
PRODUCT CATALOG

ABB drives and controls

The green guide to more profitable business



- Improving energy efficiency is the fastest, the most sustainable and the cheapest way to reduce greenhouse gas emissions
- The installed base of ABB drives saves over 310 million megawatt hours per year. This is equivalent to the amount of energy used by 75 million households

—
Technology is the core of our business. For over 100 years we have invested a significant proportion of our turnover in research and development.

As a result, we developed the very first high-power AC drive in the 1970s, and today we offer you the most advanced range of variable speed drives in the world.

Still, the cutting edge technology is not the only thing that makes us the global leader in AC and DC drives. You can expect more from us.



ABB drives and controls

The green guide to more profitable business

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What can you expect from the world's largest drives manufacturer?

Our equipment is only a part of the solution

Our commitment to service aligns with the technology expertise of our R&D department. This means a local presence wherever you are in the world, providing knowledgeable customer service, access to support and expertise, advanced tools, and a technical partnership that brings you added value whether you are a system integrator, OEM, or end user.

Count on us to thoroughly comprehend your business, processes, and needs from A to Z. Leveraging our experience, we aim to boost your production capacity,

elevate product quality, and minimize waste and maintenance costs. Our dedicated experts speak your language, guiding you to the most efficient and profitable solutions without compromising personnel safety or environmental responsibility.

Buy a drive, and our expertise is part of the deal

When you buy an ABB drive, the world's leading application engineering organization is at your service. We have a thorough knowledge of all applications from pumps, fans, and compressors to conveyors, extruders, winders, and marine applications. In your plant, our expertise



covers every step of the electrical installation process. This includes correct selection, dimensioning, and installation to operation and maintenance of drives, PLCs, motors, transformers, relays, switches, contactors. It extends all the way to transducers and meters.

Our offering is digitally enabled, seamlessly integrating connectivity, data analytics, and data management to optimize your operations for efficiency, predictability, and safety. Making optimal choices not only conserves energy but also diminishes maintenance needs. For example, combining ABB motors and drives not only enhances

performance but also minimizes the life-cycle cost of pumps, fans, and other driven machines, as well as the overall mechanical installation.

Wherever our equipment goes, we are there to support your business

You can expect us to be by your side wherever you are in the world. Our companies and sales offices are at your service in more than 100 countries, and one of our authorized channel partner companies is likely to be located in your neighborhood. If you are a machine builder, ABB can be a vital part of your customer service offering.



The most effective way to a more sustainable process is also the most profitable



Improve your processes with drives

INCREASED LIFETIME – A lower starting current decreases the electrical stress on the motor and network, while a smooth ramp up to full speed also reduces mechanical wear on your equipment, prolonging its lifetime.

INCREASED PRODUCTIVITY – The use of drives enhances the productivity of applications by reducing unplanned stops caused by excessive heating of the motor or sudden breakdowns of mechanical equipment due to high mechanical stress.

REDUCED NEED FOR MAINTENANCE – Being able to apply a softer starting moment and vary the speed and torque of an electric motor reduces wear and tear on both the motor and the machine it is driving. The ability to gradually bring a process up to speed helps prevent sudden shock loading, which can, over time, damage both motors and machines.

Further optimize your processes with AC drives

SUBSTANTIAL ENERGY SAVINGS – Rather than have an electric motor running continuously at full speed, using an electric drive allows the user to slow down or speed up the motor according to demand. Reducing motor speed in line with the actual demand of the process often means substantial energy savings and reduced operating costs.

OPTIMAL PROCESS CONTROL – An electric drive facilitates the attainment of the precise speed and torque required for a process, ensuring accuracy and, consequently, contributing to consistent end-product quality and throughput.

EFFICIENT SYSTEM UPGRADE – An electric drive allows for the removal of valves, gears, and belts, while also ensuring network dimensioning based on a lower starting current.

FUNCTIONAL SAFETY – Most ABB drives offer functional safety features to protect machine operators. These features comply with the requirements of the European Union Machinery Directive 2006/42/EC. This directive is associated with standards like EN 62061 (IEC, defining SIL – Safety Integrity Level) and EN ISO 13849-1 (defining PL – Performance Level).

ABB drives common features

EASY TO SELECT – Finding the right product for your application is easy with our wide selection of ABB drives.

EASY TO PURCHASE – ABB drives are available directly from ABB and through selected ABB channel partners. Contact us to learn more and check the [ABB Channel Partners page](#) for additional details about ABB Value Provider network.

EASY TO INSTALL AND COMMISSION – ABB drives are not only simple to install but also offer a variety of mounting options, ranging from wall-mounted to cabinet-mounted configurations.

EASY TO USE – ABB drives are designed for easy installation, commissioning, and use. The user interface enables instant adjustments to speed or other advanced parameters.



As part of ABB's sustainability strategy, the company will provide Environmental Product Declarations for relevant products, contributing to transparent and environmentally conscious business practices.

Environmental Product Declarations (EPDs) are standardized, third party verified, documents that provide information about the environmental performance of a product throughout its life cycle. They are based on Life Cycle Assessment (LCA) data and provide information on a range of environmental impacts such as carbon footprint, energy consumption, and resource use. EPDs are part of ABB's commitment to transparency and environmental sustainability.

ABB Drives EPDs include:

1. Raw materials extraction and processing:
Information about the materials used in the product.
2. Manufacturing process:
Details about the manufacturing process, energy consumption, and emissions during production.
3. Transportation:
Information on the transportation of raw materials to the manufacturing site, and the transportation of the finished product to the end-user.
4. Installation:
Environmental impacts associated with the installation process, including energy use and emissions.
5. Use phase:
Energy consumption during the operation of the frequency converter based on efficiency its rating.

6. Maintenance:
Information about the environmental impact of maintaining and servicing the frequency converter during its operational life.
7. End of life:
Details about the recyclability of the product and the environmental impact of its disposal.

Environmental impact categories:

EPDs include information on a range of environmental impact categories, such as global warming potential, ozone depletion, acidification, eutrophication, and others.

Declaration of Global Warming Potential (GWP):

Information about the product's contribution to climate change, expressed in terms of carbon dioxide equivalent (CO₂-eq).

ABB Group EPDs follow the ISO 14025 standard.

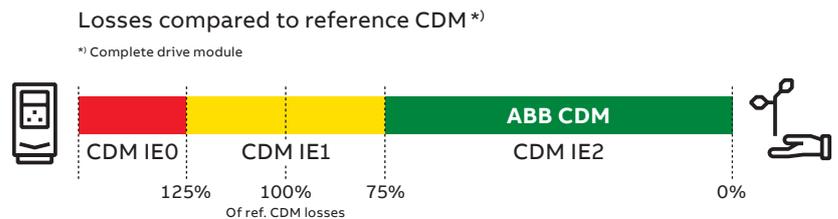
The ABB EPD's can be found here:
[Environmental Product Declarations](#)
– ABB Group (global.abb)

ABB AC drives comply with the EU Ecodesign requirements

The Ecodesign regulation (EU) 2019/1781 is the legislative framework, that sets minimum energy efficiency requirements for low voltage induction motors and variable speed drives. AC drives and power drive systems are classified according to their power losses. From July 2021, the minimum requirement for non-regenerative AC drives in EU is IE2.

ABB's AC drives (micro and machinery, general purpose, industrial and industry-specific drives) comply with the strictest requirements of the standard for energy efficiency and are classified as IE2.

Energy efficiency classes for a Complete Drive Module (CDM)



Markings on the ABB LV AC drives

Unique identifier QR code to Ecodesign information



IE class and % loss of rated apparent power 50 Hz, 400 V

IE2 (90;100) 2,3 %

Unique QR codes are located on the rating plate and/or the front side of the drive.

ABB EcoDesign web-based tool



- Calculates absolute and relative losses and efficiency data at standard and user-defined operating points according to EU regulation 2019/1781 for complete drive module (CDM), LV motors with VSD supply, and power drive system (PDS)
- Losses and efficiency data at operating points in graphical and table format
- Printable efficiency report with possibility to customize title and additional details
- Report can be converted to PDF or CSV format and shared via email

The regulation was implemented in two steps:

Step 1: July 1, 2021

- Power range: from 0.12 to 1000 kW
- 3-phase LV AC drives with diode rectifier
- Drive manufacturers must declare power losses in percentage of the rated apparent output power at 8 different operating points as well as standby losses. The international IE level is given at the nominal point. Drives fulfilling the requirements will be CE marked.

Out of scope of the regulation:

- All drives without CE marking
- Following low voltage AC drives: regenerative drives, low-harmonic drives (THD < 10%), multiple AC-output drives and single-phase drives.
- Medium voltage drives, DC drives and traction drives
- Drive cabinets with already conformity assessed modules

Step 2: July 1, 2023

No changes for AC drives

For more information, see: ecodesign.drivesmotors.abb.com

ABB Value Provider network to serve your needs

ABB's carefully selected channel partners are regularly trained, audited, officially authorized and fully supported. They are periodically assessed on the ABB offering they specialize on to ensure the customer expectations are fulfilled.



ABB Value Providers are members of the ABB channel program – the ABB Value Provider Program.

Products and services for your specific needs

With ABB Value Providers' in-depth knowledge of local markets and business requirements, and their expertise in selected products and services, they can ensure speed, efficiency and consistency in daily operations.

Their work secures that ABB products are backed by the same high standards of service and support all over the world.

Different partner profiles for different needs

Channel type	Focused offering	Authorization for
Distributor	Availability	Sales
Technical distributor	Product specialist	Sales Support Service *) Engineering *)
System integrator	Hardware and software integration	Sales Support Service *) Engineering
Panel builder	Panel designs	Engineering
Service provider	Life cycle provider	Support Service

*) Optional

Authorized

Customers know they receive the highest quality and globally consistent customer support and services when they see the ABB Value Provider program label. Only ABB Value Providers are authorized to use this label.

Looking where to buy?

To learn more about our unique ABB Value Providers near you, please visit:

new.abb.com/drives/drivespartners



When you're looking for ABB products and services, look for this label. The sign of quality services from ABB Value Providers.

Our extensive drives and controls portfolio means the most optimal solution for you

ABB low voltage AC drives

The ABB low voltage AC drives product range, from 0.18 to 5600 kW, is the widest selection available from any manufacturer. These drives establish the global benchmark signifying reliability, simplicity, flexibility and ingenuity throughout the entire life cycle of the drive.

ABB micro drives

ABB micro drives are suitable for a variety of low power applications such as pumps, fans and conveyors. The focus in the design has been the easy integration into machines, which provides flexible mounting and straightforward commissioning.

ABB machinery drives

ABB machinery drives can be flexibly configured to meet demands set by different machines. An order-based configuration is an integral part of the machinery drives offering. The drives have a broad range of standard and optional features. Their programming capability offers additional flexibility to meet challenging machine requirements.

ABB general purpose drives

ABB general purpose drives are easy to install, commission and use. They are designed to offer control over a broad range of standard drive applications and have a wide range of built-in features simplifying all operations.

ABB industry specific drives

The drives for HVAC, and water and waste water provide customers with dedicated drive solutions for virtually any type of motor control which speaks the same languages as users and their systems.

ABB industrial drives

ABB industrial drives are highly flexible AC drives that can be customized to meet the precise needs of industrial applications. The drives cover a wide power and voltage range up to 5600 kW and 690 V. The drives are designed for industrial applications such as those found in pulp and paper, metals, mining, cement, power, chemical, oil and gas, water and wastewater, and food and beverage. Drives adapted and approved for use in marine environment are also included in this drives family.

ABB wind turbine converters

ABB offers wind turbine converters for small-scale and utility-scale wind turbines. ABB wind turbine converters, suitable for any of today's turbine concepts, deliver durable, reliable performance and are backed by a complete set of life-cycle services.

ABB servo drives

ABB servo drives offer flexible technologies and high performance motor control for a wide variety of applications. The drives enable operation with single and three-phase supplies for global markets, and have open communication options as well as real-time Ethernet technologies such as EtherCAT® and POWERLINK. In addition to drives, ABB offers complete motion control solutions, including human-machine interfaces, programmable logic controllers, safety technology and servo motors.

ABB medium voltage AC drives

ABB offers an extensive portfolio of variable speed drives and soft starters for medium voltage applications with a power range from 250 kW to over 100 MW.

ABB medium voltage drives are used in a wide range of applications in industries such as metals, marine, mining, cement, power, chemical, oil, gas, water and wastewater.

The drives are equipped with air or water cooling and with different line supply connection options. Some products come with an integrated input transformer or with the capability to operate direct-to-line without an input transformer, and therefore minimize both, weight and space.

ABB general purpose and industrial drives

ABB general purpose and industrial drives are used to control standard motors. These motors are typically used to drive applications such as pumps, fans, compressors, mixers, mills and conveyors.

ABB special purpose drives

Special purpose drives are engineered drives, typically used for high power, high speed or special performance applications such as test stands, marine propulsion and thrusters, rolling mills, SAG and ball mills, large pumps, fans and compressors.



ABB DC drives

ABB's DC drives portfolio, from 9 to 18000 kW, provides the highest power-to-size ratio on the market. The drives are designed for most industries and applications including metals, cement, mining, pulp and paper, printing, food and beverage, wire manufacturing, and test rigs. ABB DC drives are available as complete cabinets, modules for cabinet assembly, and retrofit kits.

The DC drives feature auto-tuning capabilities. Intuitive user software minimizes startup time and improves daily operation. This helps to increase process productivity and improve production quality.

ABB standard drives

With compact dimensions and robust technology, ABB standard drives are an ideal solution for any machinery and OEM manufacturer as a new installation or a replacement for older analog devices.

ABB industrial drives

ABB industrial drives are designed for all industrial applications. The fast drive-to-drive DCS link is designed for demanding high power 12-pulse applications, as well as smart master-follower configurations. ABB industrial drives are available both as complete enclosed DC drives and as converter modules to meet the requirements of the users, OEMs and system integrators. These drives are highly flexible and they can be configured to meet the precise needs of industrial applications.

Power controller

The DCT880 thyristor power controller provides precise control of resistive or inductive heaters and infrared heaters in applications for annealing, drying, melting or heating in glass, plastic or metal industry.

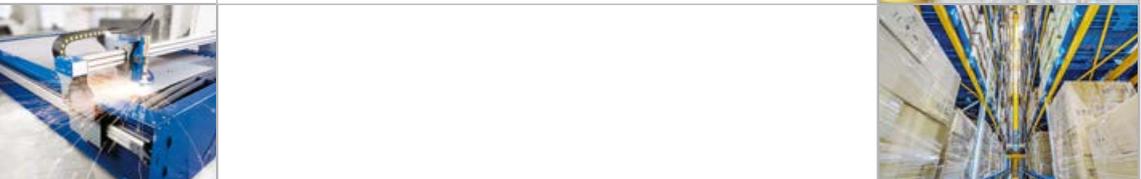
ABB Programmable Logic Controllers (PLCs)

ABB offers a comprehensive range of scalable, powerful PLCs and robust HMI control panels. The PLC range starts with the cost-efficient AC500-eCo. AC500 is the powerful flagship PLC, offering a wide range of performance levels. High availability configurations are easy to implement. For extreme conditions like in marine, wind, solar, vibrating machines and waste water treatment, the AC500-XC series is the first choice. AC500-S is the ideal choice for simple and complex safety solutions. Automation Builder is the effortless, straightforward engineering tool for PLC, drives, HMI and internet services.

Product positioning by applications

Right products to right customers

Servo drives	Micro drives	Machinery drives		High performance machinery drives
				
e180 & e190	ACS150	ACS180	ACS380	ACS880-M04

Variable torque	Pumps, Fans, Agitators			
Basic constant torque	Compressors, Belt conveyors, Gates			
High torque requirements	Mixers, Extruders, Screw conveyors, Centrifuges, Rolling mill			
High precision, open or closed loop	Cranes, Spindles, Winding and unwinding			
High torque, precision and enhanced safety	Cranes, Winches, Kilns			
Position control and synchronizing	Stacker cranes, Rotary tables, Converting machinery			

Drive modules for **OEMs** and **system integrators**

General purpose drives	HVACR drives	Water & wastewater drives	Industrial drives	DC drives
 <p data-bbox="145 882 268 904">ACS480/580</p>	 <p data-bbox="427 882 552 904">ACH480/580</p>	 <p data-bbox="730 882 815 904">ACQ580</p>	 <p data-bbox="1018 882 1098 904">ACS880</p>	 <p data-bbox="1278 882 1401 904">DCS880/550</p>
				
				
				
				
				
				

Complete products for **distribution** and **end-users**

ABB low voltage AC drives

The ABB low voltage AC drives product range, from 0.18 to 5600 kW, is the widest selection available from any manufacturer.

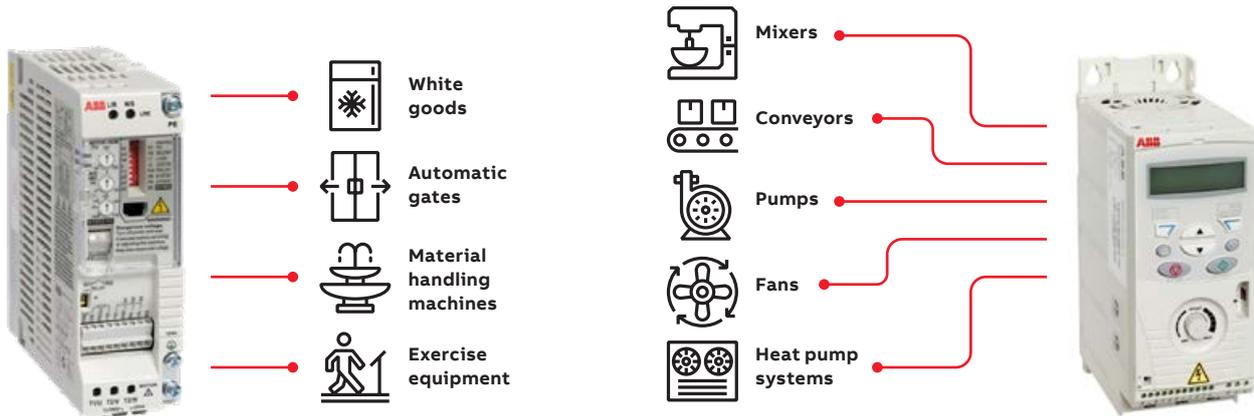


These drives establish the global benchmark signifying reliability, simplicity, flexibility and ingenuity throughout the entire life cycle of the drive.



ABB micro drives for basic applications

ABB micro drives are very easy to install and set up. They provide flexible mounting alternatives and straightforward configuration for many basic applications. Where ever the micro drives are delivered and installed the local ABB will be there to support your business.



Little big drives easy to set up using switches

ACS55

Highlights

- The drive works with single phase power and can be used in a wide variety of simple machines such as automatic gates, solar trackers, treadmills, whirlpool baths, fans, and conveyors.
- Intuitive user interface with DIP switches and potentiometers
- DriveConfig kit enables drive set up without a power connection to the drive

Features

- Power range 0.18 to 0.37 kW (1-phase 100 to 120 V)
- Power range 0.18 to 2.2 kW (1-phase 200 to 240 V)
- IP20 enclosure (UL open type)
- For basic machinery applications
- Scalar control
- Entry-level product for new users
- Suitable for domestic networks as standard
- Parameter setting by switches or by PC software
- Built-in C2 EMC filter
- Options
 - DriveConfig kit PC tool, potentiometer
 - Input and output chokes

For further information, see catalog "ABB micro drives, ACS55, 0.18 to 2.2 kW", code: 3AFE68899842 EN.

Little big drives with a wider power range and functionality

ACS150

Highlights

- The ACS150 drives are designed to be incorporated into a wide variety of machines such as mixers, conveyors, fans or pumps or anywhere where a fixed speed motor needs to run at variable speed.
- A more advanced micro drive with functions such as PID control and a built-in brake chopper
- Integrated user interface and a speed control potentiometer
- The drive is available for both single and three-phase supplies

Features

- Power range 0.37 to 2.2 kW (1-phase/ 3-phase 200 to 240 V)
- Power range 0.37 to 4 kW (3-phase 380 to 480 V)
- IP20 enclosure (UL open type), optional NEMA 1 kit
- For basic machinery applications
- Scalar control
- Integrated user interface and potentiometer
- Built-in brake chopper
- Built-in C3 EMC filter
- Options
 - External C2 EMC filter
 - Input and output chokes
 - FlashDrop tool for unpowered drive configuration in 2 seconds

For further information, see catalog "ABB micro drives, ACS150, 0.37 kW to 4 kW", code: 3AFE68596114 EN.



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About 70 percent of electricity consumed by industry is used to run electric motors.

Machinery drives

Keep your machines running

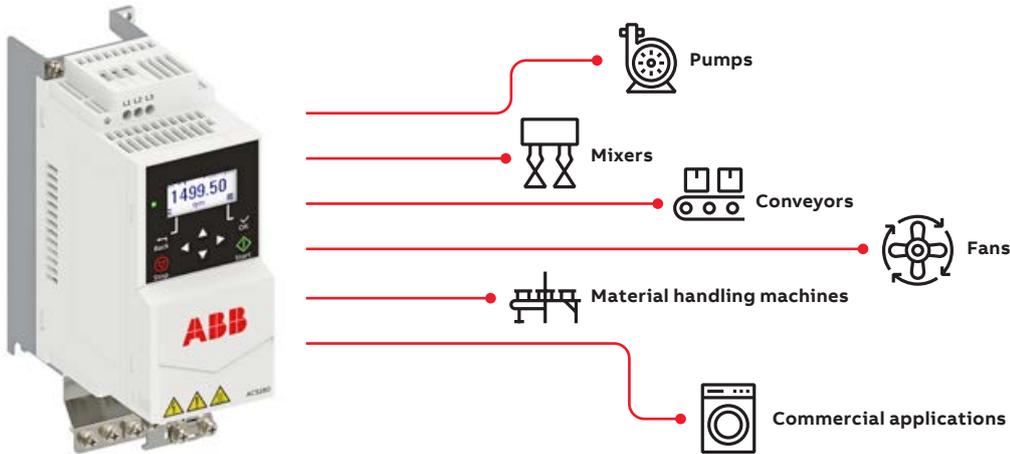


The all-compatible machinery drives provide high performance, adaptability and dependability for machine building needs. The drives help machine builders improve machine performance and provide more added value for their customers, while simultaneously cutting integration and maintenance costs.

The ACS180, ACS380 and ACS880 machinery drives are part of ABB's all-compatible drives portfolio, offering technically compatible drives with long-term solutions and support for users, processes, business and the environment.



Machinery drives



Compact drive with essentials for machine builders

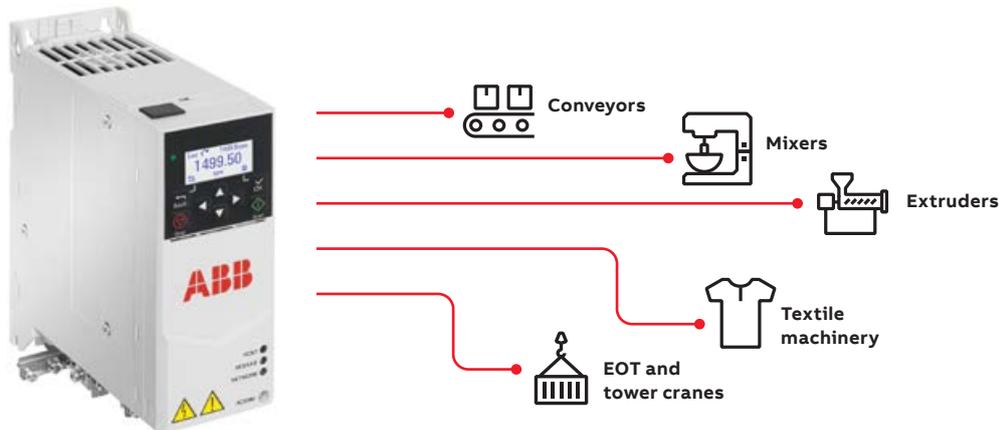
ACS180

Highlights

- Excellent motor control performance with open-loop vector control, supporting induction and permanent magnet motors
- Reliable operation even in harsh conditions – coated boards, optimized air flow, 50C ratings and full earth fault protection
- Dual ratings in one drive, support both heavy overloadability and light overloadability, optimal selection for pumps and fans
- Compact size, easy to be installed in small spaces and side-by-side
- Versatile integrated features: EMC filter, Safe Torque Off (STO), user panel, Modbus RTU
- Adaption to extended needs of machine via adaptive programming
- Part of ABB all-compatible drives portfolio

Features

- Power and voltage range:
 - 0.25 to 3 kW (1-phase 200 to 240 V)
 - 0.25 to 11 kW (3-phase 200 to 240 V)
 - 0.37 to 22 kW (3-phase 380 to 480 V)
- Enclosure class: IP20 as standard
- Integrated EMC filters C2 for 1-phase 200 V and C3 3-phase 400 V standard for ACS180-04S drives
- Integrated Safe Torque Off (STO) as standard for ACS180-04S drives
- Built-in Modbus RTU
- Integrated, icon-based control panel
- Scalar control and sensorless vector control
- Customized functions with adaptive and sequence programming
- Common DC connection and built-in braking chopper for R2 to R4 frame
- Options
 - Advanced control panel with USB or Bluetooth connectivity



Reliable performance and ease of integration for machine builders

ACS380

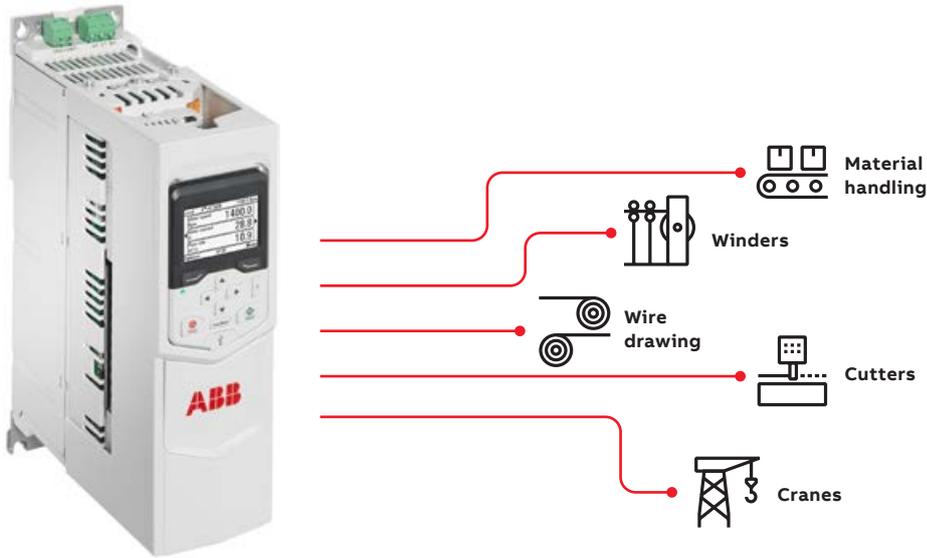
Highlights

- Precise motor control for multiple motor types including induction, permanent magnet and synchronous reluctance motors
- Motor control performance with 3-phase current measurement meets demanding load profile requirements
- Connects with all major industrial automation networks
- Safe Torque Off (STO) is built-in as a standard, and can be controlled via PROFIsafe with an optional module
- Adaptive programming for logic development to customize drive operation for application specific requirements
- Designed to last 10 years or more
- Part of ABB all-compatible drives portfolio

Features

- Power and voltage range:
 - 0.25 to 2.2 kW (1-phase 200 to 240 V)
 - 0.25 to 11 kW (3-phase 200 to 240 V)
 - 0.37 to 22 kW (3-phase 380 to 480 V)
- Enclosure class: IP20 as standard (optional UL type 1 kit)
- EMC categories C2 and C3 with an internal filter

- Integrated Safe Torque Off (STO) as standard
- Product can be ordered as per application demands
 - Base variant – for I/O control
 - Standard variant – for I/O and Modbus control
 - Configured variant – for fieldbus control, extra I/O's and closed loop with encoders
- Integrated, icon-based control panel
- Scalar control, open and closed loop vector control
- Adaptive programming with function blocks and sequence programs
- Built-in braking chopper
- Common DC connection with built-in charging unit
- Options
 - Fieldbus adapter modules
 - I/O extensions, encoder interface, 24 V auxiliary power
 - PROFIsafe (STO, SS1-t)
 - Input chokes, du/dt filters
 - Advanced control panel with USB or Bluetooth connectivity



Easy to adapt and configure to machines

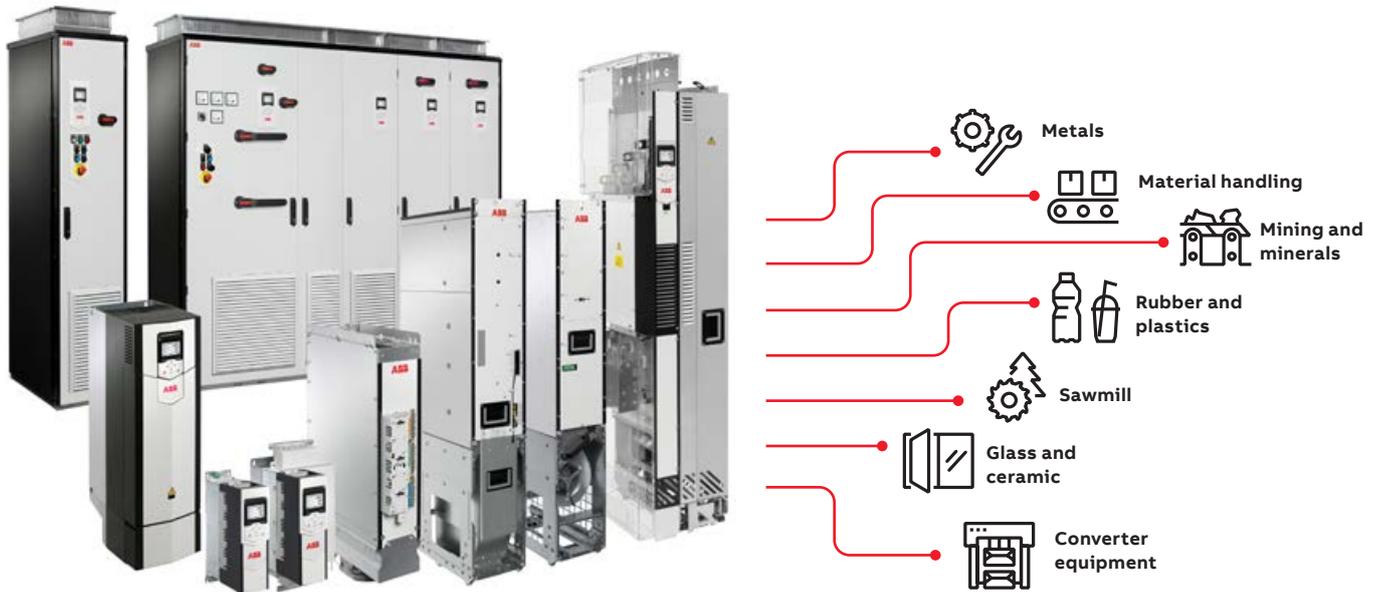
ACS880-M04

Highlights

- Excellent performance and compatibility with all kinds of machines
- Comprehensive connectivity
- Good possibilities for customizing the drive with IEC 61311-3 and adaptive programming
- Cost and time savings with drive-based functional safety
- Removable memory unit for fast drive replacement
- Optimized for cabinet assembly
- Top entry and bottom exit of the power cables enabling the optimal cabinet layout
- Bookshelf design

Features

- Power and voltage range: 3-phase 0.37 to 22 kW, 200 to 240 V AC
- Power and voltage range: 3-phase 0.75 to 45 kW, 380 to 500 V AC
- Enclosure class: IP20
- Integrated Safe Torque Off (STO) as standard
- Built-in braking chopper
- Extensive I/O connectivity as standard
- Options
 - Extended connectivity to I/O
 - Speed and position feedback interfaces
 - Fieldbus adapter modules
 - Advanced control panel with USB or Bluetooth connectivity
 - Built-in/plug-in EMC filters for category C3, external EMC filters for category C2
 - Safety functions: SS1, SSE, SBC, SLS, SMS, SDI, SSM
 - PROFIsafe over PROFINET connectivity between drive and safety PLC
 - Application specific control programs including position control, tower crane, winder, etc.
 - EC61131-3 programming



Power and motion for any axis

ACS880 position control program (+N5700)

Highlights

- Same drive family can be used for any application of the production line – whether it is speed, torque or position controlled
- Ready-made control functions for decentralized motion systems – no need for external position controllers
- Support for virtually any type of motor, feedback device and communication protocol
- Available for any ACS880 hardware – extensive power and voltage range with extensive selection of variants and options
- Member of ABB's all-compatible drives portfolio

Features

- Power and voltage range: 3-phase 0.55 to 5600 kW, 208 to 690 V AC
- Ready-made motion functions for point-to-point movements and axis synchronization
- Possibility to adjust with adaptive programming
- Drive modules or ready-made cabinets
- Single and multidrive solutions
- Different IP classes (IP20/21/55...)
- Different cooling concepts – air, flange (push through), liquid
- Variants for regenerative and ultra-low harmonic operation
- Synchronized drive-to-drive link as standard
- Removable memory unit enabling fast drive replacement without compatibility issues

General purpose drives

Get it fast.

Use it easily.

Improve your processes.

The general purpose drives are designed to control a wide range of applications such as mixers, conveyors, compressors, fans, pumps, and centrifuges.

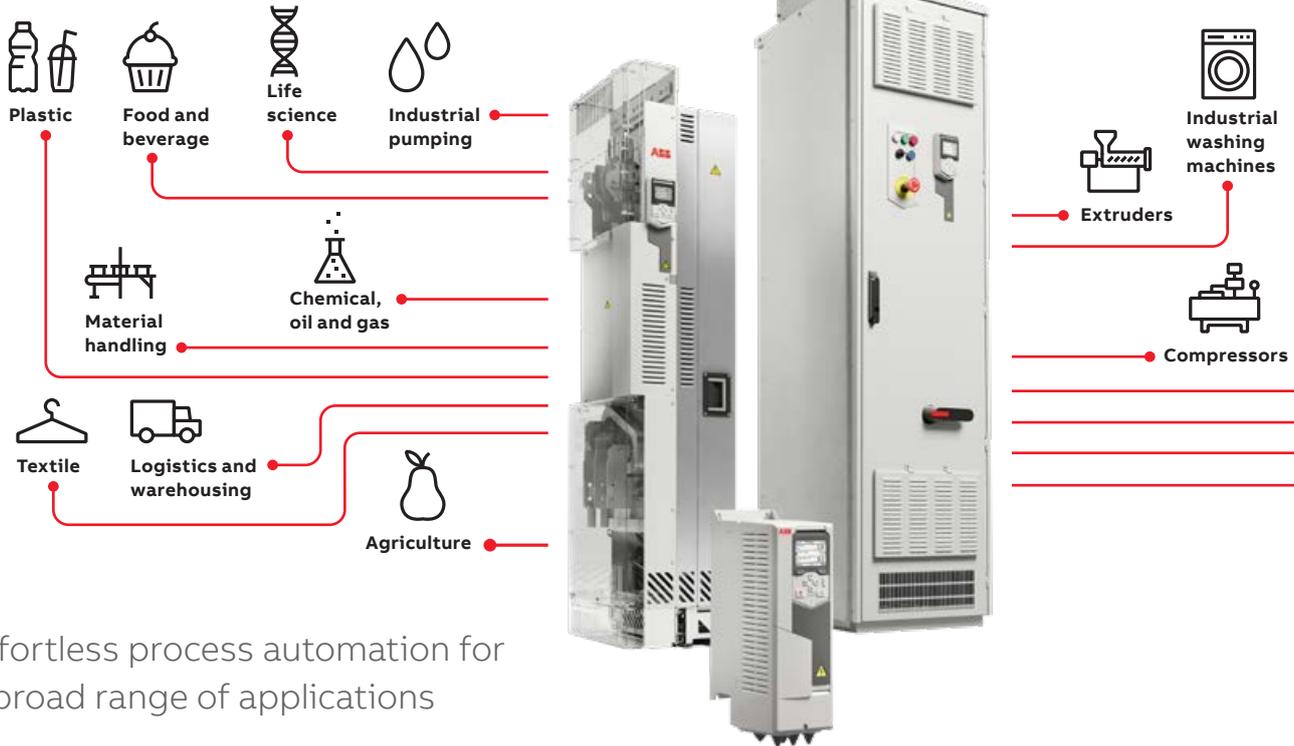
They are also suitable for process control applications in industries such as material handling, food and beverage, chemicals, rubber and plastics, textiles and printing.

ABB has a dedicated software package for the food and beverage industry comprising two parts (Cooling compressor control and Anti-cavitation) to improve processes through segment-specific functions.

The drives are easy to select, install, configure, and use, saving considerable time. They are equipped with ready-made application control logics, making it easy to fulfill application requirements.

The general purpose drives ACS480 and ACS580 are part of ABB's all-compatible drives portfolio, offering technically compatible drives with long-term solutions and support for users, processes, business, and the environment.





Effortless process automation for a broad range of applications

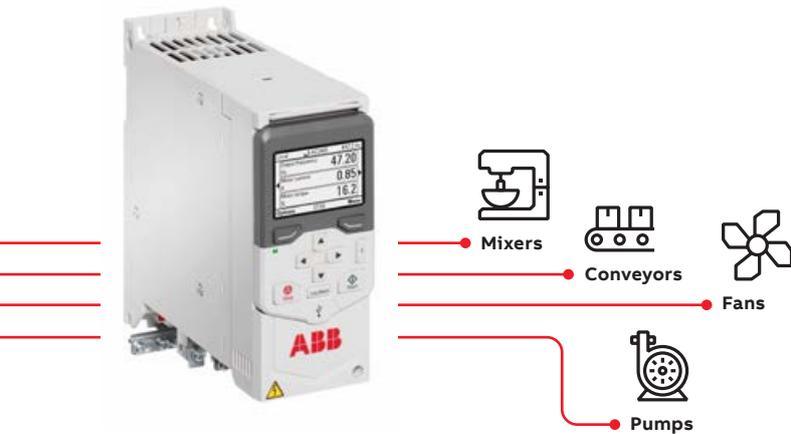
ACS580

Highlights

- Wall-mounted, drive modules and cabinet-built drives to control a variety applications
- Easy to select, install and use
- All essential features built into the drive
- Straightforward settings menu and assistants for fast commissioning
- Food and beverage software package (+N8057) with Cooling compressor control and Anti-cavitation
- Ammonia resistance for the complete drive (+C219)
- Energy efficiency features for optimal energy management and support for energy efficient motors
- Adaptive programming for fine tuning and engineering the drive functionality
- ATEX certified thermistor relay for potentially explosive environment (e.g., dust areas in F&B)
- Connectivity to most common automation networks and extensive selection of I/O options to match your needs
- Member of ABB's all-compatible drives portfolio
- EMC C2 filter for R1-R9 which allows safe installation in first environment
- EMC C3 and common mode filter for R10 and R11 which allow safe installation in second environment
- Integrated EMC C2 filter for cabinet-built drives as standard
- Built-in DC choke in R1-R9, AC choke in R10-R11
- Brake chopper as standard up to 22 kW (R3), optional for R10-R11
- Adjustable switching frequency control reducing motor audible noise
- Options
 - Wide range of fieldbus adapters and remote monitoring
 - Relay extension, PTC-thermistor, I/O options to increase functionality, ATEX-certified PTC-thermistor, analog I/O extension, CAIO-01
 - Free entry level PC tool with USB connection on control panel
- Assistant control panel with Bluetooth capability
- Supports induction motors, permanent magnet motors and synchronous reluctance motors (SynRM)
- Safe Torque Off and Safe Stop over PROFIsafe and CIP-safety

Features

- Power range 0.75 to 500 kW (3-phase 380 to 415 V, 440 to 480 V, 200 to 240 V)
- Wall-mounted drives, IP21 as standard (UL type 1), IP55 as option (UL type 12 in frame sizes R1-R9)
- Drive modules, IP00 as standard, IP20 as option
- Cabinet-built drives, IP21 as standard, IP42 and IP54 as options
- Assistant control panel as standard with primary settings and diagnostics menu with various assistants for effortless use of the drive



Essential process efficiency for many applications

ACS480

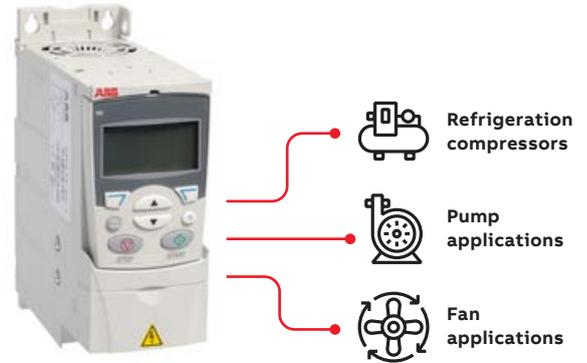
Highlights

- Cabinet-optimized design and all essential features built-in offer pure ease of use for various of applications, such as pumps, compressors, conveyors and fans
- Straightforward settings menu and assistants for fast commissioning
- Food and beverage software package (+N8057) with Anti-cavitation
- Energy efficiency features for optimal energy management and support for energy efficient motors
- Connectivity to most common automation networks
- Member of ABB's all-compatible drives portfolio

Features

- Power range 0.75 to 22 kW (1-phase and 3-phase 200 V to 240 V, 3-phase 380 to 480 V)
- Cabinet-optimized, IP20 as standard
- Assistant control panel as standard with primary settings for quick operation without a need to scroll through parameter lists
- Integrated and preprogrammed features, such as PID, pump and fan macros, timers
- Integrated EMC C2 filter as standard
- Adjustable switching frequency control reducing motor audible noise
- Built-in Safe Torque Off (STO) to enhance safety
- Options
 - Basic control panel, assistant control panel with Bluetooth capability, industrial assistant control panel
 - Most common fieldbus adapters available
- Remote monitoring with NETA-21
- Safe configuration for unpowered drives
- Supports induction motors, permanent magnet motors and synchronous reluctance motors (SynRM)

For further information, see catalog "ABB general purpose drives ACS480, 0.75 to 22 kW", code: 3AUA0000204668 EN.



Built-in features for pump and fan applications

ACS310

Highlights

- Designed for squared torque applications such as pumps and fans, without overload demands
- Compact dimensions with unified height and depth save space and facilitate cabinet installations
- Equipped with pump and fan control (PFC), PID control with booster functionality and pump protection functions, e.g., pump cleaning, pipefill to optimize pump or fan flow, to cut maintenance costs and to save energy

Features

- Power range 0.37 to 2.2 kW (1-phase 200 to 240 V), 0.37 to 11 kW (3-phase 200 to 240 V), 0.37 to 22 kW (3-phase 380 to 480 V)
- IP20 enclosure (UL open type), optional NEMA 1 kit
- Built-in pump and fan features such as multi-pump control, pump clean and soft pipe fill functions
- Built-in C3 EMC filter and Modbus EIA-485 fieldbus interface
- Motor noise smoothing
- Options
 - Basic and assistant control panels
 - Input and output chokes
 - Relay output extension module
 - External EMC C2 filter
 - FlashDrop tool for unpowered drive configuration in 2 seconds

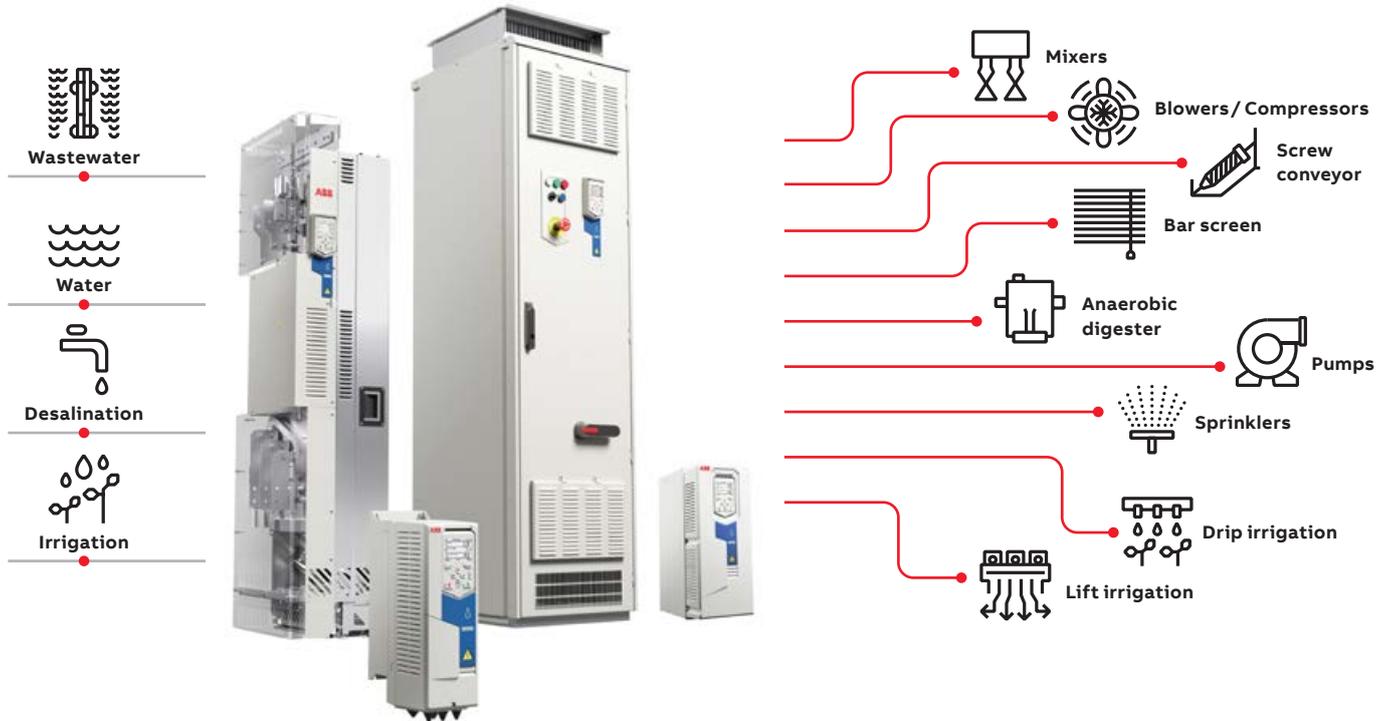
For further information, see catalog "ABB general purpose drives, ACS310, 0.37 to 22 kW", code: 3AUA0000051082 EN.

ABB industry specific drives tailored to save energy and money

ABB industry specific drives provide our customers with dedicated drive solutions for AC motor control used in industries and applications such as HVACR and water and wastewater. Working closely with these industries, we have developed targeted functionality to help you improve your overall operating performance while also helping to reduce energy use. Extremely intuitive control panel with menus and assistants help you easily set up and tailor the drives to meet the needs of your processes.



ABB drives for water and wastewater



Robust design securing optimal flow of water and wastewater

ACQ580

Highlights

- Optimized efficiency of water and wastewater processes
- Enhanced reliability with dedicated pump application functionalities
- Proven performance in demanding environments with robust drives offering
- Seamless integration and operation with wide motor and communication protocol support
- Easy to commission, configure and use with intuitive Hand-Off-Auto control panel that speaks pump language

ACQ580 ultra-low harmonic drives

Highlights

- THDi even less than 3%
- Power factor always 1.0 even with partial loads
- Ability to boost output voltage in weak networks
- Everything built in – no external filters or contactors required

Features

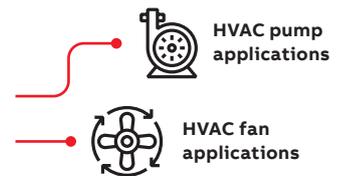
- Power range:
 - 0.75 to 500 kW (3-phase 380 to 480 V)
 - 0.75 to 75 kW (3-phase 200 – 240 V)
 - 0.37 to 37 kW (1-phase 200 – 240 V)
- Ultra-low harmonic drives power range:
 - 4 to 355 kW (3-phase 380 to 480 V)
- Wall-mounted drives, IP21 as standard (UL type 1), IP55 as option (UL type 12)
- Drive module, IP00 as standard, IP20 as option
- Cabinet-built drives, IP21 as standard, IP42 and IP54 as options
- Built-in pump application program with Intelligent multipump functionality, Sensorless flow calculation, Level control, Soft pipe fill, Quick ramps, Anti-cavitation, Pump cleaning and Pump protection functions
- Adaptive programming
- Intuitive and easy to use Hand-Off-Auto control panel available also with Bluetooth functionality
- Built-in choke and EMC filter, category C2
- Functional safety: Safe Torque Off (STO) as standard
- Extended connectivity to I/O
- Coated PCBs for humid and harsh environments



B



ABB drives for HVACR



Compact drive for HVACR pump and fan OEM applications up to 4 kW

ACS320

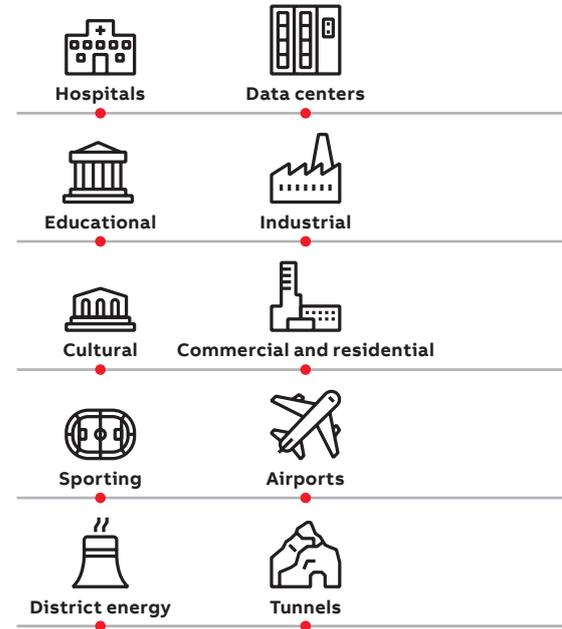
Highlights

- HVACR application specific features
- Seamless integration to BMS
- Saves energy in HVAC systems

Features

- Power range 0.37 to 4 kW (3-phase 380 to 480 V)
- BACnet MS/TP, N2, FLN and Modbus RTU built-in
- Advanced HVACR control macros incl. supply and return fans, cooling towers, condensers, booster pumps
- Two PID controllers
- Timers with real-time clock
- Energy optimizer feature
- Sleep function

All-compatible HVACR drives family



Complete HVACR functionality in a compact package

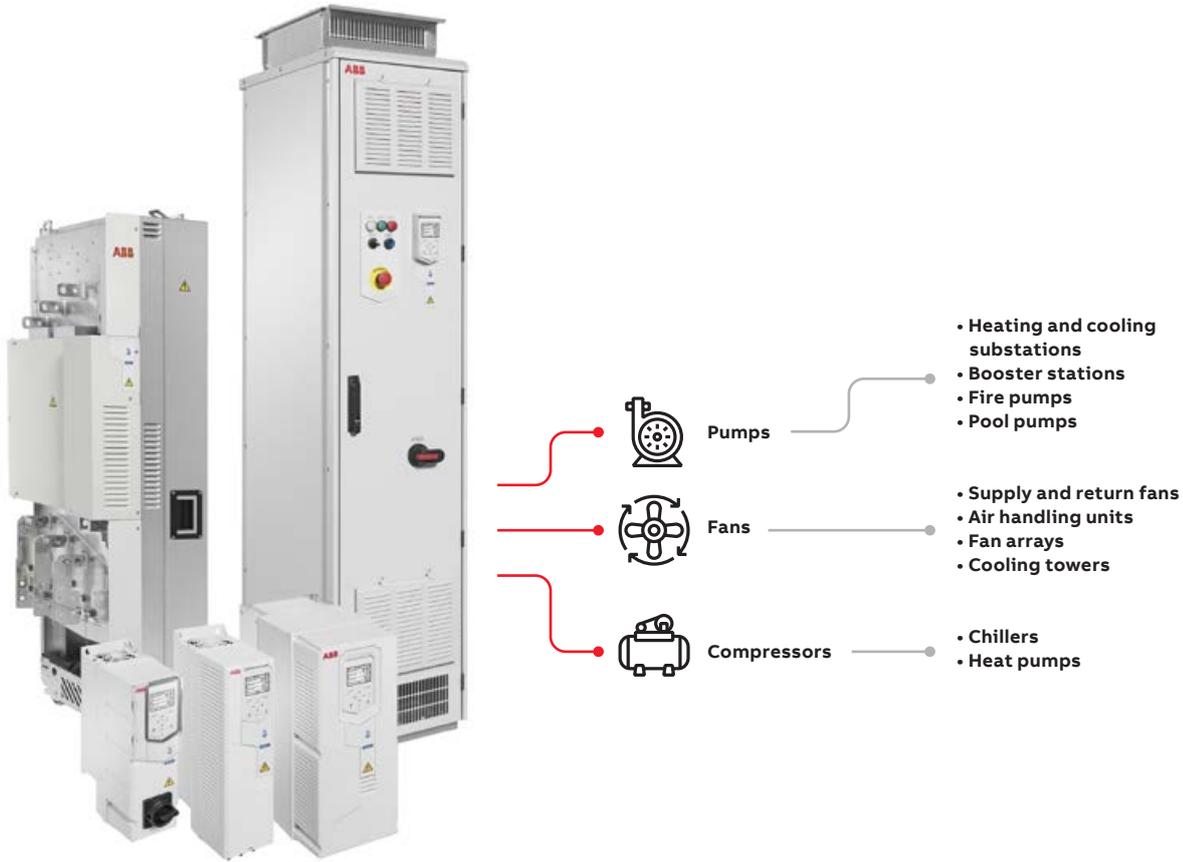
ACH480

Highlights

- Optimized efficiency of HVACR processes
- Enhanced comfort with dedicated HVACR application functionalities
- Designed for panel builders thanks to the drive's compact design and wide operating temperature range
- Seamless integration and operation with wide motor and communication protocol support
- Easy to commission, configure and use with intuitive Hand-Off-Auto control panel that speaks HVACR language

Features

- Power range 0.75 to 22 kW (3-phase 380 to 480 V)
- IP20 as standard, UL type 1 with option
- Built-in EMC filter, category C2
- Built-in HVACR application program with Fireman's override, Intelligent multipump control, Sleep and boost functions, Anti-condensation, Resonance monitoring etc.
- Adaptive programming
- Intuitive and easy to use Hand-Off-Auto control panel available also with Bluetooth functionality
- Functional safety: Safe Torque Off (STO) as standard
- Embedded BACnet MS/TP, Modbus RTU and N2 for easy integration with BMS
- PID controllers for controlling HVACR applications
- Real time clock and built-in timers for timed operation of the drive and external HVACR devices



Comprehensive climate control for comfortable, safe and energy efficient buildings

ACH580

Highlights

- Optimized efficiency of HVACR processes
- Enhanced comfort with dedicated HVACR application functionalities
- Proven performance in demanding environments with robust drives offering
- Seamless integration and operation with wide motor and communication protocol support
- Easy to commission, configure and use with intuitive Hand-Off-Auto control panel that speaks HVACR language
- Widely available from ABB authorized partners and from ABB regional and central stocks

ACH580 ultra-low harmonic drives

Highlights

- THDi even less than 3%
- Power factor always 1.0 even with partial loads
- Ability to boost output voltage in weak networks
- Everything built in – no external filters or contactors required

Features

- Power range:
 - 0.75 to 500 kW (3-phase 380 to 480 V)
 - 0.75 to 75 kW (3-phase 200 to 240 V)
 - 0.37 to 37 kW (1-phase 200 to 240 V)
- Ultra-low harmonic drives power range:
 - 4 to 355 kW (3-phase 380 to 480 V)
- Wall-mounted drives, IP21 as standard (UL type 1), IP55 as option (UL type 12)
- Drive module, IP00 as standard, IP20 as option
- Cabinet-built drives, IP21 as standard, IP42 and IP54 as options
- Built-in choke and EMC filter, category C2, C1 as option
- Built-in HVACR application program with Fireman's override, Intelligent multipump control, Sleep and boost functions, Anti-condensation, Resonance monitoring, Active braking (in ULH offering), etc.
- Adaptive programming
- Intuitive and easy to use Hand-Off-Auto control panel available also with Bluetooth functionality
- Functional safety: Safe Torque Off (STO) as standard
- Extended connectivity to I/O
- Embedded BACnet MS/TP, Modbus RTU and N2 for easy integration with BMS
- PID controllers for controlling HVACR applications
- Real time clock and built-in timers for timed operation of the drive and external HVACR devices
- Coated PCBs for humid and harsh environments

All-compatible industrial drives

Uncompromised productivity

The ACS880 series drives have been designed with the highest standards for demanding applications. Yet, despite the drives' wide-ranging capabilities, they are remarkably easy to use and integrate. The ACS880 industrial drives are compatible with virtually all types of processes, automation systems, user groups and business requirements.

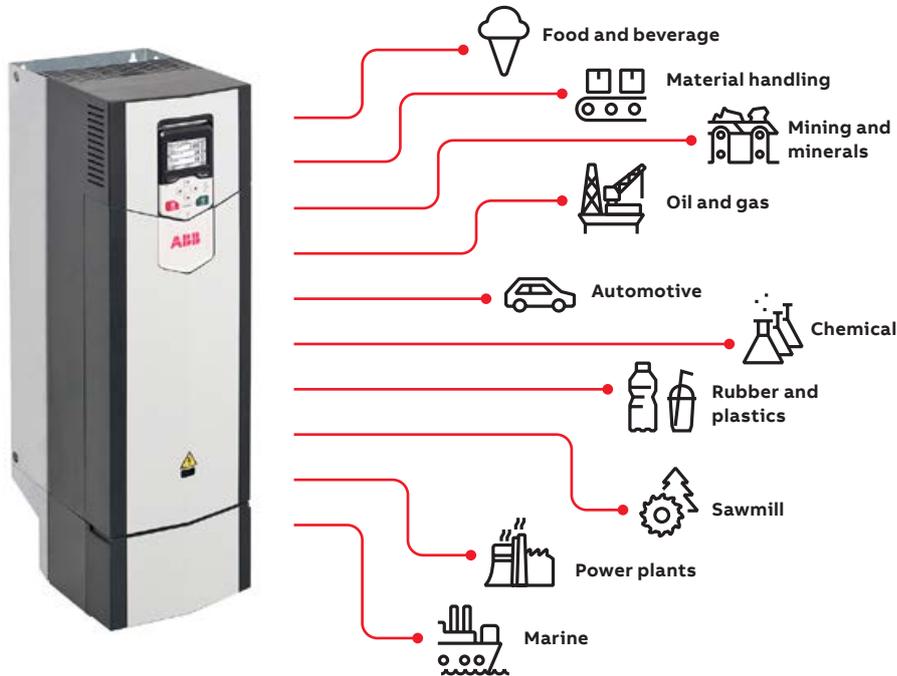
The ACS880 drives are available as single drives, multidrives and drive modules. They also offer ultra-low harmonic and regenerative variants, as well as extensive programmability, functional safety and extension features. The ACS880 also offer different cooling options: air cooling, flange mounting and liquid cooling.

The drives are part of ABB's all-compatible drives portfolio that is designed to provide customers across industries and applications with unprecedented levels of compatibility, flexibility and ease of use.



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ACS880 series, all-compatible industrial drives



All-compatible wall-mounted drive with everything built-in

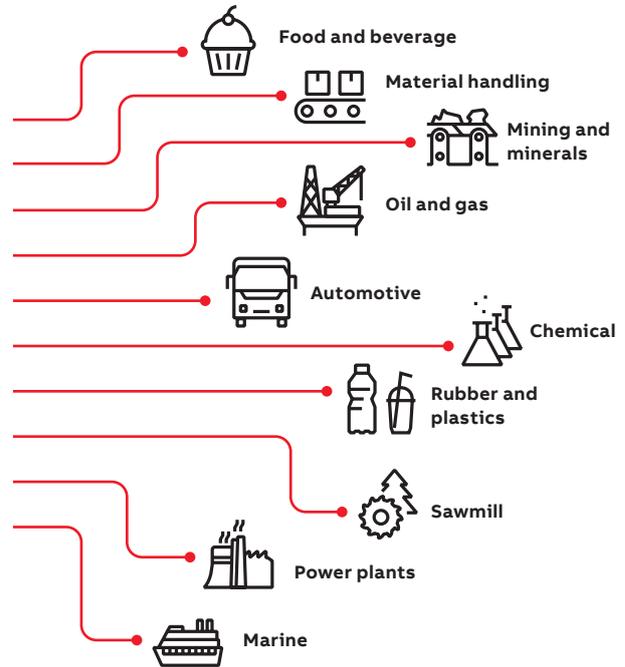
ACS880-01, wall-mounted single drives

Highlights

- Compact wall-mounted drives with all important features built-in the drive, saving installation space and time
- Premium motor control with direct torque control (DTC) for virtually any type of AC motor, including permanent magnet motors and synchronous reluctance motors (SynRM)
- A broad range of options offer flexibility and universal connectivity
- Built on ABB's all-compatible drives architecture providing unprecedented levels of compatibility, flexibility and ease-of-use
- Common PC tool, Drive Composer for commissioning and configuration
- Drive-to-drive link for fast communication between drives including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- Marine type approved design
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.

Features

- Power range 0.55 to 250 kW (208 to 690 V)
- IP21 as standard (UL type 1), IP20 and IP55 (UL type 12) as options
- Supports optimized cabinet mounting (+P940 or +P944)
- Flange (push through) mounting option with separated control electronics and IP55 backside protection
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Intuitive control panel with USB connection for PC tool and support up to 20 languages
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, braking chopper



All-compatible drive cabinet tailored to customer needs

ACS880-07/-07LC/-07CLC, cabinet-built single drives

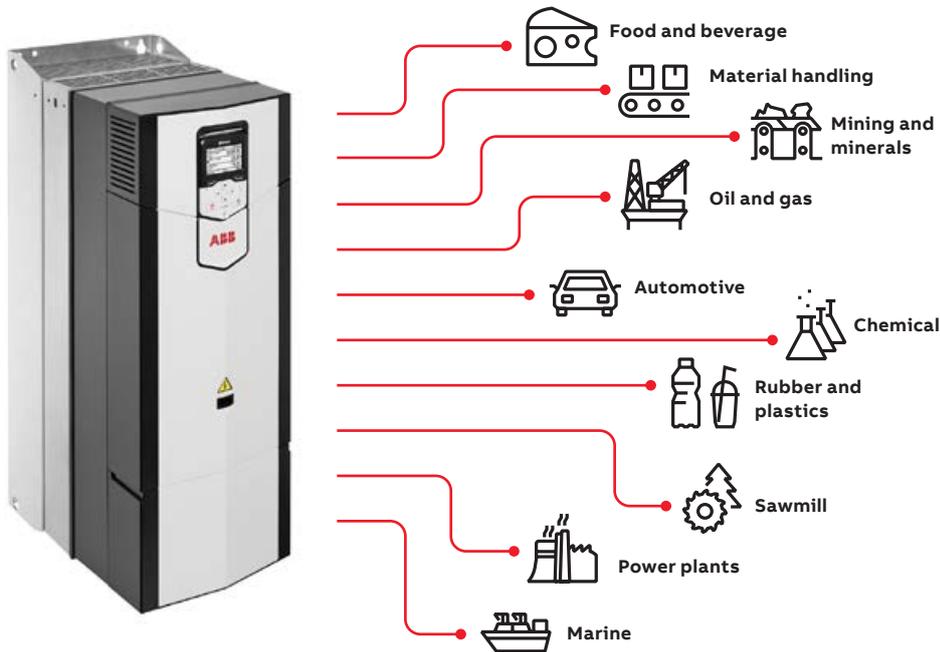
Highlights

- Cabinet-built drives with a wide range of standard and optional features all built inside the cabinet, saving installation space and time
- Premium motor control with direct torque control (DTC) for virtually any type of AC motor, including permanent magnet motors and synchronous reluctance motors (SynRM)
- Flexible connectivity and an extensive range of options for the optimum solution to different applications
- Built on ABB's all-compatible drives architecture providing unprecedented levels of compatibility, flexibility and ease-of-use
- Commercially available coolant mix, Antifrogen L
- Optional liquid-cooling unit (LCU)

Features

- ACS880-07 power range 45 to 2800 kW (380 to 690 V)
- ACS880-07LC/-07CLC power range 250 to 6000 kW (690 V)
- Degree of protection, IP22 as standard, IP42 and IP54 (UL type 12) as options; LC has IP42 as standard
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Intuitive control panel with USB connection for PC tool and support up to 20 languages

- Common PC tool, Drive Composer for commissioning and configuration
- Drive-to-drive link for fast communication between drives, including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- Marine approved design
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Marine type approved design
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, braking chopper



Capture and utilize braking energy with all-compatible drives

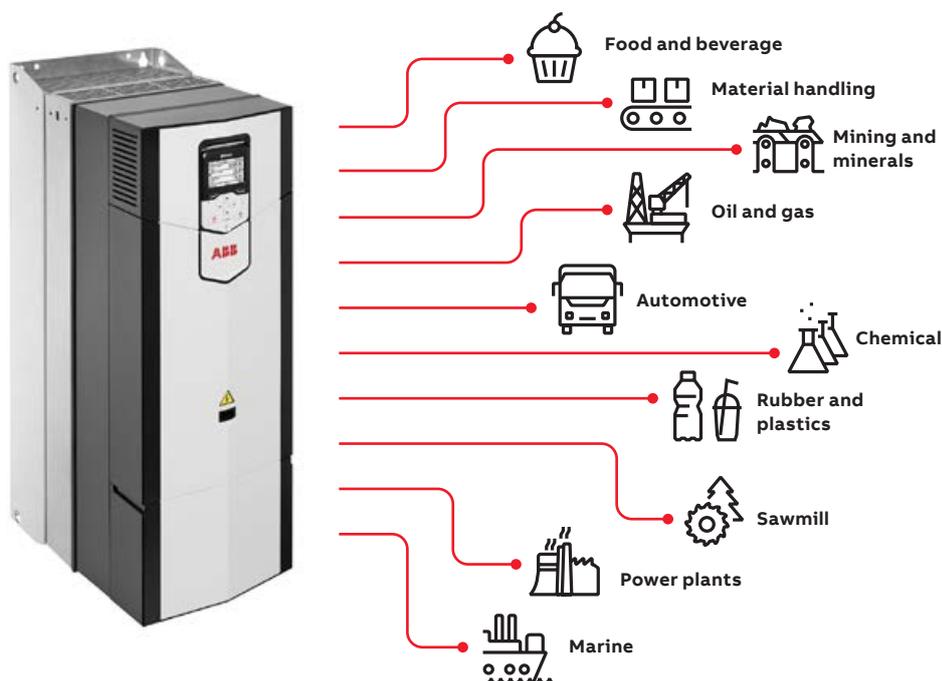
ACS880-11, wall-mounted regenerative single drives

Highlights

- Complete and compact regenerative wall-mounted drives with all important features built-in the drive
- Regenerative drives save energy compared to other braking methods as energy is fed back to the network
- Does not need external braking devices, which makes drive installation simple
- The active supply unit is able to boost output voltage, which ensures reliable operation and guarantees full motor voltage even when the supply voltage is below nominal
- Produces exceptionally low harmonic content in the drives input, which is achieved without external filters of multi-pulse transformers
- Common PC tool, Drive Composer for commissioning and configuration
- Drive-to-drive link for fast communication between drives including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for Produces exceptionally low harmonic content in the drives input, which is achieved without external filters of multi-pulse transformers control, cranes, winders, etc.

Features

- Power range 3 to 110 kW (380 to 500 V)
- IP21 (UL Type 1) as standard, IP20 (UL Open Type) and IP55 (UL type 12) as options
- Supports optimized cabinet mounting (+P940)
- Flange (push through) mounting option with separated control electronics and IP55 backside protection
- Reaches unity power factor
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Intuitive control panel with USB connection for PC tool and support up to 20 languages
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, output filters



Manage and control harmonics with all-compatible drives

ACS880-31, wall-mounted ultra-low harmonic single drives

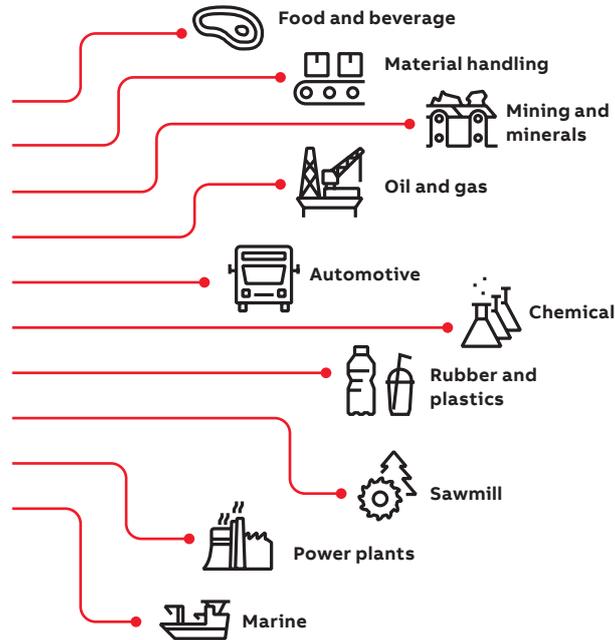
Highlights

- Complete and compact wall-mounted drives producing exceptionally low harmonic content in the drives input without external filters
- The active supply unit in the drive is able to boost output voltage, which ensures reliable operation and guarantees full motor voltage even when the supply voltage is below nominal
- Extensive range of built-in features and options enable optimal solutions for different applications

Features

- Power range 3 to 110 kW (380 to 500 V)
- IP21 (UL Type 1) as standard, IP20 (UL Open Type) and IP55 (UL type 12) as options
- Supports optimized cabinet mounting (+P940)
- Flange (push through) mounting option with separated control electronics and IP55 backside protection
- Reaches unity power factor
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Intuitive control panel with USB connection for PC tool and support up to 20 languages

- Common PC tool, Drive Composer for commissioning and configuration
- Drive-to-drive link for fast communication between drives including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, braking chopper



Capture and utilize braking energy with all-compatible drives

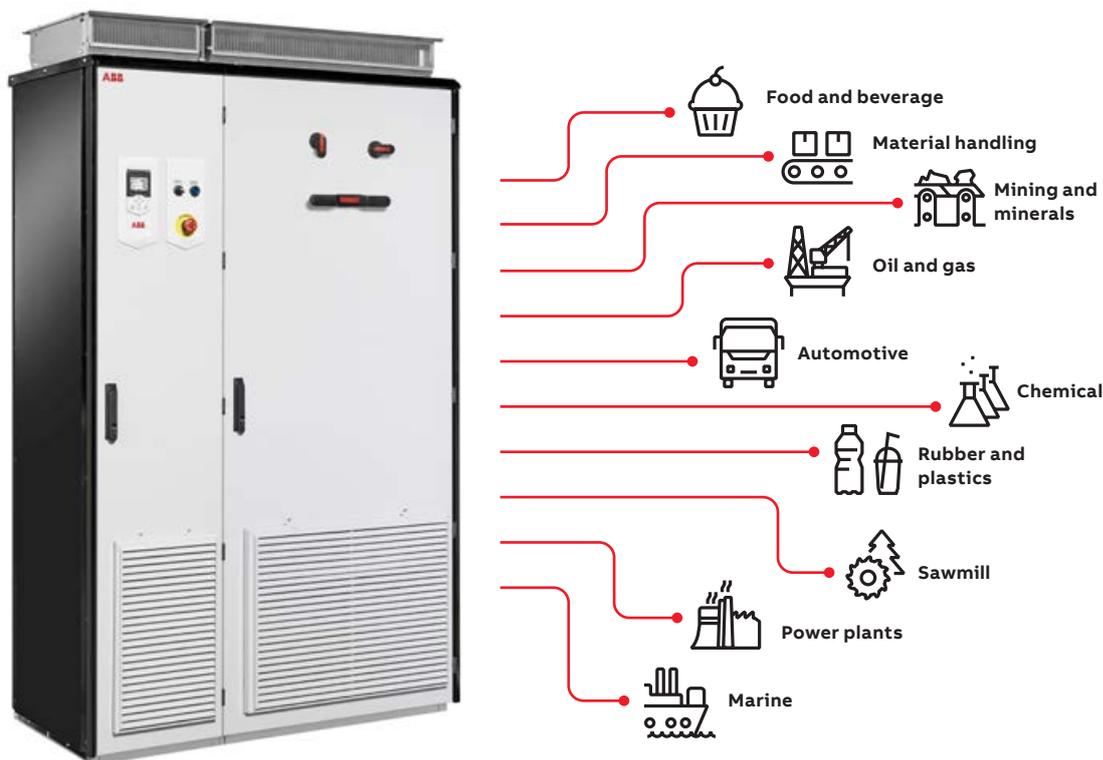
ACS880-17/-17LC, cabinet-built regenerative single drives

Highlights

- Complete regenerative drive in a single, compact and customizable package
- Regenerative drives save energy compared to other braking methods as energy is fed back to the network
- Does not need external braking devices, which makes drive installation simple as less need for cabinet space is required
- Especially suitable for demanding applications with fast transition between motoring and generating that benefit from the DTC control method
- The active supply unit is able to boost output voltage, which guarantees full motor voltage even when the supply voltage is below nominal
- Produces exceptionally low harmonic content in the drives input, which is achieved without external filters of multi-pulse transformers
- Commercially available coolant mix, Antifrogen L
- Optional liquid-cooling unit (LCU)
- Intuitive control panel with USB connection for PC tool and support up to 20 languages
- Common PC tool, Drive Composer for commissioning and configuration
- Drive-to-drive link for fast communication between drives including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Marine type approved design
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, braking chopper

Features

- ACS880-07 power range 45 to 3200 kW (380 to 690 V)
- ACS880-17LC power range 250 to 6000 kW (690 V)
- IP22 as standard (UL type 1), IP42 and IP54 (UL type 12) as option; LC has IP42 as standard
- Reaches unity power factor
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options



Manage and control harmonics with all-compatible drives

ACS880-37/-37LC, cabinet-built ultra-low harmonic single drives

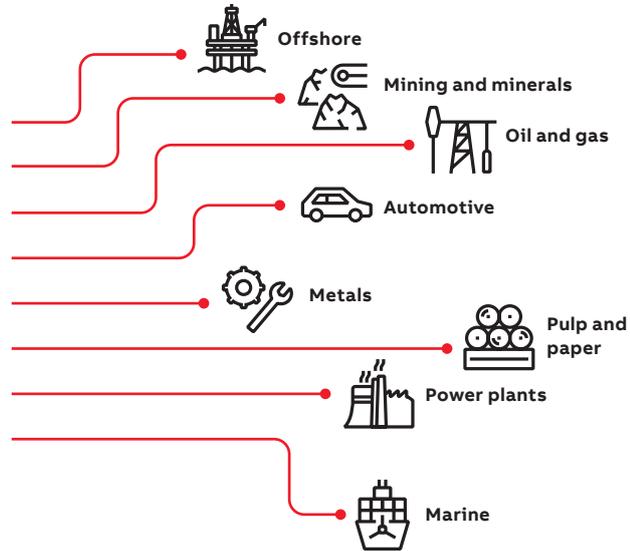
Highlights

- Produces exceptionally low harmonic content in the drives input, which is achieved without external filters or multi-pulse transformers
- Active supply unit in the drive is able to boost output voltage, which guarantees full motor voltage even when the supply voltage is below nominal
- Extensive range of built-in features and options enable optimal solutions for different applications
- Commercially available coolant mix, Antifrogen L
- Optional liquid-cooling unit (LCU)
- Drive-to-drive link for fast communication between drives including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.

Features

- ACS880-37 power range 45 to 3200 kW (380 to 690 V)
- ACS880-37LC power range 250 to 6000 kW (690 V)
- IP22 as standard (UL type 1), IP42 and IP54 (UL type 12) as option; LC has IP42 as standard
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Intuitive control panel with USB connection for PC tool and support up to 20 languages
- Common PC tool, Drive Composer for commissioning and configuration
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Marine type approved design
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, braking chopper

ACS880 series, multidrives



All-compatible space-saving multidrives

ACS880, multidrives

Highlights

- Single supply and DC bus arrangement with several inverters reduce line power and system size
- Premium motor control with DTC for virtually any type of AC motor, including permanent magnet motors and synchronous reluctance motors (SynRM)
- A wide range of built-in features, flexible connectivity and an extensive range of options for the optimum solution to different applications
- Built on ABB's all-compatible drives architecture providing unprecedented levels of compatibility, flexibility and ease-of-use

Features

- Power range 1.5 to 5600 kW (380 to 690 V)
- Degree of protection, IP22 as standard, IP42 and IP54 (UL type 12) as options
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- High packing density with 16 inverter units up to frame size R2i can be installed into one cabinet
- Fast connectors for motor cables located in the bottom part
- DC fuse disconnectors, DC fuses or DC fuse switch including charging circuit for inverters
- Highly efficient thermal handling – heat loss of each inverter unit is guided to the back of the cabinets

- Intuitive control panel with USB connection for PC tool and support up to 20 languages
- Common PC tool, Drive Composer for commissioning and configuration
- Drive-to-drive link for fast communication between drives including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Marine type approved design
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, braking chopper



All-compatible drive modules for easy cabinet assembly

ACS880, multidrive modules

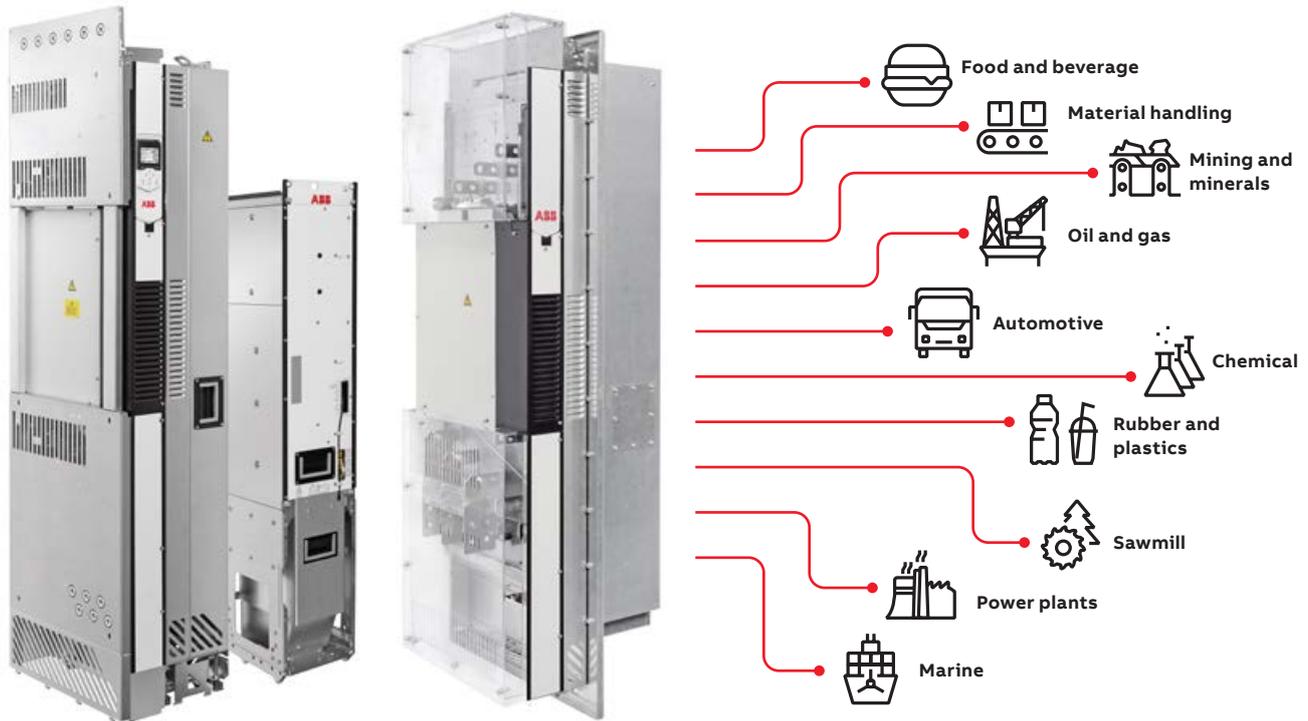
Highlights

- Offering includes multidrive modules and module packages
- Compact design for easy cabinet assembly and maintenance
- Mechanical and electrical kit accessories including 3D images and assembly drawings
- EPLAN electric macros
- Premium motor control with DTC for virtually any type of AC motor, including permanent magnet motors and synchronous reluctance motors (SynRM)
- Built on ABB's all-compatible drives architecture providing unprecedented levels of compatibility, flexibility and ease-of-use

Features

- Power range 1.5 to 3200 kW (380 to 690 V)
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Intuitive control panel with USB connection for PC tool and support up to 20 languages
- Common PC tool, Drive Composer for commissioning and configuration
- Drive-to-drive link for fast communication between drives including master-follower configurations without any additional software

- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Marine type approved design
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - Braking chopper
 - Assembly kits for Rittal cabinets and generic cabinets



All-compatible single drive modules for optimized cabinet assembly

ACS880-04/-04F/-04XT/-04FXT, single drive modules

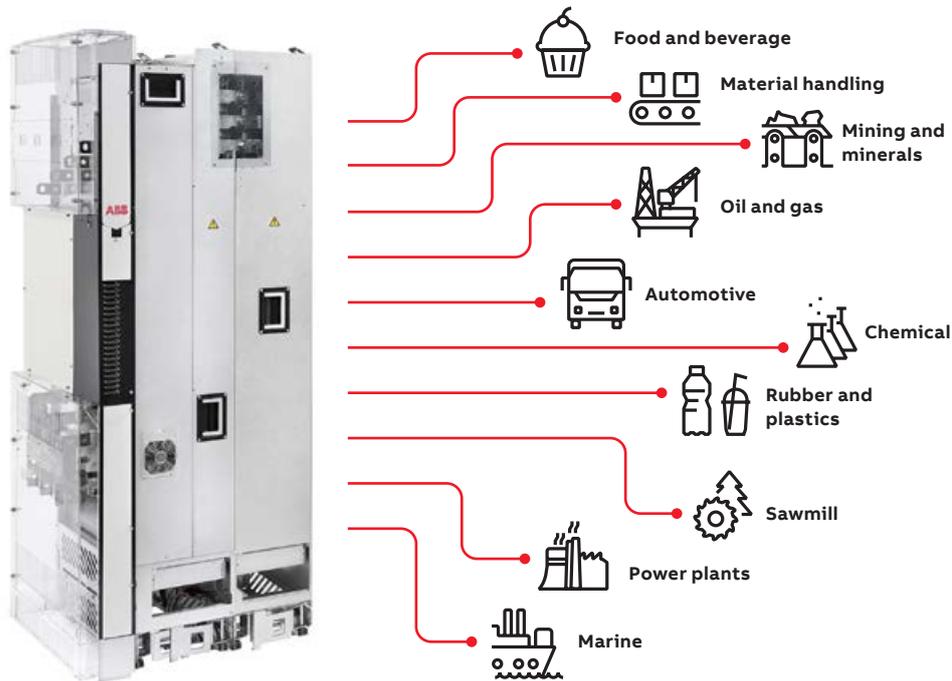
Highlights

- Optimized for easy and cost efficient cabinet assembly
- Compact and robust cabinet design, saves floor space and is easy to maintain and service
- Easy to integrate into automation systems
- Premium motor control with DTC for virtually any type of AC motor, including permanent magnet motors, synchronous reluctance and high speed motors
- Built on ABB's all-compatible drives architecture providing unprecedented levels of compatibility, flexibility and ease-of-use

Features

- Power range 250 to 710 kW/380 to 690 V for -04/-04F single drive module
- Power range 400 to 1200 kW/380 to 690 V for -04XT/-04FXT (parallel running -04) and -04/-04F single drive module packages (drives consisting of multiple modules)
- Degree of protection IP00 and IP20 (UL open type)
- Possibility for flat mounting minimizing the depth of the module
- Flange (push through) mounting variant (-04F) with separated control electronics and IP55 backside protection
- Control unit can be either external or internal
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options

- Intuitive control panel with USB connection for PC tool and support up to 20 languages
- Common PC tool, Drive Composer for commissioning and configuration
- Drive-to-drive link for fast communication between drives, including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- Marine type approved design
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance and high speed motors
- Options include:
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, braking chopper
 - Assembly kits for Rittal cabinets and generic cabinets



Capture and utilize braking energy with all-compatible drive modules

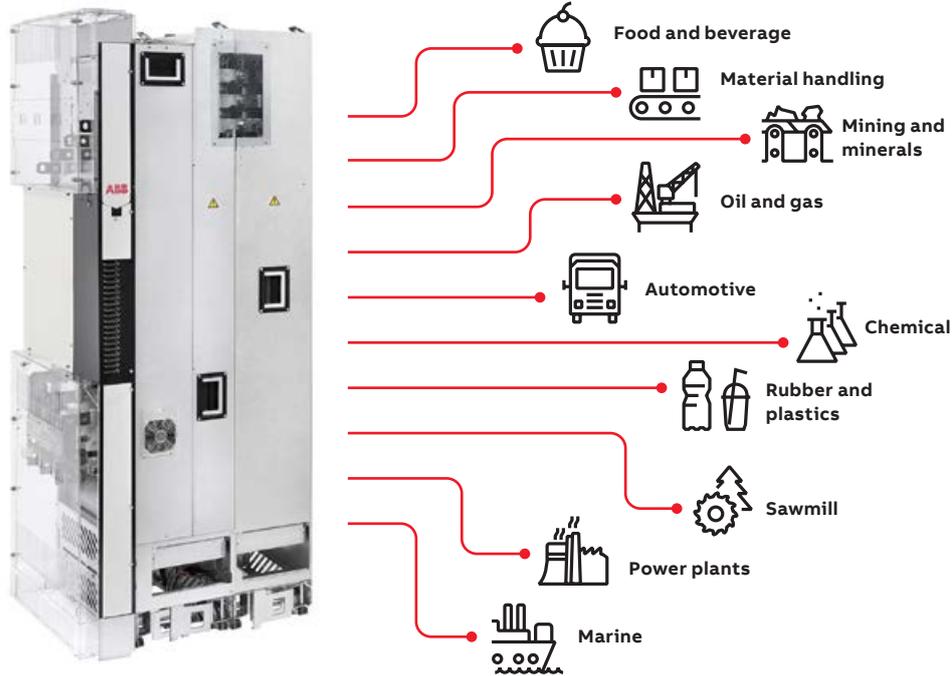
ACS880-14, regenerative single drive modules

Highlights

- Complete and compact regenerative drive modules with all important features built-in the drive
- Regenerative drives save energy compared to other braking methods as energy is fed back to the network
- Does not need external braking devices, which makes drive installation simple
- The active supply unit is able to boost output voltage, which ensures reliable operation and guarantees full motor voltage even when the supply voltage is below nominal
- Produces exceptionally low harmonic content in the drives input, which is achieved without external filters of multi-pulse transformers
- Common PC tool, Drive Composer for commissioning and configuration
- Drive-to-drive link for fast communication between drives including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for override control, cranes, winders, etc.

Features

- Power range 110 to 400 kW / 380 to 690 V
- Degree of protections IP20 (UL Open Type)
- Reaches unity power factor
- Control unit can be either internal or external
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Intuitive control panel with USB connection for PC tool and support up to 20 languages
- Bluetooth connection for mobile connectivity
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, output filters



Manage and control harmonics with all-compatible drive modules

ACS880-34, ultra-low harmonic single drive modules

Highlights

- Complete and compact drive modules producing exceptionally low harmonic content in the drives input without external filters
- The active supply unit in the drive is able to boost output voltage, which ensures reliable operation and guarantees full motor voltage even when the supply voltage is below nominal
- Extensive range of built-in features and options enable optimal solutions for different applications

Features

- Power range 110 to 400 kW / 380 to 690 V
- Degree of protections IP20 (UL Open Type)
- Reaches unity power factor
- Control unit can be either internal or external
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Intuitive control panel with USB connection for PC tool and support up to 20 languages
- Bluetooth connection for mobile connectivity
- Common PC tool, Drive Composer for commissioning and configuration

- Drive-to-drive link for fast communication between drives including master-follower configurations without any additional software
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, output filters





Capture and utilize braking energy with all-compatible drives

ACS880-14, regenerative single drive module packages

Highlights

- Regenerative single drive modules equipped with an active supply unit and optimized for cabinet assembly
- All important features and options, including LCL line filter module(s), IGBT supply module(s), inverter module(s), common mode filters, come in the package
- Regenerative drives save energy compared to other braking methods as energy is fed back to the network
- Does not need external braking devices, which makes drive installation simple as less need for cabinet space is required
- Especially suitable for demanding applications with fast transition between motoring and generating that benefit from the DTC control method
- The active supply unit is able to boost output voltage, which guarantees full motor voltage even when the supply voltage is below nominal
- Produces exceptionally low harmonic content in the drives input, which is achieved without external filters of multi-pulse transformers
- Optimized design for cabinet assembly
- Compact and modular design allowing a wide range of variants
- Removable memory unit enabling fast replacement without compatibility issues
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Marine type approved design
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, braking chopper
 - Assembly kits for Rittal cabinets and generic cabinets

Features

- Power range 250 to 2200 kW / 380 to 690 V
- Reaches unity power factor
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options



Manage and control harmonics with all-compatible drives

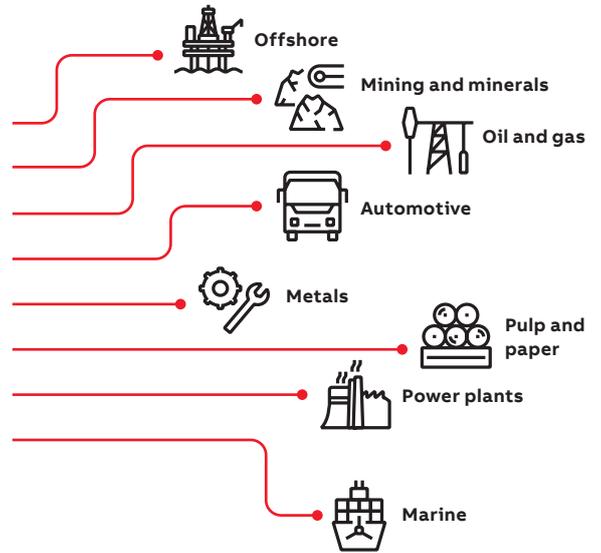
ACS880-34, ultra-low harmonic single drive module packages

Highlights

- Ultra-low harmonic single drive modules equipped with an active supply unit and optimized for cabinet assembly
- Produces exceptionally low harmonic content in the drives input, which is achieved without external filters of multi-pulse transformers
- All important features and options, including LCL line filter module(s), IGBT supply module(s), inverter module(s), common mode filters, come in the package
- Active supply unit in the drive is able to boost output voltage, which guarantees full motor voltage even when the supply voltage is below nominal
- Extensive range of built-in features and options enable optimal solutions for different applications
- Removable memory unit enabling fast replacement without compatibility issues
- Drive’s energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application specific control programs, e.g., for position control, cranes, winders, etc.
- Drive application programming based on IEC 61131-3
- Supports various motor types including synchronous reluctance motors and high speed motors
- Marine type approved design
- Options include:
 - I/O extension modules
 - Fieldbus adapter modules
 - Integrated safety features
 - Speed feedback interfaces
 - EMC filter, braking chopper
 - Assembly kits for Rittal cabinets and generic cabinets

Features

- Power range 250 to 2200 kW / 380 to 690 V
- Reaches unity power factor
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Optimized design for cabinet assembly
- Compact and modular design allowing a wide range of variants



Liquid-cooled drives in a compact package

ACS880, liquid-cooled multidrives

Highlights

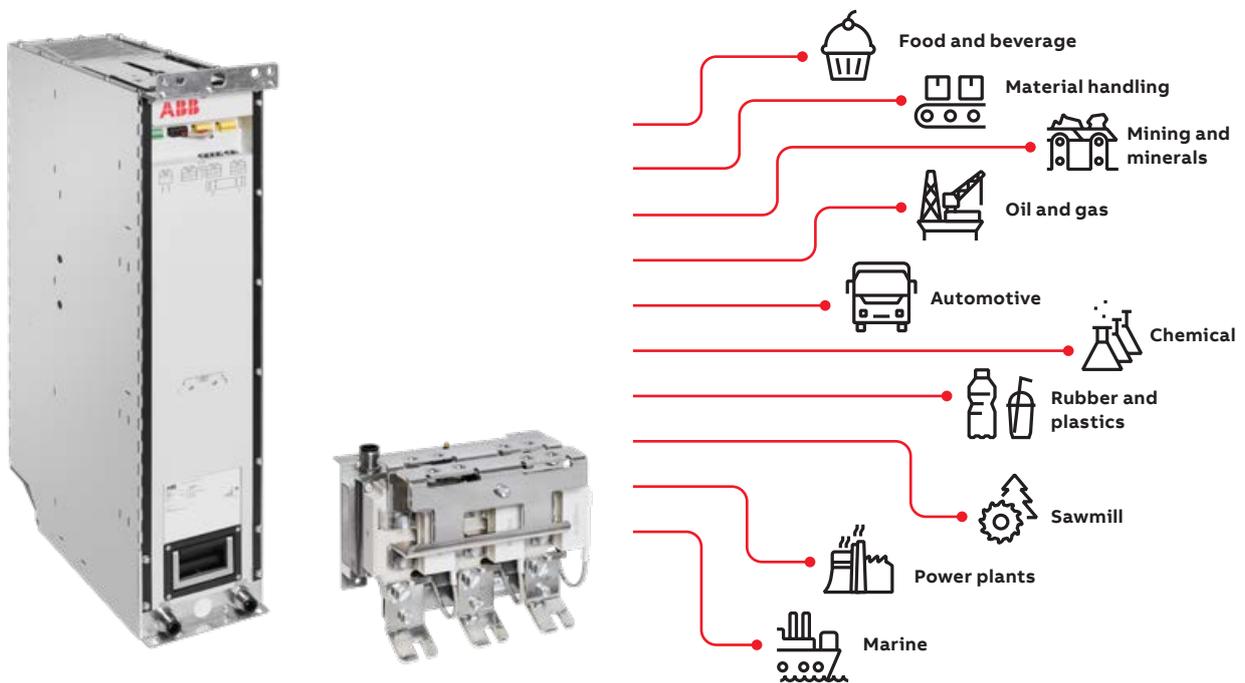
- Direct liquid cooling and robust design with fully enclosed cabinet for applications where space savings and silent operation is a must. No need for air conditioning in the electrical rooms.
 - 98% of total losses are transferred to cooling liquid
 - Coolant is commercially and globally available ready-made mixture, Antifrogen® L
- Flexible multidrive configurations for a broad range of heavy industrial processes
- Extensive programmability and optional control programs for a wide range of applications
- Designed for easy installation, commissioning and maintenance
- Considerably higher power density compared to ACS800
 - Less modules needed for high motor powers
 - Reduced footprint

Features

- Power range 45 to 6000 kW (380 to 690 V)
- Fully enclosed cabinet, IP42 as standard, IP54 as option
- Common DC busbar
- For harsh environments
- Silent operation
- Compact size
- Customized solutions
 - Industry and marine specific hardware and software solutions
 - Marine type approved design

Available units

- Inverter units, ACS880-107LC
- Regenerative IGBT supply units, ACS880-207LC
- Diode supply unit (DSU) ACS880-307LC
- DC-DC converter (DDC) ACS880-1607LC
- Liquid-cooling unit, ACS880-1007LC
- Braking unit, ACS880-607LC



All-compatible drive modules for compact cabinet assembly

ACS880, multidrive liquid-cooled modules

Highlights

- Offering includes inverter modules, supply modules and braking choppers
- Direct liquid cooling and robust design for applications where space savings, fully enclosed cabinet or silent operation is a must. No need for air conditioning in the electrical rooms.
 - 98% of total losses are transferred to cooling liquid
 - Coolant is commercially and globally available ready-made mixture, Antifrogen® L
- High power density due to efficient liquid cooling
- Compact design for cabinet assembly with a small footprint
- Optimal solution for demanding operation environments
- Mechanical and electrical kit accessories including 3D images, assembly drawings and EPLAN electric macros
- Built on ABB's all-compatible drives architecture providing unprecedented levels of compatibility, flexibility, compactness and ease-of-use

Features

- Power range 45 to 3000 kW (380 to 690 V)
- ABB's multidrive modules are designed to be installed in cabinets with a common DC bus
- Integrated safety including Safe Torque Off (STO) as standard with several safety functions as options
- Supports various motor types
- Marine type approvals from several classification societies
- Installation accessory kits for Rittal cabinets and generic cabinets

Available units

- Inverter units, ACS880-104LC
- Diode supply module ACS880-304LC+A019
- Regenerative IGBT supply units, ACS880-204LC
- DC-DC converter (DDC) ACS880-1604LC
- Liquid-cooling unit, ACS880-1007LC
- Braking unit, ACS880-604LC

ABB wind turbine converters

The wind turbine converter plays an important role in helping customers create the perfect wind economy. The selection of the right converter is critical in the turbine design and for a higher return on investment.

ABB offers wind turbine converters for small-scale and utility-scale wind turbines. ABB wind turbine converters, suitable for any of today's turbine concepts, deliver durable, reliable performance and are backed by a complete set of life-cycle services.





The ACS880 converter is a full power converter engineered for onshore and offshore wind turbines

Designed for extreme conditions

ACS880-77LC/-87LC/-87CC, wind turbine converters

Highlights

- The ACS880 wind turbine converter has been adapted from ACS880 drive family and optimized to meet the requirements of the wind industry. It is based on a technology proven and tested in thousands of applications worldwide.
- The precise, fast control dampens drivetrain oscillations, minimizing stress on the gearbox. This results in a longer lifetime for the mechanical drivetrain.
- The converter can be installed as both nacelle and tower installations, either in-line or back-to-back cabinet with liquid cooling or combined cooling. Various cabling options enable adaption to different installations.
- Easy troubleshooting and fast replacement thanks to modular components, such as control units and power modules. Possible faults are limited to one modular component.
- Improved stability of the turbine's power supply conforming to user-defined settings with the optional integrated battery control, enabling connection to an external energy storage.

Features

- Generator power range 1 to 12 MW
- Liquid cooling with totally enclosed cabinet
- Full power converter for permanent magnet and asynchronous generators
- Rated grid voltage 525 to 690 V AC, 3-phase, $\pm 10\%$
- Rated generator voltage 0 to 750 V AC
- Nominal grid frequency 50/60 Hz
- Efficiency at converter's rated point, typical value 97%
- Generator-side converter du/dt, measured value 1.25 kV/ μ s

- Total harmonic current distortion, measured value 2.5%
- Ambient temperature:
 - Transport -40 to +70 °C
 - Storage -40 to +70 °C
 - Operation -30 to +50 °C
- Coolant inlet temperature +5 to +50 °C
- Totally enclosed cabinet IP21 and IP54 / UL type 12
- Cabling connections: Bottom
- Cooling connections: Left or right side
- Cabinet configuration: In-line, back-to-back or several separate
- Fieldbus interfaces: EtherCAT, PROFINET IO, PROFIBUS-DP, CANopen, Modbus, ControlNet, InterBus-S, DeviceNet
- Standard Ethernet connection for PC browser
- Supports wind turbines to comply with the most stringent grid code requirements
- Product markings: CE, GL2010, North American EMC EN 61800-3/ A11 (2000), EN 61800-3 (2004) 2nd environment, unrestricted distribution, category C3
- Quality assurance system ISO 9001
- Environmental system ISO 14001
- Product approvals: UL61800-5-1, CSA C22.2 No 274, DNVGL-SE-0441
- Options include:
 - Sub-converter configuration
 - Cooling method Liquid or combined cooling
 - Online reconfiguration
 - Integrated energy storage
 - Output contactors on the generator side protection
 - High coolant inlet temperature up to +55 °C
 - High altitude up to 4000 m



Superior system performance

PCS6000, wind turbine converters

Highlights

- The PCS6000 wind turbine converter has been adapted from ABB's medium voltage frequency converters and optimized to meet the requirements of the wind industry. It is based on a technology proven and tested in thousands of applications worldwide.
- The converter is suitable for other high power renewable energy application such as tidal or wave
- Supports wind turbines to comply with the most stringent grid code requirements
- The converter can be installed as both nacelle and tower installations, either in-line, back-to-back, face-to-face or T-shape arrangement
- Easy troubleshooting and fast replacement thanks to modular components, such as control units and power modules. Possible faults are limited to one modular component.
- Very compact, light-weighted, fuseless and filterless design
- Very robust and reliable power conversion by IGCT semiconductors
- Efficient cable connections to generator and transformer due to MV technology
- The precise, fast control dampens drivetrain oscillations, minimizing stress on the gearbox. This results in a longer lifetime for the mechanical drivetrain.

Features

- Generator power range up to 15 MW (higher on request)
- Liquid cooling with IP54 enclosed cabinet
- Full power converter for permanent magnet and induction generators
- Rated grid voltage 3.3 kV AC
- Rated generator voltage 0 to 3.3 kV AC
- Nominal grid frequency 50/60 Hz
- Efficiency at converter's rated point, typical value > 98%
- Ambient temperature:
 - Transport -25 to +70 °C
 - Storage -25 to +55 °C
 - Operation -10 to +45 °C
- Coolant inlet temperature up to +45 °C, higher temperatures possible on request.
- Cabling connections:
 - Generator-side connections from top or back (Pfisterer P3)
 - Grid-side connections from top (Pfisterer P3)
 - Braking resistor connections from top or back
 - Control connections from bottom (terminals inside control cabinet)
- Product markings CE (acc. 2014/35/EU, 2014/30/EU), DNV-GL (acc. GL-IV-2:2012), CGC (acc. CGC-R46022:2011), UL (acc. UL 6141:2016)
- Quality assurance system ISO 9001:2015
- Environmental system ISO 14001:2015
- Occupational health and safety system ISO 45001:2018

ABB servo drives provide capability without complexity

ABB servo drives offer flexible technologies and high performance motor control to solve a wide variety of applications. The range includes powers from 0.1 kW to 7.5 kW. The drives enable operation with single and three-phase supplies for global markets, and have open communication options as well as real-time Ethernet technologies such as EtherCAT® and POWERLINK.

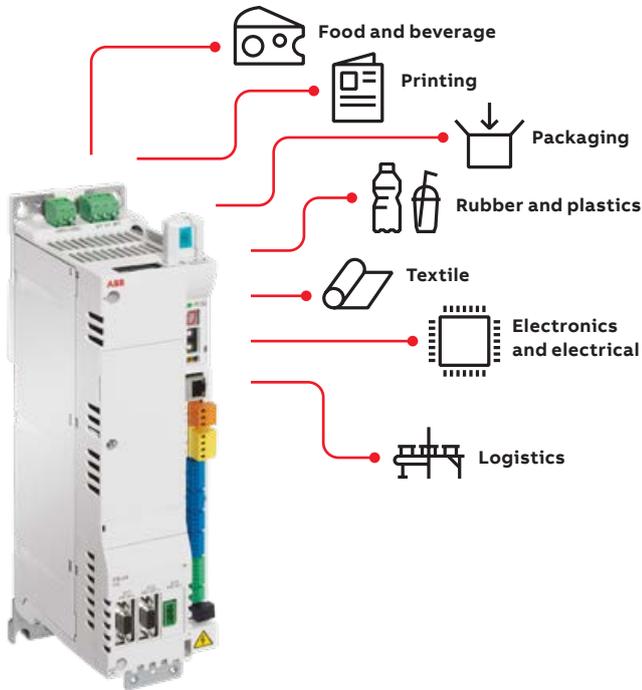
Our intelligent servo drives include programming options for single and multi-axis control applications or can be combined with our multi-axis motion controllers and PLC products for system solutions.



D



ABB servo drives



Versatile servo drives with flexible Ethernet communication protocol options

MotiFlex e180

Highlights

- Versatile servo drives with integrated safety function for the three-phase power network
- Software selectable Ethernet protocols including EtherCAT, POWERLINK, Modbus TCP/IP, EtherNet/IP and PROFINET IO
- Advanced motion programming language Mint for multitask controls such as communication, logic, motion and HMI interaction
- Supports the HIPERFACE DSL one cable solution

Features

- Three phase operation voltage from 200 to 480 V AC
- 200% and 300% overload capacity up to 3 s
- Degree of protection IP20 for cabinet installation (UL open)
- Supports the protocols EtherCAT and POWERLINK via the ports E1 and E2, and supports the protocols EtherNet/IP, Modbus TCP/IP and PROFINET IO via the port E3
- Suitable for single axis and multi-axis servo systems
- Supports rotary and linear AC servo motors
- Integrates the Safe Torque Off (STO) function which complies with the standard EN61800-5-2
- Supports the analog and PTO control modes
- Supports the second input for dual feedback
- Flexible options for function expansion
 - Various encoder adaptors for different kinds of encoders
 - AC chocks
 - EMC filters
 - External braking resistors

For further information, see catalog "ABB servo product – Servo drive and motor packages". Code: 3AXD50000751464 EN.

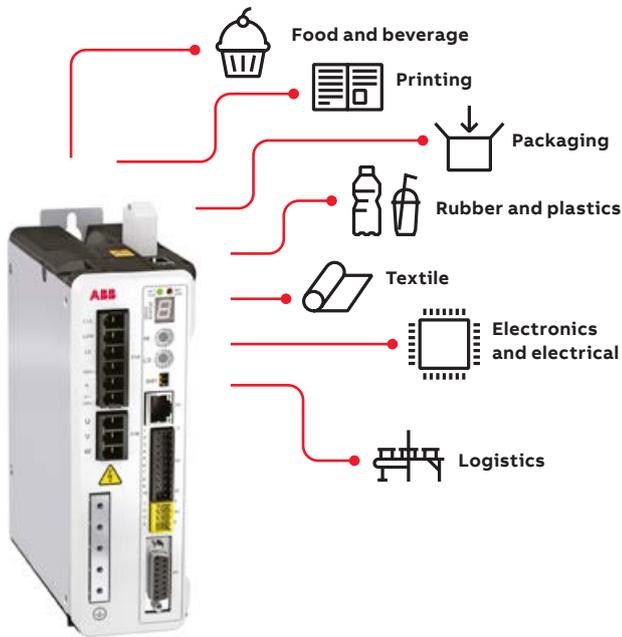


Complete motion control solutions

Highlights

The servo drives are part of ABB's extensive range of motion control solutions. The solutions include human machine interfaces (HMI), Programmable Logic Controllers (PLC), functional safety technology, multi-axis motion controllers, rotary servo motors and linear motors. All of which seamlessly interface to provide a complete machine control solution.

For further information, see catalog "PLC Automation AC500, CP600, Automation Builder", code: 3ADR020077C0204.



Compact servo drives with flexible Ethernet communication protocol options

MicroFlex e190

Highlights

- Compact servo drives with integrated safety function for the single/three phase power network
- Software selectable Ethernet protocols including EtherCAT, POWERLINK, Modbus TCP/IP, EtherNet/IP and PROFINET IO
- Advanced motion programming language Mint for multitask control such as communication, logic, motion and HMI interaction

Features

- Single/three phase operation voltage from 200 to 240 V AC
- 200% and 300% overload capacity up to 3 s
- Degree of protection IP20 for cabinet installation (UL open)
- Supports the protocols EtherCAT, POWERLINK and PROFINET IO via the ports E1 and E2, and supports the protocols EtherNet/IP and Modbus TCP/IP via the port E3
- Suitable for single axis and multi-axis servo systems
- Supports rotary and linear AC servo motors
- Integrates the Safe Torque Off (STO) function which complies with the standard IEC61800-5-2
- Supports the analog and PTO control modes
- Supports the second input for dual feedback
- Integrated EMC bonding plate on the front panel makes it easy for grounding
- Flexible options for function expansion
 - Resolver splitter OPT-MF-200
 - Resolver adaptor OPT-MF-201
 - IO Expansion option OPT-SIO-1
 - EMC filters
 - External braking resistors

For further information, see catalog "ABB servo product – Servo drive and motor packages". Code: 3AXD50000751464 EN.

Features

- The CP600 control panel platform offers displays from 4.3" to 21.5", portrait and landscape versions
- The comprehensive and scalable AC500 PLC platform is based on IEC 61131-3 and PLCopen
- A wide range of rotary servo motors and gearheads
- Safety technology with integrated drive features, safety PLC and safe I/O systems, as well as Jokab Safety sensors, actuators, safety relays, programmable safety controllers

Medium voltage drives

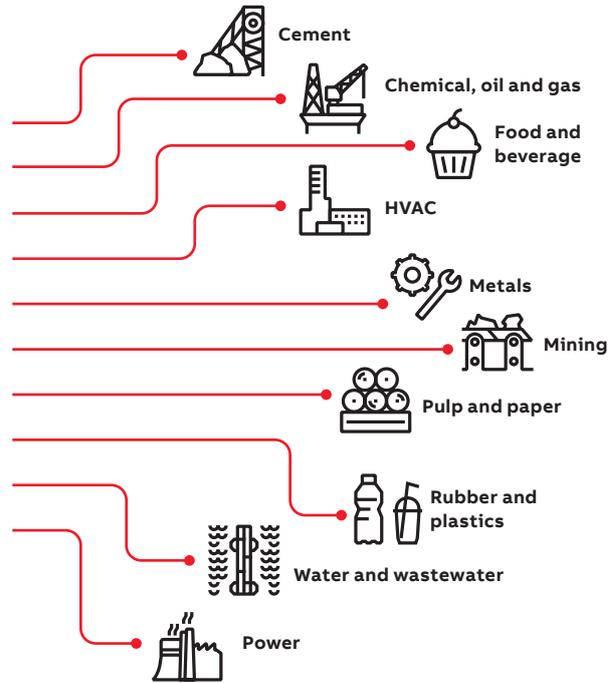
ABB offers an extensive portfolio of variable speed drives and soft starters for medium voltage applications in the power range from 250 kW to more than 100 MW.



They are used in a wide range of applications in industries such as metals, marine, mining, cement, power, chemical, oil and gas, water and wastewater, food and beverage, pulp and paper, and test stands.



ABB general performance drives offer ease-of-use with standard motors



Effortless energy efficiency for a wide range of applications

ACS580MV

Highlights

- Simple to select, order, commission and operate
- All essential features built into the drive
- Speeds up commissioning process
- Straightforward settings menu and assistants
- Bluetooth connection available
- Energy efficiency features for optimal energy use
- Universal connectivity
- Member of ABB's all-compatible drives portfolio
- ABB Ability™ Condition Monitoring for drives to monitor your drive condition all the time, anywhere in the world

Features

- Power range 200 kW to 6.3 MW (3.3 to 11 kV)
- Air cooling
- Cabinet-built drives, IP21 as standard, IP42 as option
- VSI – Voltage Source Inverter, multiple-pole diode rectifier, multilevel output
- In-line manual bypass panel for highest availability of any application that can operate direct on line (DOL)
- In-line synchronize bypass panel for softstarter applications with large motor as well as multi-motor starting
- Free entry level PC tool with USB connection on control panel
- Advanced diagnostics and monitoring system
- Wide range of fieldbus adaptors for all major automation networks
- Compliance with CE and EAC

General purpose drives are suitable for a wide variety of applications such as pumps, fans, compressors, mixers, mills, propulsion and thrusters, test stands, mine hoists and conveyors in many industries. The drives are all-rounders that ensure energy-efficient and productive processes.



Reliable and safe operation of high-power applications

ACS5000

Highlights

- Built to order – every drive is customized to fit your needs
- Choose from a broad range of configurations with flexible transformer and cooling arrangement
- Smooth integration and easier operation throughout your entire installation
- Advanced process control
- Large variety of available fieldbus interfaces
- Arc resistant design based on “arc prevention” and “fast elimination” for the water-cooled version
- Electromechanically interlocked doors with DC grounding switch
- Certified functional safety
- ABB Ability™ Condition Monitoring for drives to monitor your drive condition all the time, anywhere in the world
- Low parts count and fuseless design – ABB IGCT technology proven to be the best choice for high power applications

Features

- Power range 2 to 36 MW and higher on request (6.0 to 6.9 kV)
- Air and water cooling
- Superior arc protection function for very fast arc detection and elimination in water-cooled drives (IAC classified)
- Low harmonic solution (36-pulse configuration)
- Water-cooled variant is suitable for single loop cooling (external heat exchanger or fin-fan)
- Available for induction and synchronous motors
- Options
 - Suitable for high speed applications up to 250 Hz
 - Hot standby for fast startup (precharged system with open MCB)
 - IP54 enclosure protection (water-cooled drives only)
 - Marine approved design for offshore applications (water-cooled drives only)



Proven technology for high powers

MEGADRIVE-LCI

Highlights

- Suitable for high power and high voltage applications
- Available as variable speed drives and soft starters
- For more than 40 years, MEGADRIVE-LCI drives and soft starters have proven their maximum reliability and availability in a wide range of industries and applications
- The MEGADRIVE-LCI features a simple, well-proven, fuseless drive design and robust thyristor components ensuring high reliability
- Benefit from the drive's easy voltage scalability, minimized harmonic influence on the supply system and a converter efficiency of more than 99 percent
- ABB Ability™ Condition Monitoring for drives to monitor your drive condition all the time, anywhere in the world

Features

- Air-cooled power range 2 to 40 MW
- Water-cooled power range 2 to 150 MW and higher on request
- Available as variable speed drives and soft starters
- 6, 12 or 24-pulse converters to minimize the harmonic influence on the supply system and on the motor
- Series connection of thyristors for the scalability of voltage and power as well as for the implementation of n+1 thyristor redundancy
- User-friendly control terminal
- For synchronous motors
- MPTC (Model Predictive Torque Control) for an optimized operation point and highest availability
- Arc resistant design to protect people and equipment



ABB industrial drives for process control and engineered solutions



Well-proven industrial drive ensures high productivity and efficiency of operations

ACS1000

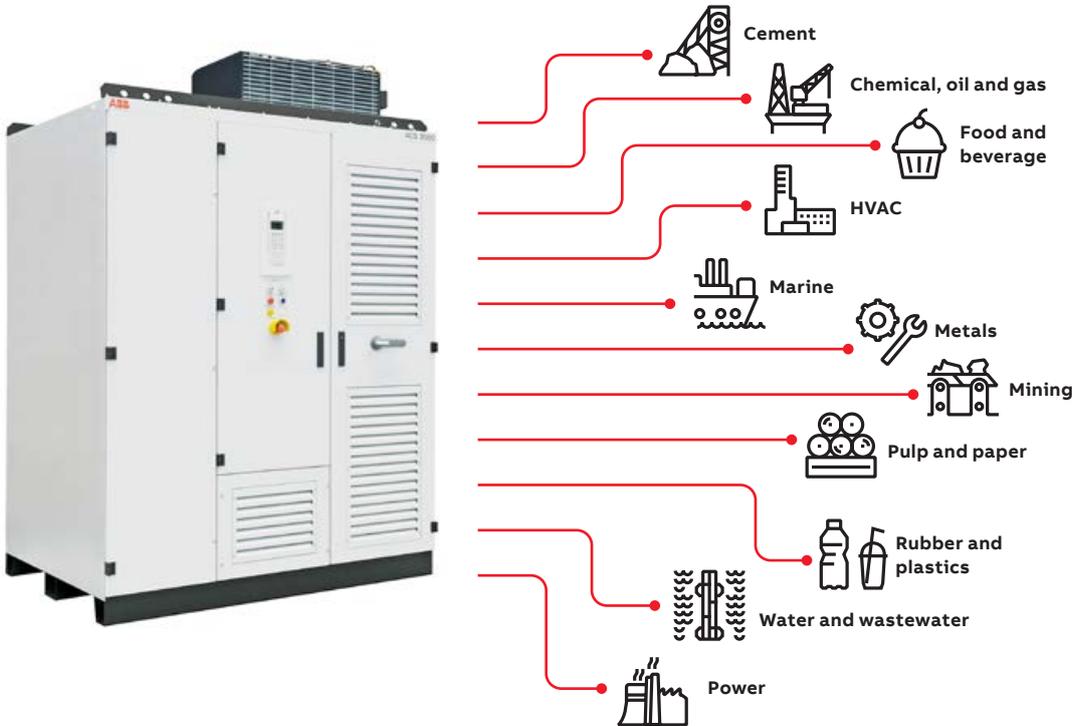
Highlights

- Design flexibility for smooth integration
 - Easy and effortless integration
 - Can be configured with integrated or external transformer, air or water-cooled
 - Tailor the drive to your specific application by selecting from an extended choice of pre-engineered options
- High reliability through well-proven design
 - A low parts count and proven components contribute to high uptime and a long lifetime of your drive
 - Availability of your operations is ensured thanks to the simple fuseless design
- Highest level of personal safety
 - Your workforce and goods are protected from dangerous electric arcs due to the arc-resistant design
 - Certified functional safety features and integrated DC grounding switch make your systems safe and reliable
- Maximum motor compatibility
 - Thanks to the integrated output sine filter, you can drive standard induction motors, retrofit older motors and use long cables

Features

- Air-cooled power range 315 kW to 2 MW (2.3 to 4.16 kV)
- Water-cooled power range 1.8 to 5 MW (3.3 to 4.16 kV)
- Available with an integrated input transformer or for connection to external input isolation transformer
- Output sine filter for pure sinusoidal voltage and current outputs
- 12- or 24-pulse diode rectifier
- For induction motors
- Marine certification available for ABS, CCS, DNV
- IEC, EN and UL certified

These drives are engineered drives, typically used for high power, high speed or special application such as test stands, marine propulsion and thrusters, rolling mills, SAG and ball mills, large pumps, fans and compressors.



Technology leading industrial drive for a broad range of applications

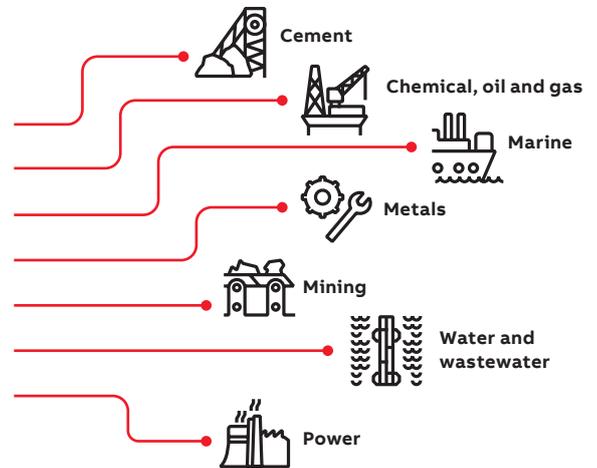
ACS2000

Highlights

- Suitable for use with or without an input isolation transformer
- Available as low harmonic or regenerative drive
- Market specific design to comply with IEC and NEMA specific industry standards
- Flexible connectivity and various options offer an optimum solution for different applications
- ABB Ability™ Condition Monitoring for drives to monitor your drive condition all the time, anywhere in the world

Features

- Power range 250 to 3.2 MW (4.0 to 6.9 kV)
- Controls asynchronous and permanent magnet motors
- Air cooling
- Available for transformerless operation allowing a direct connection to the line supply (direct-to-line), for connection to an external input isolation transformer or with an integrated transformer
- Available as a low harmonic drive for optimal low harmonic performance or as a regenerative drive for enhanced active braking and power factor correction
- For induction motors
- Two line side connection configurations, the diode front end (DFE) and the active front end (AFE)
- Optional output sine filter for pure sinusoidal output voltage and current outputs
- EN, IEC, CE, NEMA, IEEE and UL certifications



Modular drive for demanding applications

ACS6080

Highlights

- Modular drive designed for the most demanding single or multi-motor applications
- Capability of providing full- or semi-redundancy for single motors
- Available as a regenerative drive for reduced harmonics, enhanced active braking and power factor correction
- Superior arc protection for high level of personal safety and drive availability
- ABB Ability™ Condition Monitoring for drives to monitor your drive condition all the time, anywhere in the world

Features

- Power range 5 to 36 MW (2.3 to 3.3 kV)
- Water cooling
- Modular design for optimum configurations
- Common DC bus enabling multi-motor operation and energy regeneration as option
- Line Supply Unit (LSU) for two-quadrant operation with a constant power factor over the whole speed range
- Active Rectifier Unit (ARU) for four-quadrant operation and reduced harmonics with adjustable power factor
- Available for induction, synchronous and permanent magnet motors
- Marine type approved design available as an option



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DC drives

ABB DC drives are available as regenerative or non-regenerative drives. ABB offers digital DC drives from machinery applications all the way up to complete drive solutions in cabinets.



The latest product generation called DCS880 is built on ABB's common all-compatible drives platform and comes with integrated functional safety (STO SIL 3/PL e) for DC drives as a standard.

The drives can be also used in revamp or upgrade solutions.



DC applications and industries

Whether you are looking to build new or retrofit an existing installation, the portfolio of state-of-the-art DC drives gives design flexibility and the proven dependable performance expected from an ABB drive. DC drives can be used in almost any industrial application, either as part of a new installation or as a cost-effective retrofit.

Ski lifts



Plastic & rubber



Oil & gas



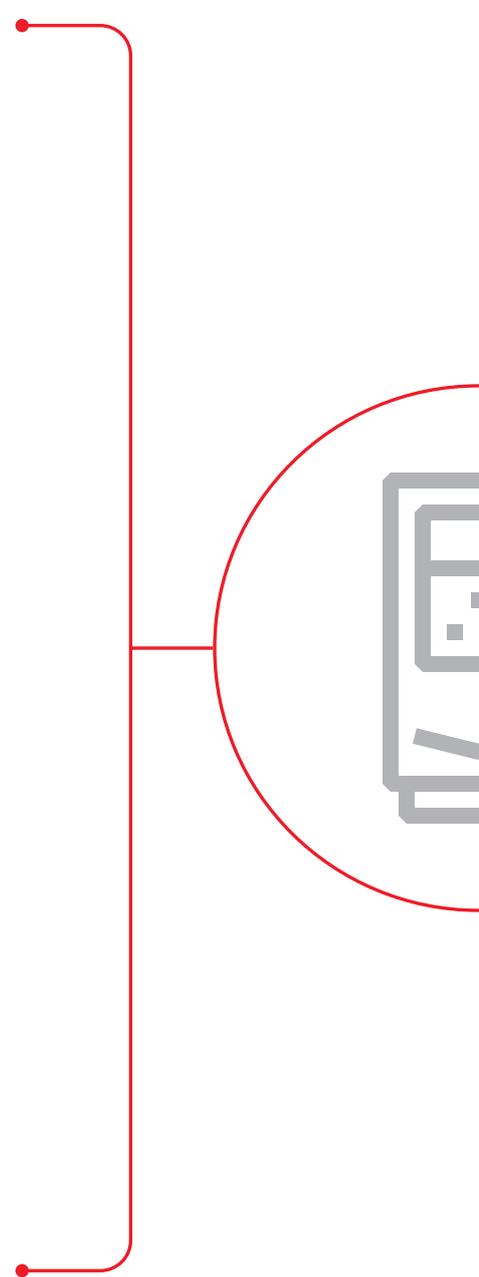
Hydrogen production



Magnets



Metals



For hydrogen production, typical 24-pulse configuration of DCS converters can reach up to 36000 kW. With the DC power supplies, ABB offers its customers thyristor-based controllers for precise current and voltage control of electrolysis processes like hydrogen production.

Non motoric



Pulp & paper



Mining



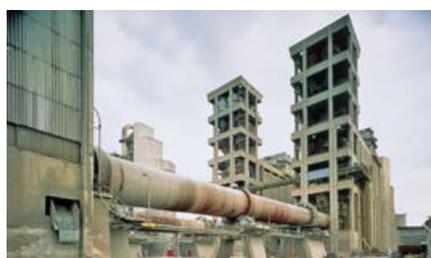
Food & beverage



Crane



Cement



DCS880 family

Modules and cabinets

DCS880-S drives combine all compatible platform, integrated safety and Internet of Things connectivity



Highlights

- High power density saves space in existing installations
- User-friendly due to start-up assistance, auto-tuning functions and a multilingual assistant control panel
- Flexible connectivity using a common PC tool Drive Composer and remote monitoring
- Additional functions and features with IEC 61131 programming

Features

- Power 9 kW up to 5.5 MW as single modules
- Up to 1190 V AC, 0 to 1500 V DC
- 20 to 5200 A DC as single modules
- Combination of up to four single modules (hardparallel) to increase the load current
- 6-pulse, 12-pulse, and hardparallel
- Individually adaptable to customer requirements
- Built-in safety functions (e.g., STO/SS1)

For further information, see catalog "DCS880-S modules", code: 3ADW000465.

DCS880-A Complete delivery of a tested drive system in a compact enclosure



Highlights

- Wide range of power
- Proven type tested design
- Fully routine tested for short commissioning and downtime
- Approvals for different markets

Features

- Power 37 kW up to 18 MW as standard solution
- Up to 1190 V AC, 0 to 1500 V DC
- 81 to 19600 A DC as standard solution
- High power solutions in 6-pulse, 12-pulse, 18-pulse, 24-pulse and hardparallel available to increase the load current (e.g., 12-pulse plus hardparallel up to 30.6 kA at 500 V DC)
- Individually adaptable to customer requirements
- Degree of protection IP21, IP42, IP54
- Built-in safety functions (e.g., STO/SS1)

For further information, see catalog "DCS880-A Enclosed Converter", code: 3ADW000531.

Further ABB DC solutions

DCS550 modules and modernization solutions

Ideal drive for machinery manufacturers with its compact dimensions and robust technology



Highlights

- Compact drive for machinery manufacturers
- Suited for new installation and retrofitting
- Integrated high performance three-phase field exciter up to 35 A
- Control panel and PC assistant provide ease-of-use

Features

- Power 12 kW up to 522 kW
- Up to 525 V AC, three-phase
- 20 to 1000 A DC
- Integrated high performance three-phase field exciter maximum 35 A
- Adaptive programmable with Drives AP
- Integrated Winder
- Built-in options
 - I/O extensions modules
 - Fieldbus adapter modules

For further information, see catalog "ABB DC Drives, DCS550", code: 3ADW000378.

Modernization solutions for improved production performance and reliability



Highlights

- Enhance productivity and quality
- State-of-the-art communication via fieldbus
- Reuse proven long-life components (busbars, chokes, cables, etc.)
- Enhance connectivity and remote monitoring
- Solve spare part problem by partial upgrade

Features

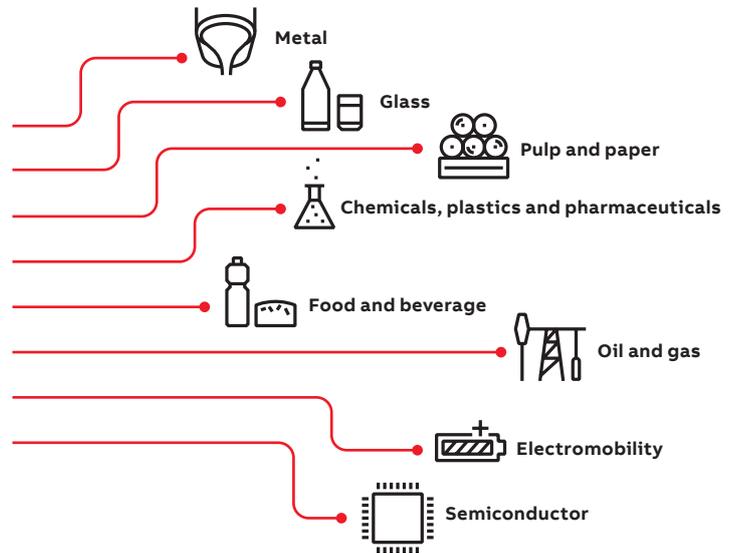
- Modernization of existing control electronics by reusing existing thyristors
- The rebuild kit (DCS880-R) is suitable for almost all existing DC drives from different manufacturers
- The upgrade kit (DCS880-U) is used to upgrade older ABB brand DC converters
- Cost-efficient option for DC currents above 1000 A DC

For further information, see product note "DCS880-R Rebuild kit", code 3ADW000619.

ABB thyristor power controllers for industrial heating applications

To provide precise heat control that leads to better utilization of raw materials and reduced energy consumption, ABB developed DCT880 power controller. Extremely accurate temperature control allows production processes to run faster while consuming less energy. When allied to ever-cheaper renewable sources of energy, the DCT880 provides further cost and energy savings.





The DCT880 offers users an array of advanced technical features to make monitoring and optimizing power as simple and efficient as possible

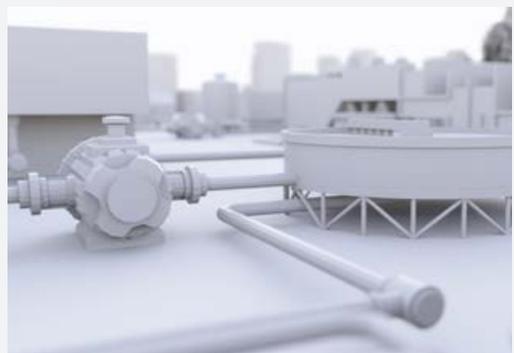
DCT880

Highlights

- Ideal for controlling electro-thermal processes
- Suitable for all resistive and inductive loads (e.g., transformers), infrared heaters and ultraviolet lamps
- Connectivity options for all major automation networks
- Wide variety of standard analog/digital I/Os and extensions
- Flexible due to IEC-61131-3 programming, adaptive programming (AP) and 3 slots for optional extension modules
- Reduction of peak loads using optimized load balancing
- Available as modules and complete cabinet solutions

Features

- Up to 990 V, and suitable for low and high current up to 4200 A (3 phase)
- 3-leg (W03) or 2-leg (W02) variants
- Current, voltage and power measurement for individual single-phase loads or one common 3-phase load
- All control modes: phase angle, full wave (burst), and half wave control
- U, U² (incl. open loop), I, I², P or direct temperature
- All common load configurations: delta, star, (open) delta, single-phase with common or individual controls, transformer, multitap
- Integrated load monitoring (true RMS)
- Increased flexibility with adaptive and application programming features
- Advanced power optimizer that reduces peak loads



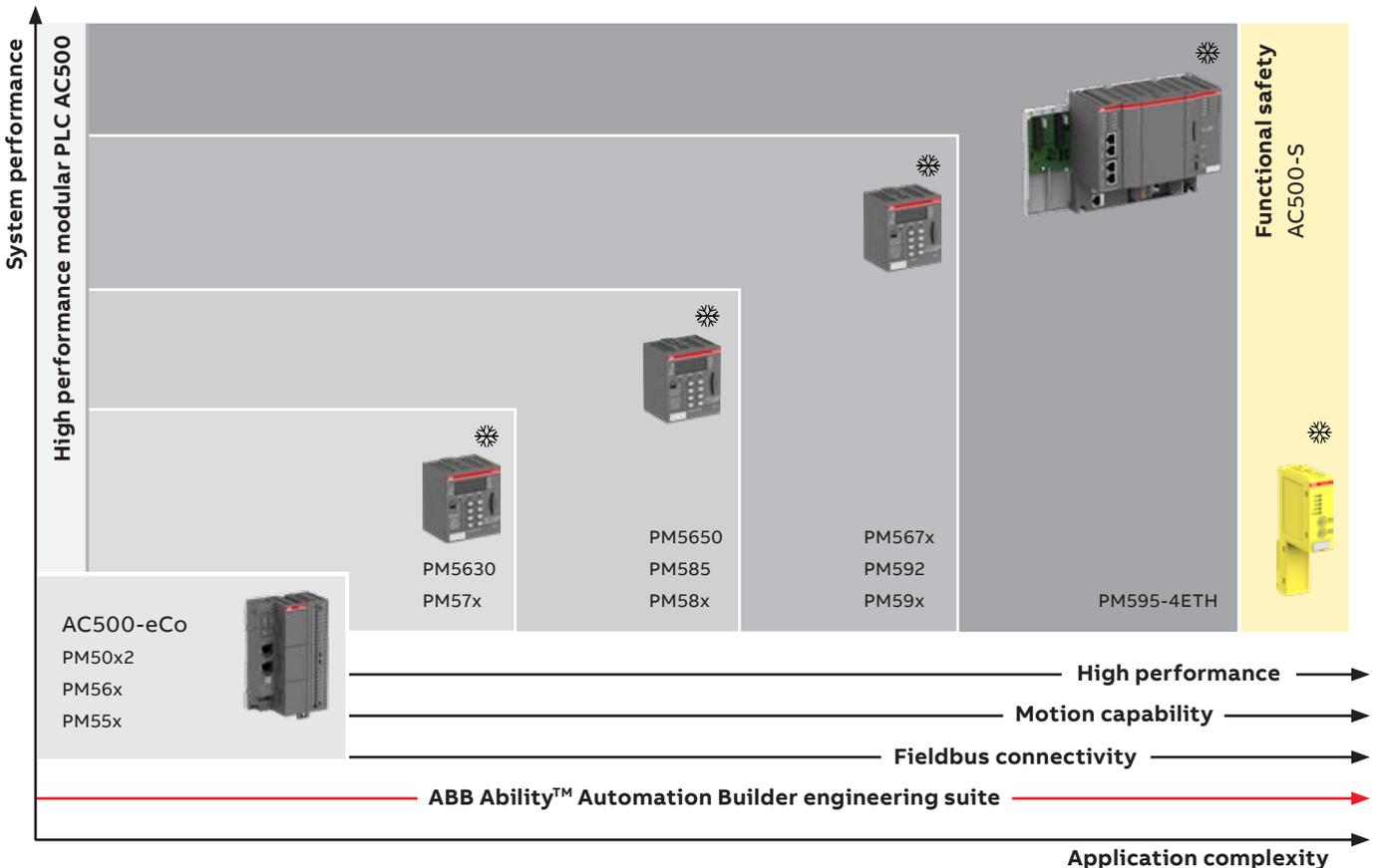
Programmable Logic Controllers

ABB offers a comprehensive range of scalable Programmable Logic Controllers (PLCs) and robust HMI control panels. Since its launch, the AC500 PLC platform has achieved significant industry recognition for delivering high performance, quality and reliability. ABB delivers scalable, flexible and efficient ranges of automation components to fulfill all conceivable requirements of the most diverse automation applications.

ABB’s automation devices deliver solutions with high performance and flexibility to be effectively deployed within various industries and applications including water, building infrastructure, data centers, renewable energy, machinery automation, material handling, marine and many more.

The AC500 PLC platform offers different performance levels and is the ideal choice for high availability, extreme environments, condition monitoring, motion control or safety solutions.

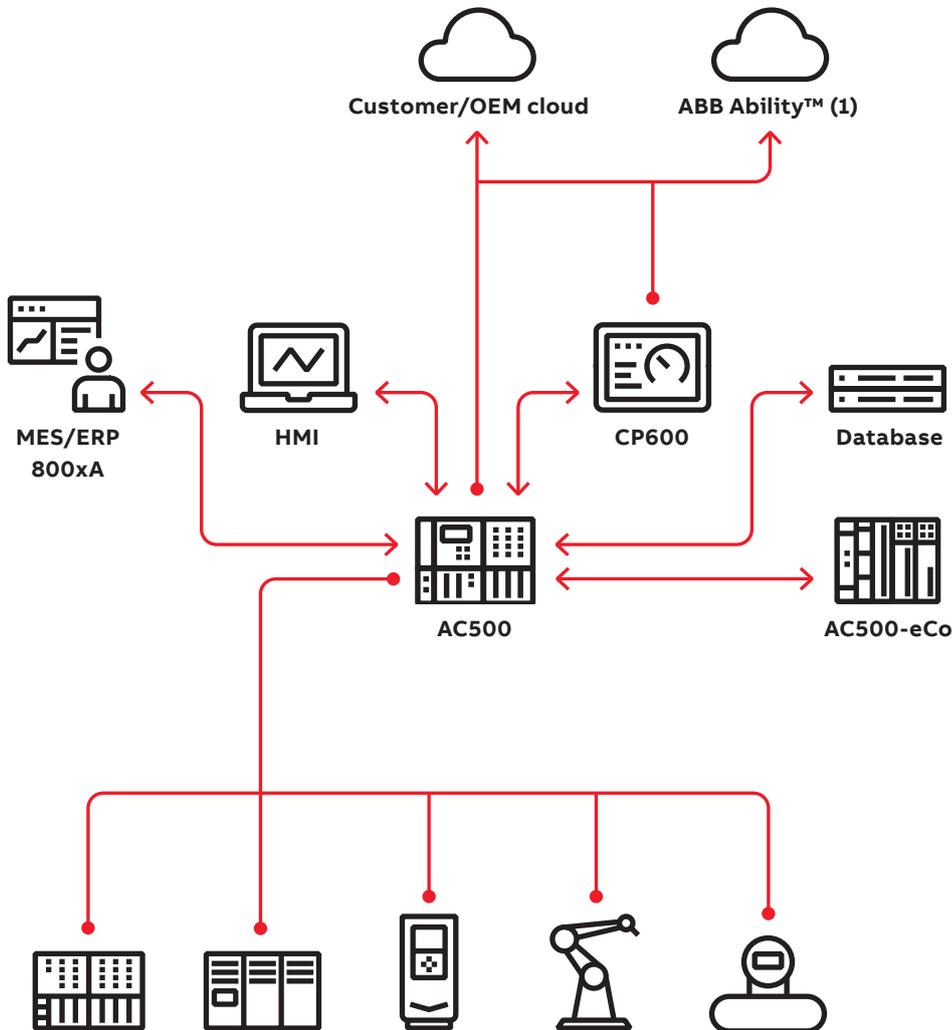
AC500 PLC platform



PLC Automation product family

Connectivity

ABB's PLC and control panel portfolio provides a high number of scalable products, communication protocols and connectivity options, from the field layer right through to the management and visualization layers.



IT network/Internet

- FTP(S)
- HTTP(S)
- MQTT
- NTP/SNTP
- OPC UA
- SMTP(S)

Factory/site network

- BACnet
- DNP3 (1)
- FTP(S)
- HTTP(S)
- IEC 60870-5-104
- IEC 61850
- KNX
- MySQL/MSSQL
- NTP/SNTP
- OPC DA/AE
- OPC UA
- SNMP
- TCP/IP
- UDP

Control network

- CANopen
- CAN 2A/2B
- DNP3 (1)
- EtherCAT
- Ethernet/IP
- IEC 60870-5-104
- IEC 61850
- Modbus RTU
- Modbus TCP
- PROFIBUS DP
- PROFINET/PROFIsafe
- SAE J1939

(1) In preparation



Comprehensive range of scalable PLCs

AC500 PLC platform

Highlights

- The AC500-eCo, AC500, AC500-XC and AC500-S scalable PLC ranges provide solutions for small, medium and high-end applications
- Our AC500 PLC platform offers different performance levels and is the ideal choice for high availability, extreme environments, condition monitoring, motion control or safety solutions
- Our AC500 PLC platform offers interoperability and compatibility in hardware and software from compact PLCs up to high end and safety PLCs

Features

- **AC500-eCo:** Compact PLC for economical automation solutions and motion control in smaller applications
- **AC500:** Powerful PLC featuring a wide range of performance, communications and I/O capabilities for industrial applications. For complex, high-speed machinery, motion control and networking solutions
- **AC500-XC:** Extreme Condition PLC variant with extended operating temperature, immunity to vibration and corrosive gases, for use at high altitudes and in humid environments
- **AC500-S:** Integrated safety PLC (SIL 3, PL e) for safety applications in factory, machinery or process automation area. For simple and complex safety solutions.



Operational information at one single touch

CP600 control panel platform

Highlights

- CP600-eCo, CP600 and CP600-Pro control panels in combination with the PB610 Panel Builder 600 offer a wide range of features and functionalities for maximum operability
- ABB control panels are distinguished by their robustness and easy usability, providing all the relevant information from production plants and machines at one single touch
- Ideal choice for visualization of AC500 PLC platform automation solution

Features

- **CP600-eCo:** Economical control panel aimed for standard functions and high usability for clear interaction with the operation process
- **CP600:** Robust HMI with high visualization performance, versatile communication and representative design for machines and systems
- **CP600-Pro:** HMI with high end visualization performance, multi-touch operation, versatile communication and representative design
- PB610 Panel Builder 600 is the engineering tool for the entire CP600 control panels platform. PB610 Panel Builder 600 software is integrated in the ABB Ability™ Automation Builder engineering suite.



Cost-effective and compact PLC

AC500-eCo PLC

Highlights

- Ethernet communication with MQTT protocol and OPC UA server for IoT applications, optional communication on IEC 60870, IEC 61850 (1), BACnet (1), KNX (1)
- HTML5 web server, FTP server, Modbus TCP or Ethernet/IP (1) for communication to other system or remote I/O
- EtherCAT master real-time communication to drive or remote I/O for motion application
- Meets the demands for cost-efficiency of the compact PLC market whilst offering total interoperability with the core AC500 range
- Up to 10 I/O modules can be connected to the CPU, onboard extension with up to 3 option boards for I/O or interface extension
- Motion capability with fast onboard I/O (A/B encoders, counters up to 200 kHz), up to 4 PTO (100/200 kHz) pulse train outputs for multi-axis positioning
- Simple motion for up to 4 axis or option PLCopen motion (1) for synchronized axis with EtherCAT master (1) on the onboard Ethernet
- Large user program memory and high performance

Features

- AC500-eCo CPU variants with 128 kByte up to 8 MB user program memory, web server and HTML5 visualization with up to 7 MB memory
- New high performance CPU with powerful 600 MHz processor for motion control
- Large remanent data up to 100 kB without battery
- Large secured communication capability with integrated or optional protocols like Modbus RTU/TCP, OPC UA, IEC 60870, IEC 61850 (1), Ethernet/IP (1), BACnet (1), KNX (1) or EtherCAT (1)
- Processing time per instruction down to 0.01 μ s, processor with FPU for fast calculation
- Up to 3 serial interfaces, up to 2 independent Ethernet interfaces with switch
- Micro memory card or memory card slot for program/firmware update or data saving
- Up to 12 digital inputs, 8/6 digital outputs transistor or relay, 2 digital configurable in/output, motion capability with integrated fast I/Os
(1) License required and/or in preparation



Powerful PLC offering with a wide range of performance levels

AC500 PLC

Highlights

- IoT protocols MQTT and OPC UA
- Integrated web server with HTML5 and IEC 60870-5-104 remote control protocol for all Ethernet versions
- Large memory and high performance for motion applications using PLCopen motion library and EtherCAT realtime fieldbus
- Complete range of I/O modules can be used as remote I/O with controllers supporting Modbus TCP, PROFIBUS DP, PROFINET, EtherCAT or CANopen

Features

- CPUs with high performance and large memory configurations up to 160 MB user program memory including up to 8 GB of internal flash disk for data storage
- Up to 6 communication modules in any configuration which can communicate with fieldbuses like PROFIBUS DP, CANopen, EtherCAT, Modbus TCP, Ethernet port extender and PROFINET
- One or two Ethernet interfaces on CPU for programming via PC, internet protocols (web server, FTPs, e-mail, time sync and more), OPC DA/AE, IEC 60870-5-104, Modbus TCP, MQTT, OPC UA or licensed Ethernet/IP (1), IEC 61850 (1), BACnet (1), DNP3 (1) or KNX (1)
- Up to 2 serial interfaces (RS232/RS485) with different protocols as ASCII protocol, Modbus RTU (master or slave), CS31 bus (master)
- Onboard CAN interface for CANopen master, CAN 2A/2B or J1939 communication on AC500 V3 CPU
- Programming with IEC 61131-3 standard languages or with C and C++
- Digital and analog S500 I/O modules to offer local and/or remote expansion options using most industry standard communication protocols
- Hot swappable I/Os for increased availability
(1) License required and/or in preparation



The rugged variant for extreme indoor and outdoor conditions

AC500-XC PLC

Highlights

- Extreme condition PLC variant
- With extended operating temperature, immunity to vibration and corrosive gases, for use at high altitudes and in humid environments
- Many of the traditional practices are not required, such as: HVAC for the panel, shock absorbers, door sealing, etc.
- All the benefits from AC500 range: ABB Ability™ Automation Builder engineering suite, I/O modules, scalable and flexible, same high performance communication, libraries and web services

Features

- Operation in extremely humid environments
 - Increased resistance against 100% humidity and condensation
- Reliable in high altitudes
 - Operation in altitudes up to 4000 m above sea level or air pressures up to 620 hPa
- Extended immunity to vibration
 - 4 g rms random vibration up to 500 Hz
 - 2 g sinusoidal vibration up to 500 Hz
- Extended operating temperature
 - -40 °C up to +70 °C operating temperature
- Extended immunity to corrosive gases and salt mist
 - G3, 3C2 / 3C3 immunity
 - Salt mist EN 60068-2-52 / EN 60068-2-11
- Extended EMC requirements
 - EN 61000-4-5 surge immunity test
 - EN 61000-4-4 transient / burst immunity test
- Hot swappable I/Os for increased availability



For functional safety applications involved in factory, machinery or process automation area

AC500-S PLC

Highlights

- The AC500-S is the PLC of choice for applications where uncompromised flexibility, comprehensive integration and seamless communication are a must
- ABB Ability™ Automation Builder seamlessly integrates your safety application in ABB PLC, safety, drives, motion and HMI
- Through integrated standard languages, such as those from IEC 61131-3, Automation Builder is easy to use thus allowing you to get started in virtually no time at all
- Intuitive system configuration using one single tool for safety and non-safety functions ensures optimal transparency

Features

- The AC500-S safety PLC facilitates the implementation of small to even most complex safety applications
- Support of safety-relevant calculations, such as COS, SIN, TAN, ASIN, ACOS and LOG makes the AC500-S the ideal solution for material handling, crane, renewable, hoisting and many other applications
- Safety programming with Structured Text (ST) and full support for Function Block Diagram (FBD) and Ladder Diagram (LD) programming and advanced features in PROFIsafe over PROFINET communication, like Shared Device functions, gives you greater flexibility and simplifies safety application development
- PROFINET/PROFIsafe communication between safety CPUs, decentralized safety I/Os, safe position and speed monitoring as well as triggering of safety drive functions
- Both simple and complex safety functions can be easily implemented: Safely limited acceleration, deceleration, force, orientation, position, speed and torque
- The AC500-S Safety PLC is also available in a version for extreme conditions



S500 I/O modules run with various controllers

S500 remote I/O

Highlights

- The availability of different fieldbus communication interfaces makes it easy to use S500 I/O modules as remote I/O for nearly any PLC and PC
- The S500 remote I/O station consists of a communication interface and I/O modules
- The smallest configuration can be just the communication interface with the onboard I/O channels
- Hot swap capable for continuous plant operation

Features

- Communication interfaces are available for the following fieldbuses:
 - PROFIBUS
 - PROFINET/PROFIsafe
 - EtherCAT
 - Modbus TCP
 - Ethernet/IP
 - CANopen
 - ABB CS31 System Bus
- The electronic configuration files that are provided by ABB for different fieldbus systems make it easy to configure the S500 remote I/O station in your engineering tool
- The files such as GSD and GSDML are available for download at www.abb.com/plc.
- For Modbus TCP remote I/O stations a dedicated configurator is included in ABB Ability™ Automation Builder and for larger applications a Bulk Data Manager tool can be used
- An AC500 V3 CPU can be upgraded to an Ethernet/IP remote I/O station



Predictable performance for your operations

Condition monitoring system CMS

Highlights

- Optimize your assets with a flexible condition monitoring system (CMS) based on the proven AC500 PLC platform
- The FM502 module can help you to improve your operations resulting in greater efficiency and higher reliability while minimizing service and operating costs

Features

- Planned maintenance rather than spontaneous repair ensures predictable performance
- Approaching damage is identified very early
- Fast protection against spontaneous failures and operation in critical conditions
- Reduction of costs in maintenance and lost production time
- Increased plant availability
- Optimum utilization of the aggregates until real end of life
- 16 analog channels, synchronous sampled up to 50ks/s @24bit
- Suited for vibration, current, voltage
- Additional counter/encoder inputs and 4 DIO
- Simple to use, maintain, adapt or expand
- Signal processing library for flexible local analysis to reduce data transfer
- Stand-alone CMS or control integrated use possible
- Fast, accurate data logging, e. g. for improved production quality
- Proven and future-proof, as based on AC500 PLC platform
- Extreme conditions XC version available

For more information, please see new.abb.com/plc



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ABB Ability™ Automation Builder for
next level engineering productivity

ABB Ability™ Automation Builder

Highlights

- Automation Builder is the integrated software suite for machine builders and system integrators requiring state-of-the-art productive machine and system automation
- Automation Builder connects the engineering tools for PLC, safety, control panels, SCADA, drives and motion
- Automation Builder combines the tools required for configuring, programming, debugging and maintaining automation projects from one common intuitive interface
- Efficient commissioning and maintenance by extensive diagnosis, available from Automation Builder or any operator panel
- Advanced simulation allows to simulate all kinds of applications with minimum effort. Even complete systems can be tested before involving real hardware.

Features

- Improve your productivity with seamless engineering, common data storage, a single project archive, time-saving library blocks for device integration, and one common software installer
- Automation Builder combines PLC engineering with the proven ABB tools Drive Composer pro, MINT WorkBench, zenon Editor and Panel Builder
- Efficient motion control engineering supported by an integrated motion solution wizard and intuitive graphical CAM table editors
- Speed up your project with the powerful ECAD and MS EXCEL interfaces of Automation Builder.
- Support of professional IEC 61131-3 application development, e.g. by multi-user engineering or static code analysis
- Download Automation Builder from new.abb.com/plc/automationbuilder

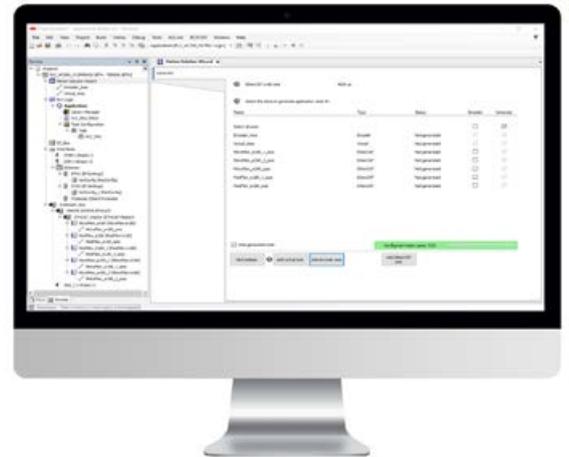
Application descriptions and features

AC500 for general motion control

Automation Builder with integrated motion solution wizard for efficient motion control engineering and workflows

Convenient to start efficiently without programming to set up and work on real, virtual and encoder axes, guided by the motion solution wizard, both for EtherCAT or PTO based synchronized drives.

Completely based on open standards like Codesys and comprehensive PLCopen motion libraries, the fully integrated engineering environment efficiently enables seamless set up, programming and testing from small to complex machinery and complete lines.

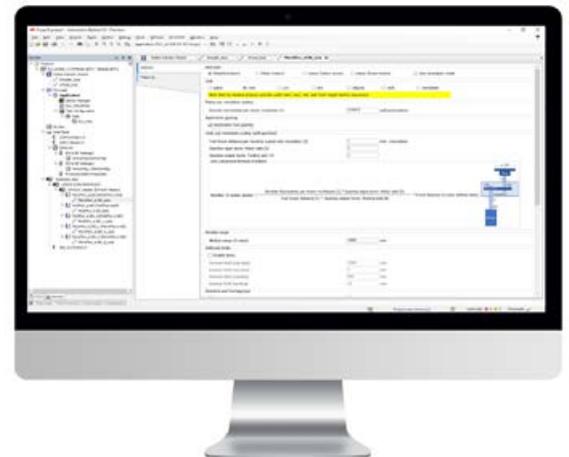


One-click axis engineering

The intuitive, easy-to-use wizard supports unique one-click motion axis setup. Then step-by-step configuration vastly simplifies the setup of smaller and high-end motion control applications.

It's all about engineering efficiency

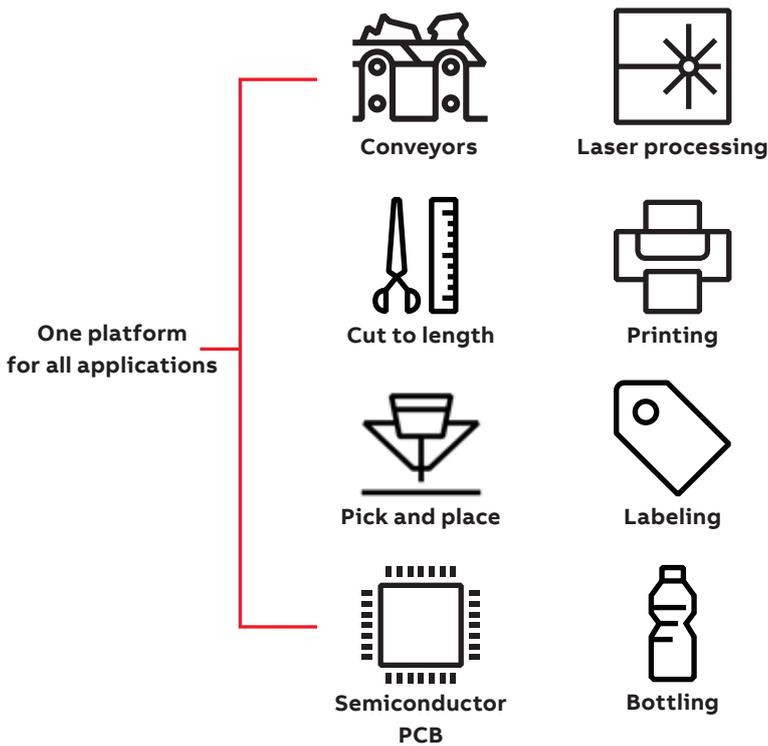
The solution combines the best of two main approaches for effortless motion control engineering: Wizard setup – with in-depth drill down options for expert users later – and intuitive graphic CAM table editors. This future-proof approach not only ensures fast setup but also has a selectable programming depth for flexible machine production options, quality, maintainability and durability through adaptable and expandable gentle movements.



Full insight for fine-tuning

The Automation Builder engineering tool also features comprehensive tools for tracking or visualizing the exact and precise movement of axes, whether virtual, simulated or real, together with other variables or I/O signals. The graphic interfaces, including CAM editors, simplify fine-tuning and allow you to visualize the dynamics of combined movements as required for configuring, improving, operating or diagnosing machine operation.





One platform for all performance classes
 The AC500 V3 and AC500-eCo V3 CPUs uniquely scale with one look and feel from cost efficient PTO to real-time synchronized EtherCAT based motion control – all in the same familiar Codesys and PLCopen engineering environment.

The flexible integration of AC500 PLCs, the wizard and electronic CAM and gearing simplifies handling, minimizes the potential for errors and increases overall transparency, saving a lot of time throughout the workflow.

For more information, please see new.abb.com/plc



Application descriptions and features

Condition Monitoring with AC500 PLC

Controller integrated or stand-alone condition monitoring

The AC500 condition monitoring module FM502^{*)} is a natural part of the AC500 platform and ABB Ability™ Automation Builder, and can be used in different condition monitoring concepts, stand-alone or control integrated.

Due to the easy programming in PLC languages, it is usable for a variety of use cases and is especially suitable for plant, line and machine builders as easy extension of their offering.

If controller integrated

- it enables at very reasonable cost
- the best prediction horizon as it can measure online, when best measurement quality is given without scheduling production interruptions
- while continuously protecting the application in real time e.g., with the same or other sensor(s).
- Further inputs can be used as fast data logger e.g., precisely documenting process quality.

Therefore, it is not only able to continually check the mechanical components but also gives fast protection for spontaneous and large failures even while measuring. The condition monitoring mode creates a database internally or externally for predictive maintenance. Automatic and user assisted responses can be enabled to prevent costly consequences including total failures.

As many as 16 vibration sensors + 2 encoder counters can be connected.

The recorded condition monitoring data can be stored in the CPU flash disk before communication or directly analyzed. Higher level indicators can be calculated and communicated to a local or remote HMI or database system.

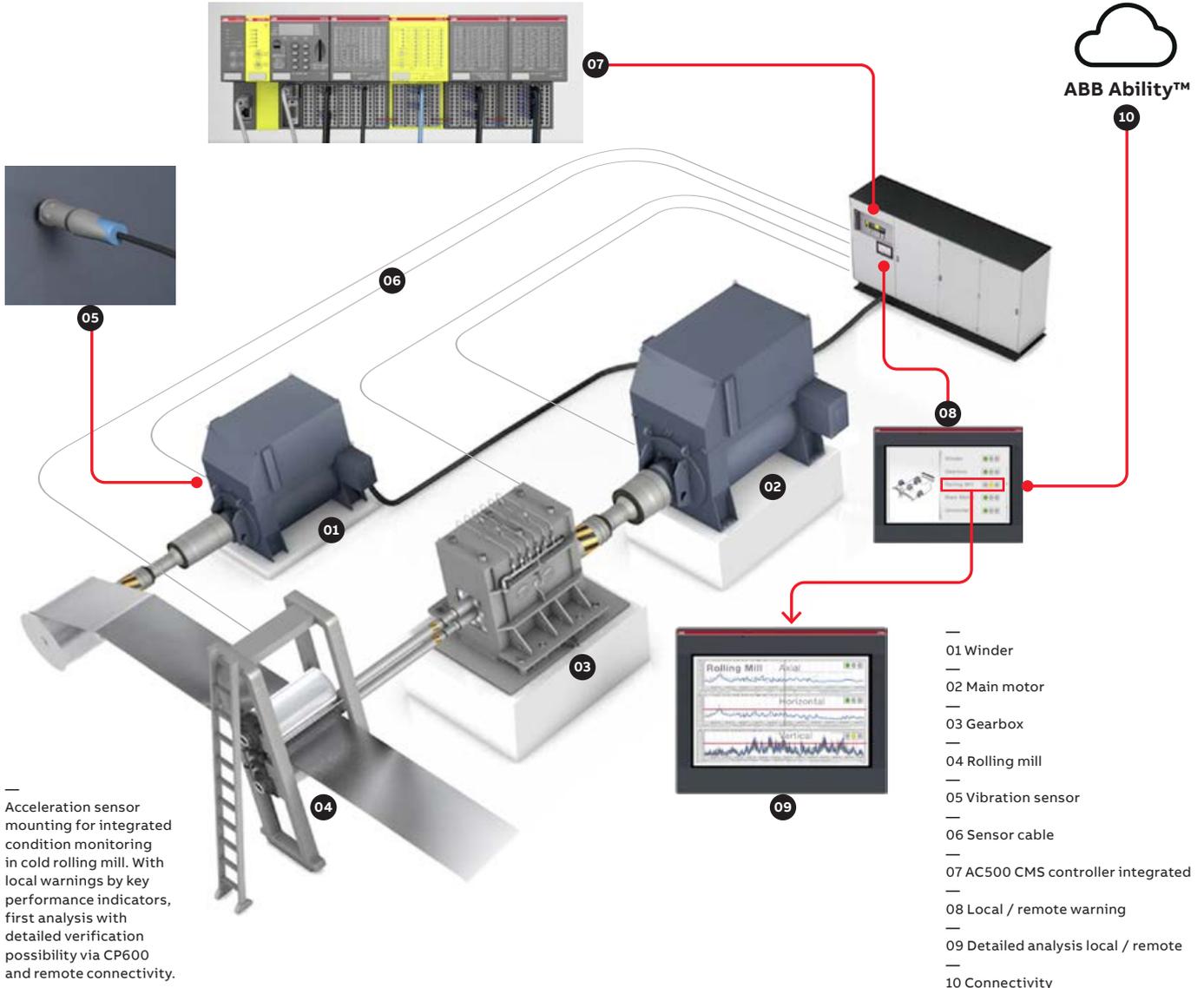
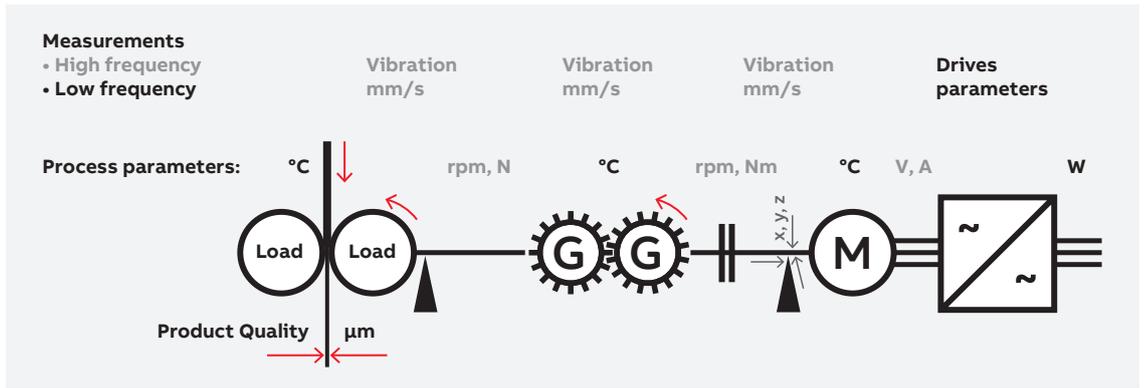
Predictive performance for your process or machines

- Easy and cost saving integration of condition monitoring into the AC500 platform.
- Early detection of mechanical damages.
- Fast protection from spontaneous failures.
- Even complex C-code analytics can be used locally for meaningful own performance indicators.
- Leads to optimized planning of maintenance instead of fixed, scheduled service and spontaneous repair.
- No additional system or fixed software for diagnostics and visualization needed.
- Easy storage of the data, locally (4GB) or in remote servers and databases.
- Ideally suited also for retrofit of older equipment, as it can make use of mechanical reserves of still valuable equipment.

^{*)} Only with AC500 V2 CPU PM592-ETH



— AC500 Condition Monitoring module FM502-CMS: Controller integrated or stand-alone CMS covering a complete drive train.



— Acceleration sensor mounting for integrated condition monitoring in cold rolling mill. With local warnings by key performance indicators, first analysis with detailed verification possibility via CP600 and remote connectivity.

Example: Cold rolling mill in steel processing:

- One FM502-CMS module can execute differently configured measurements at the same time and can be reconfigured at runtime.
- Several critical and unique components can be protected and condition predicted: Motors, gearbox, process (cold rolling mill).
- Production quality can be logged in parallel in real time.
- Remote diagnostics expertise and detailed analysis and reports only in case of warnings.

Please watch our videos on our ABB PLC YouTube channel:



youtube.com/user/abbplc

Application descriptions and features

Machine controllers based on AC500 PLC

From simple to high end motion applications

- Convenient PLC portfolio for diverse applications
 - Simple machine control with AC500-eCo PLC
 - Point-to-point motion with PTO outputs or Modbus communication with the drive and AC500-eCo V3
 - Mid-range applications with AC500 PLC
 - EtherCAT communication with the drive or remote I/O and cam-switch for synchronized motion
 - High-end motion application with PM595
 - Axis interpolation e.g., for Delta robot
- Easy integration and excellent scalability using ABB Ability™ Automation Builder
- Motion wizard and library for fast setup of complex applications

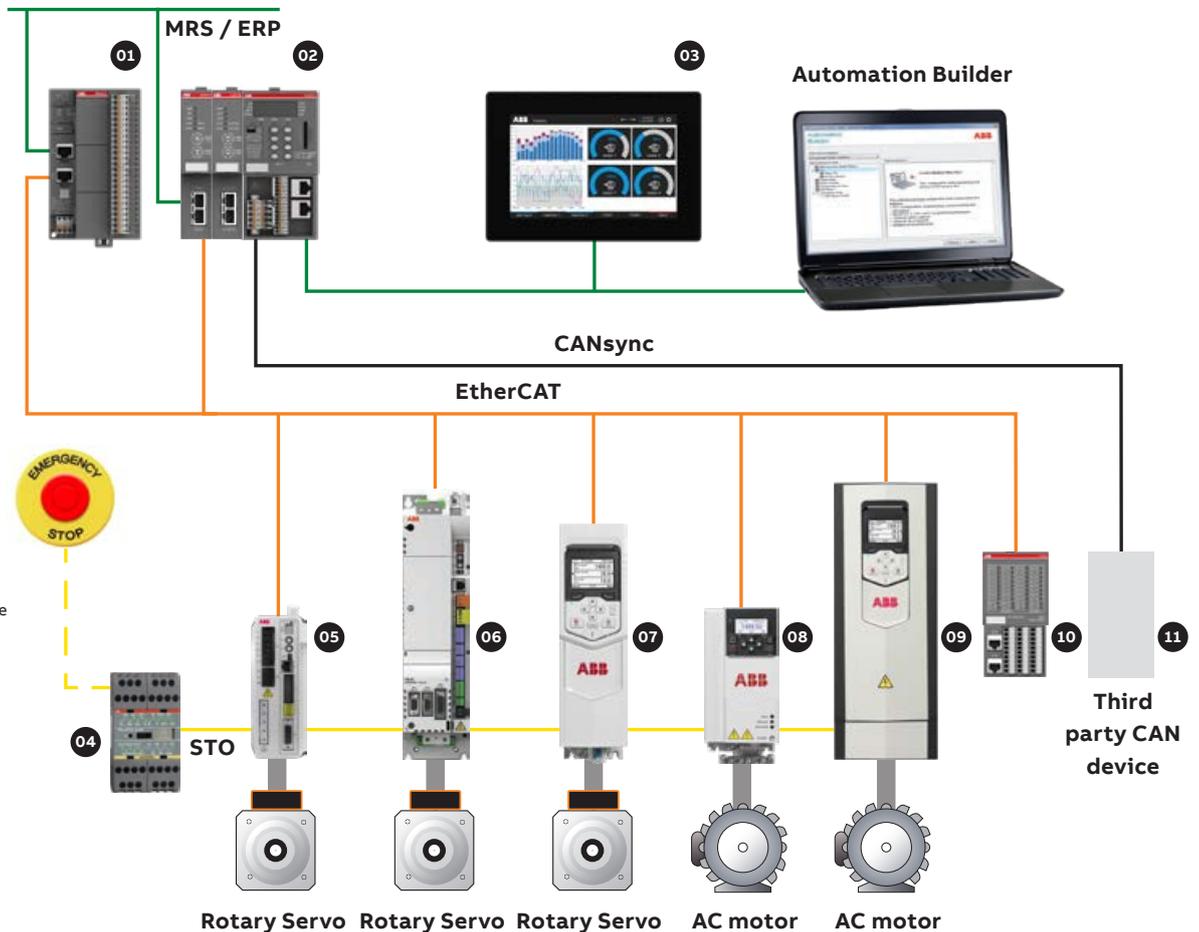
Multi-axis motion coordination with EtherCAT

ABB's AC500 PLC using EtherCAT real-time bus delivers high performance for multi-axis control applications.

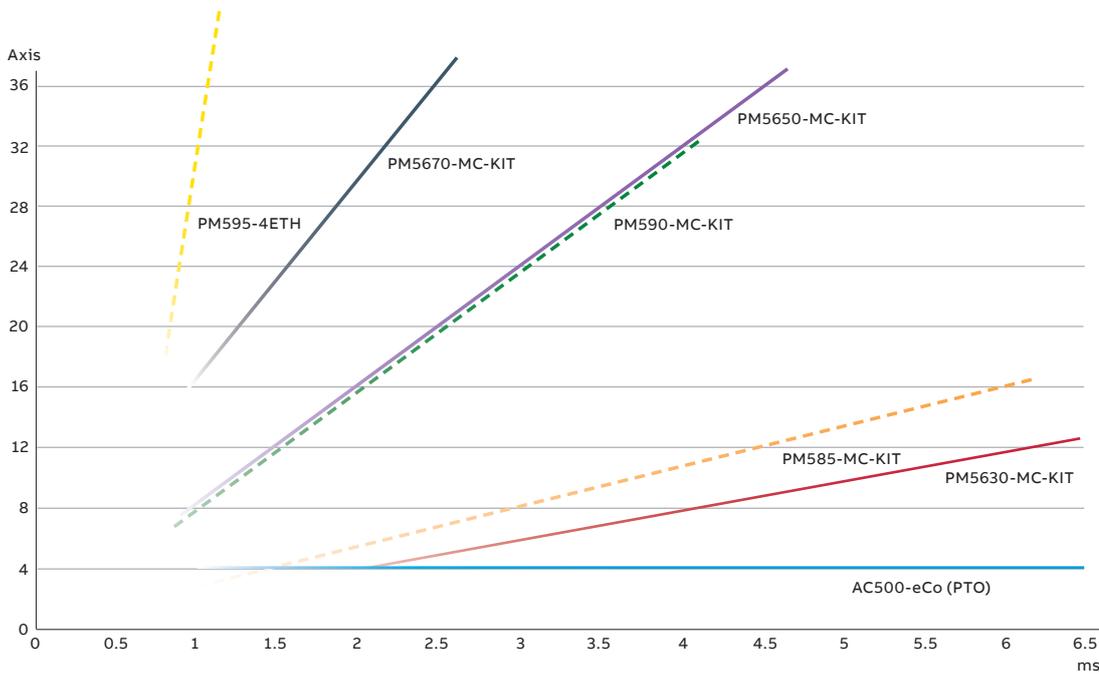
The AC500 PLC provides an industry solution with IEC 61131-3 programming and PLCopen motion functions in combination with ABB drives such as ACS880-M04 fitted with the FECA-01 EtherCAT module for higher power axes or ACS380 drives or MicroFlex e180/e190 drives.

This popular high-performance motion bus provides simple 'daisy chain' connection.

- EtherCAT multi-axis coordinated motion
- 01 AC500-eCo V3 PLC Onboard EtherCAT – in preparation
- 02 AC500 PLC
- 03 CP600 HMI
- 04 Pluto Safety PLC module
- 05 MicroFlex e190
- 06 MotiFlex e180
- 07 ACS880-M04
- 08 ACS380
- 09 ACS880
- 10 S500 EtherCAT I/O
- 11 Third party CAN device



H



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01 Number synchronized
Axes / ms

EtherCAT AC500 machine controller kits

In order to simplify your application, ABB offers products for the implementation of machine control or motion control applications. These products can be purchased individually or as a kit. Two available EtherCAT kits contain the components required for your application.

Depending on the required performance, the kit provides a powerful CPU, an EtherCAT master communication module and the respective terminal base. The kit can be expanded using standard I/Os, other communication products or software solutions.

Pulse-train based AC500-eCo motion control via PTO

Efficient and economic motion control via 4 PTO/PWM outputs usable with simple motion library or comfortable to configure PLCopen based motion control programming.

PLC Type used: AC500-eCo V3 AC500	PM5032	PM5052	PM5072/ PM5082	V3 PM5630	V3 PM5650	V3 PM5670	V2 PM585	V2 PM590	V2 PM595
Min. task cycle settable in ms	5	2	1	1	1	0.5	1	1	1
ETH ports	1	1	2	2	2	2	1	1	4
Option slots	2	3	3	–	–	–	–	–	–
PTO axis (200 kHz)	4	4	4	–	–	–	–	–	–
EtherCAT axis: configuration limits - performance indication: axis/ms	–	–	–	2	8	16	3	8	24
Examples:									
Number of synchr. axis in 1 ms	–	–	–	–	8	16	–	8	24
Number of synchr. axis in 2 ms	–	–	–	4	16	32	6	16	48
Number of synchr. axis in 4 ms	–	–	–	8	32	64	12	32	96
Min. EtherCAT master cycle time usable in ms	–	–	–	2	1	0.5 (1)	1	1	0.5

(1) only 2 axis at 0.5 ms

Digital solutions and connectivity for drives

ABB digital tools and connectivity for drives enhance the performance, reliability, and efficiency of the whole system throughout the entire drive life cycle, which gives end users a new level of trust.

Plan – Tools for smooth selection journey



- + Drive and Motor Selector
- + DriveSize
- + EcoDesign
- + EnergySave calculator
- + LV Drives Configurator
- + DriveUpgrade

Design – Engineering tools for advanced customization



- + ABB Ability™ Virtual Commissioning for drives
- + Drive Application Builder
- + Mint WorkBench

Build and maintain – User tools for superior drive management



- + Drive Composer
- + ABB Ability™ Mobile Connect for drives
- + ABB Access
- + Drivetune mobile tool
- + User interface options (control panels)
- + Fieldbus and Industrial Ethernet solutions
- + Functional safety offering



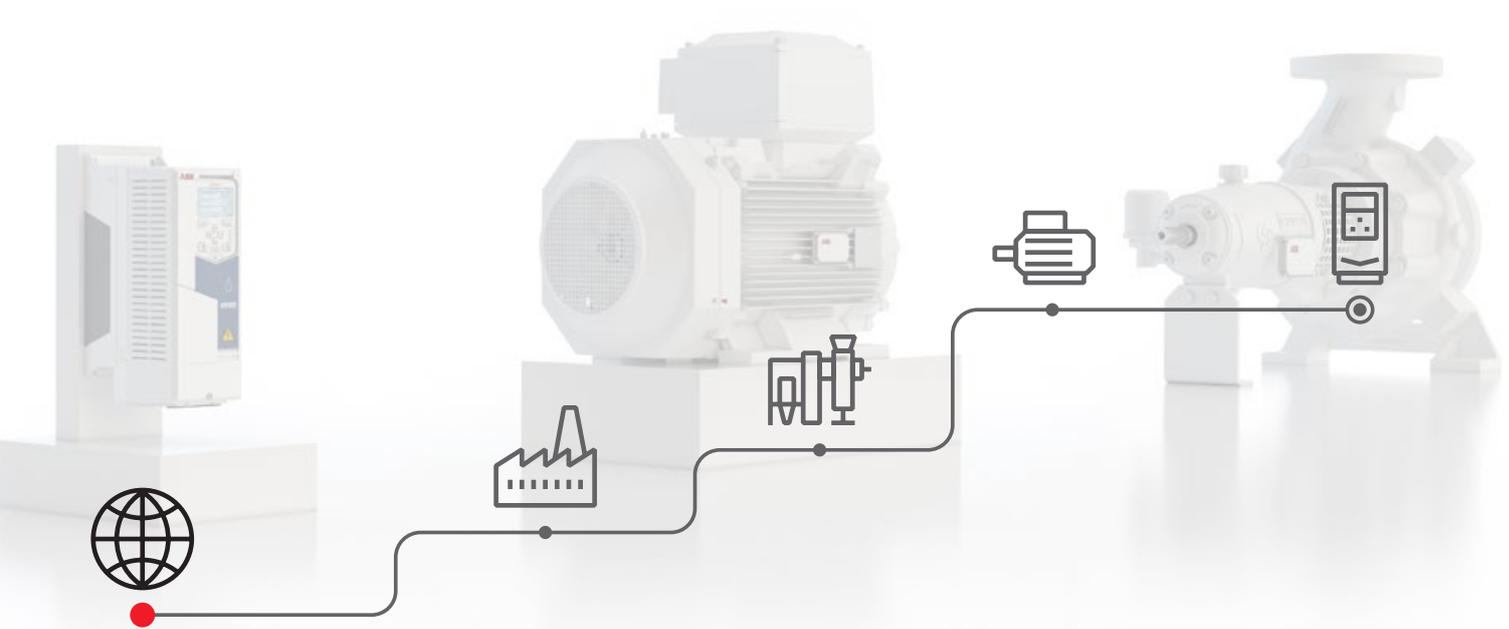


ABB web-based selection and dimensioning tools

+ Drive and Motor Selector

With ABB's easy-to-use Drive and Motor Selector you can get and fine-tune your recommendations for drives and motors that meet your needs, compare different products, download technical documents and user guides – all in one place.

new.abb.com/drives/abb-variable-speed-drive-selector

+ DriveSize

DriveSize helps you select an optimal motor, drive, and transformer, and contains current versions of our motor and drive catalog. DriveSize can compute network harmonics and create dimensioning documents.

new.abb.com/drives/software-tools/drivesize

+ EnergySave calculator

Calculate how much energy and money you could save by using ABB drives while also deriving other benefits such as soft starting and stopping, an improved power factor, and connection into process automation.

new.abb.com/drives/software-tools/energysave-calculator



+ ABB Ability™ Virtual Commissioning for drives

Virtual engineering and commissioning allow machine builders and system integrators to develop and simulate entire industrial processing lines and machines, including ACS880 drives, without actually running the hardware. This gives valuable benefits in the phases of designing, commissioning and operating machines.

Design safely and efficiently

Engineers can start configuring and programming drives well before receiving them from ABB production line, since the same software tools like Drive Composer Pro can be used with virtual and real drives. Virtualization can also cover the kinematical and physical behavior of the machine and the overriding automation. Virtual drives can also be used with the Drive Application Builder and ABB Automation Builder programming tools to build more complete virtual machines and processing lines.

After deploying the virtual machine in use on-site, any future improvements can be virtually tested before implementing them in the process. This all supports safety and quality in the engineering process.

Benefits

Throughout the value chain from sales, marketing, and training to field engineering and product development, virtual commissioning makes drive applications more easily understood and helps to:

- Design, test and learn drive applications virtually with the same software tools as for the actual hardware
- Train users and engineers with application simulation
- Tune up drive parameters easily off-site before going into more demanding on-site testing
- Find and solve potential problems earlier
- Save time and money due to faster drive commissioning
- Assist the dimensioning and energy optimization of electromechanical drive systems

Save time, reduce risk, and increase engineering productivity





+ Drive Application Builder

Drive application programming lets you create cutting-edge advantages in your machines, thanks to the built-in PLC functionality of ACS880 drives. The application program runs on top of the drive's standard drive firmware. This allows seamless implementation of custom control algorithms in addition to the standard drive functionality, access to the drive peripheral I/O and customization of the drive user interface.

Drive application programming is accomplished with the Drive Application Builder tool and based on the well-known IEC 61131-3 standard. This standard allows to start a program development with minimal training and to transfer customized programs to other platforms.

Combine your application knowledge with the world's number one electrical drives

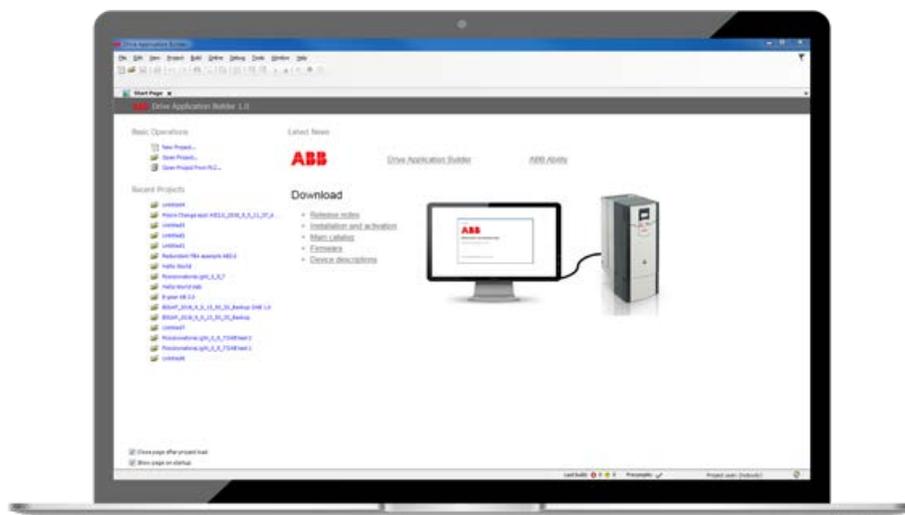
Benefits and Features of Drive Application Programming include:

- Cost savings and higher reliability, due to fewer system components and simpler installation work because no external PLC is needed
- Compact solution requires less cabinet space, as the PLC is inside the drive enclosure, with the same IP class
- Performance and productivity improvements, since decentralized machine control enables faster control loops
- No need for a separate HMI, as a drive control panel can be used instead in some applications
- Creation of intelligent applications with several drives, using the drive-to-drive communication

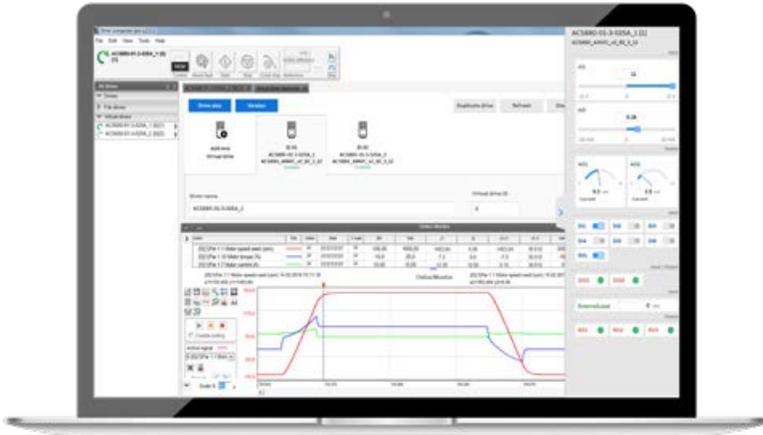
Drive Application Builder is a tool for developing IEC 61131-3 programs in a drive-embedded PLC.

Standard features:

- IEC 61131-3 programming
- 160KB of program memory
- Running application program in parallel drive FW in tree configurable tasks (1ms-1000ms)
- Interface to standard drive parameters
- Adding customer parameters
- Adding customer events
- Drive I/O programming
- Drive-to-drive communication



For more information, please see new.abb.com/drives/software-tools/drive-application-programming



+ Drive Composer

Drive Composer is an easy-to-use, reliable, and secure tool for commissioning, monitoring, and troubleshooting ABB all-compatible drives.

The **entry** version of Drive Composer provides basic functionality for setting parameters, basic monitoring, taking local pro control of the drive from the PC, and event logger handling. The entry version is available for free and can be downloaded from below.

Drive Composer **pro** is the full-fledged commissioning and troubleshooting tool. Order Drive Composer pro through ABB sales channels. Existing license holders can upgrade to latest version of Drive Composer pro by downloading the installation package from below.

Download

Drive Composer entry

<https://search.abb.com/library/Download.aspx?DocumentID=9AKK105408A3415&LanguageCode=en&DocumentPartId=1&Action=Launch>

Drive Composer pro

<https://search.abb.com/library/Download.aspx?DocumentID=9AKK105713A1935&LanguageCode=en&DocumentPartId=&Action=Launch>

Drive Composer software Features

	Entry version (FREE)	Pro version (DCPT-01)
Connectivity		
Online, offline and demo modes available	●	●
Use the USB port of an Assistant control panel for PC tool communication	●	●
Use Ethernet-based fieldbus adapter module or Panel bus network connection	◇	●
Control, monitor and display status of the connected drive	●	●
Work simultaneously with multiple drives (networked drives)	◇	●
Parameters Management		
Management of connected drive parameters (Display & modification)	●	●
Edit parameter files in offline mode	◇	●
Copy/download parameters to a drive	●	●
Customization of parameter windows	●	●
Save and export parameters to a parameter file	●	●
Compare parameters between parameter lists or drives	◇	●
Drive parameter conversion tool (for ACS800/ACS600)	◇	●
User parameter set functionality (only ACS880 drives)	◇	●
Monitoring		
Monitor signals in numerical and graphical format	Max 8 signals	Max 26 signals
Monitor signals simultaneously from multiple drives connected	◇	●
Save and Export monitored data to a computer	●	●
Open and analyze the saved or monitored files	●	●
Additional features		
Adaptive programming feature (Create and edit programs)	●	●
Control diagrams for parameter setting and diagnostic purposes	◇	●
Creation, configuration and execution of Macro scripts	◇	●
Configure the optional safety functions modules (FSO)	◇	●
Firmware loader (Update drive, FSO safety module)	◇	●
Drive text editor (manage user editable texts in a drive)	◇	●
Create EDS export files of a connected drive	◇	●
Display contents of an event logger (faults and warnings)	Partly	●
Display and analyze of data logged in a drive	◇	●
Maintenance		
Display of System info (basic information about the drive and its options)	●	●
Connect to Drive installed base (DIB) service portal (register, search, report)	●	●
Backup/restore functions	●	●
Advance restore (restore a set of components/parameter settings)	◇	●
Create backup of all connected drives in a computer network	◇	●
User interface available in different languages	●	●
Virtual drive launcher available	◇	●
Use an OPC-based commissioning and maintenance tool	◇	●



+ ABB Ability™ Mobile Connect for drives

Easy access to remote support

ABB Ability™ Mobile Connect for drives is a platform for remote drive support consisting of the Mobile Connect web portal and the Drivetune mobile app.

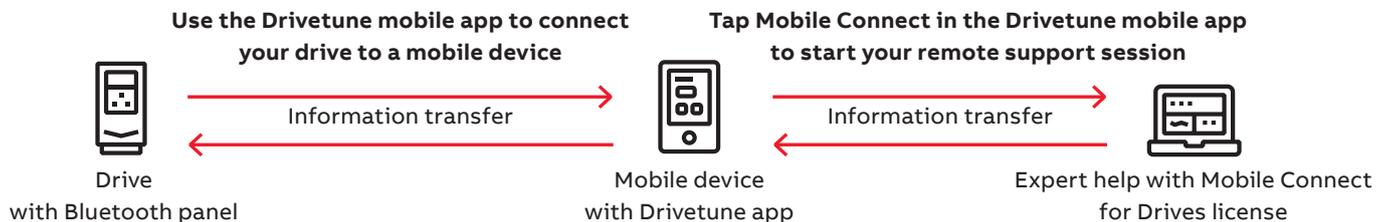
The platform allows ABB service partners to provide remote commissioning and troubleshooting support for personnel on-site without any complex connectivity infrastructure. Chats, sharing images and backups, viewing parameters online and sending support packages are all possible,

making your technical support process quick and efficient.

All that is needed is the Bluetooth control panel and a mobile device.

The platform is available for ABB partners and OEMs under a renewable subscription-based agreement.

[ABB Ability™ Mobile Connect for drives support portal](#)



+ Drivetune mobile app for managing drives via an intuitive interface

Drivetune mobile app is a powerful tool for performing basic drive startup and troubleshooting tasks. It is possible to connect with drives and access data available in the Internet at the same time. The wireless Bluetooth

connectivity means that users won't need to enter hazardous or difficult-to-reach work areas to access information necessary to help them commission and tune the drive.



- **Startup, commission and tune your drive and application with full parameter access**
- **Optimize performance via drive troubleshooting features**
- **Create and share backups and support packages**
- **Keep track of drives installed base**

Download Drivetune mobile app

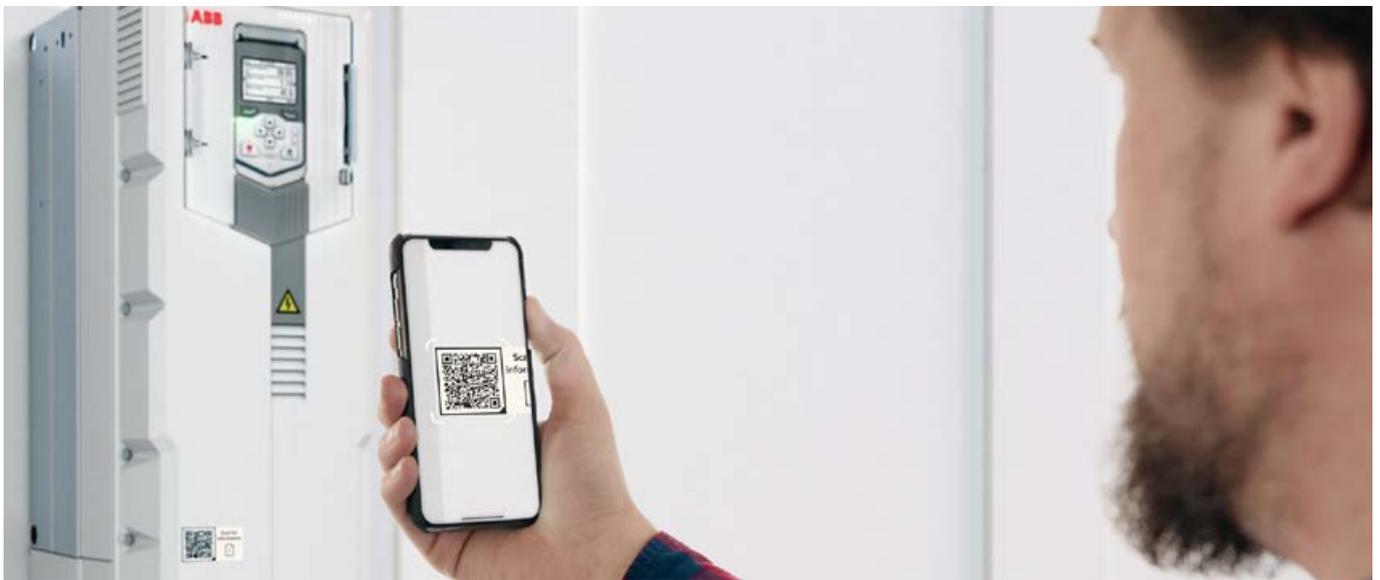




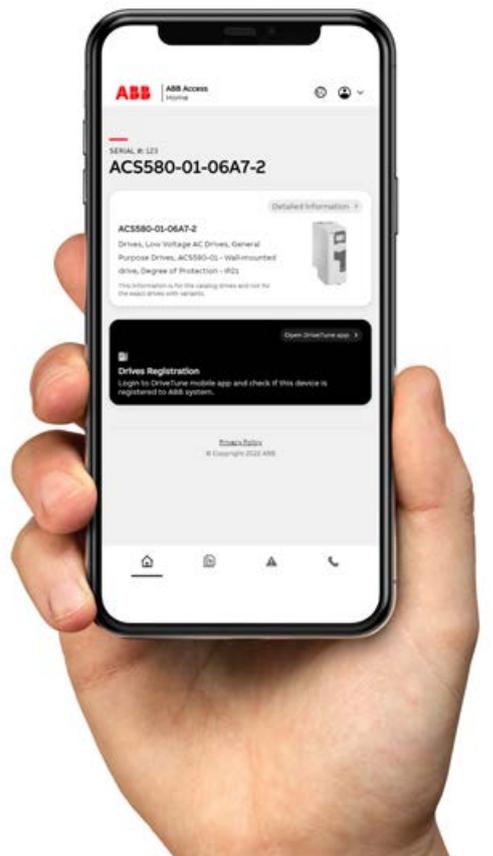
+ ABB Access

Scan the QR code to access 24/7 self-services for ABB drives, motors and PLCs

With ABB Access, you can unlock all aspects of your drives, motors or PLCs, from one central location: the palm of your hand.



Simply scan the QR code on the ABB product to get started
ABB Access, helps you easily find up-to-date product online data. It also provides easy access to documentation and manuals. If you happen to experience issues with your ABB product, this can be fastly and easily reported online to reach expert support from ABB.





+ ABB Ability™ Operations Data Management – zenon

Highlights

- zenon integrates your technology by connecting drives, motors, PLCs, and electrical devices to complete automation and electrification
- It enables supervision, control, data acquisition, scheduling and performance reporting for your machines and factories
- zenon hosts ABB Ability™ solutions on premises and connects to other remote solutions
- The platform's security is designed to be smartly integrated into all processes and systems in critical infrastructure
- Turning data into information, zenon provides insight into production processes via its more than 300 communication protocols and drivers, enterprise resource planning capability, and cloud interfaces
- Its extensive lifecycle, backward compatibility and ability to engineer mixed version environments, ensures low total cost of ownership and cost-effective extensions for factories

Features

- Control and supervision for factory assets
- Connectivity through more than 300 communication protocols and drivers
- IoT from machines to multi factory
- Secure data storage and communication
- Certified ISO 50001 Energy Data Management System
- Freely definable KPIs
- Alarm management
- Realtime Management Dashboards
- Extensive production data analytics
- Audit Trail
- Batch and recipe handling – ANSI/ISA–88.01 compliant
- Equipment Model – ISA S95 compliant
- Production scheduler
- Soft PLC
- HTML5 Webserver
- FDA CFR 21 Part 11 compliant
- GAMP 5 compliant
- Weihenstephan pack and food standard compliant
- Certified SAP ERP and MS Azure interface



Information – Integrity – Insight

For more information, please see www.abb.com/zenon and zenon.sales@abb.com



+ Drive Assistant Control panels

Easy commissioning and operation

ABB has a wide range of drive HMI options with different value proposition for customers – from the low-cost, easy-to-use Basic control panel to the Drive Connectivity panel which is a plug-and-play solution for the ABB Ability™ Digital Powertrain for remote condition monitoring and expert support.



Basic control panel

The icon-based control panel supports users with parameter backup, settings, and fault tracking in basic operation. Simple and low cost, it fulfils all essential needs.



Bluetooth control panel

The control panel with built-in Bluetooth enables easy and secure wireless connection with the Drivetune mobile app. With the entry version of Drive Composer software tool, you can startup, commission, maintain, and get remote support of ABB all-compatible drives.



Assistant control panel

ACS-AP-I control panel works with all ABB drives, making it easy to use one panel with different products. Enhanced usability, intuitive and appealing interface, easy navigation.



Drive Connectivity Panel

Control panel variant with built-in Bluetooth and mobile radio. It offers easy remote condition monitoring, plug, and play installation with secure and reliable wireless connection to the ABB Ability™ Digital Powertrain, the cloud-based condition monitoring portal for ABB Drives. Possible to connect with the Drivetune mobile app and Drive Composer Entry PC tool as well. Available with a renewable subscription to the ABB Ability™ Digital Powertrain.





+ Functional Safety offering

Ensure the safety of your machinery and processes with drive-based functional safety

ABB offers various safety devices and tools for designing safer machines and processes while utilizing drives. Our drive-based functional safety offering includes drives that come with integrated safety features and extended safety functionality all in one package. Safe connection between drive and PLC is established using safety communication protocols PROFIsafe or CIP Safety or connectivity. ABB's functional safety design tool speeds up the design process when building safety solutions.

ABB all-compatible drives have Safe Torque Off (STO) as the standard. A wide range of functional safety modules are available as options:

FSO-12 and FSO-21 provide an easy way to extend safety functions in the ACS880 and DCS880 series drives. These plug-in modules are installed and cabled inside the drive, enabling different safety functions and diagnostics in one compact and reliable module.

FSO-12 and FSO-21 offers several safety functions including:

- Safe Stop 1 (SS1, as SS1-r and SS1-t implementations),
- Safe Stop Emergency (SSE)
- Safe Brake Control (SBC)
- Safely Limited Speed (SLS)
- Safe Maximum Speed (SMS)
- Prevention Of Unexpected Start-up (POUS).

FSO-21 featuring two additional functions:

- Safe Direction (SDI)
- Safe Speed Monitoring (requires the pulse encoder interface module (FSE-31))

For more information, please see new.abb.com/drives/functional-safety

Both safety function modules are capable of monitoring safe speed in encoder less mode (in open loop). This is made possible when monitoring is based on a pre-set motor profile, speed profile and speed estimation of the safety functions module.

CIP Safety™ functions module, FSCS-21 and PROFIsafe safety functions module, FSPS-21, are easy to use, cost-efficient and compact modules that helps you to connect drives seamlessly to a safety PLC. Modules are easy to install and configure and is suitable for ensuring the safety of equipment that reduces the risk of accidents for people working with a variety of applications.

- Compatible drives: ACS380, ACS580, ACS880
- Safety functions: Safe Torque Off (STO), Safe Stop 1 (SS1)
- The highest safety levels: SIL 3/PLe (Safety Integrity Level/Performance level)



Functional safety design tool

The functional safety design tool (FSDT-01) helps you design and calculate safety integrity levels (SIL)/performance levels (PL) for safety functions and generate safety calculation reports. It is a Windows application, which is a support tool for performing functional safety modeling, design,

calculations, and verification for machine functional safety. The tool is aimed to simplify the process of safety function design and verification and to generate documentation to support compliance to the required standards and the European Machine Directive for safety

For more information, please see new.abb.com/drives/functional-safety/functional-safety-design-tool

ABB Ability™ Digital Powertrain

Condition monitoring for drives and rotating equipment

Accurate, real-time information about powertrain events. When you have the facts, you can make the right decisions.

ABB Ability™ Digital Powertrain

The ABB Ability Digital Powertrain enables you to remotely monitor the health and performance of entire powertrains including drives, motors and applications, such as pumps. The data collected from the connected equipment can be accessed and analyzed remotely, providing a better understanding of the health and energy efficiency of the entire process.

ABB Ability™ Condition Monitoring for drives

ABB Ability Condition Monitoring for drives is a key element of the Digital Powertrain. The services are designed to provide key information about drive events and changes in behavior to ensure your equipment is always available, reliable and well maintained.

The service can be tailored to fit your needs. Our standard package for condition monitoring for drives gives you industry leading monitoring capabilities – whether you want to view the drive status through ABB's Internet portal or integrate this data with your existing monitoring systems.

The standard package includes the following services:

- Condition Monitoring
- Alarm Management
- Asset Health
- Team Support
- Backup Management

The standard package can be supplemented with optional services:

- Condition-Based Maintenance
- Offline Data Collection
- Expert Reports
- Remote Assistance
- Condition monitoring of your entire powertrain



Key benefits



Solid fact-based decision making

Get the facts, and the history, to help run your operations better and more safely.



Always stay one step ahead of problems

Recognize early signs of possible failures and assess the risks before they turn into serious operational issues.



Find the root cause of process issues

Remotely access data from ABB drives built-in sensors to track the cause of problems. Get back to smooth operation quickly with data back-ups.



Remotely analyze and optimize drives

Get critical drive information anywhere anytime – even in difficult to access sites, or when a site visit is impossible.

Connectivity devices enabling remote condition monitoring of drives

NETA-21

NETA-21 connects the drive to the cloud via the Internet or local Ethernet network.

- Up to nine drives can be connected to one module
- The module comes with a built-in web server and requires no Flash/Java plug-ins
- In the absence of a customer local area network, it can be connected via a mobile network router (either Ethernet or USB network adapter)
- The RMDE module with IP54 enclosure is available for already installed drives. It can contain two or four NETA modules to connect up to 36 drives.



Connectivity Panel^{*)}

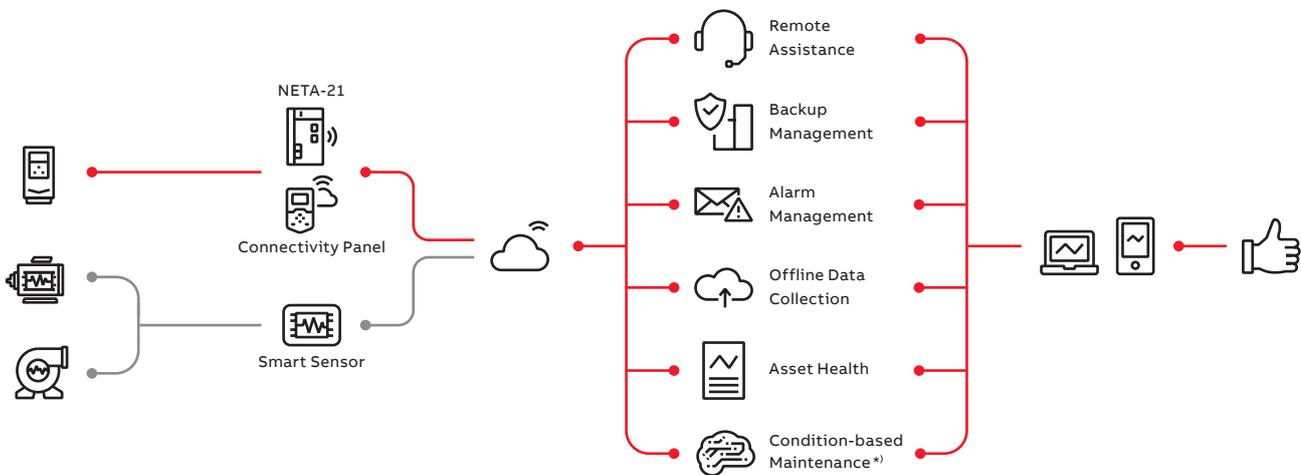
Connectivity Panel offers easy plug & play installation and commissioning with built-in connectivity.

- Built-in NB-IoT wireless module with strong signal penetration even if drive is underground or in cabinet
- High efficiency antenna for reliable connection
- Industrial SIM for best reliability including mobile data plan^{*)}
- Bluetooth® enables use of Mobile apps and PC tools



^{*)} Not available in all countries and for all drives. Please check availability of panel and services with your local ABB representative.

Customers can configure powertrains and customize the digital service plan



^{*)} Not available for all connectivity devices

Our service expertise, your advantage

ABB Motion Services helps customers around the globe by maximizing uptime, extending product life cycle, and enhancing the performance and energy efficiency of electrical motion solutions. We enable innovation and success through digitalization by securely connecting and monitoring our customers' motors and drives, increasing operational uptime, and improving efficiency. We make the difference for our customers and partners every day by keeping their operations running profitably, safely and reliably.

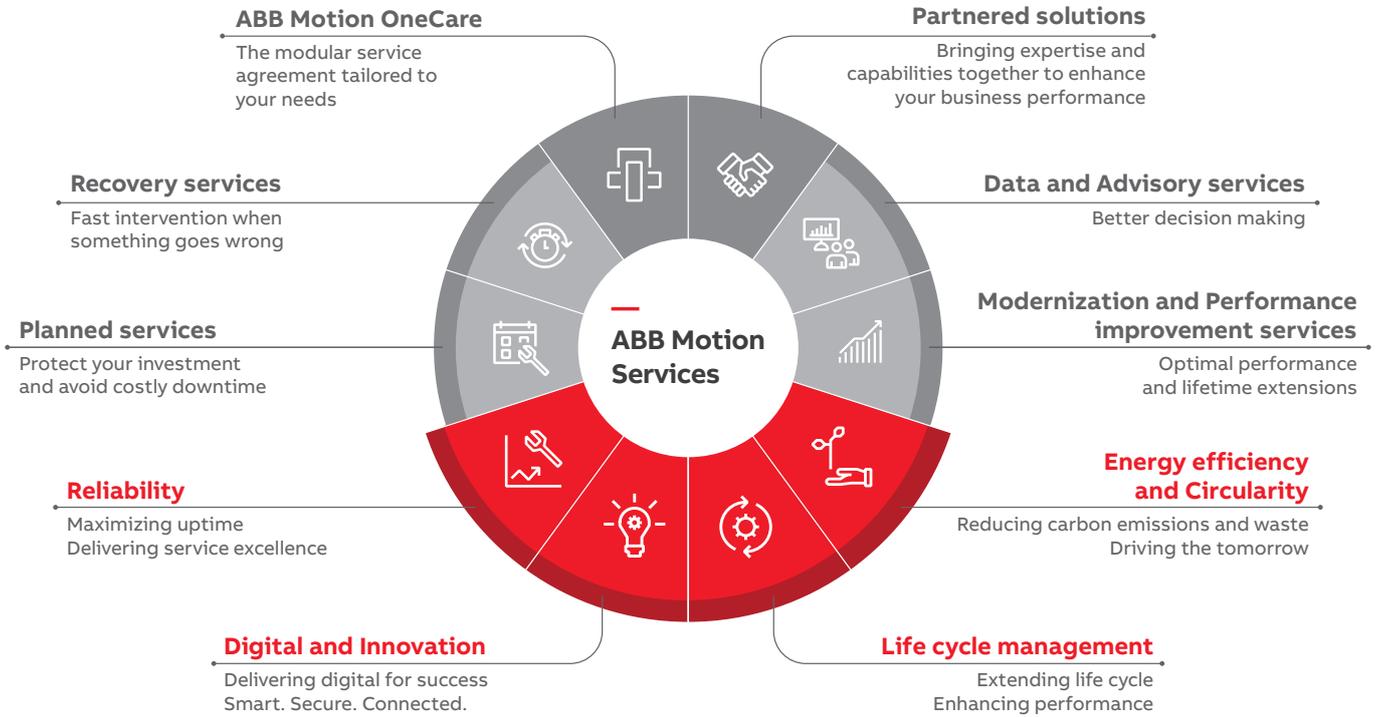
With a service offering tailored to your needs, ABB Motion Services maximizes the uptime and extends the life cycle of your electrical motion solutions, while optimizing their performance and maximizing your energy efficiency gains throughout the entire lifetime of your applications. We help to keep your applications turning profitably, safely, and reliably.

Digitalization enables new smart and secured ways to prevent unexpected downtime while optimizing the operation and maintenance of your assets. We securely connect and monitor your motors, drives or your entire powertrain to our easy-to-use cloud service solutions. Connecting your applications also gives you access to our in-depth service domain expertise.

We quickly respond to your service needs. Together with our partners, local field service experts, and service workshop networks, we provide and install original spare parts to help resolve any issues and minimize the impact of unexpected disruptions.

Our tailored to your needs service offerings and digital solutions will enable you to unlock new possibilities. Not only are we your premier supplier of motion equipment, we are your trusted partner and advisor offering support throughout the entire life cycle of your assets. We ensure your operations run profitably, safely and reliably and continue to drive real world results, now and in the future. Our service teams work with you, delivering the expertise needed to keep your world turning while saving energy every day.





OUR EXPERTISE
YOUR ADVANTAGE

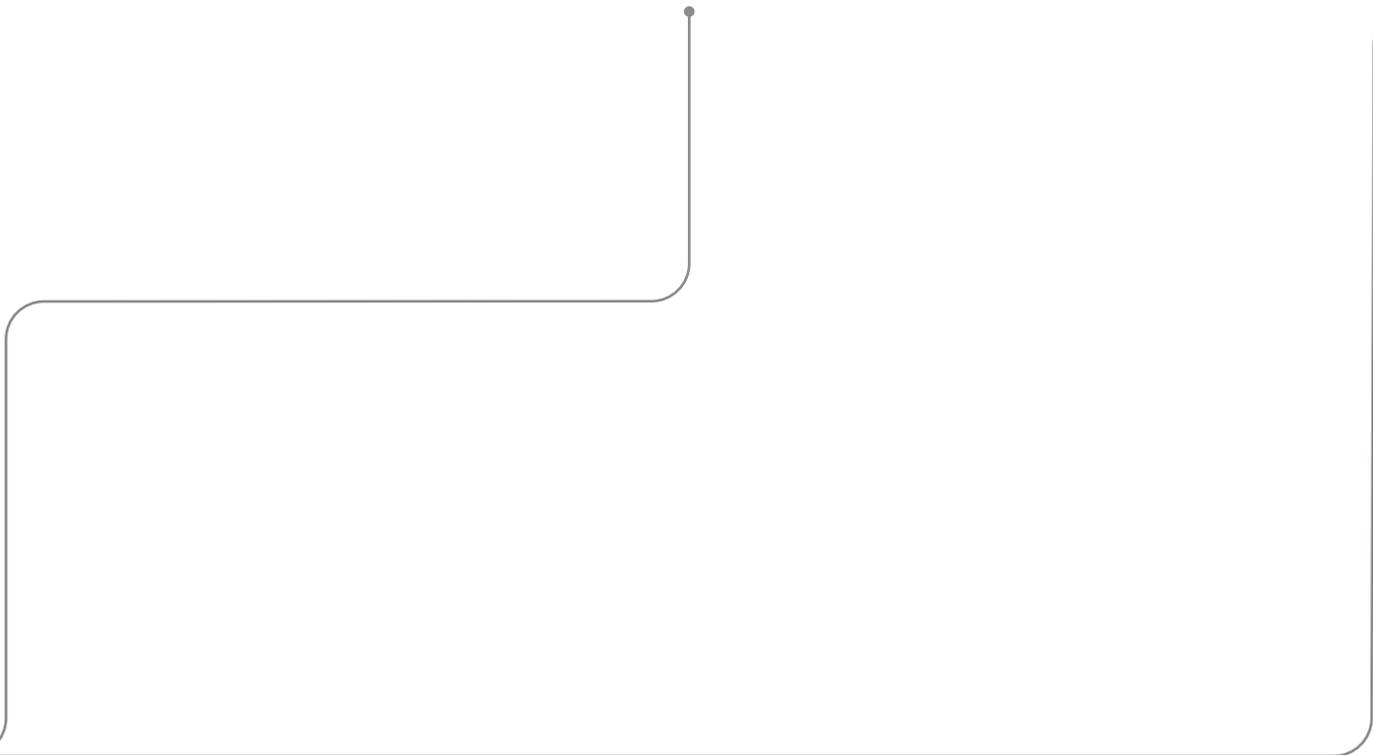
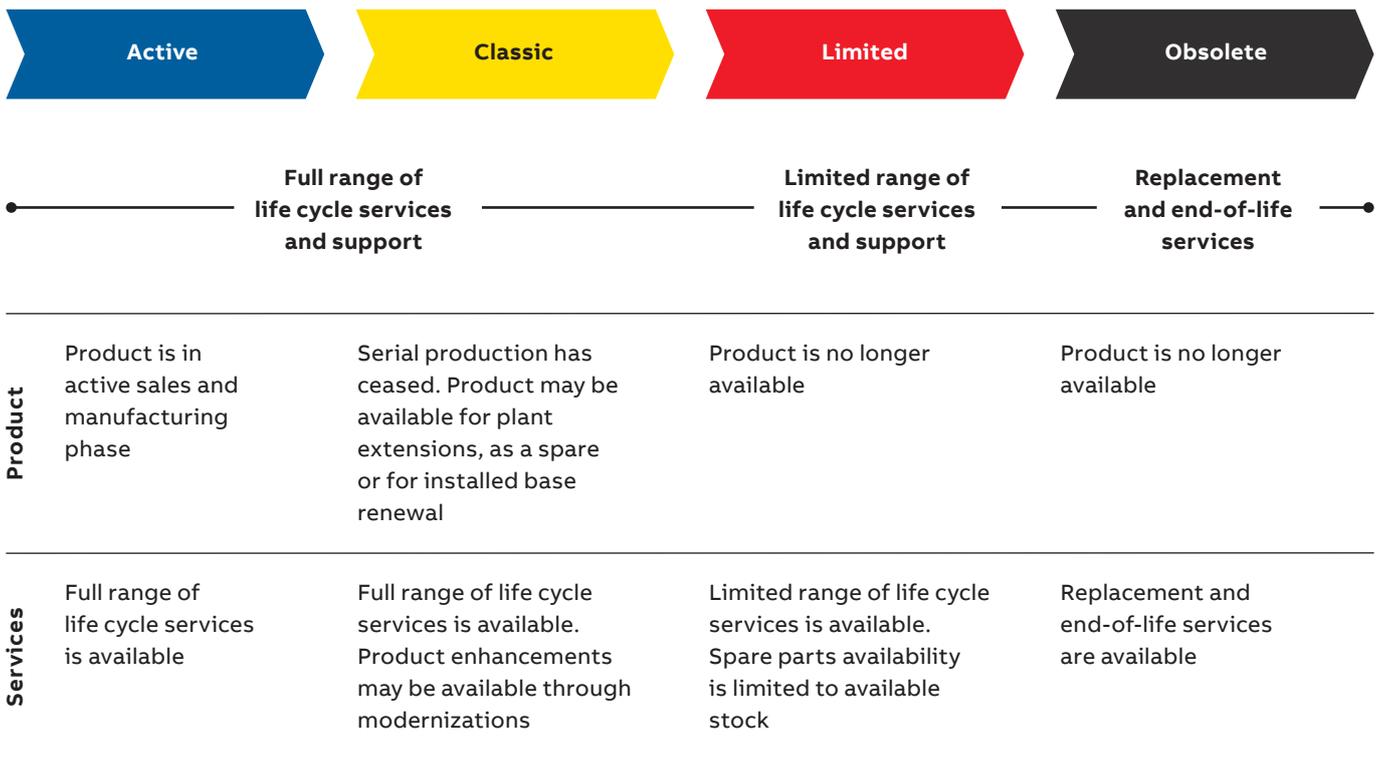


ABB Drives Life Cycle Management

A life time of peak performance

You're in control of every life cycle phase of your drives. At the heart of drive services is a four-phase product life cycle management model. This model defines the services recommended and available throughout drives lifespan.

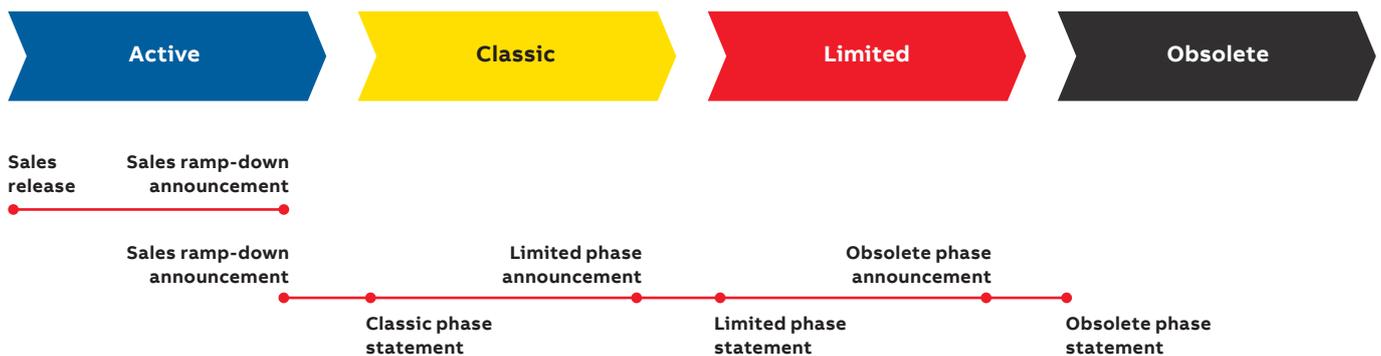
Now it's easy for you to see the exact service and maintenance available for your drives.



Keeping you informed throughout the life cycle

We notify you every step of the way using life cycle status statements and announcements.

Your benefit is clear information about your drives' status and precise services available. It helps you plan the preferred service actions ahead of time and make sure that continuous support is always available.



Sales release

Details about product portfolio and release schedule.

Sales ramp down announcement

Last time buy and last deliveries dates, informed well in advance.

Life cycle phase change announcement

Early information about the upcoming life cycle phase change and affects on the service availability. Informed well in advance, minimum six months prior to the change.

Life cycle phase statement

Information about the current life cycle status, product and services availability and recommended actions. Plan for the next life cycle phase transition.



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For more information, please contact
your local ABB representative or visit

new.abb.com/drives

new.abb.com/drives/drivespartners

new.abb.com/plc

new.abb.com/plc/automationbuilder

Additional information

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