



DPC DIFFERENTIAL CIRCUIT BREAKER

Product Environmental Profile

Environmental Product Declaration



Document in compliance with ISO 14025: 2010 "Environmental labels and declarations. Type III environmental declarations"

ORGANIZATION		CONTACT INFORMATION			
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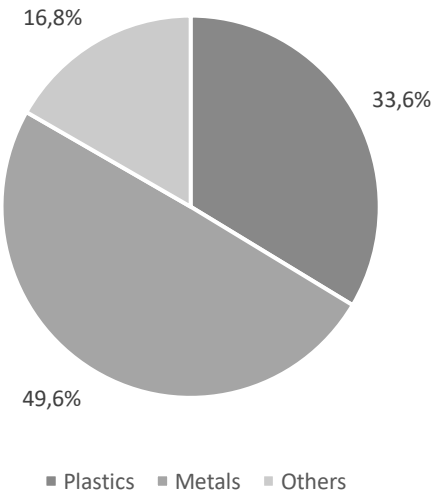
General Information

Reference product	DPC 10kA C 16A A 30mA – 4TQA611514R0000
Description of the product	DPC series combines overcurrent (short circuit and overload) and earth fault protection in 2 protected poles: it is particularly suitable in low voltage systems connected to the 230 V two-phase distribution network, such as naval applications, where it is particularly appreciated for its small size in the final distribution systems.
Functional unit	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 circuit with assigned voltage 230V and rated current 16 A.
Other products covered	DPC homogeneous family: From 4,5kA up to 10kA breaking capacity. B an C char from 6 up to 40 A 10, 30 & 300 mA type AC, A & APR for 6 & 10 kA 30 & 300 mA type AC & A for 4,5kA

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Constituent materials



Total weight of
Reference product

224,48 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-GF	26,3	FE	16,5	COPPER & PTEF	0,2
PBT/GF	5,3	COPPER	14,6	CELLULLOSE	<0,1
SILICONE	0,4	STEEL	13,0	OTHERS	3,3
PA+PE	0,2	STAINLESS STEEL	4,1	CARDBOARD	12,2
OTHER PLASTICS	1,3	BRASS	1,5	PAPER	1,0

Total weight of the reference product and its packaging: 257,60 g (12,2% box and 1,04% paper)

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Additional Environmental Information

Manufacturing	Includes the environmental impacts associated with extraction and processing of the raw materials used to produce the product and its pacakging, transport to the manufacturing site and assembly.
Distribution	Includes the transportation in its pacakging from the manufacturer's last logistic platform to the distributor.
Installation	Installation stage includes the installation of the products made manually and packaging.
Use	Energy consumption is calculated by following the PSR. The energy models used in this phase are the specific energy mixes based on distribution. No maintenance is necessary. Reference product consumption over 20 years is 47,95 kWh
End of life	Includes its transportation from the installation site to the final end of life treatment site, and end of life treatment processes. A value of 1000 km transport by lorry is used for the transportation.
Software and database used	Simapro 9.3.0.3 and Ecoinvent v3.8
Standards	“PCR Product Category Rules for Electrical, Electronic and HVAC-R Products” (PCR-ed3-EN-2015 04 02) and - “PSR Specific Rules for Electrical Switchgear and control gear Solutions“(PSR-0005-ed2-EN—2016 03 29)



Environmental impacts

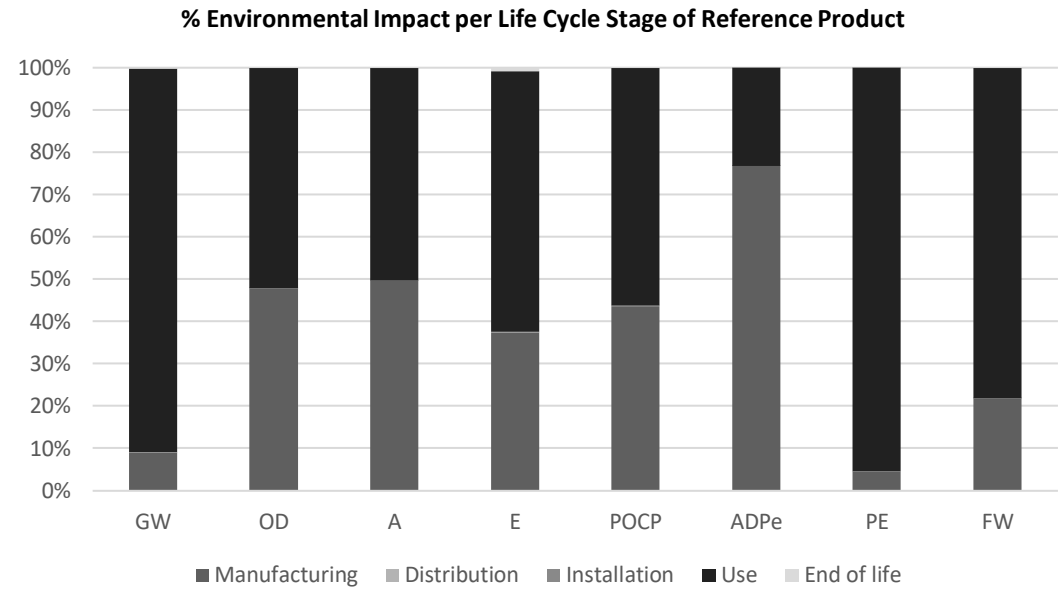
Reference lifetime	20 years
Product category	Differential Circuit Breaker
Installation elements	Installation carried out manually
Use scenario	Italy and Belgium
Geographical representativeness	Europe
Technological representativeness	Materials and processes data are specific for the production of DPC – 4TQA611514R0000 and its family
Energy model used	
Manufacturing	A specific mix of trading company has been used (Confidential)
Installation	Manually done. Europe
Use	Electricity, low voltage {IT} market for Cut-off, S Electricity, low voltage {BE} market for Cut-off, S
End of life	Europe

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Compulsory Indicators

Impact indicators	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life
Global warming (GW)	kg CO ₂ eq.	1,40E+01	1,26E+00	5,04E-04	5,97E-03	1,27E+01	4,04E-02
Ozone depletion (OD)	kg CFC- 11 eq.	2,19E-06	1,05E-06	8,57E-11	6,16E-10	1,14E-06	4,17E-09
Acidification of soil and water (A)	kg SO ₂ eq.	5,64E-02	2,80E-02	2,21E-06	7,21E-06	2,83E-02	4,88E-05
Eutrophication (E)	kg (PO ₄) ³ eq.	2,06E-02	7,69E-03	5,72E-07	2,66E-05	1,27E-02	1,80E-04
Photochemical ozone creation (POCP)	kg C ₂ H ₄ eq.	2,71E-03	1,18E-03	1,89E-07	3,44E-07	1,52E-03	2,33E-06
Depletion of abiotic resources – elements (ADPe)	kg Sb eq.	7,97E-04	6,12E-04	7,73E-09	1,14E-08	1,85E-04	7,70E-08

Resource use indicators	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life
Total use of primary energy (PE)	MJ	4,86E+02	2,17E+01	7,83E-03	2,87E-02	4,64E+02	1,94E-01
Net freshwater use (FW)	m ³	5,89E+00	1,28E+00	3,71E-05	7,90E-04	4,60E+00	5,35E-03



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Optional Indicators

Resource use indicators	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	6,32E+01	3,41E+00	2,10E-04	1,13E-03	5,98E+01	7,66E-03
Use of renewable primary energy resources as raw materials	MJ	5,76E-01	5,76E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources	MJ	6,38E+01	3,99E+00	2,10E-04	1,13E-03	5,98E+01	7,66E-03
Use of non-renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	4,20E+02	1,54E+01	7,62E-03	2,76E-02	4,04E+02	1,87E-01
Use of non-renewable primary energy resources as raw materials	MJ	2,35E+00	2,35E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	4,22E+02	1,77E+01	7,62E-03	2,76E-02	4,04E+02	1,87E-01
Use of secondary materials	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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Optional Indicators

Waste category indicators	Unit	Total	Manu-facturing	Distri-bution	Instal-lation	Use	End of life
Hazardous waste disposed	kg	4,90E-04	5,35E-05	1,44E-07	9,69E-08	4,36E-04	6,56E-07
Non-hazardous waste disposed	kg	1,31E+00	3,50E-01	2,42E-04	5,36E-03	9,20E-01	3,63E-02
Radioactive waste disposed	kg	3,58E-03	4,39E-05	5,04E-08	1,62E-07	3,53E-03	1,10E-06
Output flow indicators	Unit	Total	Manu-facturing	Distri-bution	Instal-lation	Use	End of life
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	2,25E-01	1,93E-02	0,00E+00	2,65E-02	0,00E+00	1,80E-01
Materials for energy recovery	kg	1,80E-02	0,00E+00	0,00E+00	2,32E-03	0,00E+00	1,57E-02
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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For other products than the Reference product covered by this PEP, the environmental im-pacts 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 Current (A)	Manufacturing	Distribution	Installation	Use	End of life
6 (A)	1,00	1,00	1,00	0,62	1,00
10 (A)	1,00	1,00	1,00	0,62	1,00
13 (A)	1,00	1,00	1,00	1,15	1,00
16 (A)	1,00	1,00	1,00	1,00	1,00
20 (A)	1,00	1,00	1,00	1,26	1,00
25 (A)	1,00	1,00	1,00	1,45	1,00
32 (A)	1,00	1,00	1,00	2,05	1,00
40 (A)	1,05	1,05	1,00	2,74	1,05

Product description	Product code
DPC60 A C06/030	4TQA611471R0000
DPC60 A C10/030	4TQA611472R0000
DPC60 A C16/030	4TQA611473R0000
DPC60 A C20/030	4TQA611474R0000
DPC60 A C25/030	4TQA611475R0000
DPC60 A C32/030	4TQA611476R0000
DPC60 A C40/030	4TQA611477R0000
DPC60 AC C06/030	4TQA611478R0000
DPC60 AC C10/030	4TQA611479R0000
DPC60 AC C16/030	4TQA611480R0000
DPC60 AC C20/030	4TQA611481R0000
DPC60 AC C25/030	4TQA611482R0000
DPC60 AC C32/030	4TQA611483R0000
DPC60 AC C40/030	4TQA611484R0000
DPC100 A B16/010	4TQA611485R0000
DPC100 A B06/030	4TQA611486R0000
DPC100 A B10/030	4TQA611487R0000
DPC100 A B10/030 NO	4TQA611488R0000
DPC100 A B13/030	4TQA611489R0000
DPC100 A B16/030	4TQA611490R0000
DPC100 A B16/030 NO	4TQA611491R0000
DPC100 A B20/030	4TQA611492R0000
DPC100 A B20/030 NO	4TQA611493R0000
DPC100 A B25/030	4TQA611494R0000
DPC100 A B32/030	4TQA611495R0000
DPC100 A B40/030	4TQA611496R0000
DPC100 A B16/300	4TQA611497R0000
DPC100 A B20/300	4TQA611498R0000
DPC100 A B32/300	4TQA611499R0000
DPC100 AI B06/030	4TQA611500R0000
DPC100 AI B10/030	4TQA611501R0000
DPC100 AI B13/030	4TQA611502R0000

Product description	Product code
DPC100 AI B16/030	4TQA611503R0000
DPC100 AI B20/030	4TQA611504R0000
DPC100 AI B25/030	4TQA611505R0000
DPC100 AI B32/030	4TQA611506R0000
DPC100 AI B40/030	4TQA611507R0000
DPC100 A C10/010	4TQA611508R0000
DPC100 A C16/010	4TQA611509R0000
DPC100 A C06/030	4TQA611510R0000
DPC100 A C10/030	4TQA611511R0000
DPC100 A C10/030 NO	4TQA611512R0000
DPC100 A C13/030	4TQA611513R0000
DPC100 A C16/030	4TQA611514R0000
DPC100 A C16/030 NO	4TQA611515R0000
DPC100 A C20/030	4TQA611516R0000
DPC100 A C20/030 NO	4TQA611517R0000
DPC100 A C25/030	4TQA611518R0000
DPC100 A C32/030	4TQA611519R0000
DPC100 A C40/030	4TQA611520R0000
DPC100 A C16/300	4TQA611521R0000
DPC100 A C20/300	4TQA611522R0000
DPC100 A C32/300	4TQA611523R0000
DPC100 AC C10/010	4TQA611524R0000
DPC100 AC C16/010	4TQA611525R0000
DPC100 AI C06/030	4TQA611526R0000
DPC100 AI C10/030	4TQA611527R0000
DPC100 AI C13/030	4TQA611528R0000
DPC100 AI C16/030	4TQA611529R0000
DPC100 AI C20/030	4TQA611530R0000
DPC100 AI C25/030	4TQA611531R0000
DPC100 AI C32/030	4TQA611532R0000
DPC100 AI C40/030	4TQA611533R0000

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Product description	Product code
2P RCBO HDC90SC13/030//014	4TQA606441R0000
2P RCBO HDC90SC16/030//014	4TQA606442R0000
2P RCBO HDC90SC20/030//014	4TQA606443R0000
2P RCBO HDC90SC25/030//014	4TQA606448R0000
2P RCBO HDC90SC32/030//014	4TQA606449R0000
2P RCBO HDC90SC40/030//014	4TQA606450R0000
2P RCBO HDC90SC06/300//014	4TQA606451R0000
2P RCBO HDC90SC10/300//014	4TQA606452R0000
2P RCBO HDC90SC16/300//014	4TQA606454R0000
2P RCBO HDC90SC20/300//014	4TQA606455R0000
2P RCBO HDC90SC25/300//014	4TQA606456R0000
2P RCBO HDC90SC32/300//014	4TQA606457R0000
2P RCBO HDC90SC40/300//014	4TQA606458R0000
2P RCBO DC90SC06/030//014	4TQA606481R0000
2P RCBO DC90SC10/030//014	4TQA606482R0000
2P RCBO DC90SC13/030//014	4TQA606483R0000
2P RCBO DC90SC16/030//014	4TQA606484R0000
2P RCBO DC90SC20/030//014	4TQA606485R0000
2P RCBO DC90SC25/030//014	4TQA606486R0000
2P RCBO DC90SC32/030//014	4TQA606487R0000
2P RCBO DC90SC40/030//014	4TQA606488R0000
2P RCBO HDC90EC06/030//014	4TQA607880R0000
2P RCBO HDC90EC10/030//014	4TQA607881R0000
2P RCBO HDC90EC13/030//014	4TQA607882R0000
2P RCBO HDC90EC16/030//014	4TQA607883R0000
2P RCBO HDC90EC20/030//014	4TQA607884R0000
2P RCBO HDC90EC25/030//014	4TQA607885R0000
2P RCBO HDC90EC32/030//014	4TQA607886R0000
2P RCBO HDC90EC40/030//014	4TQA607887R0000
2P RCBO DC90EC13/030//014	4TQA607898R0000
2P RCBO DC90EC06/300//014	4TQA607904R0000
2P RCBO HDC90C06/030//014	4TQA607934R0000
2P RCBO HDC90C20/030//014	4TQA608189R0000
2P RCBO HDC90C32/030//014	4TQA608191R0000
2P RCBO HDC90C40/030//014	4TQA608192R0000
2P RCBO HDC90C06/300//014	4TQA608193R0000
2P RCBO HDC90C10/300//014	4TQA608194R0000
2P RCBO HDC90C13/300//014	4TQA608195R0000
2P RCBO HDC90C16/300//014	4TQA608196R0000
2P RCBO HDC90C20/300//014	4TQA608197R0000
2P RCBO HDC90C25/300//014	4TQA608198R0000
2P RCBO HDC90C32/300//014	4TQA608199R0000
2P RCBO HDC90C40/300//014	4TQA608200R0000
2P RCBO DC90C32/030//014	4TQA608229R0000
2P RCBO DC90C40/030//014	4TQA608230R0000
2P RCBO DC90C06/300//014	4TQA608231R0000
2P RCBO DC90C13/300//014	4TQA608233R0000
2P RCBO DC90C32/300//014	4TQA608237R0000
2P RCBO DC90C40/300//014	4TQA608238R0000

Product description	Product code
Dc90ec06/030	4TQA607896R0000
Dc90ec10/030	4TQA607897R0000
Dc90ec16/030	4TQA607899R0000
Dc90ec20/030	4TQA607900R0000
Dc90ec25/030	4TQA607901R0000
Dc90ec32/030	4TQA607902R0000
Dc90ec40/030	4TQA607903R0000
Dc90ec10/300	4TQA607905R0000
Dc90ec13/300	4TQA607906R0000
Dc90ec16/300	4TQA607907R0000
Dc90ec20/300	4TQA607908R0000
Dc90ec25/300	4TQA607909R0000
Dc90ec32/300	4TQA607910R0000
Dc90ec40/300	4TQA607911R0000
Hdc90c10/030	4TQA607935R0000
Hdc90c16/030	4TQA608188R0000
Hdc90c25/030	4TQA608190R0000
Dc90c06/030	4TQA608223R0000
Dc90c10/030	4TQA608224R0000
Dc90c16/030	4TQA608226R0000
Dc90c20/030	4TQA608227R0000
Dc90c25/030	4TQA608228R0000
Dc90c10/300	4TQA608232R0000
Dc90c16/300	4TQA608234R0000
Dc90c20/300	4TQA608235R0000
Dc90c25/300	4TQA608236R0000

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Verifier accreditation number:		Information and reference documents:			
VH32		www.pep-ecopassport.org			
Date of issue:		21/11/2022		Validity period:	
				5 years	
Independent verification of the declaration and data, in compliance with ISO 14025: 2010					
Internal ☐			External ☒		
The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN)					
PEP are compliant with XP C08-100-1: 2016 The elements of the present PEP cannot be compared with elements from another program					
Document in compliance with ISO 14025: 2010 "Environmental labels and declarations. Type III environmental declarations"					

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Environmental Impact Indicator Glossary

Impact indicators	Description	Unit
Global warming (GW)	Indicator of potential global warming caused by emissions to air contributing to the greenhouse effect. Includes fossil and biogenic	kg CO ₂ eq.
Ozone depletion (OD)	Indicator of emissions to air that contribute to the destruction of the ozone layer	kg CFC-11 eq.
Acidification of soil and water (A)	Indicator of the potential acidification of soils and water caused by the release of certain gases to the atmosphere	kg SO ₂ 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.	kg (PO ₄) ³ 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 C ₂ H ₄ eq.
Depletion of abiotic resources – elements (ADPe)	Indicator of the depletion of natural non-fossil resources	kg Sb eq.

Resource use indicators	Description	Unit
Total use of primary energy (PE)	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) + Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ (lower heating value)

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