

ABB industrial drives

Recycling instructions and environmental information

ACS880-01 drives



Power and productivity
for a better world™



List of related manuals

Drive hardware manuals and guides	Code (English)
<i>ACS880-01 drives recycling instructions environmental information</i>	3AUA0000149383
<i>ACS880-01 hardware manual</i>	3AUA0000078093

You can find manuals and other product documents in PDF format on the Internet. See section [Document library on the Internet](#) on the inside of the back cover. For manuals not available in the Document library, contact your local ABB representative.

Recycling instructions and environmental information

ACS880-01 drives

Table of contents



Table of contents

1. Introduction to the manual

What this chapter contains	7
Applicability	7
Target audience	7
Contents of the manual	7
Disclaimer	8

2. Product materials

Contents of this chapter	9
Materials of frames R1 to R3	10
Materials of frame R4	11
Materials of frame R5	12
Materials of frames R6 to R7 and R8 to R9	13
Materials of the control unit	15
Materials of the control panel	16
Package	16
Product manuals and sales brochures	17

3. Manufacturing and use

Manufacturing	19
Use	19

4. Product disposal

Contents of this chapter	21
Manual dismantling	21
Mechanical shredding	22
List of potentially harmful materials	22
A recycling example	23

Further information

Product and service inquiries	25
Product training	25
Providing feedback on ABB Drives manuals	25
Document library on the Internet	25





1

Introduction to the manual

What this chapter contains

This chapter describes the contents of the manual. It also contains information on the compatibility and intended audience.

Applicability

This document covers the environmental information of the following products:

- ACS880-01 drives with option modules.

Target audience

This document is intended for ABB internal use, ABB customers and for commercial recyclers.

Contents of the manual

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

Because environmental regulations vary from country and region to another, and are also evolving rapidly by time, we recommended to contact local environmental authorities for up-to-date information about proper product material recovery or other treatment.

This manual contains the following chapters:

- [Product materials](#)
 - [Manufacturing and use](#)
 - [Product disposal](#)
-

Disclaimer

The information presented in this publication does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequences of its use. Publication thereof does not convey nor imply any license under patent - or other industrial or intellectual - property rights.

2

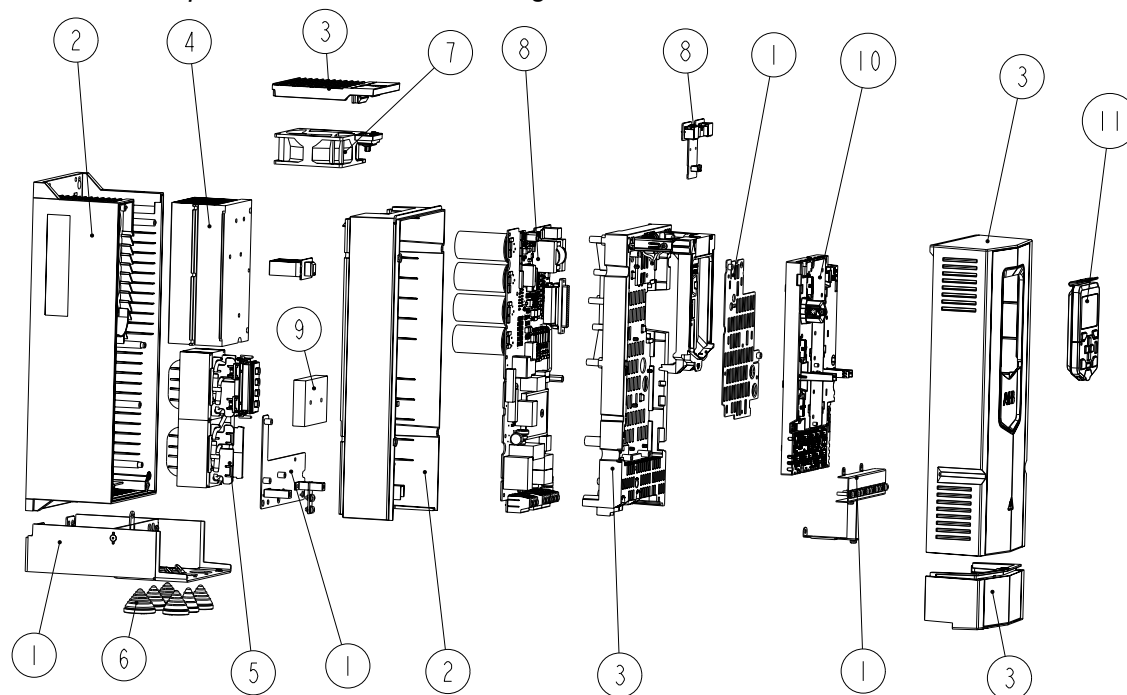
Product materials

Contents of this chapter

This chapter describes the main components and product materials of the ACS880-01 drives.

Materials of frames R1 to R3

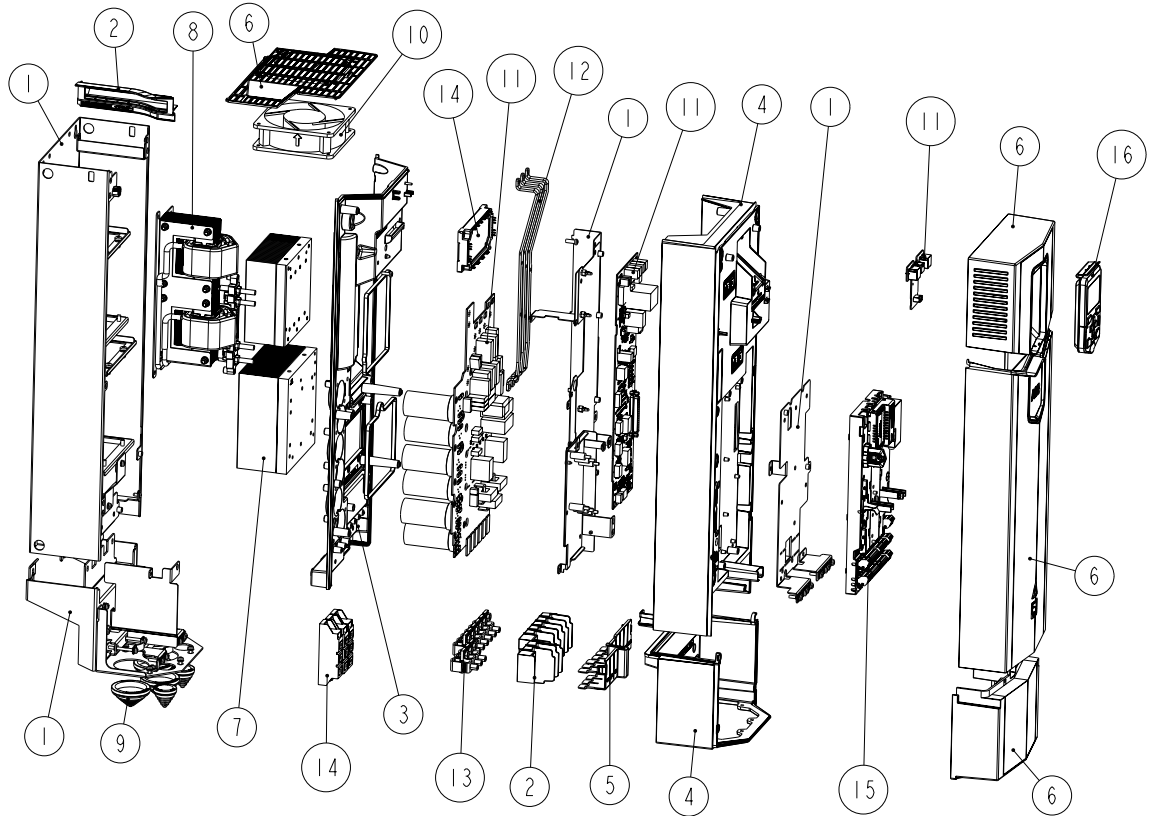
The main components are shown in the figure below.



ACS880-01 frames R1 to R3 product materials				Frame R1	Frame R2	Frame R3
				Total weight (kg) ~6	Total weight (kg) ~8	Total weight (kg) ~10
Part	Category	Qty	Materials	Weight (g)	Weight (g)	Weight (g)
1	Sheet metal parts	4	Zn plated Fe	800	830	1160
2	Reinforced plastic parts	2	Plastic: PC+10%GF, Brass	1210	1360	1710
3	Housing / Cover parts	5	Plastic: ABS PC	740	740	940
4	Heat sink	2	Aluminum: AW-6060 [Al MgSi]	960	1200	1560
5	Choke	1	Fe, Cu, PET+30%GF, silicone, thermoplastic polyester, glass-filled nylon.	1390	2200	3060
6	Gaskets	7 (R1) 6 (R2) 6 (R3)	Rubber: TPE	50	50	60
7	Axial fan	1	Various materials, plastic parts: PBT.	90	210	210
8	Printed circuit board	2	Various materials, electronic components.	780	780	980
9	Semiconductors	1	Cu, Al oxide, Sn, silicone gel, PBT, GF	40	40	40
10	Control unit	1	See subsection Materials of the control unit on page 15.	550	550	550
11	Control panel	1	See subsection Materials of the control panel on page 16.	130	130	130
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon.	30	30	30

Materials of frame R4

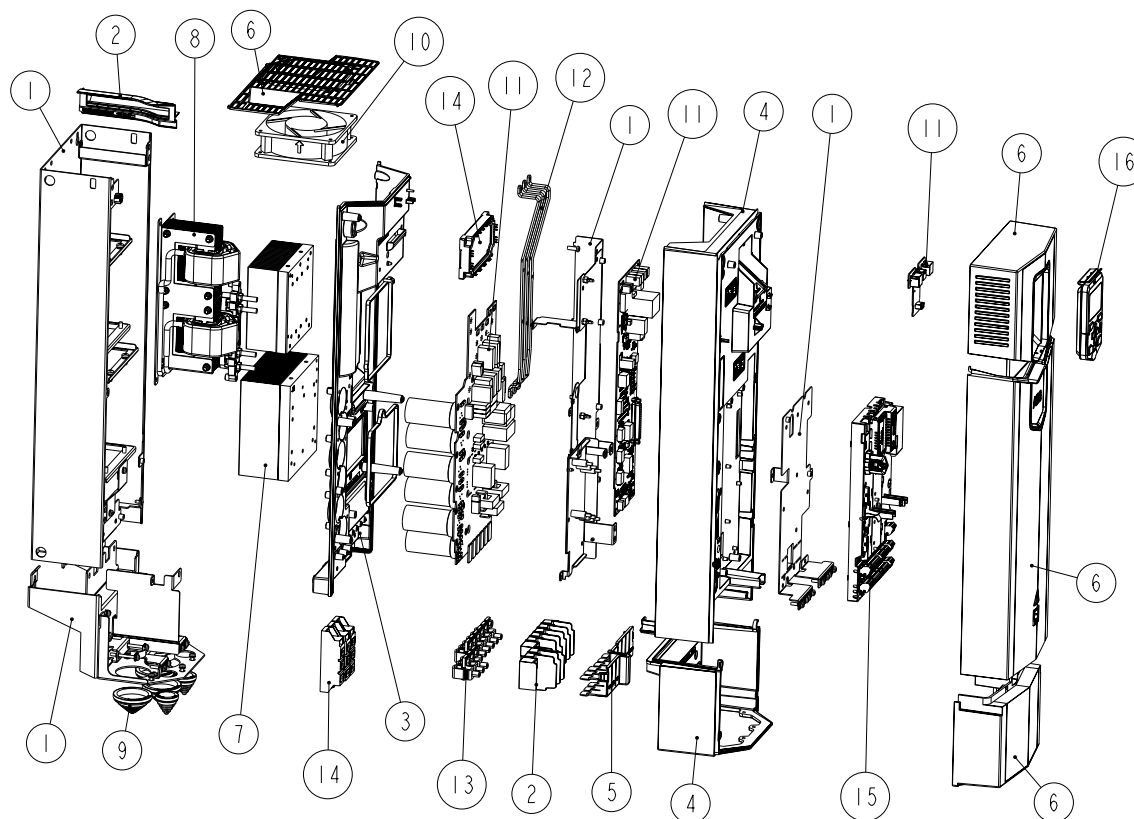
The main components are shown in the figure below.



ACS880-01 frame R4 product materials				Total weight (kg) ~18.5
Part	Category	Qty	Materials	Weight (g)
1	Sheet metal parts	19	Zn plated Fe	5750
2	Not included			
3	Deck part	1	Plastic: PC+10%GF, PUR	460
4	Housing parts	2	Plastic: ABS PC, PUR, Brass	930
5	Not included			
6	Housing / Cover parts	4	Plastic: ABS PC	1010
7	Heat sink	1	Aluminum: AW-6060 [Al MgSi]	1860
8	Choke	1	Fe, Cu, PET+30%GF, silicone, thermoplastic polyester, glass-filled nylon.	4710
9	Gaskets	7	Rubber: TPE	100
10	Axial fan	1	Various materials, plastic parts: PBT	230
11	Printed circuit board	4	Various materials, electronic components.	2060
14	Semiconductors	1	Cu, Al oxide, Sn, silicone gel, PBT, GF	310
15	Control unit	1	See subsection Materials of the control unit on the 15.	550
16	Control panel	1	See subsection Materials of the control panel on the 16.	130
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon.	90

Materials of frame R5

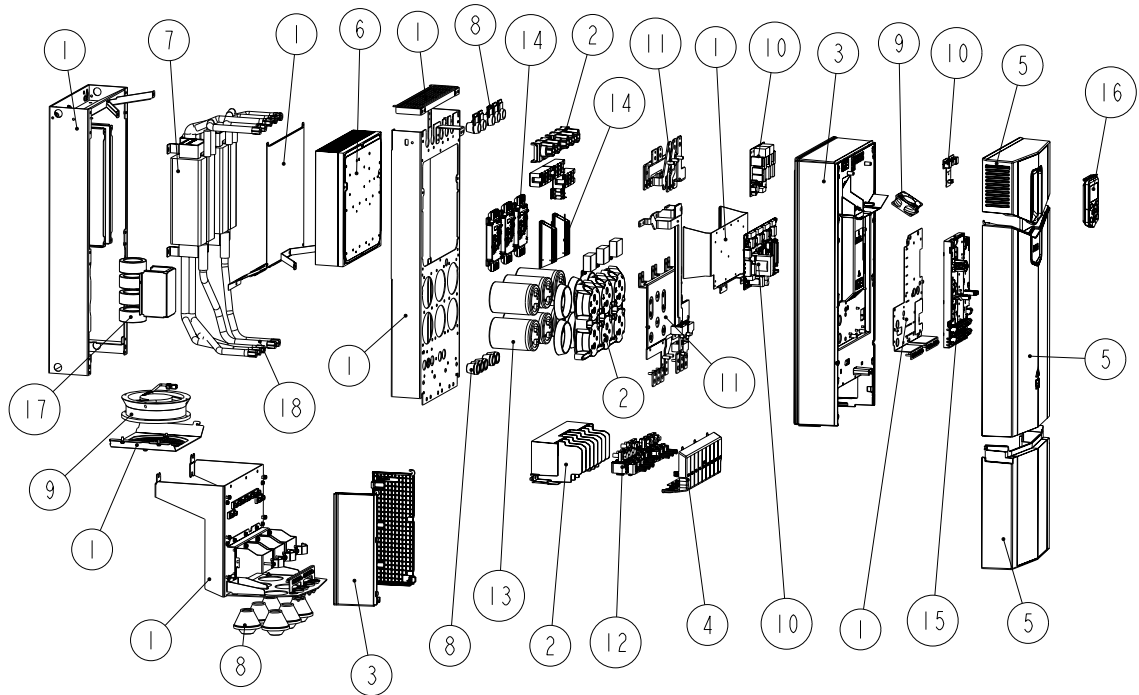
The main components are shown in the figure below.



ACS880-01 frame R5 product materials				Total weight (kg) ~23
Part	Category	Qty	Materials	Weight (g)
1	Sheet metal parts	16... 17	Zn plated Fe	6190...6730
2	Reinforced plastic parts	2	Plastic: PC+10%GF	270
3	Deck part	1	Plastic: PC+10%GF, PUR	620
4	Housing parts	2	Plastic: ABS PC, PUR, Brass	1210
5	Terminal cover	1	Plastic: PC	40
6	Housing / Cover parts	4	Plastic: ABS PC	1310
7	Heat sink	2	Aluminum: AW-6060 [Al MgSi]	3100
8	Choke	1	Fe, Cu, PET+30%GF, silicone, thermoplastic polyester, glass-filled nylon.	6040
9	Gaskets	7	Rubber: TPE	140
10	Axial fan	1	Various materials, plastic parts: PBT	370
11	Printed circuit board	3	Various materials, electronic components.	1820...2210
12	Bus bars	3	Cu, Sn	110...250
13	Terminal connectors	8	SS, Sn plated Cu, Zn plated steel	340
14	Semiconductors	4	Cu, Al oxide, Sn, silicone gel, PBT, GF	580
15	Control unit	1	See subsection Materials of the control unit on page 15.	550
16	Control panel	1	See subsection Materials of the control panel on page 16.	130
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon.	150

Materials of frames R6 to R7 and R8 to R9

The main components are shown in the figure below.



ACS880-01 frames R6 to R7 product materials				Frame R6	Frame R7
				Total weight (kg) ~45	Total weight (kg) ~55
Part	Category	Qty	Materials	Weight (g)	Weight (g)
1	Sheet metal parts	12...13 (R6) 13...14 (R7)	Zn plated Fe	12130... 12290	13760... 13920
2	Reinforced plastic parts	5	Plastic: PC+10%GF	800	910
3	Housing parts	3	Plastic: ABS PC, PUR, Brass	1440	1740
4	Terminal cover / Insulating sheets	8...10 (R6) 8...12 (R7)	Plastic: PC	240...420	430...530
5	Housing / Cover parts	3	Plastic: ABS PC	1410	2080
6	Heat sink	1	Aluminum: AW-6060 [Al MgSi]	5520	7350
7	Choke	2	Fe, Cu, PET+30%GF, silicone, thermoplastic polyester, glass-filled nylon.	9400	13800
8	Gaskets	23 (R6) 24 (R7)	Rubber: TPE	280	460
9	Axial fan	2	Various materials, plastic parts: PBT, aluminum alloy.	940	940
10	Printed circuit board	3 (R6) 3...4 (R7)	Various materials, electronic components.	650	650...740
11	Bus bars	12...17 (R6) 15...20 (R7)	Cu, Sn	1240... 1660	1740... 2550
12	Terminal connectors	9	SS, Sn plated Cu, Zn plated steel	980	1110
13	Electrolytic capacitor	6	Al, electrolytic solution.	1680	2340
14	Semiconductors	7 (R6) 9 (R7)	Cu, Al oxide, Sn, silicone gel, PBT, GF	1380	2040
15	Control unit	1	See subsection Materials of the control unit on page 15.	550	550

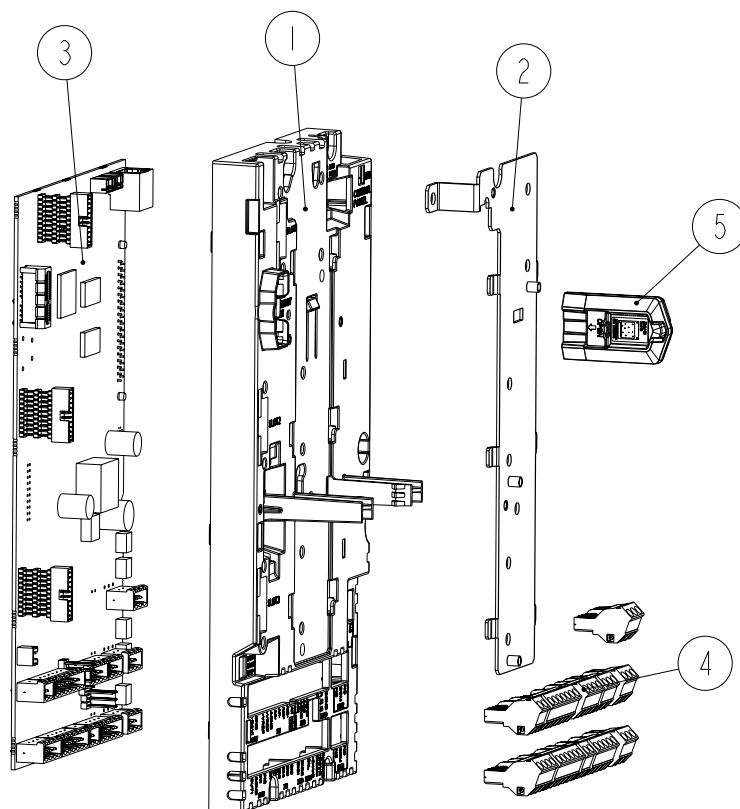
14 Product materials

ACS880-01 frames R6 to R7 product materials				Frame R6	Frame R7
				Total weight (kg) ~45	Total weight (kg) ~55
Part	Category	Qty	Materials	Weight (g)	Weight (g)
16	Control panel	1	See subsection Materials of the control panel on page 16.	130	130
17	Ferrite toroids (optional)	0 or 3	Ferrite iron	0 or 540	0 or 540
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	1010	1340

ACS880-01 frames R8 to R9 product materials				Frame R8	Frame R9
				Total weight (kg) ~70	Total weight (kg) ~98
Part	Category	Qty	Materials	Weight (g)	Weight (g)
1	Sheet metal parts	16...18	Zn plated Fe	15760... 16290	21310... 22210
2	Reinforced plastic parts	9	Plastic: PC+10%GF	1160	1410
3	Housing parts	3	Plastic: ABS PC, PUR, Brass	2120	2200
4	Terminal cover / Insulating sheets	11...17 (R8) 8...13 (R9)	Plastic: PC	400...520	360...460
5	Housing / Cover parts	3	Plastic: ABS PC	2310	2720
6	Heat sink	1	Aluminum: AW-6060 [Al MgSi]	7710	14490
7	Choke	2	Fe, Cu, PET+30%GF, silicone, thermoplastic polyester, glass-filled nylon.	17650	25430
8	Gaskets	27 (R8) 23 (R9)	Rubber: TPE	640	970
9	Axial fan	2 (R8) 3 (R9)	Various materials, plastic parts: PBT, aluminum alloy.	980	1860
10	Printed circuit board	3...4 (R8) 4...5 (R9)	Various materials, electronic components.	650...740	940...1040
11	Bus bars	13...18 (R8) 14...17 (R9)	Cu, Sn	2770... 3900	5390... 6810
12	Terminal connectors	9	SS, Sn plated Cu, Zn plated steel	2090	3060
13	Electrolytic capacitor	6	Al, electrolytic solution	3410	5760
14	Semiconductors	9...10 (R8) 10...11 (R9)	Cu, Al oxide, Sn, silicone gel, PBT, GF	1850... 2220	2720... 3100
15	Control unit	1	See subsection Materials of the control unit on page 15.	550	550
16	Control panel	1	See subsection Materials of the control panel on page 16.	130	130
17	Ferrite toroids (optional)	0 or 4	Ferrite iron	0 or 720	0 or 720
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	1920	2810

Materials of the control unit

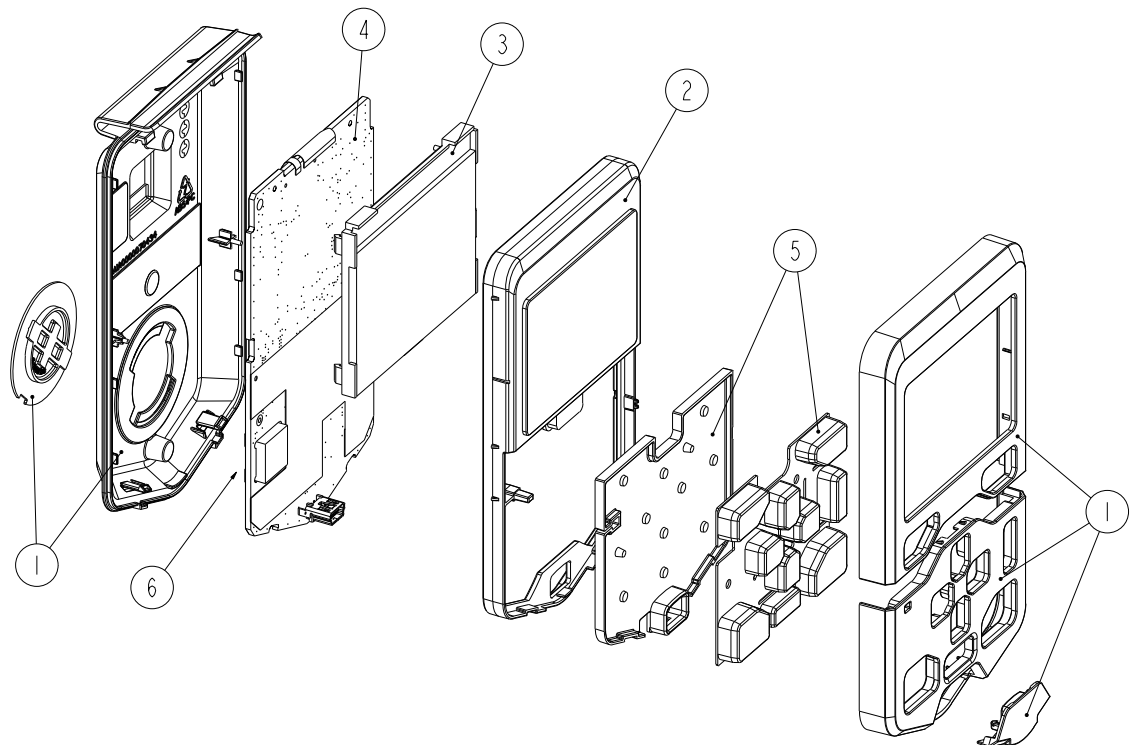
The main components are shown in the figure below.



ACS880-01 control unit product materials				
Part	Category	Qty	Materials	Weight (g)
1	Housing parts	1	Plastic: ABS PC	140
2	Sheet metal parts	1	Zn plated Fe	100
3	Printed circuit board	1	Various material, electronic components.	240
4	Connectors	11	PA plastic, Fe, Sn, Cu	80
5	Memory unit	1	Plastic: ABS, electronic components.	10

Materials of the control panel

The main components are shown in the figure below.



ACS880-01 control panel product materials				
Part	Category	Qty	Materials	Weight (g)
1	Housing parts	4	Plastic: ABS PC	40
2	Lens	1	Plastic: PC	15
3	LCD display	1	Various materials	20
4	Printed circuit board	1	Various material, electronic components.	45
5	Keypad	2	Silicone rubber	20
5	CR 2032 lithium battery	1	Various materials	3

Package

The product package is made of corrugated cardboard.

You can recycle all materials used in the package.

To avoid pollution caused by unnecessary transportation, the factory does not take back used packages. The local ABB companies give instructions on the package recycling when necessary.

ABB recommends package recycling as it preserves raw materials and reduces waste being landfilled.

Product manuals and sales brochures

All paper format brochures and manuals are printed according to the guidelines of the Nordic Environmental Label.

To save natural resources and reduce paper waste, all product manuals are available on the internet.

3

Manufacturing and use

Manufacturing

ABB Drives has an Environmental Management System (EMS) which covers manufacturing and other functions. The EMS is certified to ISO 14001:2004.

Use

The use of a drive has several positive environmental impacts, such as:

- Substantial energy savings can be reached using a drive. These savings can be even 50% in pump and fan drives. This means reduced CO₂ and NO_x emissions in power plants, due to reduced energy demand.
- Process control is improved when a drive is used for the control of the motor meaning reduced waste.
- When a process operates in an optimal way, wear on the equipment (such as conveyors and pumps) is reduced and life time increased. This decreases environmental load.
- Noise is reduced (in most cases).

The drive itself does not cause any emissions while in use.

4

Product disposal

Contents of this chapter

This chapter contains product disposal instructions.

You can dismantle the drive manually or in a shredding machine. The chapter is divided in two sections on basis of the dismantling method.

Manual dismantling

Sort the parts of the product are according to their material contents as follows:

- ferrous metals (plates, screws)
- aluminum (heatsink)
- plastics
- printed circuit boards
- electrolytic capacitors
- other.

You can recycle metal parts (iron and aluminum) and most materials according to local regulations.

For information on harmful materials, see subsection [List of potentially harmful materials](#) on page 22.

Mechanical shredding

Remove the harmful material before shredding the drive in the shredding machine. See subsection [List of potentially harmful materials](#).

List of potentially harmful materials

Definitions and regulations of hazardous materials differ from country to country and are likely to change 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. CEFIC-EECA-EICTA. Excerpts of restrictions on substances from legal provisions for special application in electric and electronic products. May 02, 2002.
2. Substances contained in products of the electrical/electronics industry. Zentralverband Elektrotechnik- und Elektronikindustrie (ZVEI) e.V., Frankfurt am Main. 1995.
3. Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE).
4. Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste. (2000/532/EC). European Waste Catalogue.

List of possibly harmful substances in different materials and components according to the references.

Component	Harmful substance(s)	Reference
Printed circuit boards	Tetrabromobisphenol A (TBBPA, flame retardant)	3
Electrolytic capacitors	N/A (= not available), may contain harmful chemicals (DMAC/DMF)*	3
Plastics	None	
Semiconductors	None	
Cables	PVC	1
*Composition varies with the manufacture and technical development of the electrolytic capacitors		

Note: According to the European Waste Catalogue, an end-of-life product is classified by code 16 02 14. Printed circuit boards and electrolytic capacitors, removed from the product, are however classified as "hazardous components removed from discarded equipment", code 16 02 15, requiring special treatment.

A recycling example

This example complies with regulations valid in Finland by the time of publishing this manual.

Materials	Recycling method
Steel	Recycled as material
Aluminum	Recycled as material
Plastics	Energy recovery (incineration) or landfilled
Printed circuit board	Sent hazardous material treatment
Electrolytic capacitor	Sent hazardous material treatment
Cables	Landfilled
Other materials	Energy recovery (incineration) or landfilled

Further information

Product and service inquiries

Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to www.abb.com/searchchannels.

Product training

For information on ABB product training, navigate to www.abb.com/drives and select *Training courses*.

Providing feedback on ABB Drives manuals

Your comments on our manuals are welcome. Go to www.abb.com/drives and select *Document Library – Manuals feedback form (LV AC drives)*.

Document library on the Internet

You can find manuals and other product documents in PDF format on the Internet. Go to www.abb.com/drives and select *Document Library*. You can browse the library or enter selection criteria, for example a document code, in the search field.

Contact us

www.abb.com/drives

www.abb.com/drivespartners

3AUA0000149383 Rev A (EN) 2013-10-16