240/AC30	228	0,079
2CSF704054R1400	EXI440/AC30	367	0,205
2CSF702054R2400	EXI240/AC100	228	0,079
2CSF704054R2400	EXI440/AC100	367	0,205
2CSF702054R3400	EXI240/AC300	228	0,079
2CSF702054R3400	EXI240/AC300	228	0,079
2CSF704054R3400	EXI440/AC300	367	0,205
2CSF702054R4400	EXI240/AC500	228	0,079
2CSF704054R4400	EXI440/AC500	367	0,205
2CSF702054R1630	EXI263/AC30	228	0,178
2CSF704054R1630	EXI463/AC30	396	0,331
2CSF702054R2630	EXI263/AC100	228	0,178
2CSF704054R2630	EXI463/AC100	396	0,331
2CSF702054R3630	EXI263/AC300	228	0,178
2CSF704054R3630	EXI463/AC300	396	0,331
2CSF702054R4630	EXI263/AC500	228	0,178
2CSF704054R4630	EXI463/AC500	396	0,331
2CSF702154R1250	EXI225/A30	228	0,032
2CSF702154R1250	EXI225/A30	228	0,032

Extrapolation Factors

Product Code	Product Name	Weight [g]	Average power loss [W] 15% In
2CSF704154R1250	EXI425/A30	367	0,079
2CSF702154R3250	EXI225/A300	228	0,032
2CSF704154R3250	EXI425/A300	367	0,079
2CSF702154R1400	EXI240/A30	228	0,079
2CSF702154R1400	EXI240/A30	228	0,079
2CSF704154R1400	EXI440/A30	367	0,205
2CSF704151R1400	EXI440/A30	367	0,205
2CSF704154R2400	EXI440/A100	367	0,205
2CSF702154R3400	EXI240/A300	228	0,079
2CSF704154R3400	EXI440/A300	367	0,205
2CSF702154R1630	EXI263/A30	228	0,178
2CSF704154R1630	EXI463/A30	396	0,331
2CSF702154R3630	EXI263/A300	228	0,178
2CSF704154R3630	EXI463/A300	396	0,331
2CSF702254R3250	EXI225/AS300	228	0,032
2CSF704254R3250	EXI425/AS300	367	0,079
2CSF702254R3400	EXI240/AS300	228	0,079
2CSF704254R3400	EXI440/AS300	367	0,205
2CSF702254R4400	EXI240/AS500	228	0,079
2CSF704254R4400	EXI440/AS500	367	0,205
2CSF704254R3630	EXI463/AS300	396	0,331
2CSF704254R4630	EXI463/AS500	396	0,331
2CSF702454R1250	EXI225/Ai30	228	0,032
2CSF704454R1250	EXI425/Ai30	367	0,079
2CSF702454R1400	EXI240/Ai30	228	0,079
2CSF704454R1400	EXI440/Ai30	367	0,205
2CSF702454R1630	EXI263/Ai30	228	0,178
2CSF704454R1630	EXI463/Ai30	396	0,331
2CSF704154R2630	EXI463/A100	396	0,331
2CSF702254R3630	EXI263/AS300	228	0,178
2CSF702254R5630	EXI263/AS500	228	0,178
2CSF704956R1630	FN463/A30PN	396	0,331
2CSF704954R1630	EXI463/A30PN	396	0,331
2CSF202154R1250	DAG+225/30	236	0,045
2CSF202154R1400	DAG+240/30	237	0,108
2CSF202054R1250	DCG+225/30	238	0,045
2CSF202054R1400	DCG+240/30	239	0,108
2CSF202055R1250	RCCB/DCG+ AC/2 25/0,03	240	0,045
2CSF202055R1400	RCCB/DCG+ AC/2 40/0,03	241	0,108
2CSF702056R3800	FN280/AC300	254	0,203
2CSF702056R3900	FN2100/AC300	254	0,293

Extrapolation Factors

Product Code	Product Name	Weight [g]	Average power loss [W] 15% In
2CSF704056R3800	FN480/AC300	421	0,358
2CSF704056R3900	FN4100/AC300	421	0,554
2CSF704156R1800	FN480/A30	421	0,358
2CSF704156R3800	FN480/A300	421	0,358
2CSF704156R3900	FN4100/A300	421	0,554
2CSF704156R1900	FN4100/A30	421	0,554
2CSF702156R1800	FN280/A30	254	0,203
2CSF702156R3800	FN280/A300	254	0,203
2CSF704256R4800	FN480/AS500	421	0,358
2CSF704256R3900	FN4100/AS300	421	0,554
2CSF704756R3800	FN480/Si300	421	0,358
2CSF704756R3900	FN4100/Si300	421	0,554
2CSF704056R1800	FN480/AC30	421	0,358
2CSF704056R3800	FN480/AC300	421	0,358
2CSF704156R3900	FN4100/A300	421	0,554
2CSF704156R3800	FN480/A300	421	0,358
2CSF704056R2800	FN480/AC100	421	0,358
2CSF704156R2900	FN4100/A100	421	0,554
2CSF702056R1800	FN280/AC30	254	0,203
2CSF704056R1900	FN4100/AC30	421	0,554
2CSF702156R3900	FN2100/A300	254	0,293
2CSF704056R4800	FN480/AC500	421	0,358
2CSF704156R4800	FN480/A500	421	0,358
2CSF704256R4900	FN4100/AS500	421	0,554
2CSF704056R4900	FN4100/AC500	421	0,554
2CSF704156R4900	FN4100/A500	421	0,554
2CSF202072R1250	DV225/AC30	236	0,045
2CSF202072R1400	DV240/AC30	236	0,108
2CSF202172R1250	DV225/A30	236	0,045
2CSF202172R1400	DV240/A30	236	0,108
2CSF202071R1250	DH225/AC30	236	0,045
2CSF202071R1400	DH240/AC30	236	0,108
2CSF202071R1630	DH263/AC30	236	0,144
2CSF204071R1250	DH425/AC30	387	0,088
2CSF204071R1400	DH440/AC30	387	0,216
2CSF204071R1630	DH463/AC30	387	0,297
2CSF704556R1800	FN480/B30	413	0,340
2CSF704556R3800	FN480/B300	413	0,340

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 reachin marine end compartment
EP-terrestrial	Eutrophication potential - Accumulated Exceedance
POPCD	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
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		Waste category indicators	
SM	Use of secondary materials	HWD	Hazardous waste disposed
RSF	Use of renewable secondary fuels	N-HWD	Non-hazardous waste disposed
NRSF	Use of non-renewable secondary fuels	RWD	Radioactive waste disposed
FW	Net use of fresh water		

Output flow indicators

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

References

- [1] PEP ecopassport® PROGRAM. PCR-ed4-EN-2021 09 06. Product Category Rules for Electrical, Electronic and HVAC-R Products.
- [2] PEP ecopassport® PROGRAM. PSR-0005-ed3-EN-2023 06 06. Specific rules for Electrical switchgear and control gear Solutions.
- [3] PRé Consultants. Software SimaPro v 9.5. 2024 (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.
- [6] ABB website. <https://global.abb/group/en/about> [accessed 12-01-2023]
- [7] ABB website. <https://global.abb/group/en/sustainability/sustainability-strategy-2030> [accessed 12-01-2023]
- [8] Ecoinvent. 2023. Swiss Centre for Life Cycle Assessment. v3.9.1 (www.ecoinvent.ch).
- [9] UNI EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- [10] Google Maps. <https://www.google.it/maps/preview>.
- [11] Sea Rates. <https://www.searates.com/>.
- [12] ABB. 2022. Cert GSE GO 2022 ABB SPA
- [13] EN 50693:2019 Product category rules for life cycle assessments of electronic and
- [14] Engineering safety assessment, LHV MJ/kg