ABB Drives

Recycling instructions and environmental information
ACS600 product family

Power and productivity
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List of related manuals

Drive hardware manuals and guides	Code (English)
ACS600 recycling instructions and environmental information	*3AFE64428969*
ACS600 MultiDrive Hardware Manual	*3AFY63700118*
ACS600 MultiDrive Modules Installation Manual	*3BFE64119010*

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

ACS600 product family

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3AFE64428969 Rev D
EN
EFFECTIVE: 2017-01-27

Table of contents

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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:

- ACS600 product family, module frame sizes R2 to R9
- accessories and option modules.

The document applies to products ACx 6xx (ACS, ACP, ACF, ACC, ABE, ADE, AKO, GME, AVO and API) excluding cabinet assembly.

Target audience

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

Contents of the manual

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

This manual contains the following chapters:

- *Product materials*
- *Manufacturing and use*
- *Product disposal*

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.

We recommend to contact local environmental authorities for up-to-date information about national recycling requirements.

Frame size

This manual covers all different 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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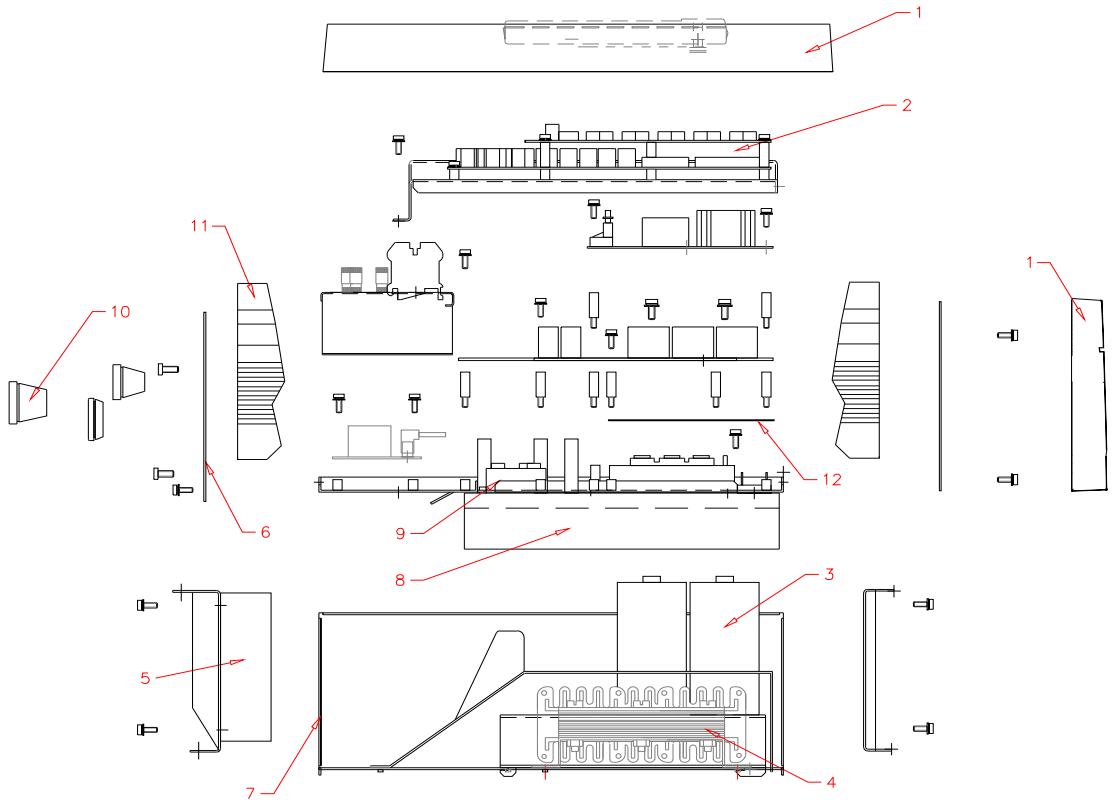
Product materials

Contents of this chapter

This chapter describes the main components and product materials of the ACS600 drive.

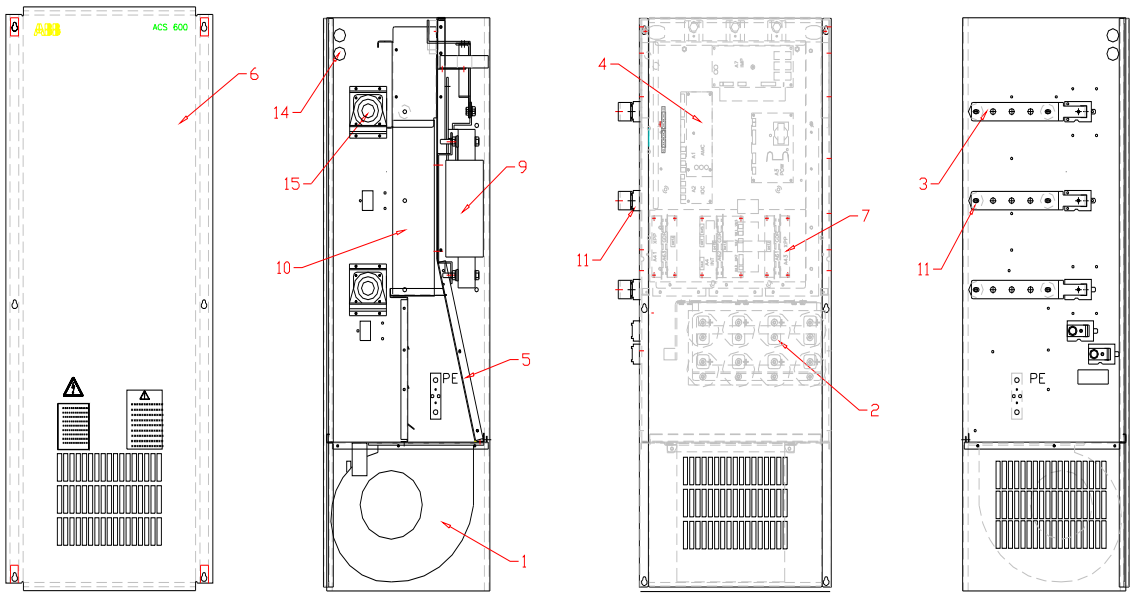
Structure of the ACS600 module

The main components of the ACS601 module of frame sizes R2 to R6 are shown in the figure below.



Part No.	Name	Materials	Weight / kg
1	Cover parts	PS (STYRON, Lacqrene®), front cover Cu-coated	0.6...1.0
2	Printed circuit boards	Various (FR4)	
3	Electrolytic capacitors	Al, electrolytic solute	0.24...2.64
4	Chokes	Fe, Cu + various	2.5...9.0
5	Fan	PBT, PA, Cu, Al	0.3...0.76
6	Sheet metal parts	Zn-coated steel	6.4...16.5
7	Sheet metal part paint	Polyester powder paint (Teknos CZ 8080®)	
8	Heatsink	Al alloy (Mg, Si)	1.5...12.6
9	Semiconductors	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	
10	Membrane packing	EPDM / CR	
11	Side profile	Anodised Al alloy	1.6...2.8
12	Insulating plate	PC (Lexan 9030®)	
13	Screws	Zn-coated steel	
14	Cables and wires	PVC, Cu, Sn + various	
15	Busbars (R4...R6)	Sn-coated Cu	
		Total weight	**14...50 kg**

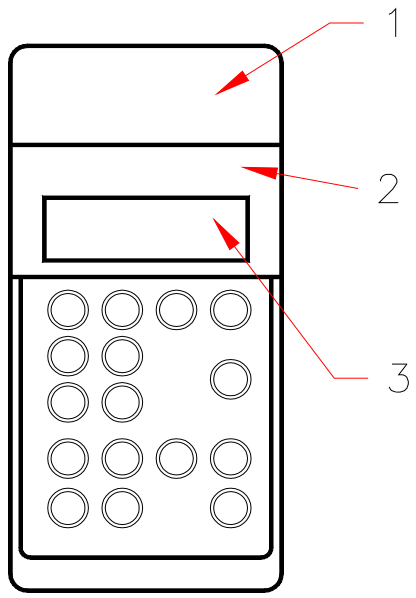
The main components of the ACS601 module of frame sizes R7 to R9 are shown in the figure below.



Part No.	Name	Materials	Weight / kg
1	Fan R8 / R9 Fan R7 (2 pcs)	Zn-coated steel, Al, Cu PBT, PA, Cu, Al	10.0 / 12.0 2 x 0.76
2	Electrolytic capacitors	Al, electrolytic solute	3.5...13.2
3	Busbars	Sn-coated Cu	4.0...18.0
4	Printed circuit boards	Various (FR4)	
5	Sheet metal parts	Zn-coated steel	37.5...63.5
6	Sheet metal part paint	Polyester powder paint (Teknos CZ 8080®)	
7	Semiconductors	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	
8	Insulating plates	PC (Lexan 9030®)	
9	Chokes	Fe, Cu + various	18.0...38.0
10	Heatsinks	Al alloy (Mg, Si)	9.0...24.0
11	Insulating supports	PA, GF, epoxy	
13	Screws	Zn-coated steel	
14	Membrane packing	EPDM / CR	
15	Transducers	PC (Lexan 2814®), PUR (Damival 13552®), Cu	
16	Cables and wires	PVC, Cu, Sn + various	
		Total weight	**88...171 kg**

Control panel

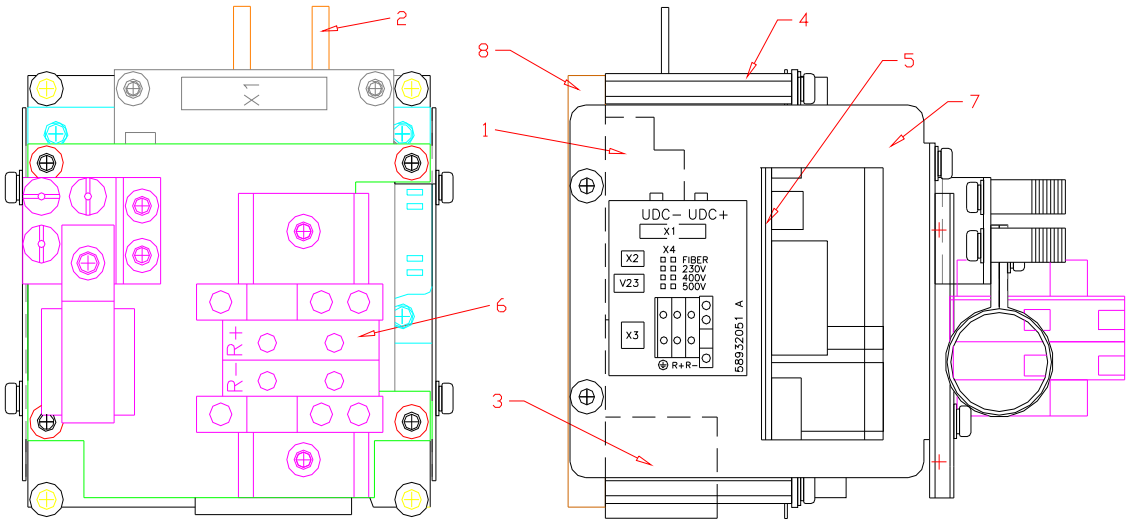
The main components of the control panel are shown in the figure below.



Part No.	Name	Materials	Weight / g
1	Frame	PC + ABS = Cycoloy®	90
2	Lens	PC (Lexan®)	20
3	LCD display + printed circuit board	Various	70
		Total weight	**180 g**

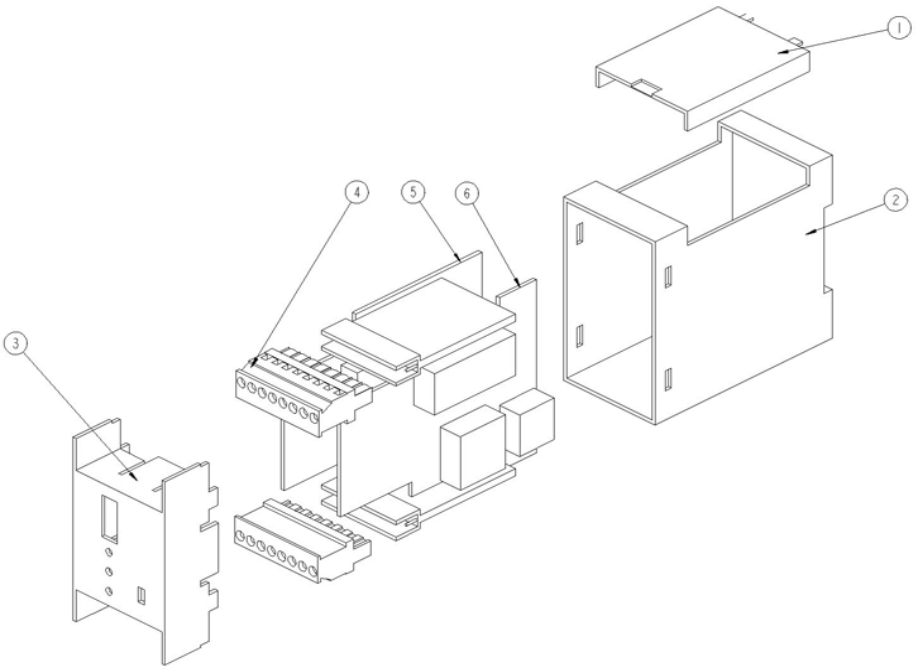
Option modules

Brake chopper unit



Part No.	Name	Materials	Weight / kg
1	IGBT module	Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	0.17...0.91
2	Busbars	Sn-coated Cu	0.08...3.34
3	Clamp capacitor	PP, Al, Sn, Brass, Epoxy	
4	Insulating supports	PA, GF	
5	Printed circuit board	Various (FR4)	
6	Connector	Various	
7	Sheet metal parts	Zn-coated steel	0.41...10.8
8	Heatsink	Al alloy (Mg, Si)	0.3...10.0
9	Screws	Zn-coated steel	
10	Cables	PVC, Cu, Sn + various	
11	Insulating plate	PC (Lexan 9030®)	
		Total weight	**1.6...26 kg**

Control option module



Part No.	Name	Qty	Materials	Weight / g
1...3	Frame parts	3	ABS	55
4	Connector	1...2	ABS, PA, Ni or Sn-plated brass	17...33
5, 6	Printed circuit boards	2	Various	105...120
			Total weight	**178...209 g**

IAll screws in ACS600: carbon steel, Pozidrives or Torx recess, zinc plating

Plastics and rubber	
ABS	Acrylonitrile-butadiene-styrene
CR	Chloreprene rubber
EPDM	Ethylenepropylenerubber
GF	Glass fibre
PA	Polybutene terephthalate
PBT	Polyamide
PC	Polycarbonate
PP	Polypropylene
PPS	Polyphenylenesulfide
PS	Polystyrene
PUR	Polyurethane
PVC	Polyvinyl chloride

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

Package

The product package is made of corrugated board (frame sizes up to R5 and option modules) or plywood (frame sizes from R6 upwards).

The package is covered with plastic covering made of polyethylene (PE-LD) and tied with polypropylene (PP) or steel bands.

Option boards are in protective polyethylene (PE-LD) bags.

You can recycle all materials used in the package.

To avoid pollution caused by unnecessary transportation, the factory does not take back used packages. Contact your local ABB office for package recycling instructions if needed.

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 Oy (Finland) has a company-wide integrated quality, environmental and occupational health & safety management system. The system is certified in accordance with requirements of the international standards ISO 9001:2015 and ISO 14001:2015.

The Integrated Management System applies to all units of the company.

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.

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.

Dismantling

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 according to their material contents as follows:

- ferrous metals (plates, screws)
- aluminum (heatsink)
- plastics
- printed circuit boards
- electrolytic capacitors (mounted on the main circuit board)
- 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 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.

Reference list

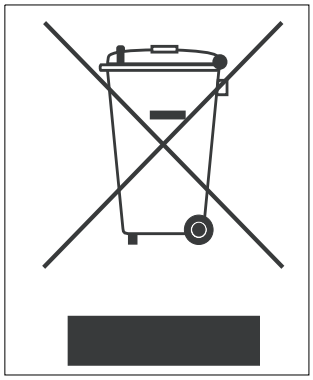
1. Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS II).
2. Regulation No 1907/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning 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).

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.

You should dispose of it separately at an appropriate collection point and not place it in the normal waste stream.

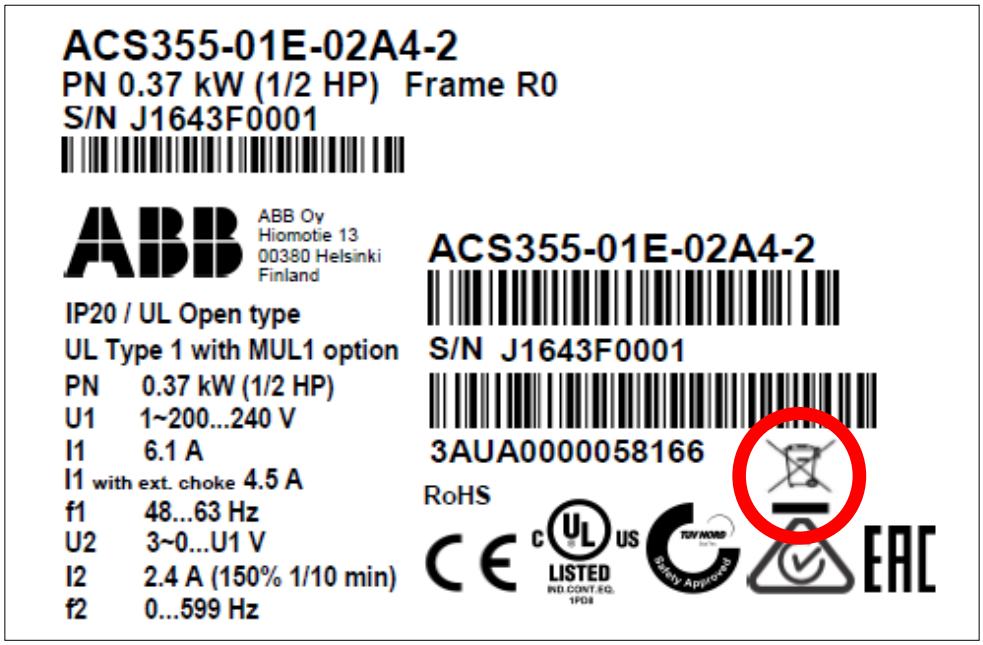
The figure below shows the wheelie bin symbol indicating separate collection for electrical and electronic equipment (EEE).



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.



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 capacitors	Recycled as WEEE
Cables	Recycled as material
Ceramics	Landfilled
Other materials	Energy recovery (incineration)

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.

Providing feedback on ABB manuals

Your comments on our manuals are welcome. Navigate to new.abb.com/drives/manuals-feedback-form.

Document library on the Internet

You can find manuals and other product documents in PDF format on the Internet at www.abb.com/drives/documents.

ABB environment policy

You can find ABB's environmental policy on the Internet at new.abb.com/sustainability/environment-policy.

ABB group sustainability objectives

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

ABB list of prohibited and restricted substances

You can find the ABB list of prohibited and restricted substances at new.abb.com/sustainability/environment.

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3AFE64428969 Rev D (EN) 2017-01-27

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