

ABB Industry Oy

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**ACS 100 product family**

## **ENVIRONMENTAL INFORMATION**

### **Recycling instructions**

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## **1. Introduction**

This document covers the environmental information of the following products:

- ACS 100 product family with all accessories and option modules, according to the sales brochure.

The document comprises a summary of materials used in the products and instructions how to handle an end-of-life product.

This document is intended for ABB internal use as well as for commercial recyclers.

While environmental regulations vary from country and region to another, and are also evolving rapidly by time, it is recommended to contact local environmental authorities for up-to-date information when consulting with customers or other stakeholders about proper product material recycling or other treatment.

Information for local customers, like where an end-of-life product can be returned, is recommended to be provided with this information.

Further information is available from

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The newest revision of this document can be found in ABB Lotus Notes network in "FIDRI Document Directory".

## **2. Product package**

The product package is made of corrugated board that can be recycled. Package recycling instructions are printed on the package.

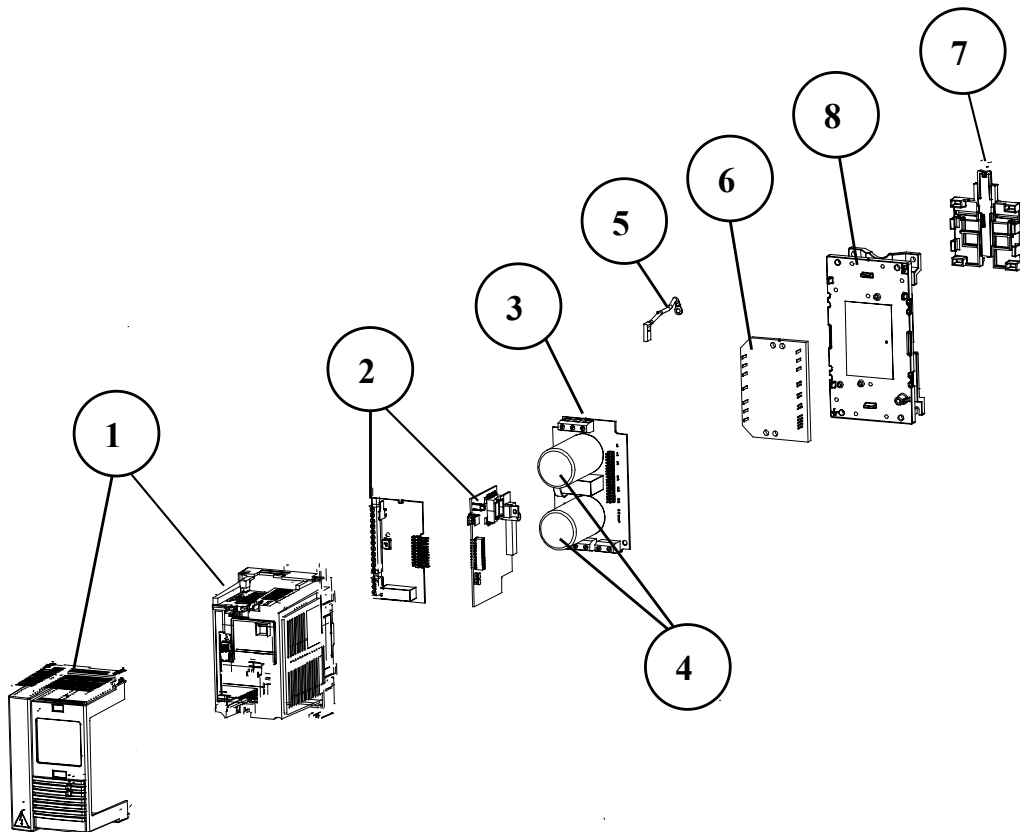
To avoid pollution caused by unnecessary transportation, the manufacturing factory is not taking back used packages. Recycling is organized by the importing ABB sales company locally, according to local regulations.

Package recycling is recommended while recycling preserves raw materials and reduces waste being landfilled.

### 3. Product materials

#### 3.1 Structure of ACS 100 module

The main components of ACS 100 are shown in the figure below.



All plastic parts (weight > 25 g) are marked according to ISO 1043 and DIN 54840

Component list:

#### **ACS100 module**

Part No.	Name	Qty.	Materials	Weight / g
1	Cover parts	2	PC+ABS = (Bayblend ®) *	130-220
2	Printed circuit board	2	Various	100
3	Printed circuit board	1	Various	60
4	Electrolytic capacitor	1-5	Various	90-450
5	Earthing cable	1	Polyolefin copolymer (RADOX ®), tin plated copper	-
6	Power module (IGBT)	1	Various	60
7	Din-rail fixture	1	PA* +25GF, steel spring	20
8	Heatsink	1	Aluminum alloy, G-ALSi8Cu3Fe	390-1910

All screws : Carbon steel, Pozidrivs recess, Zinc plating

**Total weight: 850-2800 g**

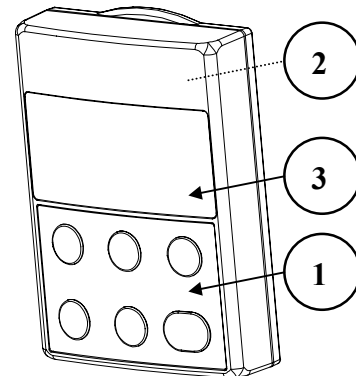
Note: Sizes and weights of some components vary depending on the power rating of the model.  
More information on materials in section 5. Additional information on printed circuit boards and power modules is available from the manufacturer.

### 3.2 Accessories and option modules

#### Control panel

Part No.	Name	Qty.	Materials
1	Cover	1	PC+ABS = (Bayblend ®)*
2	Printed circuit board	1	Various
3	LCD- display	1	Various

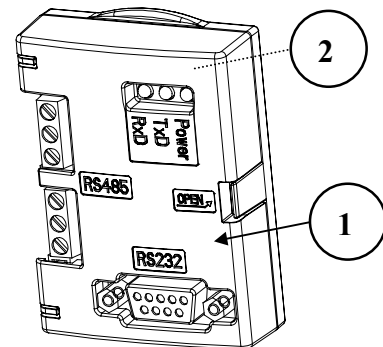
**Total weight: 36 g**

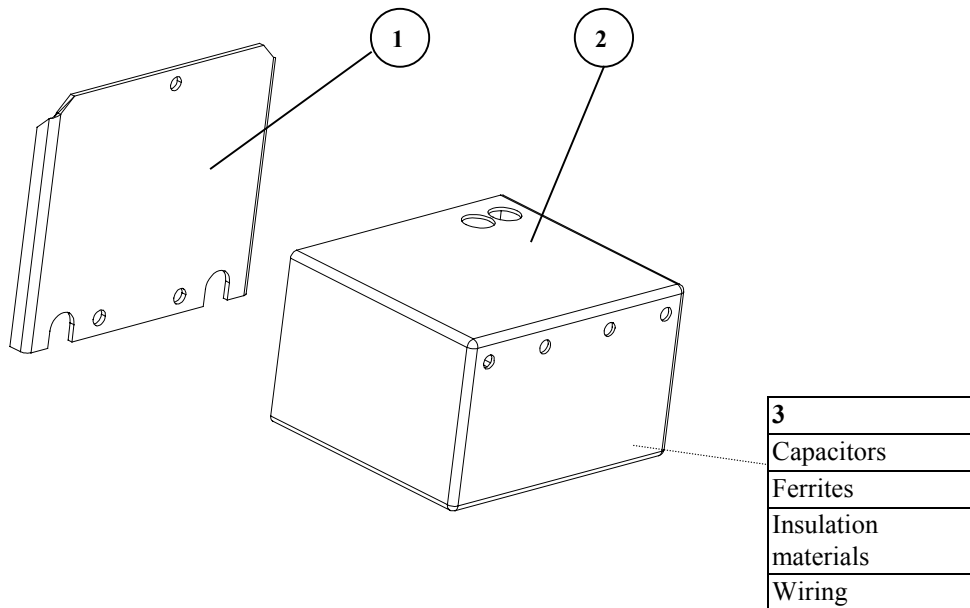


#### RS 232/485 adapter

Part No.	Name	Qty.	Materials
1	Plastic cover	1	PC+ABS =(Bayblend ®)*
2	Printed circuit board	1	Various

**Total weight: 41 g**

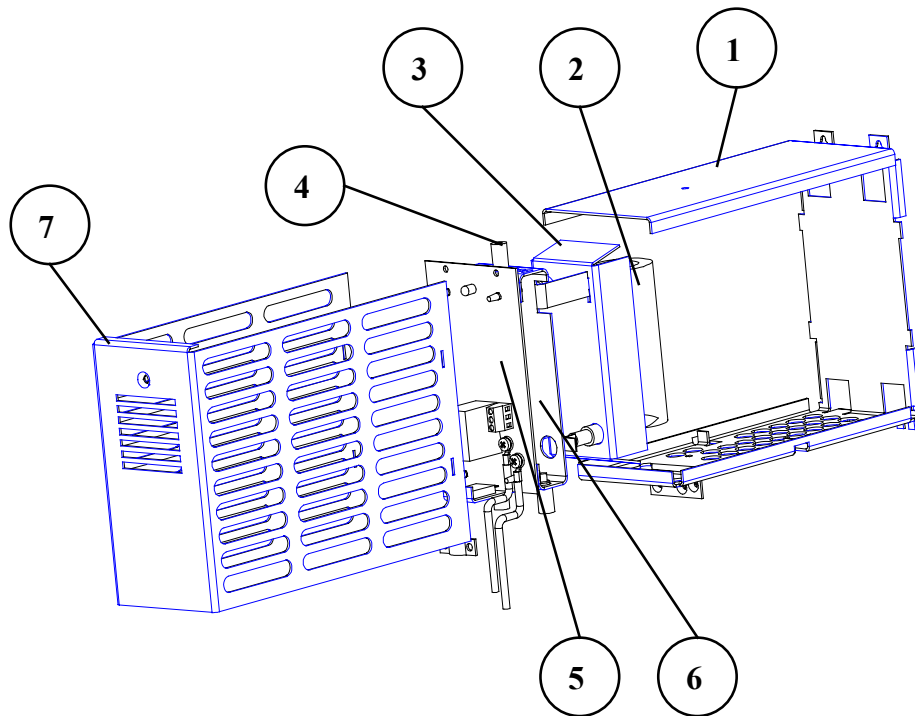


**RFI- filter**

Part No.	Name	Qty.	Materials
1	Case	1	Tin plated steel or zinc coated steel
2	Assembly plate	1	Tin plated steel or zinc coated steel
3	Case assembly	1	Unit moulded in resin (epoxy)

**Total weight: 600 g**

## Brake chopper unit



Part No.	Name	Qty.	Materials
1	Back Plate	1	Zinc coated steel
2	Resistor	1	Stainless steel, Core: MgO, Ni80+Cr20,
3	Resistor Plate	1	Zinc coated steel
4	Spacer Stud	3	PA*
5	Printed Circuit Board	1	Various
6	Chopper Plate	1	Zinc coated steel
7	Front Cover	1	Zinc coated steel

All screws : Carbon steel, Pozidrivs recess, Zinc plating

**Zinc coated steel, total weight: 1500 g**  
**Total weight: 1900 g**

\* Plastics:

**ABS** acrylonitrile-butadiene-styrene  
**PA** polyamide  
**PC** polycarbonate  
**GF** glassfibre

### **3.3 Product manuals and sales brochures**

All brochures and manuals are printed according to the guidelines of the Nordic Environmental Label criteria and they are equipped with the “Swan” Ecolabel.

To save natural resources and reduce paper waste, all product manuals are available also in electronic media. The documents are available through Lotus Notes (“FIDRI Document Directory”), the technical files are accessible for all ABB Drives sales and service people.

## **4. Product use**

The use of a frequency converter has several positive environmental impacts, like

- Substantial energy savings can be reached using a frequency converter. According to investigations, these savings are in pump and fan drives typically 50 %. This means reduced CO<sub>2</sub> and NO<sub>x</sub> emissions in power plants, due to reduced energy demand.
- Process controllability is improved when a state-of-the art drive is used as a part of a process control system, meaning reduced waste
- When a process can be driven in an optimal way, process equipment’s (like conveyors’ and pumps’) wearing is reduced and life time increased, decreasing environmental loading caused by manufacturing new equipment
- Noise is in most cases reduced
- Natural resources like wood in pulp & paper industry are saved while process efficiency is improved

The frequency converter itself does not cause any emissions while in use. Due to reduced energy consumption, overall harmful emissions are reduced as described above.

The product does not need any periodic maintenance.

For more information on product use, see *ACS 100 User’s Guide*.

## **5. Product disposal**

Product disposal can be made in two alternative ways. The product can be disassembled manually or crushed in a shredding machine.

### **5.1 Manual disassembly**

The product is disassembled manually and parts are sorted according to their material contents as follows:

- iron metals (plates, screws, fixture spring)
- aluminium (heatsink)
- plastics
- printed circuit boards\*
- electrolytic capacitors\* (mounted on the main circuit board)
- other

\* For more information, see 5.3 List of potentially harmful materials

Metal parts (iron and aluminium) can easily be recycled, other materials according to local arrangements.

### **5.2 Mechanical shredding**

In this method, a whole product is mechanically shredded into small pieces and materials are sorted using dedicated sorting processes. Components containing harmful materials must, however, be removed before shredding (for more information, see 5.3 List of potentially harmful materials).

### **5.3 List of potentially harmful materials**

Definitions and regulations of hazardous materials differ from country to country and are also changing when knowledge of materials increases. The materials used in the product are materials typically used in electric and electronic devices.

The list given below is based on the following references:

1. EACEM (European Association of Consumer Electronics Manufacturers)  
List of Environmentally Relevant Substances
2. Substances contained in products of the electrical/electronics industry.  
Zentralverband Elektrotechnik- und Elektronikindustrie (ZVEI) e.V.,  
Frankfurt am Main. 1995.
3. European Commission DG XI Environment, Nuclear Safety and Civil  
Protection. Proposal for a directive on waste from electrical  
and electronic equipment. First draft. Brussels, 21 April 1998.
4. European Waste Catalogue EWC, EU Directive 94/3/EC.



## **6. Manufacturing**

The product is manufactured by ABB Industrial Systems AB in Västerås, Sweden. The environmental system of the manufacturing unit is certified to ISO 14001.

The accessories and option modules are manufactured by other manufacturers, mainly in Finland.

## **7. Environmental management system of ABB Industry Oy**

### **Environmental management system (EMS)**

ABB Industry Oy has an environmental system covering all divisions and functions of the company. The EMS is certified to ISO 14001 since November, 1996.

The company's environmental objectives include among others items as follows,

- reduce use of material in products, difficult to recycle or reuse
- improve recyclability of products
- reduce environmental burden caused by packaging materials.

### **ABB Industry Oy's environmental policy**

ABB Industry Oy is committed to an environmental policy, which is based on the following:

1. We develop and manufacture products such as alternating current electrical drives and automation systems that save our customers energy and raw materials and give them better control over their processes. We strive continuously to make our products environmentally more sound by applying results obtained in recyclability and life-cycle assessments.
2. We are committed to reducing the harmful environmental impacts of our operations by continuously improving the operation of our production processes.
3. Our minimum requirement is to abide by all acts, decrees and official regulations on environmental protection in all our operations; we aim to ensure that all our subcontractors do likewise. We work closely with our suppliers in seeking environmentally sound solutions.
4. We regularly review the substance and practice of our environmental policy in the light of our environmental management system, setting new environmental goals and targets annually. We regularly inform our

staff and other affiliated groups about our environmental concerns, and make sure that our environmental policy is available to the public.

Our environmental management system, certified to ISO 14001, is the tool for carrying out our environmental policy. The line organisation, assisted by the environmental organisation, is responsible for ensuring that we fulfil our obligations with respect to environmental protection. In raising and maintaining the environmental awareness of our staff, we assign high priority to training.