

EN250 MCB 25KA; 6 TO 63 A, 1 TO 4 POLES; B, C OR D CURVE

PEP ecopassport®

Product Environmental Profile



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

ORGANIZATION		CONTACT INFORMATION			
ABB STOTZ-KONTAKT GmbH		stefan.z.michel@de.abb.com			
ADDRESS		WEBSITE			
Eppelheimer Str. 82, 69123 Heidelberg		www.abb.de/stotz-kontakt			
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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.



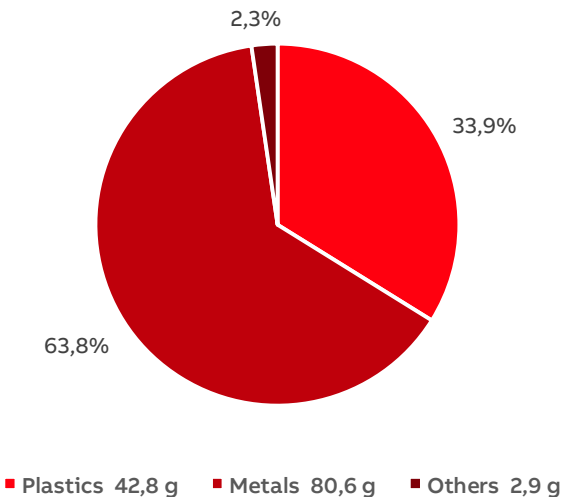
General Information

Reference product	Reference product identification: EN251B16, 2CDS381088R0165 PSR product category: Circuit Breaker
Description of the product	The EN250 range is designed to protect installations from overloads and short circuits, ensuring reliability and safety under all operating conditions.
Functional unit	The functional unit used in this study is to protect the installation against overloads and short-circuits in a circuit with assigned voltage 240 V AC and rated current 16 A for 20 years. This protection is ensured in accordance with the following parameters: • Number of poles Np: 1 • Rated breaking capacity In: 25 kA (AC) • Tripping curve: B
Other products covered	The products of the device series EN250 differ in their pole numbers (1-4 poles), rated current (6A-63A) and tripping curves (B, C and D). In total, the device series contains 90 different products. The number of poles has a linear influence on the environmental impacts of the manufacturing stage, due to the linear increase of raw materials and processing activities with increasing amounts of poles. The linear increase of material requirements results in a linear increase of product weight, which is the main factor for the environmental impacts of the distribution stage. For the environmental impacts of the installation stage, which are caused by the disposal of packaging waste, a linear correlation between pole number and weight of packaging waste is assumed for simplicity. The electricity consumption causes the environmental impacts of the use phase and is related to the rated current of the device. The environmental impacts of the disposal stage are driven by the material composition and product weight and are, hence, linear correlated to the number of poles.

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Constituent Materials



Total weight of Reference product	126,3	g
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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%
Glass-fibre reinforced plastic	31,4	Steel	46,5	Cardboard	2,3
Other plastic	1,7	Copper	13,9	–	x
PA66	0,8	Stainless steel	1,7	–	x
–	x	Aluminium	1,7	–	x
–	–	Other metals	<0,1%	–	–

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Additional Environmental Information

Manufacturing	The product is manually assembled in Bulgaria and finalized and packed in Germany. The production site of the products is certified according to ISO 14001.
Distribution	The intracontinental transport scenario of the PCR was applied to model the distribution.
Installation	As installation is performed manually, no environmental burdens are associated to this phase besides the disposal of product packaging by incineration
Use	No consumables and maintenance. The energy consumption during 20 years is 22.3 kWh.
End of life	Due to the lack of knowledge of the disposal pathway, landfilling as proposed standard scenario in the PCR is considered.
Benefits and loads beyond the system boundaries	Not considered

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Environmental Impacts

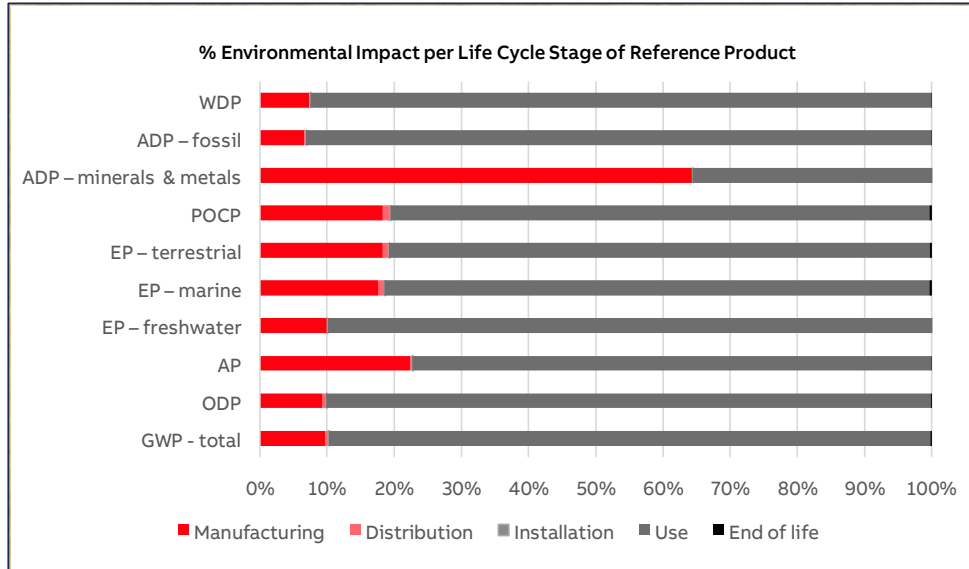
Reference lifetime	20 years
Product category	Electrical switchgear and control gear solutions
Installation elements	Does not require any special installation elements.
Use scenario	Load time: 50% of rated current Use time rate: 30% of reference lifetime
Geographical representativeness	Europe
Technological representativeness	Represents the device series MCB EN250
Software and database used	SimaPro 9.5 with ecoinvent 3.9.1, cut-off and industry data 2.0

Energy model used

Manufacturing	Electricity, medium voltage {DE} market for electricity, medium voltage Cut-off, S
Installation	{RoW}
Use	Electricity, low voltage {RER} market for electricity, low voltage Cut-off, S
End of life	{RoW}

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Common base of mandatory indicators



Environmental impact indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
GWP-total	kg CO₂ eq.	9,32E+00	9,02E-01	4,69E-02	4,97E-03	8,35E+00	1,89E-02
GWP-fossil	kg CO₂ eq.	8,99E+00	8,89E-01	4,68E-02	4,05E-04	8,04E+00	1,88E-02
GWP-biogenic	kg CO₂ eq.	3,04E-01	1,19E-02	3,97E-05	4,57E-03	2,88E-01	1,70E-05
GWP-luluc	kg CO₂ eq.	2,07E-02	9,30E-04	2,18E-05	1,71E-07	1,97E-02	6,97E-06
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	kg CFC-11 eq.	1,68E-07	1,55E-08	1,00E-09	1,04E-11	1,51E-07	3,09E-10
ODP = Depletion potential of the stratospheric ozone layer							
AP	H⁺ eq.	5,87E-02	1,31E-02	1,89E-04	2,03E-06	4,53E-02	6,15E-05
AP = Acidification potential, Accumulated Exceedance							
EP-freshwater	kg P eq.	8,69E-04	8,70E-05	3,71E-07	3,55E-09	7,81E-04	1,21E-07
EP-marine	kg N eq.	7,02E-03	1,23E-03	7,12E-05	8,14E-07	5,69E-03	2,81E-05
EP-terrestrial	mol N eq.	8,24E-02	1,51E-02	7,66E-04	8,62E-06	6,63E-02	2,48E-04
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	kg NMVOC eq.	2,65E-02	4,86E-03	2,88E-04	2,80E-06	2,13E-02	9,28E-05
POCP = Formation potential of tropospheric ozone							
ADP-minerals & metals	kg Sb eq.	2,69E-04	1,73E-04	1,24E-07	9,85E-10	9,58E-05	3,68E-08
ADP-fossil	MJ	1,93E+02	1,26E+01	6,71E-01	5,04E-03	1,80E+02	2,13E-01
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential							
WDP	m³ eq. depr.	2,22E+00	1,63E-01	3,25E-03	1,22E-04	2,05E+00	2,00E-03
WDP = Water Deprivation potential							

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Common base of mandatory indicators

Inventory flows indicator – Resource use indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
PERE	MJ	9,56E+01	1,65E+00	1,60E-02	1,36E-04	9,39E+01	5,15E-03
PERM	MJ	4,53E-02	4,53E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	9,56E+01	1,69E+00	1,60E-02	1,36E-04	9,39E+01	5,15E-03
PENRE	MJ	3,37E+02	2,39E+01	1,34E+00	1,01E-02	3,11E+02	4,26E-01
PENRM	MJ	1,02E+00	1,02E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,38E+02	2,49E+01	1,34E+00	1,01E-02	3,11E+02	4,26E-01

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 resources

Inventory flows indicator – Indicators describing the use of secondary materials, water, and energy resources

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
SM	kg	8,96E-03	8,96E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	N/A	N/A	N/A	N/A	N/A	N/A
NRSF	MJ	N/A	N/A	N/A	N/A	N/A	N/A
FW	m³	1,51E-01	5,38E-03	1,05E-04	4,14E-06	1,46E-01	5,61E-05

SM = Use of secondary material
 RSF = Use of renewable secondary fuels
 NRSF = Use of non-renewable secondary fuels
 FW = Use of net fresh water

Inventory flows indicator – Waste category indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
Hazardous waste disposed	kg	2,11E-02	2,11E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non- hazardous waste disposed	kg	3,02E-03	3,02E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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Common base of mandatory indicators

Inventory flows indicator – Output flow indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Inventory flow indicator – other indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
Biogenic carbon content of the product	kg of C	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content of the associated packaging	kg of C	1,38E-03	1,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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Optional indicators

Environmental indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
Emissions of fine particles	incidence of diseases	2,13E-07	2,13E-07	6,24E-08	4,70E-09	3,72E-11	1,49E-09
Ionizing radiation, human health	kBq U235 eq.	1,68E+00	1,68E+00	5,41E-02	3,23E-04	2,65E-06	1,04E-04
Ecotoxicity (fresh water)	CTUe	3,46E+01	3,46E+01	1,61E+01	3,51E-01	7,36E-03	1,28E-01
Human toxicity, carcinogenic effects	CTUh	6,63E-09	6,63E-09	2,89E-09	1,99E-11	3,84E-13	6,22E-12
Human toxicity, non-carcinogenic effects	CTUh	3,36E-07	3,36E-07	1,77E-07	6,25E-10	1,51E-11	1,94E-10
Impact related to land use/soil quality	kBq U235 eq.	4,30E+01	4,30E+01	7,05E+00	6,82E-01	4,66E-03	2,45E-01

Other indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life
No Other indicators used							

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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	Manu- facturing	Distri- bution	Installation	Use	End of life
EN251B06	1,00	1,00	1,00	0,60	1,00
EN251B10	1,00	1,00	1,00	0,82	1,00
EN251B16	1,00	1,00	1,00	1,00	1,00
EN251B20	1,00	1,00	1,00	1,35	1,00
EN251B25	1,00	1,00	1,00	1,35	1,00
EN251B32	1,00	1,00	1,00	1,71	1,00
EN251B40	1,00	1,00	1,00	1,71	1,00
EN251B50	1,00	1,00	1,00	2,18	1,00
EN251B63	1,00	1,00	1,00	3,53	1,00
EN252B06	2,00	2,00	2,00	1,21	2,00
EN252B10	2,00	2,00	2,00	1,65	2,00
EN252B16	2,00	2,00	2,00	2,00	2,00
EN252B20	2,00	2,00	2,00	2,71	2,00
EN252B25	2,00	2,00	2,00	2,71	2,00
EN252B32	2,00	2,00	2,00	3,41	2,00
EN252B40	2,00	2,00	2,00	3,41	2,00
EN252B50	2,00	2,00	2,00	4,35	2,00
EN252B63	2,00	2,00	2,00	7,06	2,00
EN253B06	3,00	3,00	3,00	1,81	3,00
EN253B10	3,00	3,00	3,00	2,47	3,00
EN253B16	3,00	3,00	3,00	3,00	3,00
EN253B20	3,00	3,00	3,00	4,06	3,00
EN253B25	3,00	3,00	3,00	4,06	3,00
EN253B32	3,00	3,00	3,00	5,12	3,00
EN253B40	3,00	3,00	3,00	5,12	3,00
EN253B50	3,00	3,00	3,00	6,53	3,00
EN253B63	3,00	3,00	3,00	10,59	3,00
EN254B06	4,00	4,00	4,00	2,41	4,00
EN254B10	4,00	4,00	4,00	3,29	4,00
EN254B16	4,00	4,00	4,00	4,00	4,00
EN254B20	4,00	4,00	4,00	5,41	4,00
EN254B25	4,00	4,00	4,00	5,41	4,00
EN254B32	4,00	4,00	4,00	6,82	4,00
EN254B40	4,00	4,00	4,00	6,82	4,00
EN254B50	4,00	4,00	4,00	8,71	4,00
EN254B63	4,00	4,00	4,00	14,12	4,00

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Extrapolation Factors

Product name	Manu- facturing	Distri- bution	Installation	Use	End of life
EN252C06	2,00	2,00	2,00	1,03	2,00
EN252C10	2,00	2,00	2,00	1,71	2,00
EN252C16	2,00	2,00	2,00	2,00	2,00
EN252C20	2,00	2,00	2,00	2,71	2,00
EN252C25	2,00	2,00	2,00	2,71	2,00
EN252C32	2,00	2,00	2,00	3,41	2,00
EN252C40	2,00	2,00	2,00	3,41	2,00
EN252C50	2,00	2,00	2,00	4,35	2,00
EN252C63	2,00	2,00	2,00	6,59	2,00
EN253C06	3,00	3,00	3,00	1,55	3,00
EN253C10	3,00	3,00	3,00	2,56	3,00
EN253C16	3,00	3,00	3,00	3,00	3,00
EN253C20	3,00	3,00	3,00	4,06	3,00
EN253C25	3,00	3,00	3,00	4,06	3,00
EN253C32	3,00	3,00	3,00	5,12	3,00
EN253C40	3,00	3,00	3,00	5,12	3,00
EN253C50	3,00	3,00	3,00	6,53	3,00
EN253C63	3,00	3,00	3,00	9,88	3,00
EN254C06	4,00	4,00	4,00	2,06	4,00
EN254C10	4,00	4,00	4,00	3,41	4,00
EN254C16	4,00	4,00	4,00	4,00	4,00
EN254C20	4,00	4,00	4,00	5,41	4,00
EN254C25	4,00	4,00	4,00	5,41	4,00
EN254C32	4,00	4,00	4,00	6,82	4,00
EN254C40	4,00	4,00	4,00	6,82	4,00
EN254C50	4,00	4,00	4,00	8,71	4,00
EN254C63	4,00	4,00	4,00	13,18	4,00
EN252D06	2,00	2,00	2,00	0,94	2,00
EN252D10	2,00	2,00	2,00	1,41	2,00
EN252D16	2,00	2,00	2,00	1,88	2,00
EN252D20	2,00	2,00	2,00	2,71	2,00
EN252D25	2,00	2,00	2,00	2,71	2,00
EN252D32	2,00	2,00	2,00	3,41	2,00
EN252D40	2,00	2,00	2,00	3,41	2,00
EN252D50	2,00	2,00	2,00	4,00	2,00
EN252D63	2,00	2,00	2,00	7,06	2,00
EN253D06	3,00	3,00	3,00	1,41	3,00
EN253D10	3,00	3,00	3,00	2,12	3,00
EN253D16	3,00	3,00	3,00	2,82	3,00
EN253D20	3,00	3,00	3,00	4,06	3,00
EN253D25	3,00	3,00	3,00	4,06	3,00

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Extrapolation Factors

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Environmental Impact Indicator Glossary

Impact indicators

Indicator	Description	Distribution
Global warming potential (GWP) - total	Indicator of potential global warming caused by emissions to air contributing to the greenhouse effect. The total global warming potential (GWP-total) is the sum of three sub-categories of climate change. GWP-total = GWP-fossil + GWP-biogenic + GWP- land use and land use change	kg CO ₂ eq.
Ozone depletion (ODP)	Emissions to air that contribute to the destruction of the stratospheric ozone layer	kg CFC-11 eq.
Acidification of soil and water (A)	Acidification of soils and water caused by the release of certain gases to the atmosphere, such as nitrogen oxides and sulphur oxides	H ⁺ eq.
Eutrophication (E)	Indicator of the contribution to eutrophication of water by the enrichment of the aquatic ecosystem with nutritional elements, e.g. industrial or domestic effluents, agriculture, etc. This indicator is divided to three: freshwater, marine and terrestrial.	kg P eq., kg N eq., mole N eq.
Photochemical ozone creation (POCP)	Indicator of emissions of gases that affect the creation of photochemical ozone in the lower atmosphere (smog) because of the rays of the sun.	kg NMVOC eq.
Depletion of abiotic resources – elements (ADPe)	Indicator of the depletion of natural non-fossil resources	kg Sb eq.
Depletion of abiotic resources – fossil fuels (ADPf)	The use of non-renewable fossil resources in an unsustainable way (e.g. from material to waste)	MJ (lower heating value)
Water Deprivation potential (WDP)	Deprivation-weighted water consumption. Assesses the potential of water deprivation, to either humans or ecosystems, building on the assumption that the less water remaining available per area, the more likely another user will be deprived.	m ³ eq. depr.

Resource use indicators

Indicator	Description	Distribution
Total use of primary energy	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) + Total use of renewable primary energy re-sources (primary energy and primary energy resources used as raw materials)	MJ (lower heating value)

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Verifier accreditation number: VH50	Information and reference documents: www.pep-ecopassport.org
Date of issue: 11-2023	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 of experts chaired by Julie Orgelet (DDemain)	
PEPs are compliant with XP C08-100-1 :2016 or EN 50693:2019 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"	
	

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
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