

## Product Environmental Profile

### Contactors from 16A to 63A



#### Company information

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#### References covered

Contactors from 16A to 63A with or without manual override facility, standard or low noise.

#### Methodology

This PEP has been performed according to the PCR version PEP-PCR-ed 1-FR-2009 12 18 issued by the PEP ecopassport program.  
For further information, please see the website of the program [www.pep-ecopassport.org](http://www.pep-ecopassport.org)

## Reference product

### Reference product identification

Contacteur 1M, 230V, 25A, 2 normally open contacts

### Product category as defined in the PCR

Electric installation devices (Passive product)

## Functional unit

Switch power circuits like heater or shutter during 20 years.  
The power circuit of the contactor is crossed by 30% of its current range during 30% of the time.

The functional unit is based on the use scenario recommended by the PCR for the category of the reference product.

## Materials and substances

All useful measures have been adopted to ensure that the materials used in the composition of the product do not contain any substances banned by the legislation in force at the time of marketing.

Plastics			Metals			Other		
	g	%		g	%		g	%
PA 6	21	16,0%	Steel	60,57	46,2%	Glass fiber	7,36	5,6%
PA 66	5	3,8%	Copper	19,12	14,6%	Cardboard + Paper	4,17	3,2%
PC	0,76	0,6%	Brass	6,37	4,9%	Flame retardant	4,91	3,7%
PMMA	0,66	0,5%	Silver	0,24	0,2%	Talcum	1,03	0,8%
			Other	0,08	0,1%			
Total mass of reference product :			131,23 g					

### RoHS

All our products comply, on voluntary basis, with the restrictions on substances specified in the RoHS directive.

### REACH

At the date of PEP release, the product doesn't contain, as far as we knew, any substance of the candidate list to authorization of the REACH regulation with a concentration above 0,1% w/w.

## Manufacturing

These products are manufactured by a site that has received an environmental certification ISO 14001.

## Distribution

The packaging has been designed in accordance with current regulations: European directive 94/62/CE relative to packaging and packaging waste.

The used packaging is 100% recyclable or recoverable.

Packaging and logistic flows are continuously improved in order to reduce their impact.

## Installation

### Installation processes

The processes to install the product are not considered in this study because of their weak impact compared to the other life cycles steps.

### Installation elements (non delivered with the product)

Elements non delivered with the product and needed to install the product are not considered too.

## Usage

For the considered scenario, the product has an average power of 2,07 W in active mode during 30% of the time and 0 W in sleep mode during 70% of the time. This corresponds to an energy consumption of 108,79 kWh for the use span of 20 years.

Energy model of the usage phase : Europe

Consumables and maintenance : None

## End of life

Considering the complexity and the lack of knowledge of the electric and electronic recycling channel and processes, we considered only a 1000 km transport of the product at end of life, as recommended by the PCR.

The recycling potential of the product is : 57,7%. The calculus of this rate is based on the Eco'DEEE method developed by BUREAU VERITAS CODDE.

Components that have to be extracted and sent to specific treatment chains as specified by the European directive 2002/96/CE: Aucun

## Environmental impacts

Evaluation of the environmental impact covers the following life cycle stages: raw materials + manufacturing (RMM), distribution (D), installation (I), usage (U) and end of life (EoL).

All calculations are done with EIME software version 4.0 with the database version 11.3.

Environmental impact of another product covered by the PEP can be determined the data of the column "Global" by the corresponding factors:

	Standard					Silencieux				
	1M	2M	3M	4M	5M	1M	2M	3M	4M	5M
Number of modules	16	16	25	40	63	25	16	25	40	63
Current range (A)	2	3	3	4	4	2	3	3	4	4
Number of normally open contacts	1	2,42	11,94	1,11	2,48	11,90	0,44	0,538	1,24	1,78
Factor for Raw Material Depletion	0,44	0,538	1,24	1,78	3,56	1,12	0,78	1,63	1,58	3,25
Factor for Water Eutrophication	0,68	0,83	1,18	2,74	3,86	1,17	1,20	1,76	2,43	3,38
Factor for the other indicators										

Indicators	Unit	Manufacturing RMM	Distribution D	Installation I	Usage U	End of Life EoL	GLOBAL
Raw Material Depletion	year <sup>-1</sup>	3,01E-14	1,24E-18	0	1,24E-15	1,67E-19	<b>3,14E-14</b>
Energy Depletion	MJ	1,08E+01	9,11E-01	0	1,11E+03	1,22E-01	<b>1,12E+03</b>
Water Depletion	dm <sup>3</sup>	5,77E+00	8,65E-02	0	1,71E+02	1,16E-02	<b>1,77E+02</b>
Global Warming	g ~ CO <sub>2</sub>	7,80E+02	7,35E+01	0	5,73E+04	9,64E+00	<b>5,81E+04</b>
Ozone Depletion	g ~ CFC <sub>11</sub>	1,05E-04	5,10E-05	0	4,87E-03	6,84E-06	<b>5,03E-03</b>
Air Toxicity	m <sup>3</sup>	2,90E+05	2,87E+04	0	1,09E+07	1,89E+03	<b>1,12E+07</b>
Photochemical Ozone Creation	g ~ C <sub>2</sub> H <sub>4</sub>	2,36E-01	9,70E-02	0	1,96E+01	8,27E-03	<b>2,00E+01</b>
Air Acidification	g ~ H <sup>+</sup>	2,48E-01	1,87E-02	0	8,96E+00	1,28E-03	<b>9,23E+00</b>
Water Toxicity	dm <sup>3</sup>	1,75E+02	8,97E+00	0	1,38E+04	1,21E+00	<b>1,39E+04</b>
Water Eutrophication	g ~ PO <sub>4</sub> <sup>3-</sup>	9,64E-02	1,20E-03	0	1,62E-01	1,61E-04	<b>2,59E-01</b>
Hazardous Waste Production	kg	5,66E-03	2,68E-05	0	9,02E-01	3,60E-06	<b>9,08E-01</b>

## Verification

Registration n° : HAGE-2011-010-V1-EN	Editorial management : PEP-PCR-ed 1-FR-2009 12 18
Version n° : VH03	Program information : <a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>
Edition date : 24/10/2011	Valid for : 4 ans
Independent verification of the declaration and data, according to ISO 14025:2006 Internal <input checked="" type="checkbox"/> External <input type="checkbox"/>	
Compliant with the standard ISO 14025 : 2006 Type III environmental declarations	
The review of the PCR has been carried out by a panel of experts chaired by J. Chevalier (CSTB)	
The results of this PEP cannot be compared with results from another program	



## Glossary

<b>Environmental impact</b>	Attribute or aspect of the natural environment, human health or resources allowing the identification of a problematic environmental aspect.
<b>Life Cycle Assessment (LCA)</b>	Compilation and evaluation of input, output and potential environmental impact of a product or system, during its life cycle, "from cradle to grave". This procedure is described by the standard ISO14040 and its complementary standards.
<b>Recycling potential</b>	Percentage of material that can be recycled calculated with Eco'DEEE method. It does not take into account the existence, or not, of recycling plants, which are heavily dependant on the local situation.
<b>EIME (Environmental Information and Management Explorer)</b>	Software modelling the environmental impacts of a product based on the methodology of life cycle assessment.
<b>Energy Depletion</b>	Indicates, in megajoules, the total energy consumption for the whole life cycle of the product.
<b>Global Warming</b>	Indicates for the whole life cycle stages the released quantity of equivalent-grams of CO <sub>2</sub> . Example of equivalence principle: 1 g of CO <sub>2</sub> = 1 g~CO <sub>2</sub> ; 1 g of CH <sub>4</sub> (methane) is equal to the effect of 64 g~CO <sub>2</sub> , etc...
<b>Raw Material Depletion</b>	Indicates the depletion of raw materials, considering the quantity of the world's reserves (minerals, fossil fuels, etc.) for these resources and their current level of consumption. It is expressed as a fraction of the reserves that disappears each year.
<b>Water depletion</b>	Indicates, for the whole life cycle of the product, the total water consumption.
<b>Ozone Depletion</b>	Indicates for the whole life cycle stages the released quantity of equivalent-grams of CFC11.
<b>Air Acidification</b>	Indicates the air acidification due to released gases. Expressed in equivalent-grams of H <sup>+</sup> .
<b>Hazardous Waste Production</b>	Indicates the weight of hazardous waste produced during the life cycle of the product.
<b>Air pollution</b>	Indicates the volume of clean air needed to dilute the released pollutant gas in order to achieve the mandatory air concentration.
<b>Water pollution</b>	Indicates the volume of clean water needed to dilute the released pollutant substances in order to achieve the mandatory water concentration.
<b>Photochemical Ozone Creation</b>	Indicates for the whole life cycle stages the released quantity of equivalent-grams of C <sub>2</sub> H <sub>4</sub> .
<b>Water Eutrophication</b>	Indicates for the whole life cycle stages the released quantity of equivalent-grams of PO <sub>4</sub> -P.

### Nota :

The picture has no contractual value.

All numerical values indicated in this document may vary and depend of many factors such as the tolerance related to materials, the usage and environment conditions of the products, installation characteristics,... Real values for a product in a concrete application may therefore change.

The usage time mentioned in this document is an average duration chosen for the need of the calculations. This value cannot be assimilated to the minimum, average or real life time.

The responsibility of the company, issuing this document, can never be engaged if differences would be noticed between the values given by this document and real ones, whatever the causes and/or consequences would be.