Product Environmental Profile

Altivar 71

From 90 to 630 kW



PEP ecoPASSPORT®

Schneider Electric

Product Environmental Profile - PEP

Product Overview

The Altivar 71 range is primarily intended for the control and variation of the rotational speed of an asynchronous or synchronous electric motor.

This range comprises products with ratings from 90 to 630 kW for operation on 480 and 690 V 3-phases supplies.

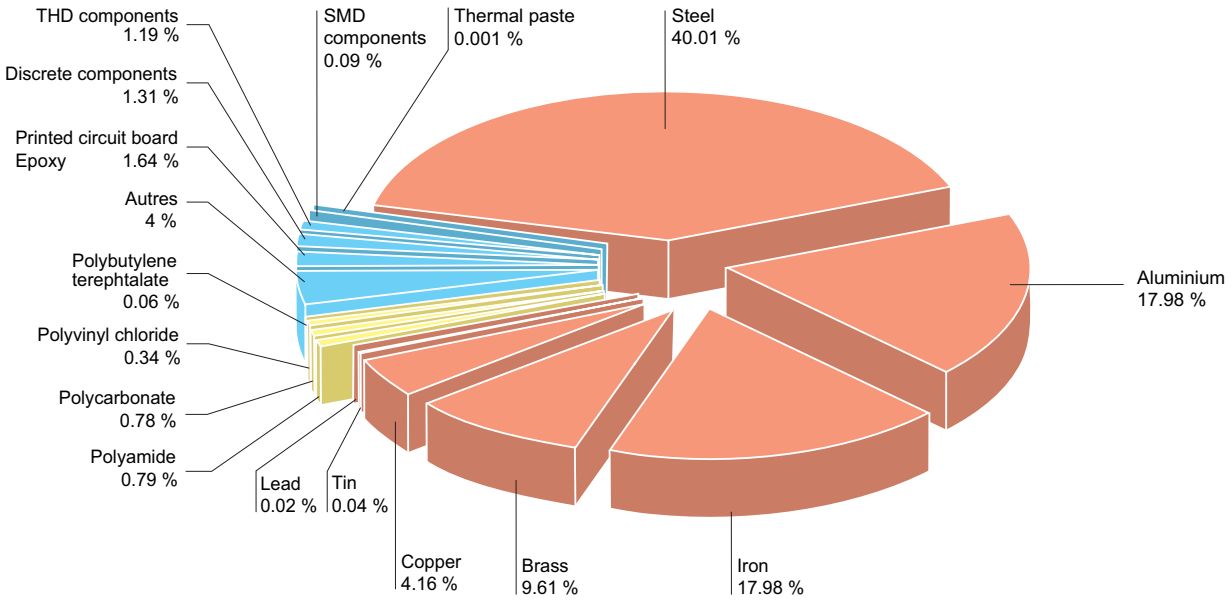
The product used for the study is the Altivar 71 with a 132 kW, 480 V rating (ref. ATV71HC13N4).

It is representative of the entire range. The same technology and manufacturing process is used for other products within the range.

The environmental analysis has been performed in conformity with standard ISO 14040 "Environmental management: life cycle assessment, principle and framework". It takes into account the life cycle stages of the product.

Constituent materials

The weights of the products included in the range are between 60 kg and 435 kg. For the Altivar 71 - 132 kW, 480 V drive analysed, the weight is 114 kg (excluding packaging).
The constituent materials are distributed as follows:



Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2002/95/EC of 27 January 2003) and do not contain, or in the authorised proportions, lead, mercury, cadmium, chromium hexavalent, flame retardant (polybromobiphenyles PBB, polybromodiphenylthers PBDE) as mentioned in the Directive.

Manufacturing

This range is manufactured at a Schneider Electric production site on which an ISO 14001 certified environmental management system has been established.

Distribution

The packaging has been designed with the intention of reducing both its weight and volume, in compliance with the European Union packaging directive 94/62/EC.

The total weight of the packaging is 20 kg and comprises mainly wood (pallet and packaging) and cardboard. The product is fixed on the pallet with screws.

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Utilization

The products in the Altivar 71 - 90 to 630 kW range do not generate any environmental pollution requiring precautionary measures (noise, emissions, etc).

Power dissipated by the product depends on the installation and operating conditions.

Their internal power consumption ranges from 2403 W to 11921 W. It is 3191 W for the Altivar 71 – 132 kW 480 V and accounts for 2.4 % of the total power flowing through the product.

End of life

At end of life, products of the Altivar 71 – 90 - 630 kW can either be crushed or dismantled in order to optimize the valorisation rate of the various materials used.

The recycling potential rate is 78 %.
This percentage mainly includes steel, copper, aluminium and plastics parts marked with a recycling code.

The products in this range also include electronic cards and electrolytic capacitors that have to be extracted and sent to specialized processing sites.

Appropriate recycling recommendations at the Product end of life are detailed in a document entitled "End of Life Instructions". This document is available on request.

Environmental impacts

The Life Cycle Assessment (LCA) has been established with the aid of EIME (Environmental Impact and Management Explorer) software version 1.6 and its database version 5.4.
The assumed service life of the product is 10 years and the electrical energy model used is the European model.

The scope of the analysis was limited to an Altivar 71 - 132 kW 480V.

The environmental impacts have been analysed for the Manufacturing (M) stage, including the processing of raw materials, and for the Distribution (D) and Usage (U) stages.

Presentation of the environmental impacts

Environmental indicators	Unit	ATV 71 132 kW - 480V			
		S = M + D + U	**M**	**D**	**U**
Raw Material Depletion	**Y-1**	**$5.48\ 10^{-12}$**	$3.49\ 10^{-12}$	$2.35\ 10^{-16}$	$1.99\ 10^{-12}$
Energy Depletion	**MJ**	**$1.79\ 10^{6}$**	$1.13\ 10^{4}$	$5.08\ 10^{2}$	$1.78\ 10^{6}$
Water depletion	**dm^3**	**$2.80\ 10^{5}$**	$4.84\ 10^{3}$	$3.34\ 10^{2}$	$2.75\ 10^{5}$
Global Warming	**g≈CO_2**	**$9.17\ 10^{7}$**	$7.69\ 10^{5}$	$6.79\ 10^{3}$	$9.09\ 10^{7}$
Ozone Depletion	**g≈CFC-11**	**7.87**	$5.15\ 10^{-2}$	$2.71\ 10^{-3}$	7.82
Photochemical Ozone Creation	**g≈C_2H_4**	**$3.19\ 10^{4}$**	$3.79\ 10^{2}$	5.16	$3.15\ 10^{8}$
Air acidification	**g≈H^+**	**$1.47\ 10^{4}$**	$2.87\ 10^{2}$	2.12	$1.44\ 10^{4}$
Hazardous waste production	**kg**	**$1.48\ 10^{3}$**	$3.41\ 10^{1}$	$1.72\ 10^{-2}$	$1.45\ 10^{3}$

The Life Cycle Assessment of the product indicates that the usage stage (stage U) is the stage that has the greatest impact on the majority of the environmental indicators.
It also shows that the indicators of this stage are strongly influenced by the "heat dissipation" parameter of the product.

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System approach

As the product of the range are designed in accordance with the RoHS Directive (European Directive 2002/95/EC of 27 January 2003), they can be incorporated without any restriction within an assembly or an installation submitted to this Directive.

N.B.: please note that the environmental impacts of the product depend on the use and installation conditions of the product.
Impacts values given above are only valid within the context specified and cannot be directly used to draw up the environmental assessment of the installation.

Glossary

Raw Material Depletion (RMD)

This indicator quantifies the consumption of raw materials during the life cycle of the product. It is expressed as the fraction of natural resources that disappear each year, with respect to all the annual reserves of the material.

Energy Depletion (ED)

This indicator gives the quantity of energy consumed, whether it be from fossil, hydroelectric, nuclear or other sources.
This indicator takes into account the energy from the material produced during combustion. It is expressed in MJ.

Water Depletion (WD)

This indicator calculates the volume of water consumed, including drinking water and water from industrial sources. It is expressed in dm^3.

Global Warming (GW)

The global warming of the planet is the result of the increase in the greenhouse effect due to the sunlight reflected by the earth's surface being absorbed by certain gases known as "greenhouse-effect" gases. The effect is quantified in gram equivalent of CO_2.

Ozone Depletion (OD)

This indicator defines the contribution to the phenomenon of the disappearance of the stratospheric ozone layer due to the emission of certain specific gases. The effect is expressed in gram equivalent of CFC-11.

Photochemical Ozone Creation (POC)

This indicator quantifies the contribution to the "smog" phenomenon (the photochemical oxidation of certain gases which generates ozone) and is expressed in gram equivalent of ethylene (C_2H_4).

Air Acidification (AA)

The acid substances present in the atmosphere are carried by rain.
A high level of acidity in the rain can cause damage to forests.
The contribution of acidification is calculated using the acidification potentials of the substances concerned and is expressed in mode equivalent of H^+.

Hazardous Waste Production (HWP)

This indicator calculates the quantity of specially treated waste created during all the life cycle phases (manufacturing, distribution and utilization). For example, special industrial waste in the manufacturing phase, waste associated with the production of electrical power, etc.
It is expressed in kg.

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We are committed to safeguarding our planet by "Combining innovation and continuous improvement to meet the new environmental challenges".

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