# Product Environmental Profile

## Power contactor 4P, 32A on AC-1, 24 VDC




## Company information

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## References covered

EVN03210E; EVN04510E

## Methodology

PEP has been performed according to the PCR version PEP–PCR–ed3-2015 04 02 and PSR version PSR-0005-ed2-2016 03 29 issued by the PEP ecopassport program.
For further information, please see the website of the program www.pep-ecopassport.org

## Reference product

**Reference product identification**
EVN03210E

**PSR product Category :**
Contactors

## Functional unit

Switch on and off during 20 years electrical power supply of a downstream installation with an electrical and/or mechanical control.
The functional unit is characterized by 4 poles, a control circuit voltage 24 VDC, a power circuit voltage 230V and a maximum allowed intensity by the powercircuit 32A.
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 | | | Others | | |
|---|---|---|---|---|---|---|---|---|
| | g | % | | g | % | | g | % |
| PA 6 | 186.00 | 29.1% | Copper | 125.00 | 19.6% | Magnet | 80.00 | 12.5% |
| Rubber | 1.00 | 0.2% | Steel | 213.00 | 33.3% | Cardboard | 34.00 | 5.3% |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Total mass of reference product :** | | | **639 g** | | | | | |

## 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. In particular, the 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.

## Use

For the considered scenario, the product has an average power of 7.500 W in active mode during 50% of the time. This corresponds to a total energy consumption of 657.000 kWh for the use span of 20 years.

**Energy model of the use 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, the standard scenario set in the PCR is considered.

The recycling potential of the product is: 48%. The calculation of this rate is based on the method of the IEC/TR 62635.

## Environmental impacts

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

All calculations are done with EIME software version 5.8.1 with the database version HAGER-CODDE-2018-11 .

PEP representative of the covered products marketed in: Europe

Energy models considered for each phase

| Manufacturing RMM | Distribution D | Installation I | Use U | End Of Life EoL |
|---|---|---|---|---|
| Europe | - | Europe | Europe | Europe |

**Environmental impact indicators**

| Indicators | Unit | Manufacturing RMM | Distribution D | Installation I | Use U | End Of Life EoL | GLOBAL |
|---|---|---|---|---|---|---|---|
| Global Warming | kg $CO_2$ eq. | 6.93E+00 | 1.11E-01 | 2.11E-03 | 3.88E+02 | 7.26E-02 | 3.95E+02 |
| Ozone Depletion | kg CFC-11 eq. | 7.60E-07 | 2.26E-10 | 1.44E-11 | 9.42E-05 | 1.85E-09 | 9.50E-05 |
| Acidification of soil and water | kg SO2 eq | 3.31E-02 | 5.00E-04 | 1.04E-05 | 2.93E+00 | 2.76E-04 | 2.97E+00 |
| Eutrophication | kg $PO_4^{3-}$ eq. | 1.80E-02 | 1.15E-04 | 1.12E-05 | 1.10E-01 | 3.15E-04 | 1.28E-01 |
| Photochemical Ozone Creation | kg $C_2H_4$ eq. | 2.31E-03 | 3.55E-05 | 7.30E-07 | 1.39E-01 | 2.16E-05 | 1.41E-01 |
| Depletion of abiotic resources - elements | kg Sb eq | 1.27E-09 | 4.46E-09 | 9.17E-11 | 1.77E-05 | 4.68E-09 | 1.77E-05 |
| Depletion of abiotic resources – fossil fuels | MJ | 1.03E+01 | 1.56E+00 | 2.82E-02 | 4.00E+03 | 7.07E-01 | 4.01E+03 |
| Water Pollution | $m^3$ | 5.23E+00 | 1.83E+01 | 3.27E-01 | 1.63E+04 | 8.20E+00 | 1.63E+04 |
| Air Pollution | $m^3$ | 1.30E+00 | 4.56E+00 | 2.67E-01 | 1.66E+04 | 8.61E+00 | 1.67E+04 |

**Resource use indicators**

| Indicators | Unit | Manufacturing RMM | Distribution D | Installation I | Use U | End Of Life EoL | GLOBAL |
|---|---|---|---|---|---|---|---|
| Use of renewable primary energy, excluding renewable primary energy resources used as raw materials | MJ | 5.99E-04 | 2.10E-03 | 3.32E-04 | 5.62E+02 | 1.99E-02 | 5.62E+02 |
| Use of renewable primary energy resources as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total use of renewable primary energy resources | MJ | 5.99E-04 | 2.10E-03 | 3.32E-04 | 5.62E+02 | 1.99E-02 | 5.62E+02 |
| Use of non-renewable primary energy, excluding non renewable primary energy resources used as raw materials | MJ | 4.49E-01 | 1.57E+00 | 2.87E-02 | 7.30E+03 | 7.71E-01 | 7.30E+03 |
| Use of non-renewable primary energy resources as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total use of non renewable primary energy resources | MJ | 4.49E-01 | 1.57E+00 | 2.87E-02 | 7.30E+03 | 7.71E-01 | 7.30E+03 |
| Total use of primary energy | MJ | 4.50E-01 | 1.57E+00 | 2.90E-02 | 7.86E+03 | 7.91E-01 | 7.86E+03 |
| 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 |
| Net fresh water use | $m^3$ | 6.10E-02 | 9.96E-06 | 6.59E-07 | 1.01E+00 | 6.39E-05 | 1.07E+00 |

**Waste category indicators**

| Indicators | Unit | Manufacturing RMM | Distribution D | Installation I | Use U | End Of Life EoL | GLOBAL |
|---|---|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 1.13E-03 | 3.96E-03 | 3.49E-02 | 1.45E+03 | 6.76E-01 | 1.45E+03 |
| Non-hazardous waste disposed | kg | 0.00E+00 | 0.00E+00 | 7.71E-06 | 0.00E+00 | 3.22E-04 | 3.29E-04 |
| Radioactive waste disposed | kg | 8.05E-07 | 2.82E-06 | 1.80E-07 | 1.18E+00 | 2.32E-05 | 1.18E+00 |

**Output flow indicators**

| Indicators | Unit | Manufacturing RMM | Distribution D | Installation I | Use U | End Of Life EoL | GLOBAL |
|---|---|---|---|---|---|---|---|
| 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 |

No extrapolation rules

## Verification

| | |
|---|---|
| Registration N°: HAGE-00572-V01.01-EN | Drafting Rules PEP–PCR–ed3-2015 04 02 |
| | Supplemented by PSR-0005-ed2-2016 03 29 |
| Verifier accreditation N°: VH37 | Information and reference documents: www.pep-ecopassport.org |
| Date of issue: 9-2020 | Validity period: 5 years |
| Independent verification of the declaration and data, in compliance with ISO 14025 : 2010<br>Internal ● External ○ | |
| The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN) | |
| PEP are compliant with XP C08-100-1:2014<br>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 » | |

**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.