

# Product Environmental Profile

**VARIABLE SPEED DRIVE ATV650 IP55 45KW 400/480V  
DISCONNECT SWITCH**

**Altivar Process ATV600/900**





## General information

### Representative product

VARIABLE SPEED DRIVE ATV650 IP55 45KW 400/480V DISCONNECT SWITCH - ATV650D45N4E

### Description of the product

The main function of the Altivar Process product range is the speed control and variation of a synchronous, asynchronous or reluctance electric motor for fluid management and industrial applications.

### Description of the range

This range consists of products Altivar 650 and Altivar 950 with ratings from 30 to 45 kW for operation on 400V/480V, 3-phase supplies IP55.

The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with a similar technology.

### Functional unit

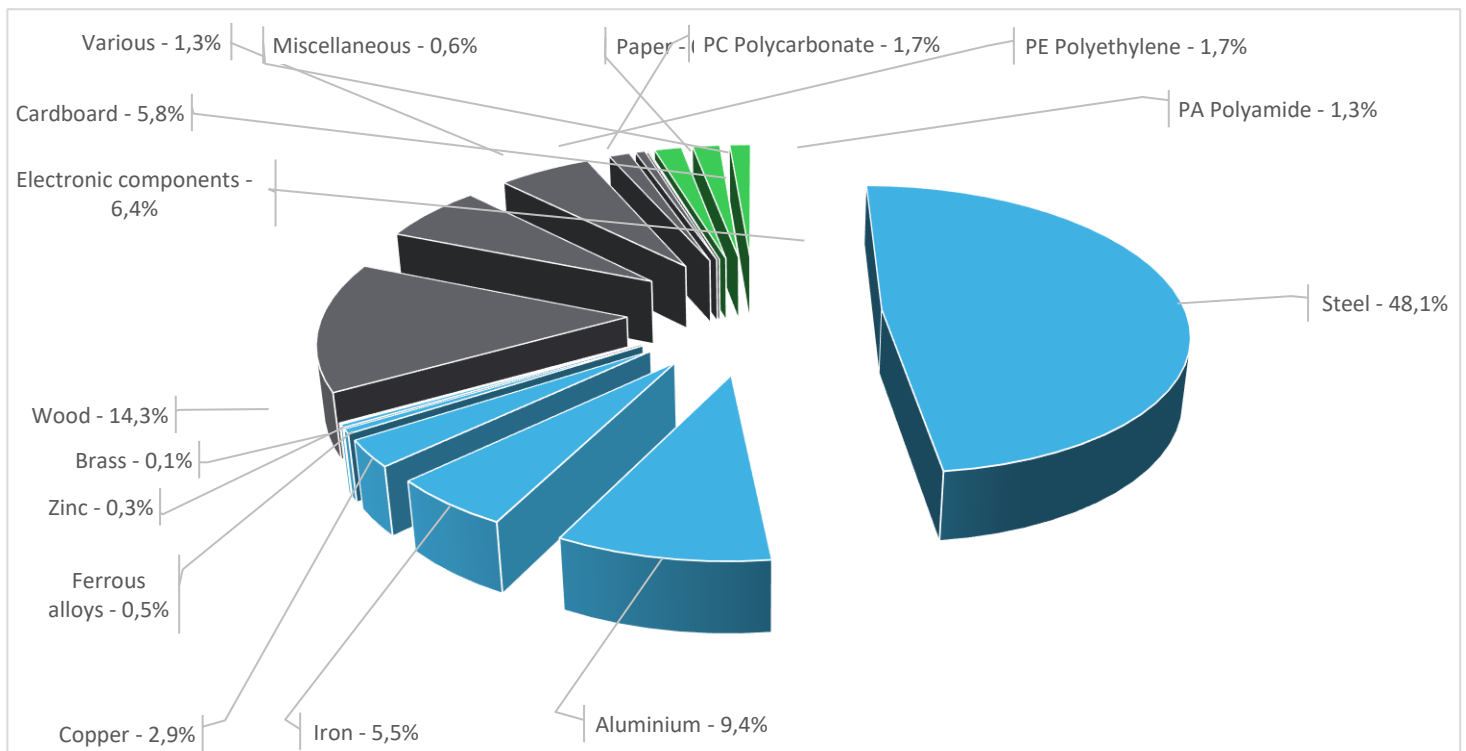
To adapt the speed and torque of synchronous, asynchronous or reluctance motor to the machine's operating point for 45 kW electric motors for fluid management and industrial applications in IP55 conditions, at 380V to 480V rated 3-phase voltage supply. Calculation of the environmental impacts is based on 10 years of product service lifetime. The usage profile taken into account is 80% uptime in use phase at 75% loading rate and 20% uptime in stand by phase.



## Constituent materials

### Reference product mass

66000 g including the product, its packaging and additional elements and accessories



Plastics	4,0%
Metals	67,0%
Others	29,0%

## Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2011/65/EU of 2 January 2013, amended in March 2015, 2015/863/EU and in November 2017, 2017/2102/EU) and do not contain, or only contain in the authorised proportions, lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls - PBB, polybrominated diphenyl ethers – PBDE), Bis (2-ethylhexyl)phthalate - DEHP, Benzyl butyl phthalate– BBP, Dibutyl phthalate - DBP, Diisobutyl phthalate - DIBP) as mentioned in the Directive.

Details of ROHS and REACH substances information are available on the Schneider-Electric Green Premium website

<http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page>

## Additional environmental information

The VARIABLE SPEED DRIVE ATV650 IP55 45KW 400/480V DISCONNECT SWITCH presents the following relevant environmental aspects

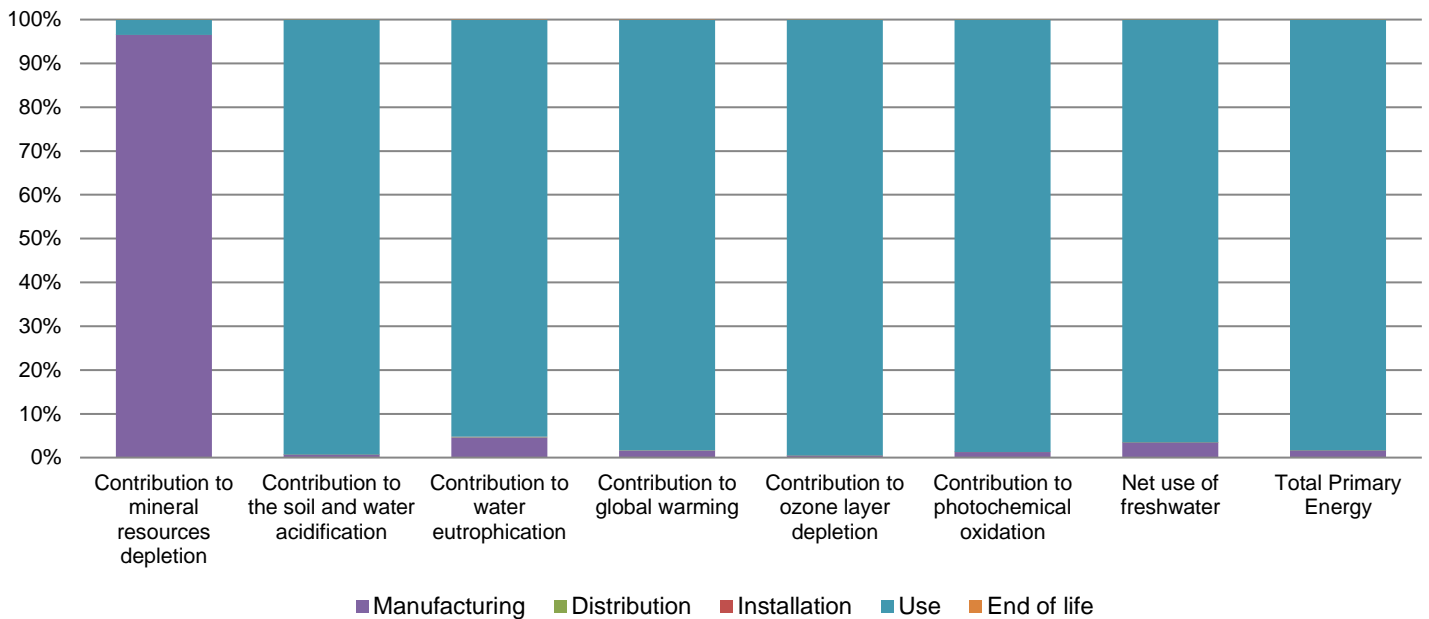
<b>Design</b>	The variable speed drive saves up to 50% energy by optimising the operating cycles of the machines used for fluid applications with Altivar Process.
<b>Manufacturing</b>	Manufactured at a Schneider Electric production site ISO14001 certified
<b>Distribution</b>	Weight and volume of the packaging optimized, based on the European Union's packaging directive Packaging weight is 15226,2 g, consisting of It consists of recyclable wood (64,6%), cardboard (26,3%), polyethylene film (6,3%), dessicant dryer (2,6%) and paper (0,5%). Product distribution optimised by setting up local distribution centres
<b>Installation</b>	The product does not require any installation operation.
<b>Use</b>	The product does not require special maintenance operations.
<b>End of life</b>	End of life optimized to decrease the amount of waste and allow recovery of the product components and materials This product contains Electronic cards (2178 g), cables (2138 g), electrolyte capacitors (1090g), LCD (25 g) and batteries (2,9 g) that should be separated from the stream of waste so as to optimize end-of-life treatment. The location of these components and other recommendations are given in the End of Life Instruction document which is available on the Schneider-Electric Green Premium website <a href="http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page">http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page</a> Recyclability potential: <b>85%</b> Based on "ECO'DEEE recyclability and recoverability calculation method" (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME).

## Environmental impacts

<b>Reference life time</b>	10 years			
<b>Product category</b>	Other equipments - Active product			
<b>Installation elements</b>	The disposal of the packaging materials are accounted for during the installation phase (including transport to disposal).			
<b>Use scenario</b>	The product is in active phase 80% of the time at 75% loading rate with a power use of 812 W (Supply voltage is 400V, switching frequency is 4 kHz, and loading rate is 75%) and in stand-by phase 20% of the time with a power use of 26 W, for 10 years.			
<b>Geographical representativeness</b>	Europe			
<b>Technological representativeness</b>	The main function of the Altivar Process product range is the speed control and variation of a synchronous, asynchronous or reluctance electric motor for fluid management and industrial applications.			
<b>Energy model used</b>	<b>Manufacturing</b>	<b>Installation</b>	<b>Use</b>	<b>End of life</b>
	Energy model used: China	Electricity Mix; AC; consumption mix, at consumer; < 1kV; EU-27	Electricity Mix; AC; consumption mix, at consumer; < 1kV; EU-27	Electricity Mix; AC; consumption mix, at consumer; < 1kV; EU-27

**Compulsory indicators** VARIABLE SPEED DRIVE ATV650 IP55 45KW 400/480V DISCONNECT SWITCH - ATV650D45N4E

Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to mineral resources depletion	kg Sb eq	4,42E-02	4,27E-02	0*	0*	1,54E-03	0*
Contribution to the soil and water acidification	kg SO <sub>2</sub> eq	2,58E+02	1,81E+00	3,89E-02	0*	2,56E+02	0*
Contribution to water eutrophication	kg PO <sub>4</sub> <sup>3-</sup> eq	1,01E+01	4,66E-01	8,96E-03	3,24E-03	9,60E+00	5,03E-03
Contribution to global warming	kg CO <sub>2</sub> eq	3,44E+04	5,45E+02	8,52E+00	1,07E+01	3,39E+04	1,03E+01
Contribution to ozone layer depletion	kg CFC11 eq	8,26E-03	3,65E-05	0*	0*	8,23E-03	0*
Contribution to photochemical oxidation	kg C <sub>2</sub> H <sub>4</sub> eq	1,23E+01	1,53E-01	2,77E-03	2,50E-03	1,21E+01	1,85E-03
Resources use	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Net use of freshwater	m3	9,15E+01	3,18E+00	0*	0*	8,83E+01	9,41E-03
Total Primary Energy	MJ	6,98E+05	1,15E+04	1,20E+02	0*	6,86E+05	9,07E+01



**Optional indicators** VARIABLE SPEED DRIVE ATV650 IP55 45KW 400/480V DISCONNECT SWITCH - ATV650D45N4E

Impact indicators	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to fossil resources depletion	MJ	3,55E+05	6,19E+03	1,20E+02	0*	3,49E+05	7,06E+01
Contribution to air pollution	m <sup>3</sup>	1,53E+06	7,17E+04	3,62E+02	2,65E+02	1,45E+06	6,24E+02
Contribution to water pollution	m <sup>3</sup>	1,48E+06	5,61E+04	1,40E+03	1,59E+02	1,42E+06	3,02E+03
Resources use	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Use of secondary material	kg	1,44E+01	1,44E+01	0*	0*	0*	0*
Total use of renewable primary energy resources	MJ	4,95E+04	3,88E+02	0*	0*	4,91E+04	0*
Total use of non-renewable primary energy resources	MJ	6,48E+05	1,11E+04	1,20E+02	0*	6,37E+05	9,06E+01
Use of renewable primary energy excluding renewable primary energy used as raw material	MJ	4,92E+04	1,02E+02	0*	0*	4,91E+04	0*
Use of renewable primary energy resources used as raw material	MJ	2,86E+02	2,86E+02	0*	0*	0*	0*
Use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	6,48E+05	1,09E+04	1,20E+02	0*	6,37E+05	9,06E+01
Use of non renewable primary energy resources used as raw material	MJ	2,19E+02	2,19E+02	0*	0*	0*	0*
Use of non renewable secondary fuels	MJ	0,00E+00	0*	0*	0*	0*	0*
Use of renewable secondary fuels	MJ	0,00E+00	0*	0*	0*	0*	0*

Waste categories	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Hazardous waste disposed	kg	1,36E+03	1,29E+03	0*	0*	0*	6,73E+01
Non hazardous waste disposed	kg	1,27E+05	1,80E+02	0*	0*	1,27E+05	0*
Radioactive waste disposed	kg	1,03E+02	1,22E-01	0*	0*	1,03E+02	0*
Other environmental information	Unit	Total	Manufacturing	Distribution	Installation	Use	End of Life
Materials for recycling	kg	5,77E+01	5,10E+00	0*	7,43E+00	0*	4,52E+01
Components for reuse	kg	0,00E+00	0*	0*	0*	0*	0*
Materials for energy recovery	kg	1,01E+00	0*	0*	0*	0*	1,01E+00
Exported Energy	MJ	6,67E+00	5,77E-01	0*	6,10E+00	0*	0*

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

Life cycle assessment performed with EIME version EIME v5.9.1, database version 2016-11 in compliance with ISO14044.

The use phase is the life cycle phase which has the greatest impact on the majority of environmental indicators (based on compulsory indicators).

According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range.

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) =  $\Sigma$  Life Cycle Stages (i)

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.

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Verifier accreditation N°	VH39	Information and reference documents	<a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>
Date of issue	11/2021	Validity period	5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2010			
Internal	External	X	
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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