ABB DRIVES

ACS880-04, ACS880-14, ACS880-34, ACS580-04, ACH580-04, ACH580-34, ACQ580-04 and ACQ580-34 drives

Recycling instructions and environmental information

ACS880-04, ACS880-14, ACS880-34, ACS580-04, ACH580-04, ACH580-34, ACQ580-04 and ACQ580-34 drives

Recycling instructions and environmental information

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Introduction to the manual

Contents of this chapter

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:

- ACS880-04 drives
- ACS880-04F drives
- ACS880-04XT drive module packages
- ACS880-04FXT drive module packages
- ACS880-14 drives
- ACS880-34 drives
- ACS580-04 drives
- ACH580-04 drives
- ACH580-34 drives
- ACQ580-04 drives
- ACQ580-34 drives

Target audience

This document is intended for ABB customers and for professional recyclers.

Frame size

This manual covers R10 and R11 frame sizes of the product family. The frame size is marked on the type designation label of the drive. The frame size is also shown in the rating tables for each drive type. The rating tables are in the drive hardware manual.

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Related documents

Drive hardware manuals and guides	**Code (English)**
Recycling instructions and environmental information for ACS880-04, ACS880-14, ACS880-34, ACS580-04, ACH580-04, ACH580-34, ACQ580-04 and ACQ580-34 drives	3AXD50000137688
ACS880-04 drive modules (200 to 710 kW, 300 to 700 hp) hardware manual	3AUA0000128301
ACS880-04F drive modules hardware manual	3AXD50000034664
ACS880-04XT drive module packages hardware manual	3AXD50000025169
ACS880-04FXT drive module packages hardware manual	3AXD50000274444
ACS880-14 drive modules (132 to 400 kW, 200 to 450 hp) hardware manual	3AXD50000035160
ACS880-34 drive modules (132 to 400 kW, 200 to 450 hp) hardware manual	3AXD50000035191
ACS580-04 drive modules hardware manual	3AXD50000015497
ACQ580-04 drive modules hardware manual	3AXD50000048677
ACH580-04 drive modules hardware manual	3AXD50000048685
ACH580-34 drive modules hardware manual	3AXD50000419708
ACQ580-34 drive modules hardware manual	3AXD50000420025

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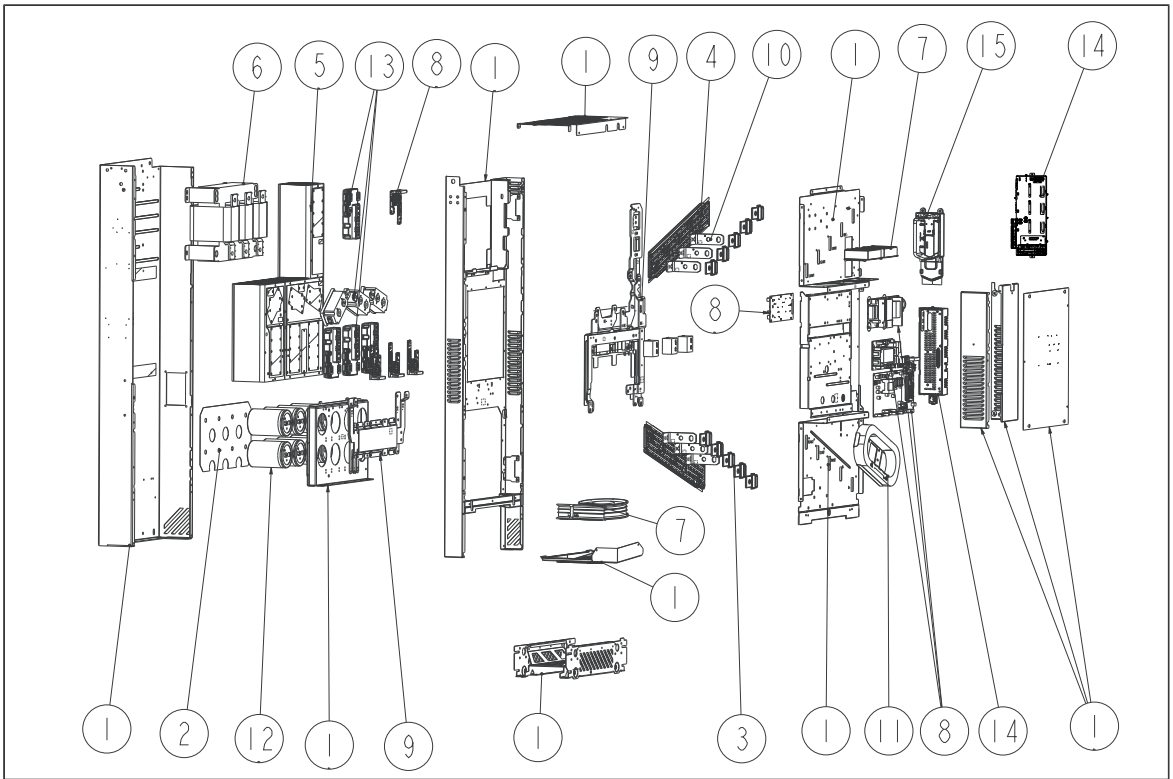
Product materials

Contents of this chapter

This chapter describes the main components and product materials of ACS880-04, ACS880-04F, ACS880-14, ACS880-34, ACS580-04, ACH580-04, ACH580-34, ACQ580-04 and ACQ580-34 drives, and ACS880-04XT and ACS880-04FXT drive module packages.

Materials of ACS880-04/04XT frame size R10

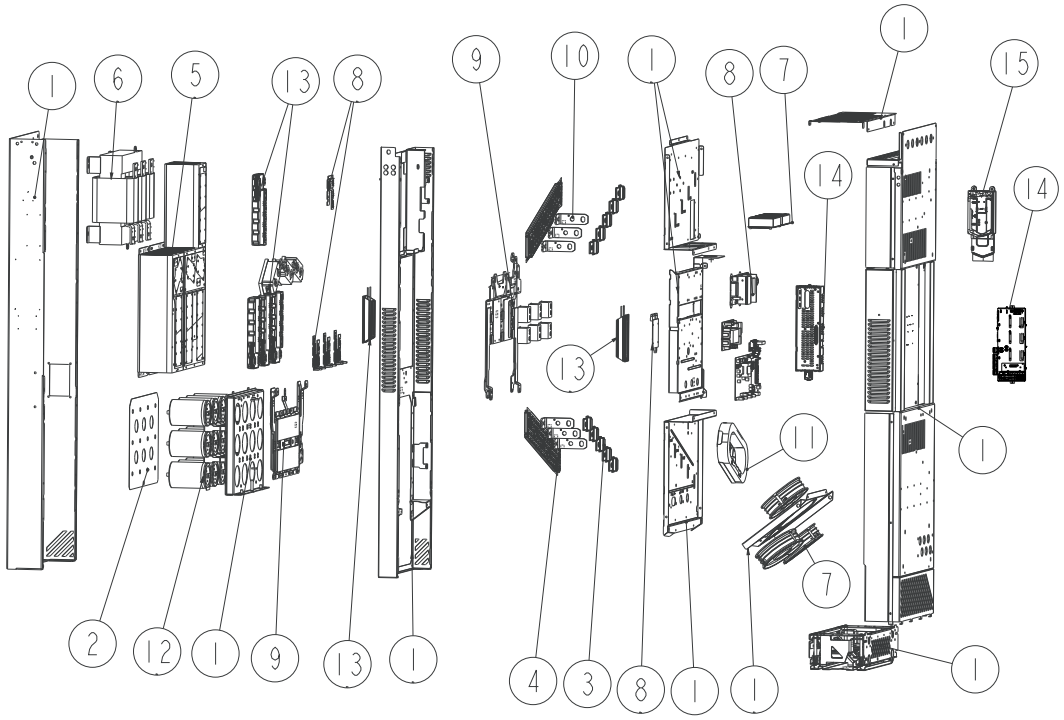
The main components are shown in the figure below.



ACS880-04/04XT frame R10 product materials				Total weight (kg) ~145
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	19-26	Zn-coated Fe	34000-46500
2	Insulating sheets	15	Plastic: PC	1200
3	Plastic parts	10	Plastic: PC + 10% GF	100
4	Reinforced plastic parts	2	Plastic: PC + 20% GF	600
5	Heat sink	2 or 3	Aluminium: AW-6060 [Al Mg Si]	20000 or 25000
6	Choke	1	Fe, Cu, PET+30% GF, silicone, thermoplastic polyester, glass-filled nylon	35000
7	Axial fan	4	Various materials, plastic parts: PBT, aluminium alloy	2800
8	Printed circuit board	9 or 10	Various materials, electronic components	700 or 800
9	Bus bars	15 or 18	Cu, Sn	7000 or 8000
10	Terminal connectors	6 or 8	Sn-coated Cu	1500 or 2000
11	Common mode filter	0 or 1	Nanocrystalline, Zn-coated Fe	0 or 2800
12	Electrolytic capacitor	6 or 8	Al, electrolytic solute	7200 or 9600
13	Semiconductors	6 or 7	Cu, Al oxide, Sn, silicone gel, PBT, GF	1600 or 2000
14	Control unit	1	See *Materials of control unit ZCU-13 (page 18)* or *Materials of control unit ZCU-14 (page 19)* or *Materials of control unit BCU-02/12/22 (page 21)*	540 540 1960-2190
15	Control panel	1	See *Materials of the control panel (page 22)*	140
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	2800

Materials of ACS880-04/04XT frame size R11

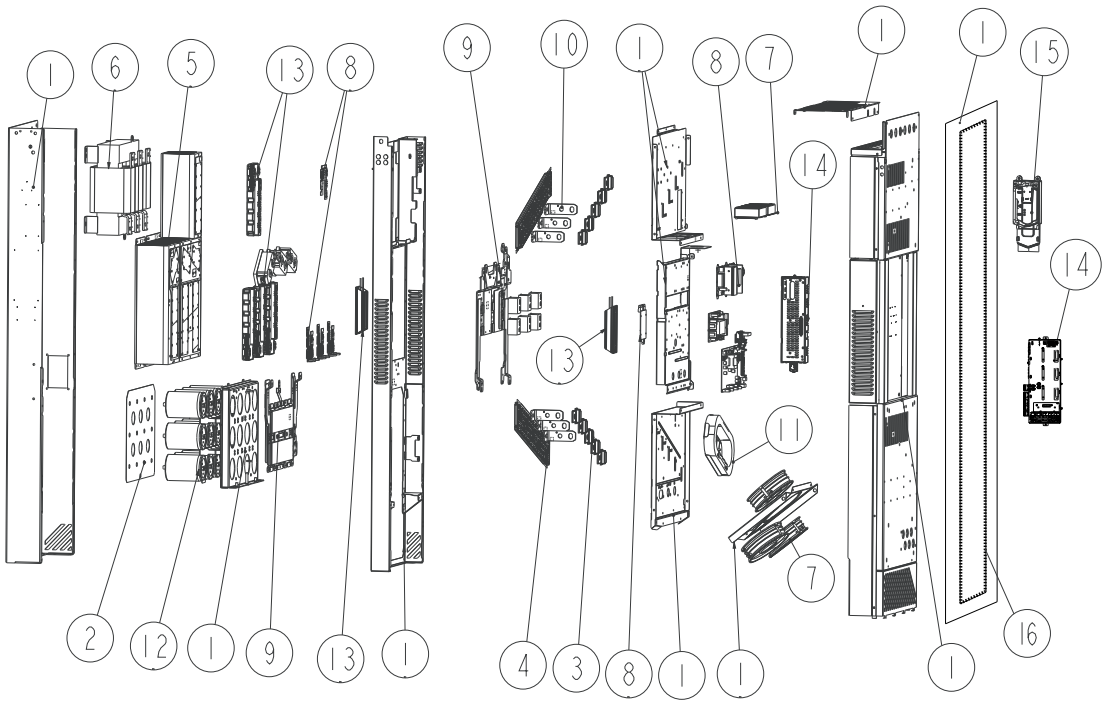
The main components are shown in the table below.



ACS880-04 frame R11 product materials				Total weight (kg) ~152
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	19-26	Zn-coated Fe	34000-46500
2	Insulating sheets	18	Plastic: PC	1440
3	Plastic parts	10	Plastic: PC + 10% GF	100
4	Reinforced plastic parts	2	Plastic: PC + 20% GF	600
5	Heat sink	2 or 3	Aluminium: AW-6060 [Al Mg Si]	20000 or 25000
6	Choke	1	Fe, Cu, PET+30% GF, silicone, thermoplastic polyester, glass-filled nylon	35000
7	Axial fan	4 or 5	Various materials, plastic parts: PBT, aluminium alloy	2800 or 3800
8	Printed circuit board	9 or 10	Various materials, electronic components	700 or 800
9	Bus bars	15 or 18	Cu, Sn	7000 or 8000
10	Terminal connectors	6 or 8	Sn-coated Cu	1500 or 2000
11	Common mode filter	0 or 1	Nanocrystalline, Zn-coated Fe	0 or 2800
12	Electrolytic capacitor	12	Al, electrolytic solute	14400
13	Semiconductors	8 or 9	Cu, Al oxide, Sn, silicone gel, PBT, GF	2200 or 2600
14	Control unit	1	See *Materials of control unit ZCU-13 (page 18)* or *Materials of control unit ZCU-14 (page 19)* or *Materials of control unit BCU-02/12/22 (page 21)*	540 540 1960-2190
15	Control panel	1	See *Materials of the control panel (page 22)*	140
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	2800

Materials of ACS880-04F/04FXT frame size R11

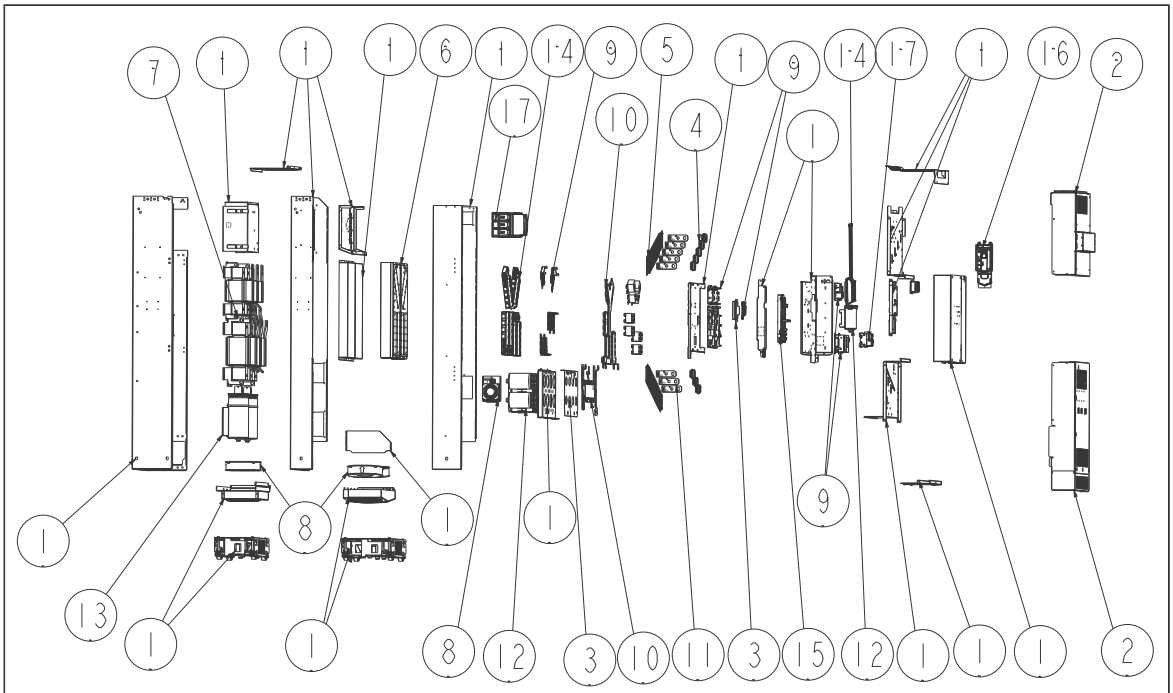
The main components are shown in the table below.



ACS880-04F/04FXT frame R11 product materials				Total weight (kg) ~152
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	19-26	Zn-coated Fe	34000-46500
2	Insulating sheets	18	Plastic: PC	1440
3	Plastic parts	10	Plastic: PC + 10% GF	100
4	Reinforced plastic parts	2	Plastic: PC + 20% GF	600
5	Heat sink	2 or 3	Aluminium: AW-6060 [Al Mg Si]	20000 or 25000
6	Choke	1	Fe, Cu, PET+30% GF, silicone, thermoplastic polyester, glass-filled nylon	35000
7	Axial fan	4 or 5	Various materials, plastic parts: PBT, aluminium alloy	2800 or 3800
8	Printed circuit board	9 or 10	Various materials, electronic components	700 or 800
9	Bus bars	15 or 18	Cu, Sn	7000 or 8000
10	Terminal connectors	6 or 8	Sn-coated Cu	1500 or 2000
11	Common mode filter	0 or 1	Nanocrystalline, Zn-coated Fe	0 or 2800
12	Electrolytic capacitor	12	Al, electrolytic solute	14400
13	Semiconductors	8 or 9	Cu, Al oxide, Sn, silicone gel, PBT, GF	2200 or 2600
14	Control unit	1	See *Materials of control unit ZCU-14 (page 19)* or *Materials of control unit BCU-02/12/22 (page 21)*	540 1960-2190
15	Control panel	1	See *Materials of the control panel (page 22)*	140
16	Gasket of the flange	1	Polyurethane	200
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	2800

Materials of ACS880-14 and ACS880-34 frame size R11

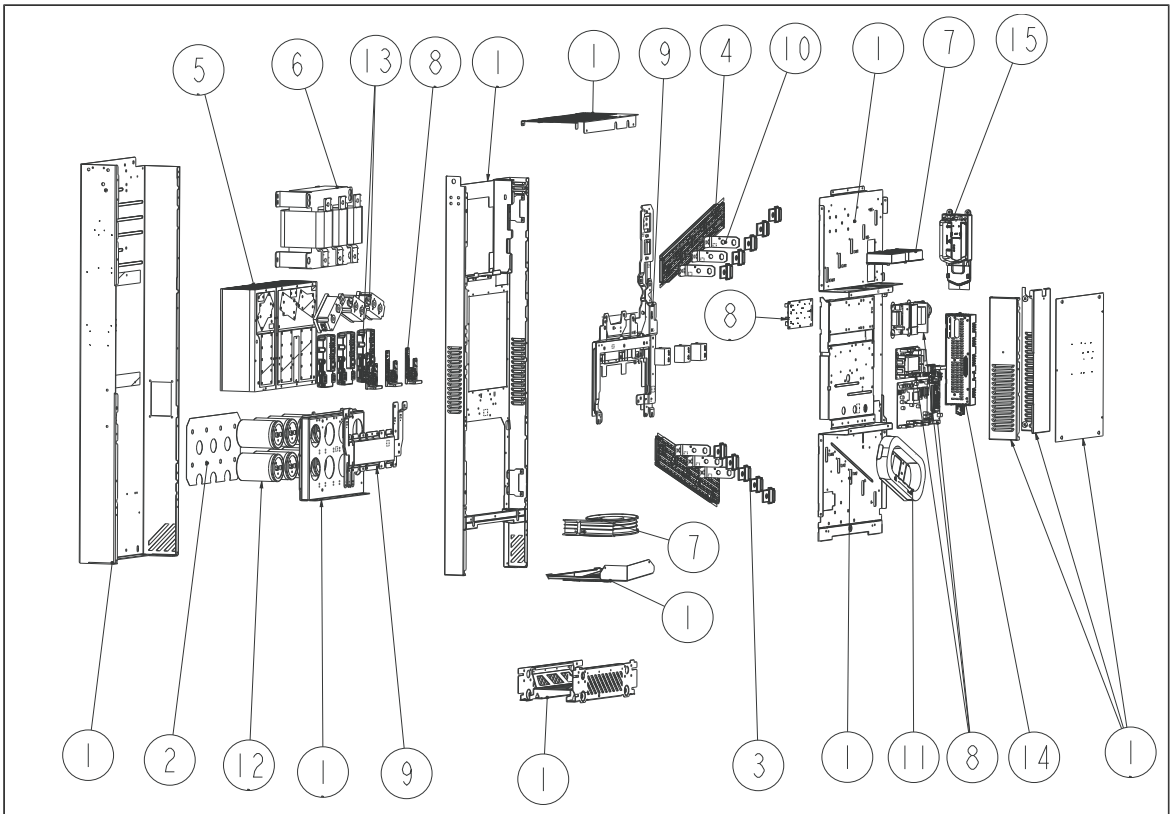
The main components are shown in the figure below.



ACS880-14 and ACS880-34 frame R11 product materials				Total weight (kg) ~175
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	50	Zn-coated Fe	67500
2	Housing and cover parts	7	Plastic: PC	4500
3	Insulating sheets	18	Plastic: PC	1440
4	Plastic parts	8	Plastic: PC + 10% GF	80
5	Reinforced plastic parts	2	Plastic: PC + 20% GF	600
6	Heat sink	2	Aluminium: AW-6060 [Al Mg Si]	12000
7	Choke	2	Fe, Cu, PET+30% GF, silicone, thermoplastic polyester, glass-filled nylon	35000
8	Axial fan	5	Various materials, plastic parts: PBT, aluminium alloy	3800
9	Printed circuit board	16	Various materials, electronic components	1500
10	Bus bars	20	Cu, Sn	17000
11	Terminal connectors	8	Sn-coated Cu	2000
12	Electrolytic capacitor	7 or 9	Al, electrolytic solute	8750 or 11250
13	Film capacitor	2	Metal-coated plastic film	1000
14	Semiconductors	9	Cu, Al oxide, Sn, silicone gel, PBT, GF	2500
15	Control unit	1	See *Materials of control unit ZCU-13 (page 18)* or *Materials of control unit ZCU-14 (page 19)*.	540
16	Control panel	1	See *Materials of the control panel (page 22)*	140
17	Contactor	2	Various materials, plastic parts	1500
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	2800

Materials of ACX580-04 frame size R10

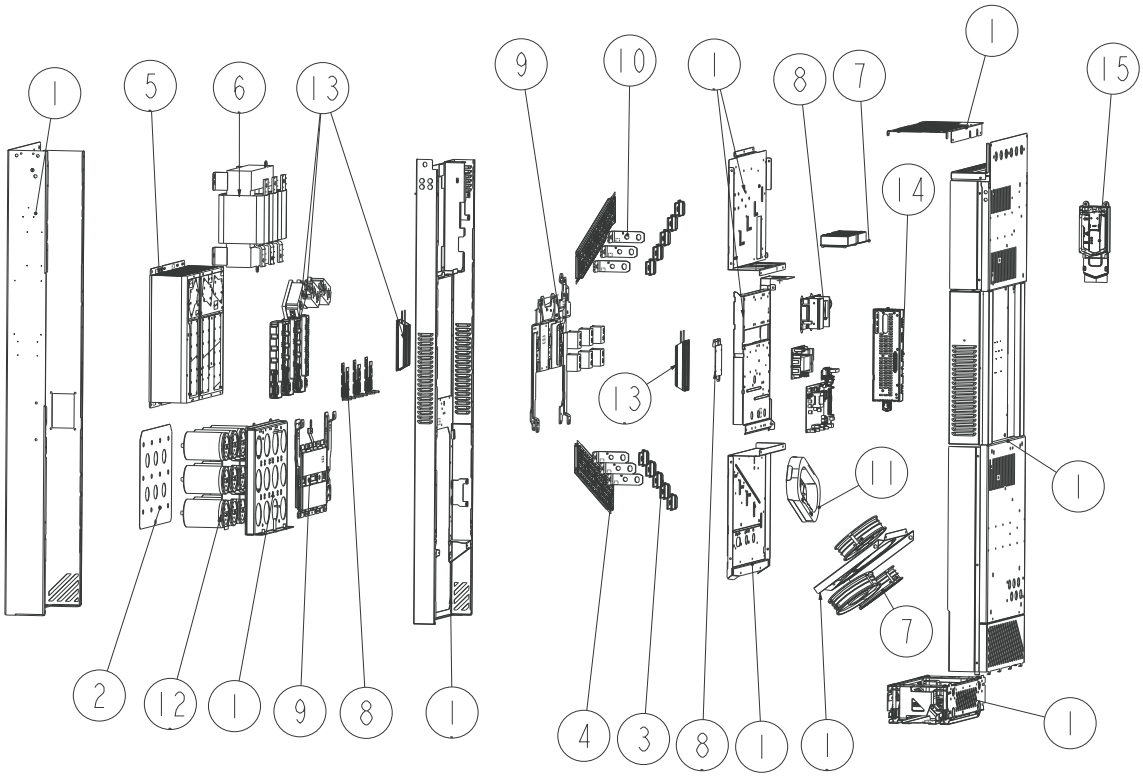
The main components are shown in the figure below.



ACX580-04 frame R10 product materials				Total weight (kg) ~138
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	19-26	Zn-coated Fe	34000-46500
2	Insulating sheets	15	Plastic: PC	1200
3	Plastic parts	10	Plastic: PC + 10% GF	100
4	Reinforced plastic parts	2	Plastic: PC + 20% GF	600
5	Heat sink	2	Aluminium: AW 6060: Al Mg Si	20000
6	Choke	1	Fe, Cu, PET+30% GF, silicone, thermoplastic polyester, glass-filled nylon	35000
7	Axial fan	4	Various materials, plastic parts: PBT, aluminium alloy	2800
8	Printed circuit board	9	Various materials, electronic components	700
9	Bus bars	15	Cu, Sn	7000
10	Terminal connectors	6 or 8	Sn-coated Cu	1500 or 2000
11	Common mode filter	0 or 1	Nanocrystalline, Zn-coated Fe	0 or 2800
12	Electrolytic capacitor	6 or 8	Al, electrolytic solute	7200 or 9600
13	Semiconductors	6	Cu, Al oxide, Sn, silicone gel, PBT, GF	1600
14	Control unit	1	See *Materials of control unit CCU-24 (page 20)*	540
15	Control panel	1	See *Materials of the control panel (page 22)*	140
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	2800

Materials of ACX580-04 frame size R11

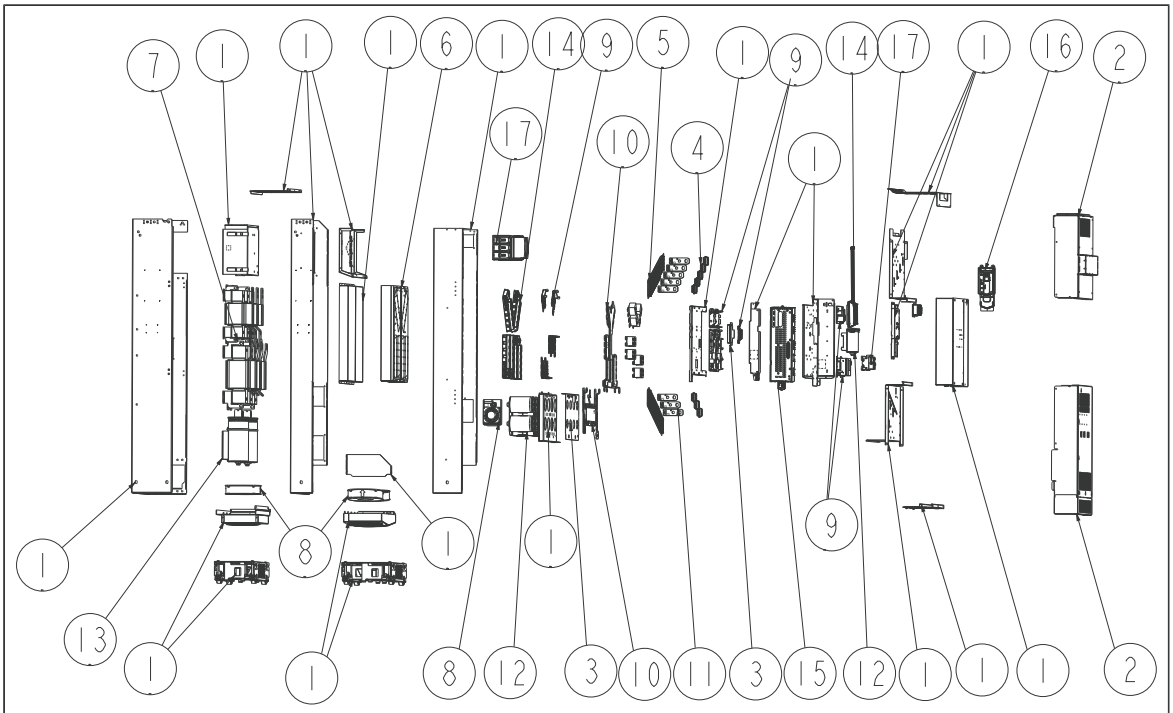
The main components are shown in the figure below.



ACX580-04 frame R10 product materials				Total weight (kg) ~145
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	19-26	Zn-coated Fe	34000-46500
2	Insulating sheets	18	Plastic: PC	1440
3	Plastic parts	10	Plastic: PC + 10% GF	100
4	Reinforced plastic parts	2	Plastic: PC + 20% GF	600
5	Heat sink	2	Aluminium: AW-6060 [Al Mg Si]	20000
6	Choke	1	Fe, Cu, PET+30% GF, silicone, thermoplastic polyester, glass-filled nylon	35000
7	Axial fan	4 or 5	Various materials, plastic parts: PBT, aluminium alloy	2800 or 3800
8	Printed circuit board	9	Various materials, electronic components	700
9	Bus bars	15	Cu, Sn	7000
10	Terminal connectors	6 or 8	Sn-coated Cu	1500 or 2000
11	Common mode filter	0 or 1	Nanocrystalline, Zn-coated Fe	0 or 2800
12	Electrolytic capacitor	12	Al, electrolytic solute	14400
13	Semiconductors	8	Cu, Al oxide, Sn, silicone gel, PBT, GF	2200
14	Control unit	1	See *Materials of control unit CCU-24 (page 20)*	540
15	Control panel	1	See *Materials of the control panel (page 22)*	140
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	2800

Materials of ACH580-34 and ACQ580-34 frame size R11

The main components are shown in the figure below.

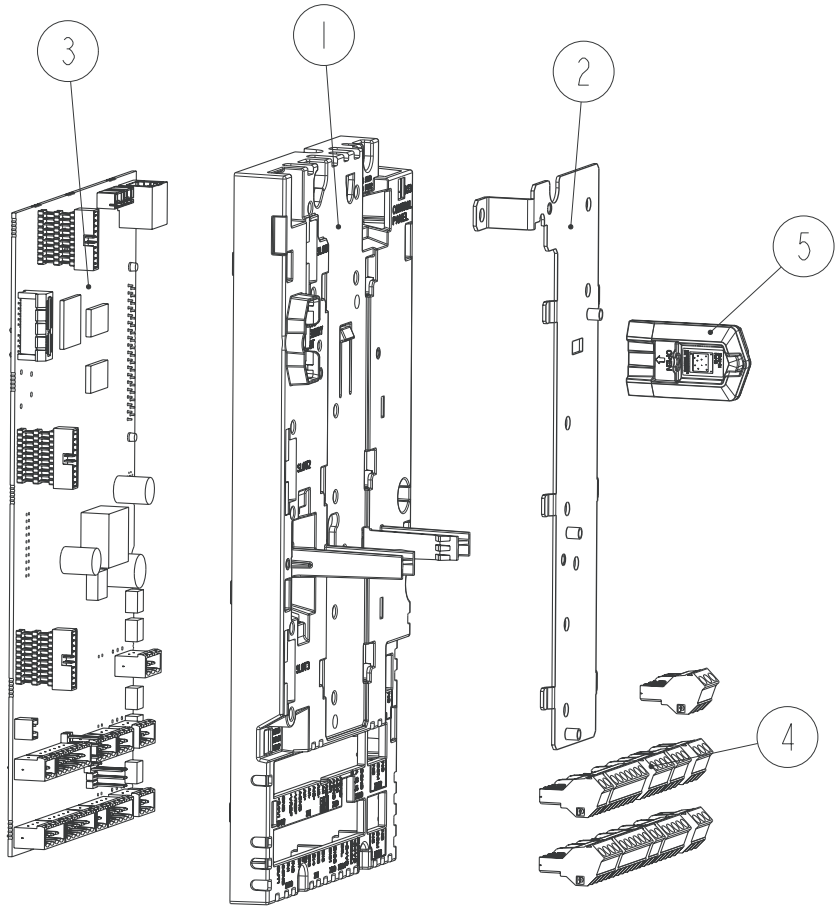


ACH580-34 and ACQ580-34 frame R11 product materials				Total weight (kg) ~175
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	50	Zn-coated Fe	67500
2	Housing and cover parts	7	Plastic: PC	4500
3	Insulating sheets	18	Plastic: PC	1440
4	Plastic parts	8	Plastic: PC + 10% GF	80
5	Reinforced plastic parts	2	Plastic: PC + 20% GF	600
6	Heat sink	2	Aluminium: AW-6060 [Al Mg Si]	12000
7	Choke	2	Fe, Cu, PET+30% GF, silicone, thermoplastic olyester, glass-filled nylon	35000
8	Axial fan	5	Various materials, plastic parts: PBT, aluminium alloy	3800
9	Printed circuit board	16	Various materials, electronic components	1500
10	Bus bars	20	Cu, Sn	17000
11	Terminal connectors	8	Sn-coated Cu	2000
12	Electrolytic capacitor	7 or 9	Al, electrolytic solute	8750 or 11250
13	Film capacitor	2	Metal-coated plastic film	1000
14	Semiconductors	9	Cu, Al oxide, Sn, silicone gel, PBT, GF	2500
15	Control unit	1	See *Materials of control unit CCU-24 (page 20)*	540
16	Control panel	1	See *Materials of the control panel (page 22)*	140
17	Contactor	2	Various materials, plastic parts	1500
	Cables / Wires	N/A	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	2800

Materials of control unit ZCU-12

ZCU-12 control unit is used in ACS880-14 and ACS880-34 drives.

The main components are shown in the figure below.

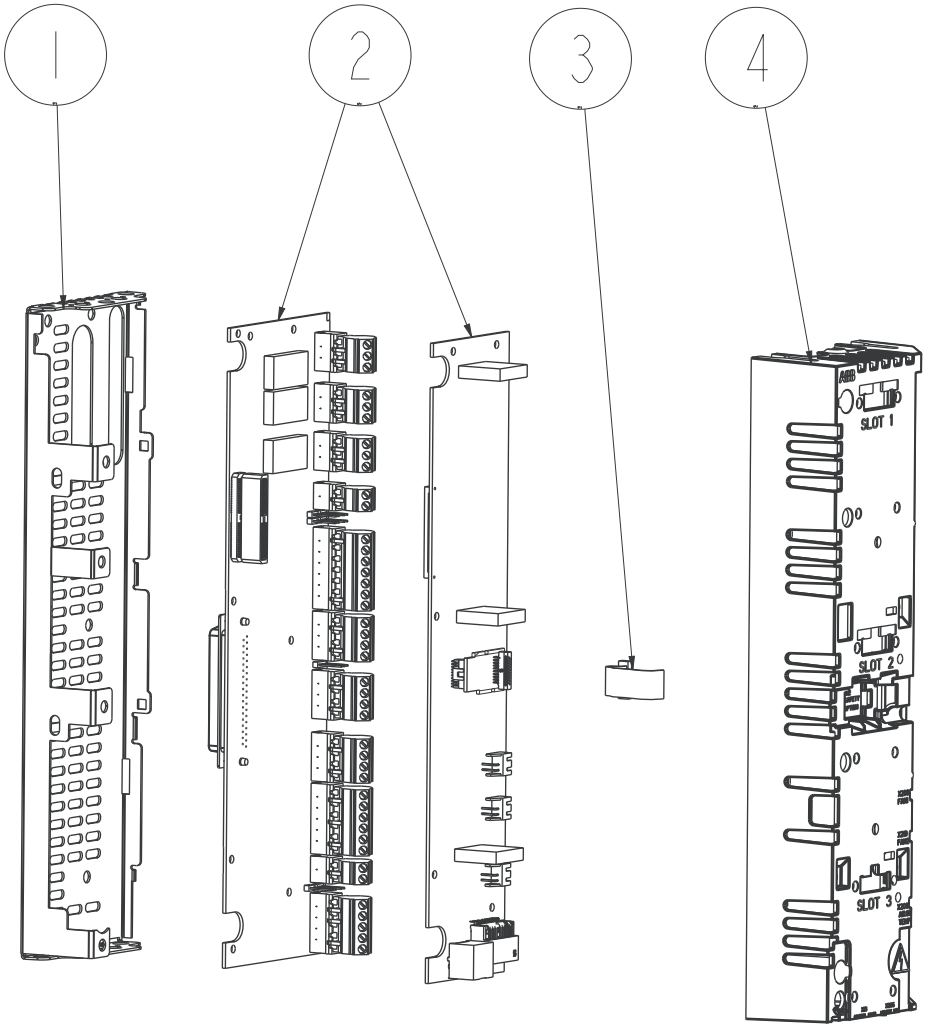


Control unit ZCU-12 product materials				Total weight (g) ~570
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Housing parts	1	Plastic: ABS PC	140
2	Sheet metal parts	1	Zn-plated Fe	100
3	Printed circuit board	1	Various material, electronic components	240
4	Connectors	11	PA plastic, Fe, Sn, Cu	80
5	Memory unit	1	Plastic: ABS, electronic components	10

Materials of control unit ZCU-13

ZCU-13 control unit is used in ACS880-04, ACS880-14 and ACS880-34 drives.

The main components are shown in the figure below.

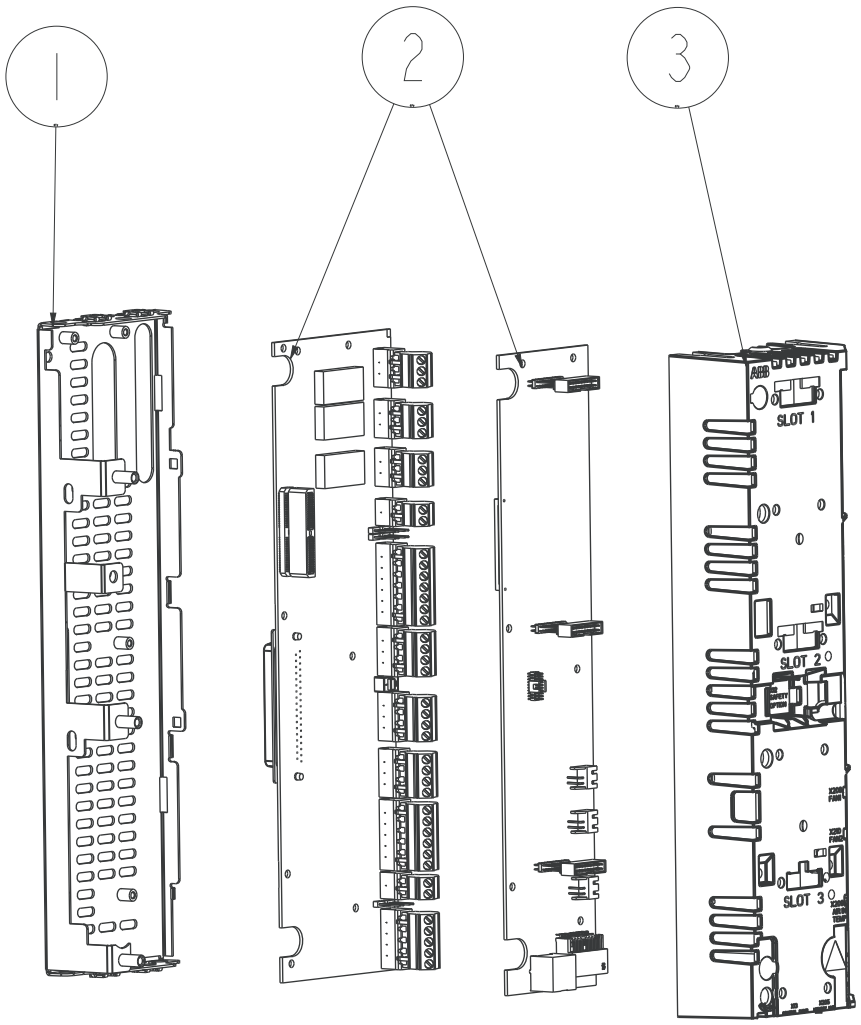


Control unit ZCU-13 product materials				Total weight (g) ~770
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	1	Zn-coated Fe	250
2	Printed circuit boards	2	Various materials, electronic components	400
3	Cables / Wires	1	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	10
4	Housing parts	1	Plastic: ABS PC	110

Materials of control unit ZCU-14

ZCU-14 control unit is used in ACS880-04, ACS880-04F, ACS880-14 and ACS880-34 drives.

The main components are shown in the figure below.

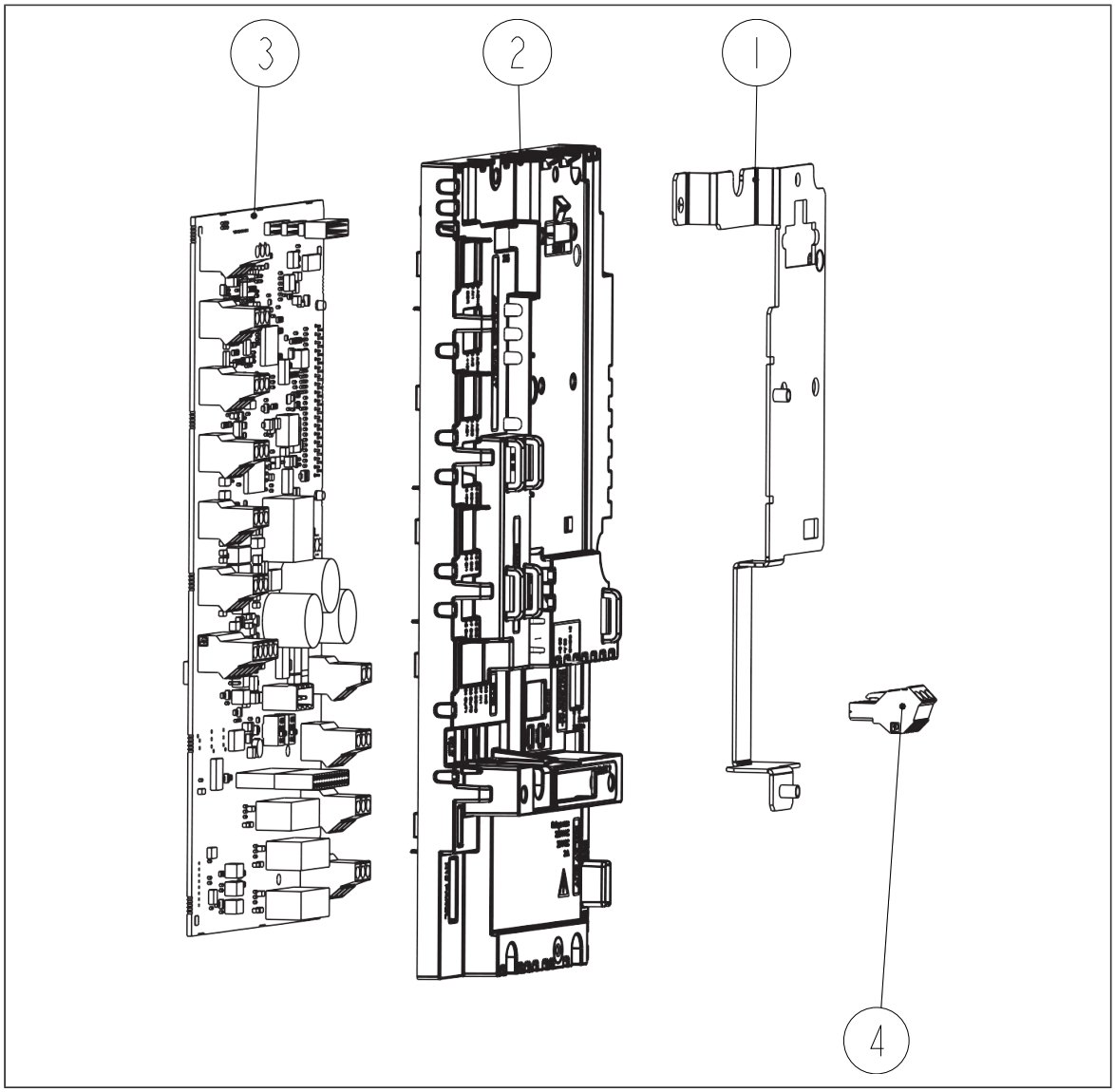


Control unit ZCU-14 product materials				Total weight (g) ~770
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	1	Zn-coated Fe	250
2	Printed circuit boards	2	Various materials, electronic components	410
3	Housing parts	1	Plastic: ABS PC	110

Materials of control unit CCU-24

CCU-24 control unit is used in ACS580, ACH580 and ACQ580 drives.

The main components are shown in the figure below.

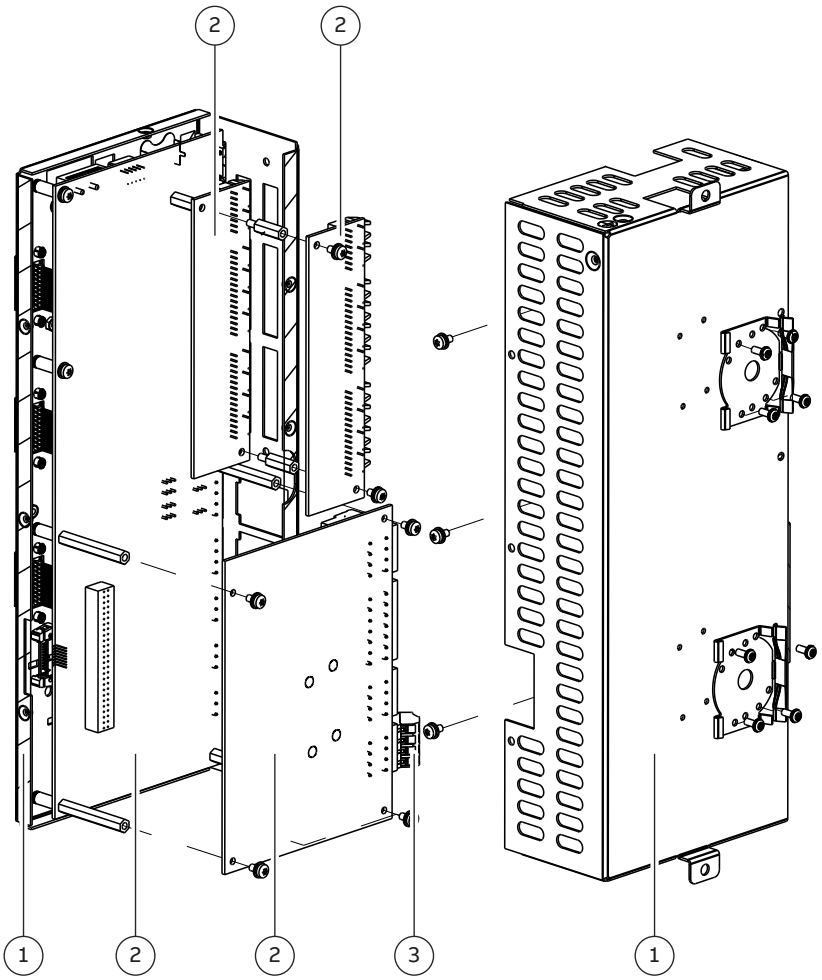


Control unit CCU-24 product materials				Total weight (g) ~536
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Housing parts	1	Plastic: ABS PC, PUR	120
2	Sheet metal parts	1	Zn-coated Fe	86
3	Printed circuit board	2	Various materials, electronic components	320
4	Connector	1	PA, Fe	10

Materials of control unit BCU-02/12/22

BCU control units are used in ACS880-04XT and ACS880-04FXT drive module packages. BCU control units have a different number of optic module connections but are otherwise similar.

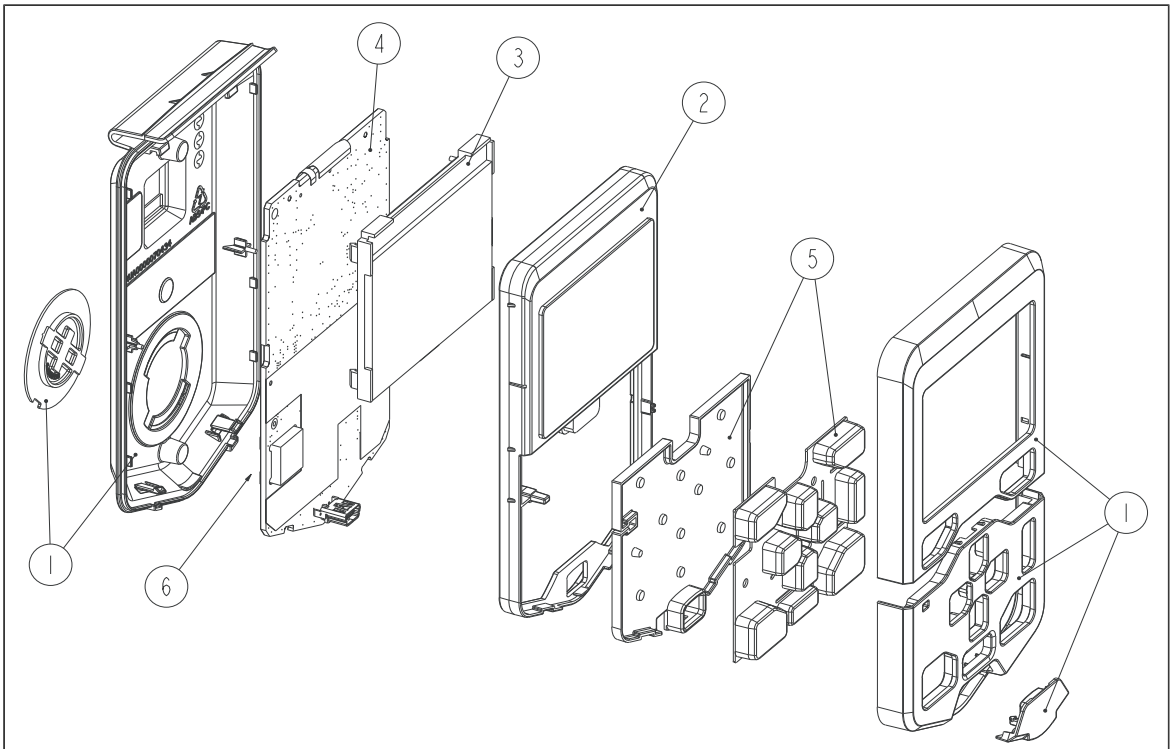
The main components are shown in the figure below.



Control unit BCU-02/12/22 product materials				Total weight (g) 1960-2190
Part	**Category**	**Qty**	**Materials**	**Weight (g)**
1	Sheet metal parts	2	Zn-coated Fe	1500
2	Printed circuit board	2-4	Various materials, electronic components	330-560
3	Connector	13	PA, Fe	130

Materials of the control panel

The main components are shown in the figure below.



Control panel product materials				**Total weight (g) ~143**
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 materials, electronic components	45
5	Keypad	2	Silicone rubber	20
6	CR 2032 lithium battery	1	Various materials	3

Abbreviations

Plastics and rubber:	
ABS	Acrylonitrile-butadiene-styrene
EPDM	Ethylenepropylenerubber
GF	Glass fiber
PA	Polyamide
PBT	Polybutylene terephthalate
PC	Polycarbonate
PET	Polyethylene terephthalate
PPE	Polyphenyloxide
PS	Polystyrene
PUR	Polyurethane
PVC	Polyvinyl chloride
TPE	Thermoplastic elastomer

Package

The product package is made of corrugated cardboard. Depending on the product type, the package materials may also contain:

- birch plywood
- pressed woodchip
- glue
- nails.

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

To save natural resources and reduce paper waste, all product manuals are available in ABB Library and on the Internet.

3

Manufacturing and use

Manufacturing

ABB Drives has a company-wide integrated quality, environmental and occupational health & safety management system. The system is certified in accordance with requirements of international standards ISO 9001 and ISO 14001.

Use

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

- Substantial energy savings and reduced operating costs can be reached using a drive. Rather than have an electric motor running continuously at full speed, an electric drive allows the user to slow down or speed up the motor.
- Process control is optimized. An electric drive enables a process to achieve the right speed and torque while maintaining its accuracy.
- Need for maintenance is reduced. Being able to vary the speed and torque of an electric motor means there is less wear and tear on the motor and the driven machine.

For more information on ABB Policy on Health, Safety, Environment, Security and Sustainability, see new.abb.com/sustainability/abb-policy-on-health-safety-environment-security-and-sustainability.

For more information on ABB group sustainability objectives, see new.abb.com/sustainability/creating-value/objectives.

4

Product disposal

Contents of this chapter

This chapter contains product disposal instructions.

Disposal

The main parts of the drive can be recycled to preserve natural resources and energy. Product parts and materials should be dismantled and separated.

Generally all metals, such as steel, aluminum, copper and its alloys, and precious metals can be recycled as material. Plastics, rubber, cardboard and other packaging material can be used in energy recovery.

Printed circuit boards and DC capacitors need selective treatment according to IEC 62635 guidelines.

To aid recycling, plastic parts are marked with an appropriate identification code.

Contact your local ABB distributor for further information on environmental aspects. End of life treatment must follow international and national regulations.

For more information on ABB end of life services, see new.abb.com/service/end-of-lifeservices.

Dismantling

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

Manual dismantling

Sort the parts of the product 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 of the other materials according to local regulations.

For information on harmful materials, see subsection *ABB list of prohibited and restricted substances*.

Mechanical shredding

In this method, a whole product is mechanically shredded into small pieces and materials are sorted using dedicated sorting processes.

Remove the harmful material before shredding the drive in the shredding machine. See subsection *ABB list of prohibited and restricted substances*.

ABB list of prohibited and restricted substances

The purpose of this list is to comply with legislation to avoid chemical substances that may present hazards to the environment or the health.

This document provides information about “Prohibited substances”, substances that must not be used, and “Restricted substances”, substances whose use should be limited within ABB.

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 electrical and electronic equipment.

For more information on ABB list of prohibited and restricted substances, see new.abb.com/sustainability/environment.

Reference list

1. Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS II).
2. Regulation No 1907/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH):
   - Annex XIV: List of substances subject to authorization
   - Annex XVII: Restrictions on use of substances in articles
   - SVHC: Candidate list of substances of very high concern for authorization.
3. Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE).

A recycling example

This example complies with typical national regulations valid at the time of publishing this manual.

Materials	**Recycling method**
Steel	Recycled as material
Aluminum	Recycled as material
Plastics	Energy recovery (incineration)
Printed circuit boards	Recycled as WEEE
Electrolytic capasitors	Recycled as WEEE
Cables	Recycled as material
Ceramics	Landfilled
Other materials	Energy recovery (incineration)

Recycling information in accordance with the WEEE

The product is marked with the wheelie bin symbol. It indicates that at the end of life the product should enter the recycling system.

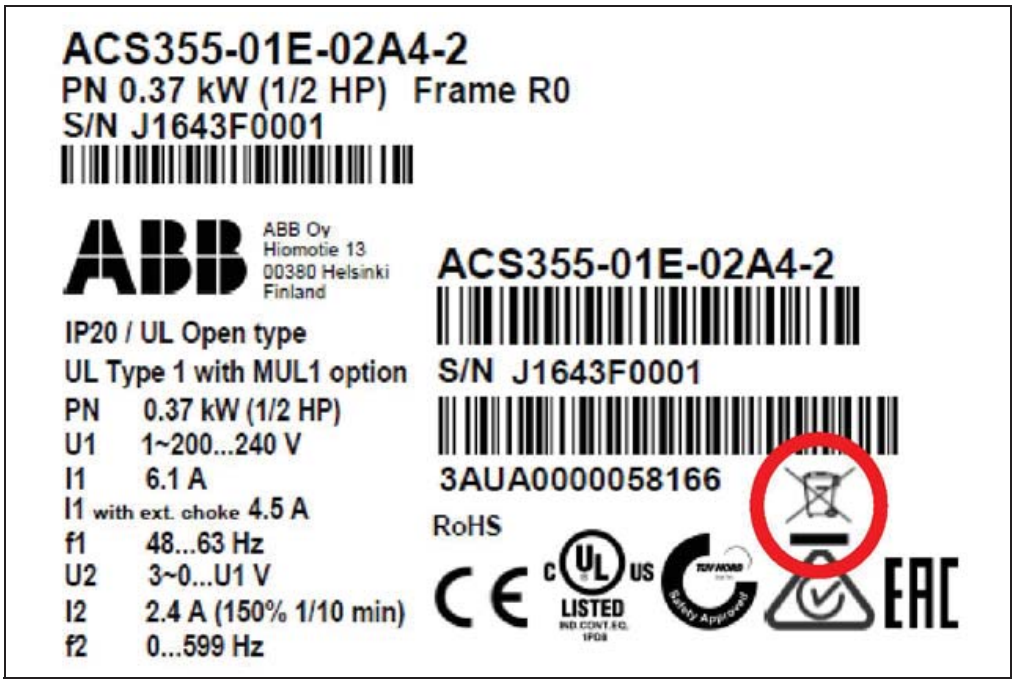
It should be disposed of separately at an appropriate collection point and not be placed in the normal waste stream.

The figure below shows the wheelie bin symbol indicating separate collection for electrical and electronic equipment (EEE).

The horizontal bar underneath the crossed-out wheelie bin indicates that the equipment has been manufactured after the Directive came into force in 2005.

The wheelie bin symbol is added to the type designation label of the product since 2017.

The figure below shows an example.



This manual contains information for treatment facilities in accordance with the EU directive on waste electrical and electronic equipment (WEEE).

The WEEE directive is implemented through national regulations and therefore requirements vary in each EU member state.

Drives are always parts of other machines or equipment and they are covered by the WEEE directive when the end product is covered. Inclusion or exclusion depends on the application of the drive.

The WEEE directive does not apply to drives which are used in large-scale fixed installations, large-scale stationary industrial tools, means of transport for persons and goods, or non-road mobile machinery made available exclusively for professional use.

ABB recommends to contact local environmental authorities for up-to-date information about national recycling requirements.

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 new.abb.com/service/training.

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