

Product Environmental Profile

variable speed drive, Altivar Machine ATV320, 7.5kW, 380 to 500V, 3 phases, book

Altivar Machine ATV320



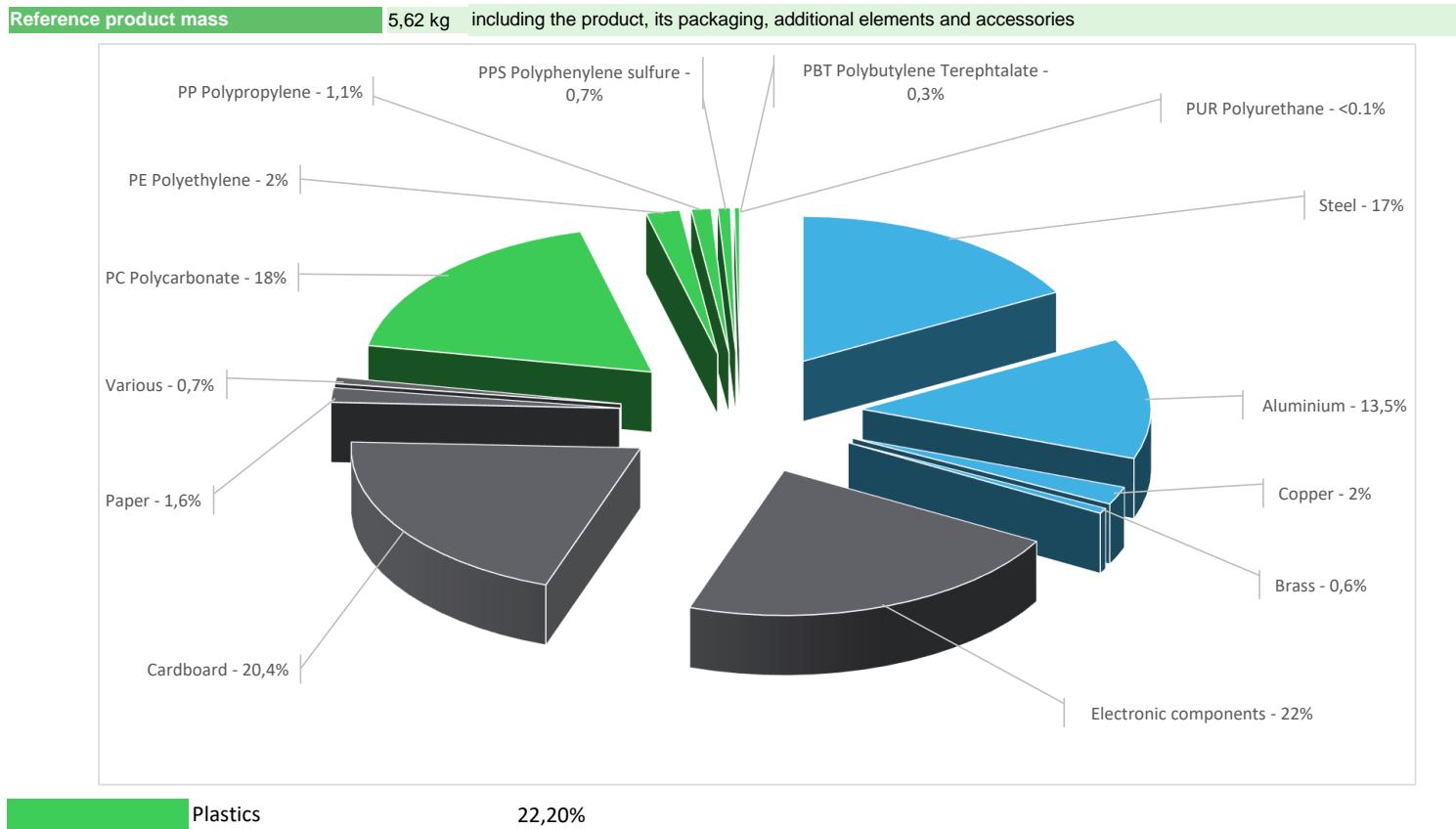


General information

| | |
|----------------------------|--|
| Reference product | variable speed drive, Altivar Machine ATV320, 7.5kW, 380 to 500V, 3 phases, book - ATV320U75N4B |
| Description of the product | The main function of the Altivar Machine product range is the speed control and variation of a synchronous, asynchronous electric motor for fluid management and industrial applications. |
| Description of the range | This PEP refer to a range of products assimilated to a reference product by an extrapolation rule. This range consists of products Altivar Machine ATV320, a variable speed drive designed for Original Equipment Manufacturers (OEMs) that meets simple and advanced application requirements for 3 Phases synchronous and asynchronous motors from 5,5 to 7,5 kW (7,5 to 10 HP). The environmental impacts of this reference product are representative of the impacts of the other products of the range which are developed with a similar technology. |
| Functional unit | To adapt the speed and torque of synchronous, asynchronous motor to the machine's operating point for 7,5 kW for heavy duty electric motors for fluid management and industrial applications in IP20/UL type 1 conditions, at 380V to 500V rated 3-phases voltage supply. Calculation of the environmental impacts is based on 10 years of product service lifetime. The usage profile taken into account is 20% uptime in full phase, 30% uptime in medium phase, 40% uptime in low phase and 10% uptime in "standby" phase (equating it with standstill phase) of the 5000h operating time and 1000h of standby according to the "Electric Motor, VSD and PDS use phase GHG Emissions - CEMEP guideline: Duty profile for general Purpose Machinery_V1". |



Constituent materials



Substance assessment

Details of ROHS and REACH substances information are available on the Schneider-Electric website
<https://www.se.com>



Additional environmental information

| | | | |
|-------------|--------------------------|-----|---|
| End Of Life | Recyclability potential: | 61% | The recyclability rate was calculated from the recycling rates of each material making up the product based on REEECY'LAB tool developed by Ecosystem, for components/materials not covered by the tool, data from the EIME database and the related PSR was taken. If no data was found a conservative assumption was used (0% recyclability). |
|-------------|--------------------------|-----|---|



Environmental impacts

| Reference service life time | 10 years | | | | | | | | |
|--|--|---|---|------|-----------|--|---|---|---|
| Product category | Other equipments - Active product | | | | | | | | |
| Life cycle of the product | The manufacturing, the distribution, the installation, the use and the end of life were taken into consideration in this study | | | | | | | | |
| Electricity consumtum | The electricity consumed during manufacturing processes is considered for each part of the product individually, the final assembly generates a negligible consumption | | | | | | | | |
| Installation elements | The product does not require any special installation operations. The packaging waste treatment is taken into account in this phase. | | | | | | | | |
| Use scenario | The product is in full phase 20% of the time with a power use of 172W, in medium phase 30% of the time with a power use 97W, in low phase 40% of the time with a power use 67W, in "standby" phase (equating it with standstill phase) 10% of the time with a power use 71W of the 5000h operating time for 10 years and 1000h of standby according to the "Electric Motor, VSD and PDS use phase GHG Emissions - CEMEP guideline: Duty profile for general Purpose Machinery_V1". Drive efficiency according to IEC/EN 61800-9-2 (supersedes EN 50598-2). | | | | | | | | |
| Time representativeness | The collected data are representative of the year 2024 | | | | | | | | |
| Technological representativeness | The Modules of Technologies such as material production, manufacturing processes and transport technology used in the PEP analysis (LCA EIME in the case) are Similar and Representative of the actual type of technologies used to make the product. | | | | | | | | |
| Final assembly site | Batam, Indonesia | | | | | | | | |
| Geographical representativeness | Europe | | | | | | | | |
| Energy model used | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; background-color: #669966; color: white;">[A1 - A3]</th> <th style="text-align: center; background-color: #669966; color: white;">[A5]</th> <th style="text-align: center; background-color: #669966; color: white;">[B6]</th> <th style="text-align: center; background-color: #669966; color: white;">[C1 - C4]</th> </tr> </thead> <tbody> <tr> <td>Electricity Mix; Low voltage; 2020; China, CN 2018; Europe, EU-27 (RM not sourced from EU)</td> <td>Electricity Mix; Low voltage; 2020; Europe, EU-27</td> <td>Electricity Mix; Low voltage; 2020; Europe, EU-27</td> <td>Electricity Mix; Low voltage; 2020; Europe, EU-27</td> </tr> </tbody> </table> | [A1 - A3] | [A5] | [B6] | [C1 - C4] | Electricity Mix; Low voltage; 2020; China, CN 2018; Europe, EU-27 (RM not sourced from EU) | Electricity Mix; Low voltage; 2020; Europe, EU-27 | Electricity Mix; Low voltage; 2020; Europe, EU-27 | Electricity Mix; Low voltage; 2020; Europe, EU-27 |
| [A1 - A3] | [A5] | [B6] | [C1 - C4] | | | | | | |
| Electricity Mix; Low voltage; 2020; China, CN 2018; Europe, EU-27 (RM not sourced from EU) | Electricity Mix; Low voltage; 2020; Europe, EU-27 | Electricity Mix; Low voltage; 2020; Europe, EU-27 | Electricity Mix; Low voltage; 2020; Europe, EU-27 | | | | | | |

Detailed results of the optional indicators mentioned in PCRed4 are available in the LCA report and on demand in a digital format - Country Customer Care Center - <http://www.se.com/contact>

| Mandatory Indicators | | variable speed drive, Altivar Machine ATV320, 7.5kW, 380 to 500V, 3 phases, book - ATV320U75N4B | | | | | | |
|--|--------------|---|---------------------------|---------------------|---------------------|-----------------|-------------------------|--------------------------|
| Impact indicators | Unit | Total (without Module D) | [A1 - A3] - Manufacturing | [A4] - Distribution | [A5] - Installation | [B1 - B7] - Use | [C1 - C4] - End of life | [D] - Benefits and loads |
| Contribution to climate change | kg CO2 eq | 2,74E+03 | 6,31E+01 | 1,09E+00 | 1,33E+00 | 2,67E+03 | 9,09E+00 | -6,67E+00 |
| Contribution to climate change-fossil | kg CO2 eq | 2,74E+03 | 6,49E+01 | 1,09E+00 | 1,27E+00 | 2,66E+03 | 9,06E+00 | -7,92E+00 |
| Contribution to climate change-biogenic | kg CO2 eq | 3,26E+00 | 0* | 0* | 6,09E-02 | 4,91E+00 | 3,15E-02 | 1,25E+00 |
| Contribution to climate change-land use and land use change | kg CO2 eq | 1,54E-03 | 1,54E-03 | 0* | 0* | 0* | 0* | -1,36E-03 |
| Contribution to ozone depletion | kg CFC-11 eq | 2,22E-05 | 9,26E-06 | 0* | 1,67E-08 | 1,29E-05 | 4,04E-08 | -5,93E-07 |
| Contribution to acidification | mol H+ eq | 1,42E+01 | 5,07E-01 | 6,93E-03 | 3,80E-03 | 1,37E+01 | 1,97E-02 | -3,58E-02 |
| Contribution to eutrophication, freshwater | kg P eq | 8,24E-03 | 1,01E-03 | 0* | 2,96E-05 | 7,02E-03 | 1,81E-04 | -4,63E-05 |
| Contribution to eutrophication marine | kg N eq | 1,75E+00 | 6,99E-02 | 3,25E-03 | 1,64E-03 | 1,66E+00 | 5,62E-03 | -5,55E-03 |
| Contribution to eutrophication, terrestrial | mol N eq | 2,76E+01 | 7,50E-01 | 3,56E-02 | 1,15E-02 | 2,67E+01 | 6,03E-02 | -5,65E-02 |
| Contribution to photochemical ozone formation - human health | kg COVNM eq | 5,51E+00 | 2,45E-01 | 8,99E-03 | 2,63E-03 | 5,24E+00 | 1,70E-02 | -1,82E-02 |
| Contribution to resource use, minerals and metals | kg Sb eq | 1,02E-02 | 9,28E-03 | 0* | 0* | 9,44E-04 | 4,81E-06 | -1,04E-03 |
| Contribution to resource use, fossils | MJ | 6,90E+04 | 1,37E+03 | 1,53E+01 | 1,29E+01 | 6,73E+04 | 2,14E+02 | -1,81E+02 |
| Contribution to water use | m3 eq | 2,28E+02 | 2,20E+01 | 0* | 1,03E-01 | 2,04E+02 | 1,25E+00 | -2,62E+00 |

| Inventory flows Indicators | | variable speed drive, Altivar Machine ATV320, 7.5kW, 380 to 500V, 3 phases, book - ATV320U75N4B | | | | | | | |
|---|------|---|---------------------------|---------------------|---------------------|-----------------|-------------------------|--------------------------|--|
| Inventory flows | Unit | Total (without Module D) | [A1 - A3] - Manufacturing | [A4] - Distribution | [A5] - Installation | [B1 - B7] - Use | [C1 - C4] - End of life | [D] - Benefits and loads | |
| Contribution to use of renewable primary energy excluding renewable primary energy used as raw material | MJ | 1,79E+04 | 2,65E+01 | 0* | 0* | 1,78E+04 | 2,38E+00 | -1,90E+00 | |
| Contribution to use of renewable primary energy resources used as raw material | MJ | 9,67E+00 | 9,67E+00 | 0* | 0* | 0* | 0* | -1,80E+01 | |
| Contribution to total use of renewable primary energy resources | MJ | 1,79E+04 | 3,61E+01 | 0* | 0* | 1,78E+04 | 2,38E+00 | -1,99E+01 | |
| Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material | MJ | 6,89E+04 | 1,31E+03 | 1,53E+01 | 1,29E+01 | 6,73E+04 | 2,14E+02 | -1,50E+02 | |
| Contribution to use of non renewable primary energy resources used as raw material | MJ | 6,25E+01 | 6,25E+01 | 0* | 0* | 0* | 0* | -3,17E+01 | |
| Contribution to total use of non-renewable primary energy resources | MJ | 6,90E+04 | 1,37E+03 | 1,53E+01 | 1,29E+01 | 6,73E+04 | 2,14E+02 | -1,81E+02 | |
| Contribution to use of secondary material | kg | 1,09E+00 | 1,09E+00 | 0* | 0* | 0* | 0* | 0,00E+00 | |
| Contribution to use of renewable secondary fuels | MJ | 0,00E+00 | 0* | 0* | 0* | 0* | 0* | 0,00E+00 | |
| Contribution to use of non renewable secondary fuels | MJ | 0,00E+00 | 0* | 0* | 0* | 0* | 0* | 0,00E+00 | |
| Contribution to net use of freshwater | m³ | 5,35E+00 | 5,12E-01 | 0* | 2,40E-03 | 4,80E+00 | 2,90E-02 | -6,10E-02 | |
| Contribution to hazardous waste disposed | kg | 2,61E+02 | 1,42E+02 | 0* | 3,21E-02 | 1,17E+02 | 1,63E+00 | -8,22E+01 | |
| Contribution to non hazardous waste disposed | kg | 5,01E+02 | 4,94E+01 | 0* | 5,71E-01 | 4,50E+02 | 3,64E-01 | -6,04E+00 | |
| Contribution to radioactive waste disposed | kg | 1,33E-01 | 2,97E-02 | 2,74E-05 | 6,94E-05 | 1,03E-01 | 1,07E-04 | -2,97E-03 | |
| Contribution to components for reuse | kg | 0,00E+00 | 0* | 0* | 0* | 0* | 0* | 0,00E+00 | |
| Contribution to materials for recycling | kg | 2,93E+00 | 2,53E-01 | 0* | 1,24E-02 | 0* | 2,66E+00 | 0,00E+00 | |
| Contribution to materials for energy recovery | kg | 3,94E-08 | 3,94E-08 | 0* | 0* | 0* | 0* | 0,00E+00 | |
| Contribution to exported energy | MJ | 5,70E-02 | 2,59E-03 | 0* | 5,24E-02 | 0* | 2,02E-03 | 0,00E+00 | |

* represents less than 0.01% of the total life cycle of the reference flow

Contribution to biogenic carbon content of the product kg of C 0,00E+00

Contribution to biogenic carbon content of the associated packaging kg of C 3,43E-01

* The calculation of the biogenic carbon is based on the Ademe for the Cardboard (28%), EN16485 for Wood (39,52%), and APESA/RECORD for Paper (37,8%)

| Mandatory Indicators | | variable speed drive, Altivar Machine ATV320, 7.5kW, 380 to 500V, 3 phases, book - ATV320U75N4B | | | | | | | |
|--|--------------|---|------|------|------|------|------|----------|------|
| Impact indicators | Unit | [B1 - B7] - Use | [B1] | [B2] | [B3] | [B4] | [B5] | [B6] | [B7] |
| Contribution to climate change | kg CO2 eq | 2,67E+03 | 0* | 0* | 0* | 0* | 0* | 2,67E+03 | 0* |
| Contribution to climate change-fossil | kg CO2 eq | 2,66E+03 | 0* | 0* | 0* | 0* | 0* | 2,66E+03 | 0* |
| Contribution to climate change-biogenic | kg CO2 eq | 4,91E+00 | 0* | 0* | 0* | 0* | 0* | 4,91E+00 | 0* |
| Contribution to climate change-land use and land use change | kg CO2 eq | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Contribution to ozone depletion | kg CFC-11 eq | 1,29E-05 | 0* | 0* | 0* | 0* | 0* | 1,29E-05 | 0* |
| Contribution to acidification | mol H+ eq | 1,37E+01 | 0* | 0* | 0* | 0* | 0* | 1,37E+01 | 0* |
| Contribution to eutrophication, freshwater | kg P eq | 7,02E-03 | 0* | 0* | 0* | 0* | 0* | 7,02E-03 | 0* |
| Contribution to eutrophication marine | kg N eq | 1,66E+00 | 0* | 0* | 0* | 0* | 0* | 1,66E+00 | 0* |
| Contribution to eutrophication, terrestrial | mol N eq | 2,67E+01 | 0* | 0* | 0* | 0* | 0* | 2,67E+01 | 0* |
| Contribution to photochemical ozone formation - human health | kg COVNM eq | 5,24E+00 | 0* | 0* | 0* | 0* | 0* | 5,24E+00 | 0* |
| Contribution to resource use, minerals and metals | kg Sb eq | 9,44E-04 | 0* | 0* | 0* | 0* | 0* | 9,44E-04 | 0* |
| Contribution to resource use, fossils | MJ | 6,73E+04 | 0* | 0* | 0* | 0* | 0* | 6,73E+04 | 0* |
| Contribution to water use | m3 eq | 2,04E+02 | 0* | 0* | 0* | 0* | 0* | 2,04E+02 | 0* |

| Inventory flows Indicators | | variable speed drive, Altivar Machine ATV320, 7.5kW, 380 to 500V, 3 phases, book - ATV320U75N4B | | | | | | | |
|---|------|---|------|------|------|------|------|----------|------|
| Inventory flows | Unit | [B1 - B7] - Use | [B1] | [B2] | [B3] | [B4] | [B5] | [B6] | [B7] |
| Contribution to use of renewable primary energy excluding renewable primary energy used as raw material | MJ | 1,78E+04 | 0* | 0* | 0* | 0* | 0* | 1,78E+04 | 0* |
| Contribution to use of renewable primary energy resources used as raw material | MJ | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Contribution to total use of renewable primary energy resources | MJ | 1,78E+04 | 0* | 0* | 0* | 0* | 0* | 1,78E+04 | 0* |
| Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material | MJ | 6,73E+04 | 0* | 0* | 0* | 0* | 0* | 6,73E+04 | 0* |
| Contribution to use of non renewable primary energy resources used as raw material | MJ | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Contribution to total use of non-renewable primary energy resources | MJ | 6,73E+04 | 0* | 0* | 0* | 0* | 0* | 6,73E+04 | 0* |
| Contribution to use of secondary material | kg | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Contribution to use of renewable secondary fuels | MJ | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Contribution to use of non renewable secondary fuels | MJ | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Contribution to net use of freshwater | m³ | 4,80E+00 | 0* | 0* | 0* | 0* | 0* | 4,80E+00 | 0* |
| Contribution to hazardous waste disposed | kg | 1,17E+02 | 0* | 0* | 0* | 0* | 0* | 1,17E+02 | 0* |
| Contribution to non hazardous waste disposed | kg | 4,50E+02 | 0* | 0* | 0* | 0* | 0* | 4,50E+02 | 0* |
| Contribution to radioactive waste disposed | kg | 1,03E-01 | 0* | 0* | 0* | 0* | 0* | 1,03E-01 | 0* |
| Contribution to components for reuse | kg | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Contribution to materials for recycling | kg | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Contribution to materials for energy recovery | kg | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Contribution to exported energy | MJ | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |

* represents less than 0.01% of the total life cycle of the reference flow

Life cycle assessment performed with EIMIE version v6.2.2, database version 2024-01 in compliance with ISO14044, EF3.1 method is applied, for biogenic carbon storage, assessment methodology 0/0 is used

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range, ratios to apply can be provided upon request

Please note that the values given above are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.

To extrapolate the impact to another product from the range, apply the following extrapolation rules to each indicator per life cycle stage:

MANUFACTURING(i) = Mass of (product+packaging) in grams / Mass of (reference product+reference packaging) in grams

DISTRIBUTION (i) = Mass of (product+packaging) in grams / Mass of (reference product+reference packaging) in grams

INSTALLATION (i) = Mass of (packaging) in grams / Mass of (reference packaging) in grams

USE (i) = Power dissipated in Watts / Power dissipated of the reference product in Watts

END OF LIFE (i) = Mass of (product) in grams / Mass of (reference product) in grams

TOTAL (i) = Σ Life Cycle Stages (i)

| | | | | | |
|---|----------------------|-------------------------------------|--|--|--|
| Registration number : | SCHN-00248-V02.01-EN | Drafting rules | PCR-4-ed4-EN-2021 09 06 | | |
| | Supplemented by | | | | |
| Verifier accreditation N° | VH42 | Information and reference documents | www.pep-ecopassport.org | | |
| Date of issue | 08-2025 | Validity period | 5 years | | |
| Independent verification of the declaration and data, in compliance with ISO 14025 : 2006 | | | | | |
| Internal | External X | | | | |
| The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDmain) PEPs are compliant with NF C08-100-1:2022 and EN 50693:2019 or NF E38-500 :2022 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" | | | | | |
|  | | | | | |

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