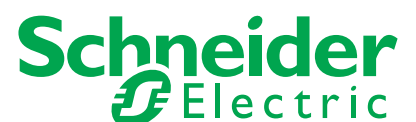
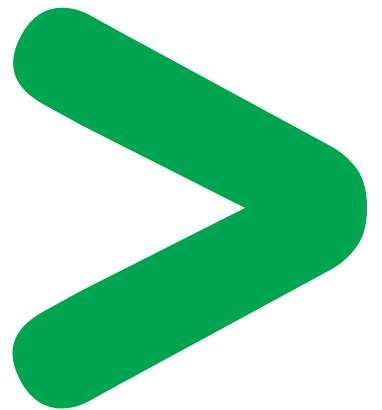


Product Environmental Profile

Altistart 22

Range: 110 to 315 kW



Product Environmental Profile - PEP

Product Overview

The Altistart 22 range is primarily intended for the soft starting and breaking of the rotational speed of an asynchronous electric motor. This range comprises products with ratings from 7.5 to 315 kW for operation on 208...600 V - 50/60 Hz, 3 phases supplies.

The product used for the study is the Altistart 22 - 110 kW (ref. ATS22C21Q).

It is representative of the entire Altistart 22 - 110 to 315 kW range which use the same technology and manufacturing process.

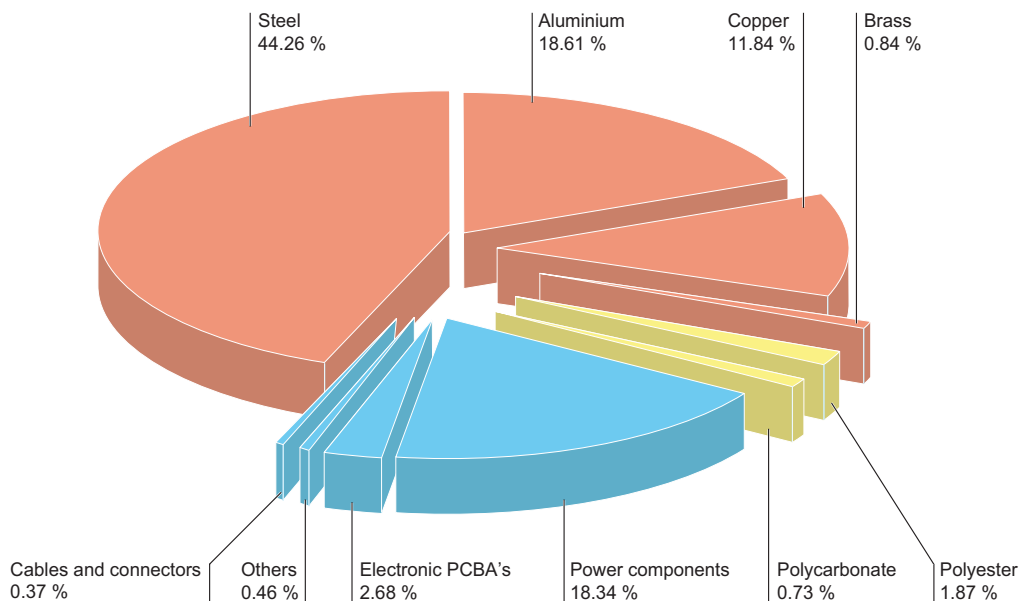
The environmental analysis has been performed in conformity with standard ISO 14040 "Environmental management: life cycle assessment, principle and framework".

It takes into account the life cycle stages of the product (Manufacturing, Distribution, Use).

Constituent materials

The weights of the products included in this analysis are between 18500 and 32000 g. For the Altistart 22 - 110 kW analysed, the weight is 18500 g (excluding packaging).

The proportional values of the various materials used are as follows:



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 weight and volumes of the packaging have been reduced in compliance with the European Union's packaging directive 94/62/EC. The weight of the packaging of Altistart 22 is 7000 g which mainly consists of a wooden box, a polyethylene bag, a polyethylene foam chock and a desiccant bag.

Product Environmental Profile - PEP

Use

The products in the Altistart 22 range: 110 to 315 kW 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 83 to 197 W.

It is 117 W for the Altistart 22 - 110 kW and accounts for 0.10 % of the total power flowing through the product.

End of life

At end of life, products of the Altistart 22 range can either be crushed or dismantled in order to optimize the valorisation rate of the various materials used.

The potential of recyclability of the products has been evaluated using the Codde "recyclability and recoverability calculation method" (version V1, 20 Sep. 2008) and published by ADEME (French Agency for Environment and Energy Management).

According to this method, the potential recyclability ratio is: 77 %.

This percentage mainly includes steel, copper, aluminium and plastics parts marked with a recycling code.

The products in this range also include electronic cards that are recommended 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 V4.0 and its database version V10.

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 Altistart 22 - 110 kW (ref. ATS22C21Q).

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 product environmental impacts:

Environmental indicators	Unit	Altistart 22, range: 110 to 315 kW (1.000 unit)			
		S = M + D + U	M	D	U
Raw Material Depletion	Y-1	6.06 10 ⁻¹³	5.24 10 ⁻¹³	1.31 10 ⁻¹⁷	8.22 10 ⁻¹⁴
Energy Depletion	MJ	7.47 10 ⁴	2.29 10 ³	9.59	7.24 10 ⁴
Water depletion	dm ³	11744	1276	0.91	10467
Global Warming	g≈CO ₂	3.80 10 ⁶	1.37 10 ⁵	4.46 10 ³	3.65 10 ⁶
Ozone Depletion	g≈CFC-11	2.18 10 ⁻¹	1.88 10 ⁻²	5.33 10 ⁻⁴	1.98 10 ⁻¹
Air Toxicity	m ³	6.73 10 ⁸	6.29 10 ⁷	4.20 10 ⁶	6.06 10 ⁸
Photochemical Ozone Creation	g≈C ₂ H ₄	1281.50	43.92	0.67	1236.90
Air acidification	g≈H ⁺	530.86	34.11	3.33	493.42
Water Toxicity	dm ³	1.07 10 ⁶	2.99 10 ⁴	93.90	1.04 10 ⁶
Water Eutrophication	g≈PO ₄	15.39	6.79	1.20 10 ⁻²	8.59
Hazardous waste production	kg	68.60	7.97	3.34 10 ⁻⁴	60.63

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.

The total mass of products of the range covered by this deliverable has been reduced up to 15 % compared to the previous range particularly by optimizing thermal and mechanical performances.

This mass reduction is the predominant factor for the reduction of environmental impacts.

Product Environmental Profile - PEP

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 dm³.

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 CO₂.

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 (C₂H₄).

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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Schneider Electric Industries SAS

35, rue Joseph Monier
CS30323
F - 92506 Rueil Malmaison Cedex

RCS Nanterre 954 503 439
Capital social 896 313 776 €
www.schneider-electric.com



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