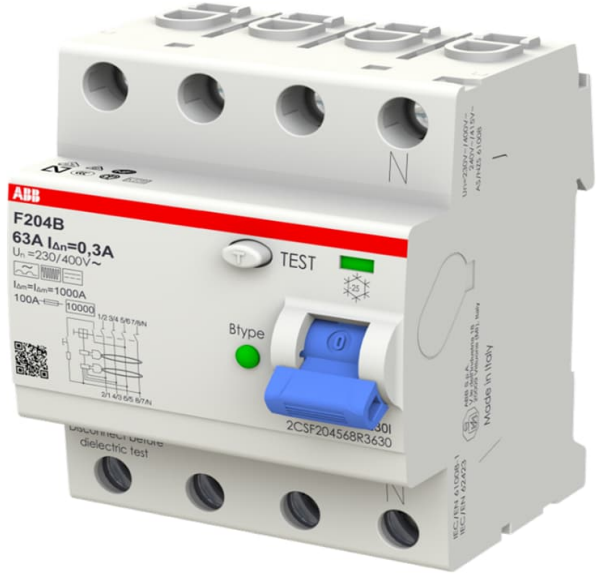
ABB F200B

PEP ecopassport®

Product Environmental Profile



PEP owner address:	**ABB S.p.A. – ELSB Viale dell'Industria, 18 20009 Vittuone (MI) - Italy**		
Registration number:	**ABBG-00208-V01.02-EN F200B**	Drafting rules:	**PCR-ed4-EN-2021 09 06**
Contact information:	**EPD_ELSB@abb.com**	Supplemented by:	**PSR-0005-ed2-EN-2016 03 29**
Verifier accreditation number:	**VH42**	Information and reference documents:	**www.pep-ecopassport.org**
Date of issue:	**August-23**	Validity period:	**5 years**

Independent verification of the declaration and data in compliance with ISO 14025: 2006

Internal: ☐ **External:** ☒

The PCR review was conducted by a panel og 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"

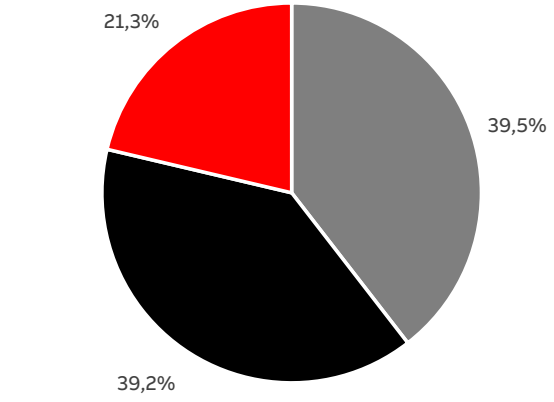
ABB Purpose & Embedding Sustainability

ABB is committed to continually promoting and embedding sustainability across its operations and value chain, aspiring to become a role model for others to follow.
With its ABB Purpose, ABB is focusing on reducing harmful emissions, preserving natural resources and championing ethical and humane behavior.
The contect of this PEP cannot be compared with the content based on another program/database.
Scan QR code for more information

General information

Reference product	**2CSF204568R3630 F204B 4 poles 300 mA 63A**
Description of the product	**The F200 Type B are universal current-sensitive residual current circuit breakers RCCBs designed for industrial applications where there is increasing use of devices like frequency converters, medical equipment and UPS systems. The RCCB Type B protect faults occurred due to smooth DC residual currents or currents with low residual ripple which are common in the above applications.**
Functional unit	**The functional unit is to protect during 20 years the installation against overloads and short-circuits and people and premises at risk of fire or explosion against insulation defects in the circuit with assigned voltage 230 V and rated current 63A. The reference product is F204B 300mA 63A with a weight of 0.3867 kg and its packaging of 0.0726 kg. No installation materials or maintenance components are required in the life cycle of the product. All the materials not found in the reference product, such as waste and scraps generated during the life cycle are also included. The disposal of the packaging during the installation phase and the disposal of all F204B 300mA 63A components during the product's end-of-life are also considered. Waste generated during the production phase is also included in the life cycle.**
Other products covered	**F200 type B environmental homogeneous family: Family: F200 B** **Sizes: 2 and 4 poles** **Rated voltage Un [V]: 230** **Rated Current In [A]: 16/25/40/63/80** **Rated Sensitivity [mA]: 0.03/0.3/0.5** **Type of differential protection: B, B S**
Manufacturing address	**ABB S.p.A. – ELSB Viale dell'Industria, 18 20009 Vittuone (MI) - Italy** **www.new.abb.com**

Constituent Materials



Total weight in reference product and packaging	**459,3**	**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	22,6	**Steel**	21,5	**Wood**	7,8
Glass fibre	12,2	**Copper**	13,2	**Cardboard**	6,5
PPS	2,0	**Nickel**	2,1	**PCBA**	4,4
PET	1,5	**Ferrous metals**	1,5	**Paper**	1,8
Other plastics	1,2	**Other metals**	0,9	**Other**	0,8

Total weight of the reference product is 386,7g plus packaging 72,6g.

Additional Information

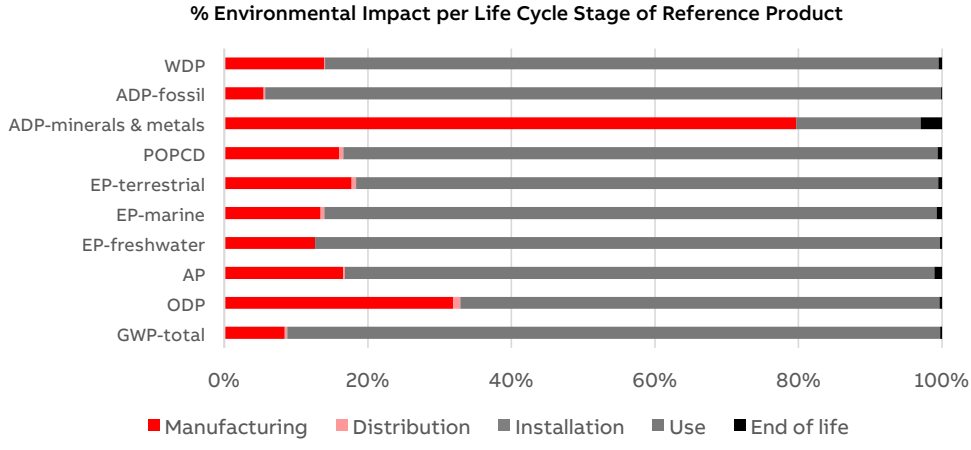
Manufacturing	The manufacturing stage includes the production and transportation to the manufacturer's last logistic platform of F200 type B and its packaging. The production occurs at the ABB factory located in Santa Palomba (RM).
Distribution	The transport from ABB Santa Palomba factory to Vignate, Milan was taken into account. 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.
Installation	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.
Use	F200B dissipate some electricity due to power losses. The average power loss of the switch has been calculated as follow: - Nominal current load rate as 50% (Household / Commercial); - RSL of 20 years; - Functioning time of 30% of the RSL (α). No maintenance is planned for the product.
End of life	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.
Benefits and loads beyond the system boundaries	No benefits and loads beyond the system boundaries has been considered.

Environmental Impacts

Reference lifetime	20 years
Product category	Current-sensitive residual current circuit breakers RCCBs
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 50% (Household / Commercial); - RSL of 20 years; - Functioning time of 30% of the RSL.
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 and ecoinvent 3.8

Energy model used	
Manufacturing	ABB GO energy mix 2022. The energy-related processes used for the remaining inputs are those included in the ecoinvent v3.8 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.	1,12E+02	9,44E+00	3,11E-01	1,61E-01	1,02E+02	3,05E-01	0,00E+00
	Fossil	kg CO2 eq.	1,08E+02	9,41E+00	3,10E-01	1,55E-02	9,84E+01	2,96E-01	0,00E+00
	Biogenic	kg CO2 eq.	3,35E+00	2,04E-02	2,82E-04	1,46E-01	3,17E+00	9,09E-03	0,00E+00
	Luluc	kg CO2 eq.	2,47E-01	1,44E-02	1,23E-04	5,93E-06	2,33E-01	2,80E-04	0,00E+00
ODP		kg CFC-11 eq.	7,43E-06	2,37E-06	7,24E-08	3,20E-09	4,96E-06	2,54E-08	0,00E+00
AP		H+ eq.	6,82E-01	1,13E-01	1,57E-03	7,88E-05	5,60E-01	7,18E-03	0,00E+00
EP	Freshwater	kg P eq.	1,14E-01	1,44E-02	2,02E-05	1,26E-06	9,91E-02	3,63E-04	0,00E+00
	Marine	kg N eq.	1,09E-01	1,47E-02	5,42E-04	3,82E-05	9,34E-02	8,23E-04	0,00E+00
	Terrestrial	mol N eq.	1,02E+00	1,80E-01	5,92E-03	3,03E-04	8,23E-01	5,62E-03	0,00E+00
POPCD		kg NMVOC eq.	2,73E-01	4,37E-02	1,69E-03	8,95E-05	2,26E-01	1,68E-03	0,00E+00
ADP	Minerals & metals	kg SB eq.	5,35E-03	4,27E-03	1,09E-06	5,71E-08	9,25E-04	1,61E-04	0,00E+00
	Fossil	MJ	2,23E+03	1,22E+02	4,73E+00	2,15E-01	2,10E+03	3,37E+00	0,00E+00
WDP		m³ eq. depr.	2,81E+01	3,94E+00	1,43E-02	8,28E-04	2,41E+01	1,37E-01	0,00E+00

Resource use indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
PERE	MJ	4,51E+02	1,84E+01	6,67E-02	4,15E-03	4,32E+02	4,77E-01	0,00E+00
PERM	MJ	9,81E+01	9,81E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	4,52E+02	1,94E+01	6,67E-02	4,15E-03	4,32E+02	4,77E-01	0,00E+00
PENRE	MJ	2,23E+03	1,18E+02	4,73E+00	2,15E-01	2,10E+03	3,37E+00	0,00E+00
PENRM	MJ	3,76E+00	3,76E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,23E+03	1,22E+02	4,73E+00	2,15E-01	2,10E+03	3,37E+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	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	1,95E+00	1,24E-01	5,28E-04	4,30E-05	1,82E+00	4,11E-03	0,00E+00

Waste category indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
HWD	kg	2,31E-03	6,96E-04	1,24E-05	5,56E-07	1,60E-03	7,56E-06	0,00E+00
N-HWD	kg	9,31E+00	1,40E+00	2,43E-01	2,67E-02	7,32E+00	3,15E-01	0,00E+00
RWD	kg	1,58E-02	3,64E-03	3,20E-05	1,43E-06	1,54E-02	1,90E-05	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	3,14E-01	9,14E-02	0,00E+00	4,11E-02	0,00E+00	1,82E-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	3,43E-01	8,11E-02	0,00E+00	8,11E-02	0,00E+00	1,81E-01	0,00E+00

Other indicators

Indicator		Unit	Total
Biogenic Carbon	Product	kg of C	0,00E+00
	Packaging	kg of C	3,76E-02

Optional indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life	Benefits
Tot PE	MJ	2,68E+03	1,42E+02	4,80E+00	2,19E-02	2,53E+03	3,85E+00	0,00E+00
Efp	Dise inc	2,48E-06	6,41E-07	2,77E-08	1,35E-09	1,79E-06	2,56E-08	0,00E+00
IrHH	kBq U-235 eq	5,86E+01	1,11E+00	2,43E-02	1,20E-03	5,74E+01	4,32E-02	0,00E+00
ETX FW	CTUe	2,50E+03	1,13E+03	3,69E+00	2,09E-01	1,33E+03	3,84E+01	0,00E+00
HTX CE	CTUh	6,62E-08	2,08E-08	1,20E-10	1,15E-11	4,08E-08	4,36E-09	0,00E+00
HTX N-CE	CTUh	2,41E-06	9,74E-07	3,87E-09	2,10E-10	1,30E-06	1,29E-07	0,00E+00
IrLS	Pt	4,59E+02	7,36E+01	3,25E+00	1,47E-01	3,79E+02	3,55E+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 multiplying the values of the Reference product by the following coefficients:

For the manufacturing stage, distribution stage and end-of-life stage:

$$y = a_n x_1 + b_n$$ where x_1 is the weight of the product;

For use stage: $y = a_n x_2 + b_n$ where x_2 is the average power loss of the product.

Table below reports the linear coefficients a_n & b_n for each life cycle stage. The calculation of the coefficient for the Installation Stage was not performed because the selected parameters do not affect the values for this stage.

* 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	2.44E-02	1.54E-01	6.83E-04	2.10E-02	1.00E+00	0.00E+00	2.12E+01	-3.95E-02	8.03E-04	1.55E-15
GWP-fossil	2.42E-02	1.95E-01	6.82E-04	2.10E-02	1.00E+00	0.00E+00	2.05E+01	-3.82E-02	7.78E-04	-4.72E-16
GWP-biogenic	1.61E-04	-4.09E-02	6.19E-07	1.91E-05	1.00E+00	0.00E+00	6.61E-01	-1.23E-03	2.39E-05	-6.07E-18
GWP-luluc	3.66E-05	5.28E-04	2.70E-07	8.32E-06	1.00E+00	0.00E+00	4.85E-02	-9.02E-05	7.37E-07	1.19E-18
ODP	6.17E-09	2.41E-08	1.59E-10	4.90E-09	1.00E+00	0.00E+00	1.03E-06	-1.92E-09	6.67E-11	-3.64E-23
AP	2.95E-04	1.47E-03	3.45E-06	1.06E-04	1.00E+00	0.00E+00	1.17E-01	-2.17E-04	1.89E-05	3.47E-18
EP-freshwater	3.75E-05	9.03E-05	4.43E-08	1.36E-06	1.00E+00	0.00E+00	2.06E-02	-3.84E-05	9.54E-07	0.00E+00
EP-marine	3.78E-05	3.46E-04	1.19E-06	3.66E-05	1.00E+00	0.00E+00	1.95E-02	-3.62E-05	2.17E-06	-2.17E-19
EP-terrestrial	4.66E-04	2.95E-03	1.30E-05	4.01E-04	1.00E+00	0.00E+00	1.72E-01	-3.19E-04	1.48E-05	-6.07E-18
POCP	1.13E-04	8.89E-04	3.71E-06	1.14E-04	1.00E+00	0.00E+00	4.71E-02	-8.77E-05	4.41E-06	-3.47E-18
ADPE	1.12E-05	1.51E-05	2.39E-09	7.37E-08	1.00E+00	0.00E+00	1.93E-04	-3.59E-07	4.23E-07	-6.37E-19
ADPF	3.14E-01	2.97E+00	1.04E-02	3.20E-01	1.00E+00	0.00E+00	4.37E+02	-8.14E-01	8.86E-03	-4.88E-15
WDP	9.36E-03	3.81E-01	3.13E-05	9.65E-04	1.00E+00	0.00E+00	5.01E+00	-9.33E-03	3.60E-04	5.55E-16
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	9.23E-05	5.63E-02	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	4.78E-04	1.67E-16
MER	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	0.00E+00	8.11E-02	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	4.76E-04	-1.67E-16
PM	1.64E-09	1.91E-08	6.08E-11	1.87E-09	1.00E+00	0.00E+00	3.72E-07	-6.93E-10	6.75E-11	1.09E-22
IRP	2.85E-03	2.15E-02	5.34E-05	1.65E-03	1.00E+00	0.00E+00	1.20E+01	-2.23E-02	1.14E-04	2.78E-17
PENRE	3.72E-02	4.28E+00	1.47E-04	4.52E-03	1.00E+00	0.00E+00	9.00E+01	-1.67E-01	1.26E-03	8.88E-16
PENRM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	3.72E-02	5.26E+00	1.47E-04	4.52E-03	1.00E+00	0.00E+00	1.47E-04	4.52E-03	1.26E-03	8.88E-16
PERE	3.14E-01	-8.12E-01	1.04E-02	3.20E-01	1.00E+00	0.00E+00	4.37E+02	-8.13E-01	8.86E-03	1.60E-14
PERM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	3.14E-01	2.95E+00	1.04E-02	3.20E-01	1.00E+00	0.00E+00	1.04E-02	3.20E-01	8.86E-03	1.60E-14
SM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+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	1.00E+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	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	3.03E-04	9.03E-03	1.16E-06	3.57E-05	1.00E+00	0.00E+00	3.80E-01	-7.07E-04	1.08E-05	-8.67E-19
HWD	1.81E-06	9.32E-06	2.71E-08	8.36E-07	1.00E+00	0.00E+00	3.32E-04	-6.19E-07	1.99E-08	2.03E-20
NHWD	3.46E-03	8.70E-02	5.35E-04	1.65E-02	1.00E+00	0.00E+00	1.53E+00	-2.84E-03	8.30E-04	1.30E-15
RWD	9.31E-07	1.07E-05	7.03E-08	2.17E-06	1.00E+00	0.00E+00	3.21E-03	-5.98E-06	5.00E-08	9.99E-20
ETP-fw	2.97E+00	6.39E+00	8.11E-03	2.50E-01	1.00E+00	0.00E+00	2.76E+02	-5.15E-01	1.01E-01	9.24E-14
HTP-c	5.35E-11	5.19E-10	2.63E-13	8.09E-12	1.00E+00	0.00E+00	8.51E-09	-1.58E-11	1.15E-11	-5.38E-24
HTP-nc	2.53E-09	1.18E-08	8.50E-12	2.62E-10	1.00E+00	0.00E+00	2.71E-07	-5.05E-10	3.39E-10	1.46E-22
SQP	1.47E-01	1.76E+01	7.14E-03	2.20E-01	1.00E+00	0.00E+00	7.89E+01	-1.47E-01	9.34E-03	-1.78E-15

Extrapolation Factors

For the weight and average power loss data of the variants, please refer to the table below

ABB Code of the specific product	Name	Total Weight [g]	Average power loss @0,5In (Wloss) [W]
2CSF202568R1160	F202 B-16/0,03	220	0,430
2CSF202568R1250	F202 B-25/0,03	220	0,620
2CSF202568R1400	F202 B-40/0,03	220	1,125
2CSF202568R1630	F202 B-63/0,03	220	2,370
2CSF202568R3160	F202 B-16/0,3	220	0,430
2CSF202568R3250	F202 B-25/0,3	220	0,620
2CSF202568R3400	F202 B-40 0,3	220	1,125
2CSF202568R3630	F202 B-63/0,3	220	2,370
2CSF204568R1250	F204 B-25/0,03	380	1,758
2CSF204568R1400	F204 B-40/0,03	380	2,638
2CSF204568R1630	F204 B-63/0,03	380	4,800
2CSF204568R3250	F204 B-25 0,3	380	1,758
2CSF204568R3400	F204 B-40/0,3	380	2,638
2CSF204568R3630	F204 B-63/0,3	380	4,800
2CSF204592R4400	F204 B-40/0,5	380	2,638
2CSF204592R4630	F204 B-63/0,5	380	4,800
2CSF204868R3400	F204 B S-40/0,3	380	2,638
2CSF204892R4400	F204 B S-40/0,5	380	2,638
2CSF204892R4630	F204 B S-63/0,5	380	4,800
2CSF204568U1250	F204 B-25/0,03 U	380	1,758
2CSF204568U1400	F204 B-40/0,03 U	380	2,638
2CSF204568U1630	F204 B-63/0,03 U	380	4,800
2CSF204568U3630	F204 B-63/0,3 U	380	4,800
2CSF704557R1400	VYB440/030	380	2,638
2CSF704557R1630	VYB463/030	380	4,800
2CSF704557R3400	VYB440/300	380	2,638
2CSF704557R3630	VYB463/300	380	4,800
2CSF204568R4400	F204 B-40/0,5	380	2,638
2CSF204568R4630	F204 B-63/0,5	380	4,800
2CSF204868R4400	F204 B S-40/0,5	380	2,638
2CSF204868R4630	F204 B S-63/0,5	380	4,800
2CSF202568U1250	F202 B-25/0,03 U	220	0,620
2CSF204868R3630	F204 B S-63/0,3	380	4,800
2CSF204568R1800	F204 B-80/0,03	380	4,673
2CSF204568R3800	F204 B-80/0,3	380	4,673
2CSF204568R4800	F204 B-80/0,5	380	4,673

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
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		Waste category indicators	
SM	Use of secundary 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		Optional indicators	
CfRu	Components for re-use	Efp	Emissions of Fine particles
MfR	Materials for recycling	IrHH	Ionizing radiation, human health
MfER	Materials for energy recovery	ETX FW	Ecotoxicity, freshwater
EE	Exported Energy	HTX CE	Human toxicity, carcinogenic effects
		HTX N-CE	Human toxicity, non-carcinogenic effects
		IrLS	Impact related to Land use / soil quality

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