MCB SW200M series 6 to 63A, B & C Curve, 1 to 4 Poles

PEP ecopassport®

Product Environmental Profile

Registration number:	**ABBG-00594-V01.01-EN**	Drafting rules:	**PCR-ed4-EN-2021 09 06**
Contact information:	**email: EPD_ELSB@abb.com**	Supplemented by:	**PSR-0005-ed3.1-EN-2023 12 08**
Verifier accreditation number:	**VH51**	Information and reference documents:	**www.pep-ecopassport.org**
Date of issue:	**July-24**	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)

PEP are compliant with EN 50693:2019
The components of the present PEP cannot be compared with components from another program

Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"

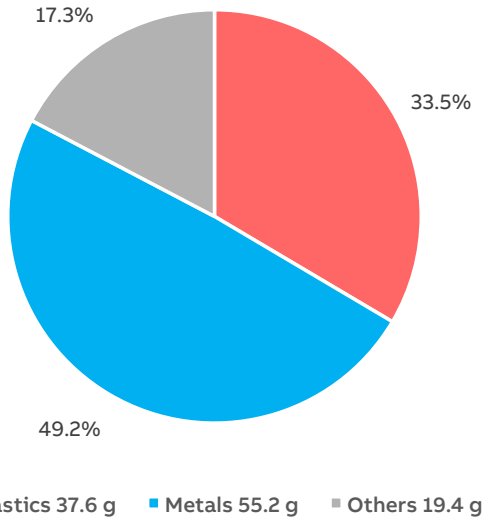
ABB Purpose & Embedding Sustainability

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 content of this PEP cannot be compared with the content based on another program/database.
Scan QR code for more information

General information

Reference product	1SYS671015R0164 - SW201M-C16
Description of the product	Miniature Circuit Breaker - 1P - C - 16 A, 230/400 V AC, C Curve, 10kA . MCB is used of Domestic and Commercial buildings as well as for industrial applications.
Functional unit	Protect the installation from overloads and short circuits in a circuit with rated voltage 230/400 Volt, rated current 16A, with 1 pole, a rated breaking capacity 10kA, the tripping curve C, Household/Commercial applications, and the reference service life of the product is 20 years.
Other products covered	It is a "Product family declaration" which covers Miniature Circuit Breaker (MCB) SW200M- Formula family with Standard Product Characteristics Rated current (In): 6 to 63A, Rated Voltage (Ue): 230/400 V Number of Poles (Np): 1 to 4 Poles Rated Breaking Capacity(Icn): 10 kA, Tripping Curve (Cd): B & C
Manufacturing address	88/3-88/6 Basavanahalli Village Kasaba Hobli, Bangalore North-India https://new.abb.com/indian-subcontinent

Constituent Materials



Total weight of Reference product Including Packaging	112.2 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 Glass Reinforced	31.9	**Steel**	43.3	**Card Board**	17.3
POM	0.9	**Copper**	3.1		
Miscellaneous Plastics	0.7	**Aluminum**	1.8		
		Miscellaneous Metals	1.0		

These products comply requirements of EU Directives 2011/65/EU of 8 June 2011 (ROHS) materials and do not contain or only contain in the authorized proportions lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls -PBB, polybrominated diphenyl ethers - PBDE) as mentioned in the Directive.

Manufacturing, distribution, installation, use, and end-of-life (EOL) stages are taken into account in the environmental impact analysis of this study.

Additional Environmental Information

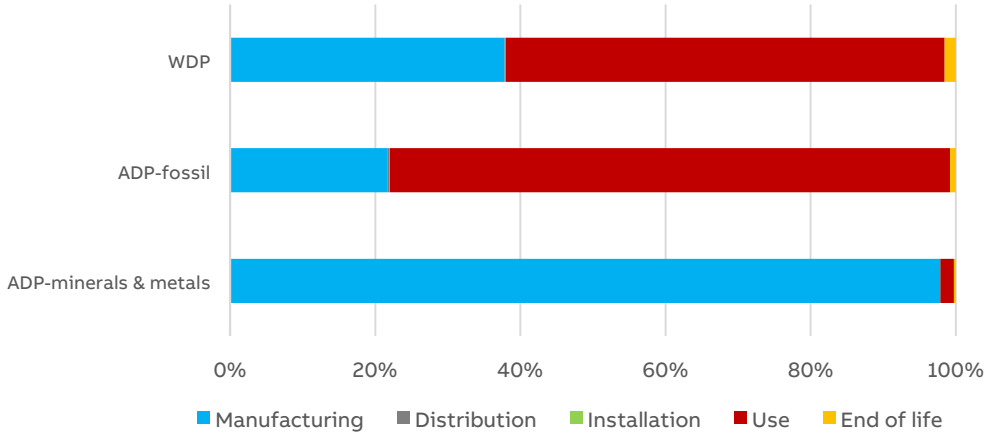
Manufacturing	Manufactured at ABB India Limited. Manufacturing location is certified with ISO 14001:2015, ISO 50001 & Zero waste to landfill. Also 100% Green Energy being used at manufacturing site
Distribution	Includes the transportation of product including packaging from the manufacturer's last logistic platform to the End User. PCR Default scenario considered for transport distance.
Installation	End of life of product packaging considered in installation phase.
Use	MCB does not required any maintenance and consumables or spares during its life time.
End of life	PCR Default scenario considered. A value of 1000 km transport by lorry is used for transportation from the installation site to the final end of life treatment as per PCR.

Environmental Impacts

Reference lifetime	20 years
Product category	Circuit Breakers
Installation elements	Installation carried out manually. Packaging material generated as waste
Use scenario	At loading rate 15% of rated current (In) in continuous operation. And use time rate 30% of reference lifetime (RLT). Total Energy consumption is 2.7373 kWh
Geographical representativeness	Global
Technological representativeness	Technology is specific to ABB MCBs which is common for all ABB manufacturing factories at global level
Software and database used	SimaPro 9.5.0.2 and ecoinvent 3.9

Energy model used	
Manufacturing	Electricity Medium Voltage, India
Installation	Electricity Low Voltage, Medium & High Voltage, India
Use	Electricity Medium Voltage, India
End of life	Electricity Low Voltage, Medium & High Voltage, India

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
GWP	Total	kg CO2 eq.	4.78E+00	1.00E+00	1.17E-02	1.48E-02	3.67E+00	7.89E-02
	Fossil	kg CO2 eq.	4.71E+00	9.76E-01	1.17E-02	9.84E-04	3.64E+00	7.85E-02
	Biogenic	kg CO2 eq.	6.69E-02	2.70E-02	1.26E-05	1.38E-02	2.57E-02	3.51E-04
	Luluc	kg CO2 eq.	8.30E-03	1.50E-03	5.89E-06	6.32E-07	6.75E-03	4.12E-05
ODP		kg CFC-11 eq.	2.60E-08	1.72E-08	1.94E-10	1.29E-11	8.28E-09	3.72E-10
AP		H+ eq.	2.60E-02	8.87E-03	3.12E-05	4.69E-06	1.70E-02	1.77E-04
EP	Freshwater	kg P eq.	3.88E-03	5.14E-04	9.56E-07	2.54E-07	3.35E-03	1.19E-05
	Marine	kg N eq.	4.97E-03	1.12E-03	8.22E-06	2.30E-06	3.76E-03	7.95E-05
	Terrestrial	mol N eq.	4.79E-02	1.20E-02	8.50E-05	1.82E-05	3.54E-02	4.07E-04
POPCD		kg NMVOC eq.	1.37E-02	4.13E-03	4.50E-05	5.27E-06	9.41E-03	1.38E-04
ADP	Minerals & metals	kg SB eq.	1.00E-04	9.80E-05	3.19E-08	3.46E-09	1.84E-06	2.67E-07
	Fossil	MJ	5.28E+01	1.14E+01	1.72E-01	7.56E-03	4.08E+01	4.19E-01
WDP		m^3 eq. depr.	7.60E-01	2.88E-01	8.87E-04	9.23E-05	4.60E-01	1.16E-02

Resource use indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
PERE	MJ	1.73E+01	1.85E+00	2.18E-03	3.00E-04	2.43E+00	1.30E+01
PERM	MJ	2.88E-01	2.88E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.90E+01	1.56E+00	2.18E-03	3.00E-04	2.43E+00	1.50E+01
PENRE	MJ	6.84E+01	1.14E+01	1.72E-01	7.56E-03	4.08E+01	1.60E+01
PENRM	MJ	1.13E+00	1.13E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	6.93E+01	1.03E+01	1.72E-01	7.56E-03	4.08E+01	1.80E+01

Common base of mandatory indicators

Use of secondary materials, water, and energy resources

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
SM	kg	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	2.38E-02	8.13E-03	2.75E-05	3.91E-06	1.53E-02	3.26E-04

Waste category indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
HWD	kg	1.58E-04	1.33E-04	1.09E-06	3.82E-08	1.81E-05	5.27E-06
N-HWD	kg	4.26E-01	1.69E-01	1.50E-02	7.06E-04	1.88E-01	5.32E-02
RWD	kg	5.03E-05	1.12E-05	3.75E-08	4.06E-09	3.86E-05	4.25E-07

Output flow indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
CfRu	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MfR	kg	1.58E-02	5.57E-03	0.00E+00	1.03E-02	0.00E+00	0.00E+00
MfER	kg	3.65E-05	3.65E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other indicators

Indicator		Unit	Total
Biogenic Carbon	Product	kg of C	0.00E+00
	Packaging	kg of C	9.68E-03

Optional indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
Tot PE	MJ	8.83E+01	1.19E+01	1.74E-01	7.86E-03	4.32E+01	3.30E+01
Efp	Dise inc	1.19E-07	5.79E-08	#REF!	1.11E-10	5.64E-08	3.42E-09
IrHH	kBq U-235 eq	1.78E-01	4.50E-02	1.58E-04	1.56E-05	1.31E-01	1.74E-03
ETX FW	CTUe	1.42E+01	1.02E+01	9.95E-02	9.05E-03	3.62E+00	2.49E-01
HTX CE	CTUh	3.78E-09	2.29E-09	5.06E-12	2.04E-12	7.82E-10	6.96E-10
HTX N-CE	CTUh	1.30E-07	7.26E-08	1.61E-10	5.45E-11	4.29E-08	1.39E-08
IrLS	Pt	4.23E+00	1.24E+00	3.33E-02	1.51E-03	2.89E+00	6.88E-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 multiplying the values of the Reference product by the following coefficients:

* 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

Product name	Description	Manufacturing	Distribution	Installation	Use	End of life
1SYS671015R0164	**SW201M-C16**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
1SYS671015R0104	SW201M-C10	1.00	1.00	1.00	0.88	1.01
1SYS671015R0204	SW201M-C20	1.00	1.00	1.00	1.31	1.00
1SYS671015R0324	SW201M-C32	1.09	1.09	1.00	1.44	1.11
1SYS671015R0254	SW201M-C25	1.11	1.11	1.00	1.23	1.14
1SYS671015R0064	SW201M-C6	0.99	0.99	1.00	0.44	0.99
1SYS672015R0324	SW202M-C32	2.12	2.12	1.67	2.88	2.22
1SYS674015R0634	SW204M-C63	4.60	4.60	3.33	8.56	4.87
1SYS672015R0254	SW202M-C25	2.17	2.17	1.67	2.46	2.27
1SYS672015R0164	SW202M-C16	1.94	1.94	1.67	2.00	2.00
1SYS672015R0204	SW202M-C20	1.94	1.94	1.67	2.62	2.00
1SYS674015R0324	SW204M-C32	4.24	4.24	3.33	5.75	4.43
1SYS673015R0324	SW203M-C32	3.19	3.19	2.55	4.31	3.32
1SYS672015R0404	SW202M-C40	2.14	2.14	1.67	3.29	2.24
1SYS674015R0404	SW204M-C40	4.29	4.29	3.33	6.59	4.49
1SYS672015R0634	SW202M-C63	2.30	2.30	1.67	4.28	2.43
1SYS671015R0065	SW201M-B6	1.04	1.04	1.00	0.44	1.05
1SYS672015R0104	SW202M-C10	1.95	1.95	1.67	1.75	2.01
1SYS673015R0634	SW203M-C63	3.46	3.46	2.55	6.42	3.65
1SYS671015R0105	SW201M-B10	1.04	1.04	1.00	0.88	1.05
1SYS671015R0404	SW201M-C40	1.10	1.10	1.00	1.65	1.12
1SYS671015R0634	SW201M-C63	1.18	1.18	1.00	2.14	1.22
1SYS671015R0165	SW201M-B16	1.02	1.02	1.00	1.00	1.02
1SYS673015R0404	SW203M-C40	3.22	3.22	2.55	4.94	3.37
1SYS672015R0064	SW202M-C6	1.92	1.92	1.67	0.88	1.97
1SYS673015R0164	SW203M-C16	2.92	2.92	2.55	3.00	3.00
1SYS673015R0254	SW203M-C25	3.26	3.26	2.55	3.69	3.41
1SYS671015R0205	SW201M-B20	1.04	1.04	1.00	1.31	1.05
1SYS673015R0204	SW203M-C20	2.92	2.92	2.55	3.92	3.00
1SYS674015R0165	SW204M-B16	3.96	3.96	3.33	4.00	4.09
1SYS673015R0104	SW203M-C10	2.93	2.93	2.55	2.63	3.02
1SYS673015R0064	SW203M-C6	2.89	2.89	2.55	1.33	2.96
1SYS674015R0254	SW204M-C25	4.33	4.33	3.33	4.93	4.54
1SYS674015R0164	SW204M-C16	3.88	3.88	3.33	4.00	4.00
1SYS674015R0255	SW204M-B25	4.33	4.33	3.33	4.93	4.54
1SYS674015R0204	SW204M-C20	3.88	3.88	3.33	5.23	4.00
1SYS674015R0104	SW204M-C10	3.90	3.90	3.33	3.50	4.02

Extrapolation Factors

Product name	Description	Manufacturing	Distribution	Installation	Use	End of life
1SYS674015R0325	SW204M-B32	4.38	4.38	3.33	5.75	4.60
1SYS674015R0064	SW204M-C6	3.84	3.84	3.33	1.77	3.95
1SYS671015R0255	SW201M-B25	1.11	1.11	1.00	1.23	1.14
1SYS674015R0635	SW204M-B63	4.60	4.60	3.33	8.56	4.87
1SYS674015R0405	SW204M-B40	4.32	4.32	3.33	6.59	4.53
1SYS673015R0504	SW203M-C50	3.52	3.52	2.55	5.01	3.72
1SYS671015R0325	SW201M-B32	1.12	1.12	1.00	1.44	1.15
1SYS672015R0504	SW202M-C50	2.34	2.34	1.67	3.34	2.48
1SYS672015R0165	SW202M-B16	1.98	1.98	1.67	2.00	2.05
1SYS672015R0405	SW202M-B40	2.16	2.16	1.67	3.29	2.26
1SYS672015R0205	SW202M-B20	2.03	2.03	1.67	2.62	2.11
1SYS674015R0205	SW204M-B20	4.06	4.06	3.33	5.23	4.22
1SYS671015R0504	SW201M-C50	1.20	1.20	1.00	1.67	1.24
1SYS672015R0325	SW202M-B32	2.19	2.19	1.67	2.88	2.30
1SYS671015R0405	SW201M-B40	1.11	1.11	1.00	1.65	1.13
1SYS671015R0505	SW201M-B50	1.20	1.20	1.00	1.67	1.24
1SYS671015R0635	SW201M-B63	1.18	1.18	1.00	2.14	1.22
1SYS672015R0065	SW202M-B6	2.02	2.02	1.67	0.88	2.09
1SYS672015R0105	SW202M-B10	2.02	2.02	1.67	1.75	2.09
1SYS672015R0255	SW202M-B25	2.17	2.17	1.67	2.46	2.27
1SYS672015R0505	SW202M-B50	2.34	2.34	1.67	3.34	2.48
1SYS672015R0635	SW202M-B63	2.30	2.30	1.67	4.28	2.43
1SYS673015R0065	SW203M-B6	3.03	3.03	2.55	1.33	3.14
1SYS673015R0105	SW203M-B10	3.03	3.03	2.55	2.63	3.14
1SYS673015R0165	SW203M-B16	2.98	2.98	2.55	3.00	3.07
1SYS673015R0205	SW203M-B20	3.05	3.05	2.55	3.92	3.16
1SYS673015R0255	SW203M-B25	3.26	3.26	2.55	3.69	3.41
1SYS673015R0325	SW203M-B32	3.29	3.29	2.55	4.31	3.45
1SYS673015R0405	SW203M-B40	3.25	3.25	2.55	4.94	3.40
1SYS673015R0505	SW203M-B50	3.52	3.52	2.55	5.01	3.72
1SYS673015R0635	SW203M-B63	3.46	3.46	2.55	6.42	3.65
1SYS674015R0065	SW204M-B6	4.03	4.03	3.33	1.77	4.18
1SYS674015R0105	SW204M-B10	4.03	4.03	3.33	3.50	4.18
1SYS674015R0505	SW204M-B50	4.68	4.68	3.33	6.68	4.96
1SYS674015R0504	SW204M-C50	4.68	4.68	3.33	6.68	4.96

Glossary

Environmental impact Indicators	
GWP-total	Global Warming Potential total (Climate hange)
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	
SM	Use of secundary 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] PCR “PEP-PCR-ed4-EN-2021_09_06” - Product Category Rules for Electrical, Electronic and HVAC-R Products (published: 6th September 2022)

[2] PSR “PSR-0005-ed3.1-EN-2023 12 08” - SPECIFIC RULES FOR Electrical switchgear and control gear Solutions (Circuit breakers)

[3] EN 50693:2019 - Product category rules for life cycle assessments of electronic and electrical products and systems

[4] ISO 14040:2006 - Environmental management -Life cycle assessment - Principles and framework

[5] ISO 14044:2006 - Environmental management - Life cycle assessment - Requirements and guidelines

[6] ecoinvent database version 3.9 - (https://ecoinvent.org/)

[7] SimaPro Software version 9.5.0.2 - PRé Sustainability

[8] UNI EN 15804:2012+A2:2019: Sustainability of constructions - Environmental product declarations (September 2019)

[9] IEC/TR 62635 - Guidelines for end-of-life information provided by manufacturers and recyclers and for recyclability rate calculation of electrical and electronic equipment - Edition 1.0 2012-10

[10] https://www.ecosystemspa.com/

[11] ISO 14025 - Environmental management — Life cycle assessment — Principles and framework