



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?

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.

## **A drive is only a part of the solution**

Our attention to service matches the technological pursuits of our R&D department. This means a globally local presence, customer service, support, expertise, various tools and a technical partnership to give you added value as a customer, designer or end user.

You can expect us to understand your business, your process and your needs from A to Z. We know by experience how to increase your production capacity, improve your product quality, reduce waste and lower your maintenance costs. Our dedicated experts talk your language and can offer the quickest route to a profitable solution, without forgetting personnel safety and environmental responsibility.

## **Buy a drive and you get our expertise**

The world's leading application engineering organization is at your service. We have a thorough knowledge of all applications from pumps, fans and compressors through to conveyors, extruders, winders and marine applications.

In your plant, our expertise extends across entire electrical installations from correct selection, dimensioning and installation through to operation and maintenance of drives, PLCs, motors, transformers, relays, switches and contactors and all the way to transducers and meters. Optimal choices not only save energy, but also reduce the application's maintenance needs.

For instance, a combination of ABB motors and drives helps minimize the life cycle cost of pumps, fans and other driven machines as well as the entire mechanical installation.

## **Wherever the drive goes, we are there to support your business**

You can expect us to be beside you, wherever you are. Our companies and sales offices are at your service in more than 100 countries, and chances are that one of our authorized value provider companies is probably located right in your neighborhood.

If you are a machine builder, the global ABB can be a vital part of your customer service. You, and your product, are never alone.

So, what can you expect from the world's largest drives manufacturer? Not only the most optimal drive, but the things you really want to be investing in: efficiency, productivity, reliability and safety.



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# The most effective way to a green process is also the most profitable



## Benefits of using ABB drives

**Substantial energy savings** – Rather than have an electric motor running continuously at full speed, an electric drive allows the user to slow down or speed up the motor depending on the demands. Reducing motor speed to meet the actual demand of the process often means substantial energy savings and reduced operating costs.

**Optimal process control** – An electric drive enables a process to achieve the right speed and torque while maintaining its accuracy – this contributes to a more consistent quality and throughput of the end product.

**Reduced need for maintenance** – Being able to vary the speed and torque of an electric motor means there is less wear and tear on the motor and the driven machine. For example, the ability to bring a process up to speed slowly prevents the sudden shock loading that can damage the motor and the driven machine over time.

**Efficient system upgrade** – An electric drive allows for the removal of valves, gears and belts. It also ensures network dimensioning based on a lower starting current.

**Functional safety** – Most ABB drives offer functional safety features providing safety for machine operators. The 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** – Selection can be as simple as choosing the power rating, voltage and current through detailed dimensioning and adding of various options.

**Easy to purchase** – ABB drives are available from ABB and selected ABB authorized value providers. See the following page for more details about our value provider network.

**Easy to install and commission** – The drives are simple to install and commission. ABB has developed some of the most advanced control panels and PC tools in the world. The control panels feature plain-language instructions, which can be accessed via soft buttons. This combination, together with a series of Help menus, provides for quick and effective access to all parameters. PC tools provide an easy approach for the selection, commissioning and use of ABB drives.

**Easy to use** – The drives are designed with the end user in mind, to make it as easy as possible to use our drives. The advanced control panel allows instant adjustments to speed or other application parameters.

# Extend your choices by ABB authorized value providers

The ABB authorized value provider network provides more choices and flexibility when buying ABB products and services. The network members deliver sales, support, service and engineering in seamless cooperation with ABB.



ABB authorized value providers are members of the ABB channel program – the ABB Value Provider Program. They are fully trained, regularly audited and officially authorized to represent the defined ABB products and services. With their in-depth knowledge of local markets and expertise in selected products and services, they can ensure speed, efficiency and consistency in daily operations. Their work ensures that ABB products are backed by the same high standards of service and support all over the world.

## Products and services for your specific needs

The multichannel network offers more choices and flexibility to match the local business requirements via globally consistent offering.

## Finding your local ABB authorized value providers

To learn more about our unique ABB authorized value providers near you, please visit:

[www.abb.com/drivespartners](http://www.abb.com/drivespartners)

Channel type	Focused offering	Authorization for
Distributor	Availability	Sales Support (*)
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 Engineering (*)

(\*) Optional



This label is a sign of quality services from the official members of the ABB Value Provider Program.



## 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 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 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 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 industry specific drives

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

### ABB motion control drives

ABB motion control 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, motion controllers 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 affordable 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. PS501 Control Builder Plus is the effortless, straightforward engineering tool for PLC, drives, HMI and internet services.





## 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.

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# ABB micro drives for basic applications



Little big drives  
easy to set up  
using switches



Little big drives  
with a wider  
power range and  
functionality

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.

## ACS55 highlights

- The drive works with single phase power and is suitable for domestic environments as standard
- 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.

## ACS150 highlights

- 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.



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

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# ABB general purpose drives offer ease-of-use



Built-in features  
for pump and fan  
applications



A wide power  
range for a  
broad range of  
industries

ABB general purpose drives are designed to control a wide range of applications such as pumps, fans, conveyors, compressors and mixers, as well as process control in industries including material handling, food and beverage, chemical, rubber and plastics, textile and printing. The drives are easy to select, install, configure and use, saving considerable time as most features are built-in as standard.

## 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, multipump/-fan control and pump protection functions eg, pump cleaning, pipefill to optimize pump or fan flow, to cut maintenance costs and to save energy

## ACS550 highlights

- Wide power range and vector control for variable and constant torque applications from pumps and fans to conveyors and mixers
- Many built-in features including an EMC filter for 1<sup>st</sup> environment, a Modbus interface and a swinging choke enhance drive performance and help reduce the space needed for installation
- Intuitive control panel and assistant functionality for fast set up and commissioning

### 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 C2 EMC 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.

### Features

- Power range 0.75 to 355 kW (3-phase 208 to 240 V, 380 to 480 V)
- Wall-mounted drives, IP21 as standard (UL type 1), IP54 as option (UL type 12 in frame sizes R1-R6)
- Vector control
- Built-in C2 EMC filter and Modbus EIA-485 fieldbus interface
- Swinging choke for superior harmonic reduction
- Options
  - Basic control and assistant control panel
  - Plug-in fieldbus adapters, panel mounting kits, relay output extension module
  - Output chokes
  - Brake units and choppers
  - FlashDrop tool for unpowered drive configuration in 2 seconds

For further information, see catalog "ABB general purpose drives, ACS550, 0.75 to 355 kW", code: 3AFE64792857 EN.



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## All-compatible general purpose drives Effortless energy efficiency for a broad range of applications

The all-compatible general purpose drives are designed to control a wide range of applications such as pumps, fans, conveyors, compressors and mixers, as well as process control in industries including material handling, food and beverage, chemical, rubber and plastics, textile and printing.

The drives are easy to select, install, configure and use, saving considerable time as most features are built-in as standard.

The general purpose 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.



# All-compatible general purpose drives



Essential energy efficiency and ease of use

## ACS480 highlights

- Simple to select, install, and use
- Compact design with all essential features built-in
- Optimized for pump and fan applications, and applications without overload demands
- Energy efficiency features for optimal energy use
- Connectivity to most common automation networks
- Member of ABB's all-compatible drives portfolio

### Features

- Power range 0.75 to 11 kW (3-phase 380 to 480 V)
- Cabinet-optimized, IP20 as standard
- Assistant control panel as standard
- Integrated and preprogrammed features, such as PID, pump and fan macros and timers, and other features
- Integrated C2 EMC filter as standard
- Adjustable switching frequency control reducing motor audible noise
- Built-in Safe torque off to enhance safety
- Options
  - Basic panel, assistant panel and BT panel as option
  - Most common fieldbus adapters available as option
- Remote monitoring with NETA-21
  - Safe configuration for unpowered drives

For further information, see catalog "ABB general purpose drives ACS480, 0.75 to 11 kW", code: 3AUA0000204668 EN.



Effortless energy efficiency for a broad range of applications

## ACS580 highlights

- Easy to select, install and use
- All essential features built into the drive
- Straightforward settings menu and assistants for fast commissioning
- Energy efficiency features for optimal energy use
- Connect to any automation system or use stand-alone
- Member of ABB's all-compatible drives portfolio
- Support for energy efficient motors (PM & SynRM)
- Adaptive programming for fine tuning and engineering the drive functionality
- ATEX certified thermistor relay for potentially explosive environment (dust areas in F&B)

### Features

- Power range 0.75 to 500 kW (3-phase 380 to 415 V, 440 to 480 V)
- Wall-mounted drives, IP21 as standard (UL type 1), IP55 as option (UL type 12 in frame sizes R0-R9)
- Drive module, IP00 as standard, IP20 as option
- Cabinet-built drives, IP42 as standard, IP54 as option
- Assistant control panel as standard with new primary settings and diagnostics menu with various assistants for effortless use of the drive
- Integrated C2 EMC filter for domestic environments as standard in wall-mounted drives and cabinet-built drives for frames R6 to R9
- Integrated C3 EMC filter for cabinet-built drives as standard
- Built-in patented 2nd generation swinging choke for frames R10 and R11
- Brake chopper up to 22 kW (R3)
- Adjustable switching frequency control reducing motor audible noise
- Options
  - Wide range of fieldbus adapters and remote monitoring
  - Relay extension, PTC-thermistor, 115/230 V DI plug-in options
  - Free entry level PC tool with USB connection on control panel

For further information, see catalog "ABB general purpose drives ACS580, 0.75 to 500 kW", code: 3AUA0000145061 EN.



## All-compatible machinery drives – persistent and adaptable performance

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 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.

# All-compatible machinery drives



The compact and preconfigured drive for mixer, conveyor and crane applications

## ACS380 highlights

- Preconfigured drive variant for fast installation and commissioning
- Integrated icon based user interface for faster usability
- Adaptive programming for extended application programming
- Optimal application performance with vector control

### Features

- Power and voltage range: 1-phase, 0.25 to 2.2 kW, 200 to 240 V
- Power and voltage range: 3-phase, 0.37 to 7.5 kW, 380 to 480 V
- Enclosure class: IP20
- EMC variant with built-in C2 EMC filter
- Integrated safe torque off (STO) as standard
- Standard variant with built-in Modbus RTU and extensive IO connection
- Built-in icon based user panel
- Scalar control, open and closed loop vector control
- Supports various motor types including synchronous reluctance motors (SynRM)
- Adaptive programming
- Built-in braking chopper
- Common DC connection with built-in charging unit

### Options

- Advanced control panel with USB or Bluetooth connectivity
- Relay output side option, encoder interface side option, 24V auxiliary power side option
- External EMC filter for C1
- Cold configuration tool (CCA-01)

For further information, see catalog "ABB machinery drives, ACS380, ACS880, 0.37 to 45 kW", code: AUA0000187460 EN.



The adaptable and high performance drive for converting machinery and material handling applications

## ACS880 highlights

- Control of synchronous and asynchronous motors with direct torque control (DTC) in open or closed loop
- Adaptive programming as standard, IEC 61131-3 programming as option
- Wide range of integrated functional safety features
- Supports a wide range of fieldbus protocols
- Cyclic synchronous position mode with EtherCAT
- Wide range of speed feedback and communication options

### 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
- Built-in EMC filter, category C2
- Extended connectivity to I/O

### Options

- IEC61131-3 programming
- Extended connectivity to I/O
- Speed and EtherNet communication options
- Advanced control panel with USB or Bluetooth connectivity
- Built-in/plug-in EMC filters for category C3, external EMC filters for category C2
- Functional safety modules (FSO-12/21)
  - Safety functions: SS1, SSE, SBC, SLS, SMS, SDI, SSM
  - PROFINET over PROFINET connectivity between drive and safety PLC

For further information, see catalog "ABB machinery drives, ACS380, ACS880, 0.37 to 45 kW", code: AUA0000187460 EN.

# ABB machinery drives for flexible needs



Compact and easy drives to install, set and commission



Flexibility and scalability for machinery applications

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.

## ACS355 highlights

- A compact drive with a wide range of built-in features including safety functionality
- Sequence programming provides an easy way to implement drive's control logic
- A wide range of options for enhanced performance and flexible connectivity to different processes
- Compact dimensions with unified height and depth save space and facilitate cabinet installations

### 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)
- Power range 0.37 to 22 kW (3-phase 380 to 480 V)
- IP20 enclosure (UL open type), optional NEMA 1 kit
- IP66, IP67 or IP69K (Nema 4X) as optional variant up to 7.5 kW
- Advanced functionality with sequence programming
- Scalar control, open and closed loop vector control
- Induction and permanent magnet motor control
- Built-in brake chopper and C3 EMC filter
- Integrated safe torque off (STO) as standard
- Product variants include solar pump drive, high speed application, and enhanced sequence programming
- Options
  - Basic and assistant control panels
  - Potentiometer, plug-in fieldbus adapters, encoder interface, relay output extension module, input and output chokes
  - External EMC filter for 1<sup>st</sup> environment
  - FlashDrop tool for unpowered drive configuration in 2 seconds

For further information, see catalog "ABB machinery drives, ACS355, 0.37 to 22 kW", code: 3AUA0000068569 EN.

## ACS850 highlights

- Covers a wide power and voltage range, and provides a variety of standard and optional features making adaptation to different applications easy
- The standard control program can be easily modified to meet specific application needs and function block programming provides additional flexibility
- Equipped with direct torque control (DTC) providing highly accurate open and closed loop control for different types of motors

### Features

- Power range 0.37 to 560 kW (380 to 500 V)
- IP20 enclosure (UL open type) as standard
- Compact size and side-by-side mounting save space in cabinets
- Built-in input chokes for harmonic filtering
- Built-in braking chopper up to 45 kW as standard
- Induction, permanent magnet and synchronous reluctance motor control
- Extensive input and output connectivity as standard
- Integrated safe torque off (STO) as standard
- Removable memory unit for easy drive management
- Options
  - Plug-in fieldbus adapters, I/O extensions and feedback interface modules
  - PC tools: DriveStudio for startup, tuning and programming, DriveSPC for modifying and extending functionality
  - Synchronous reluctance motor and drive packages
  - Crane control program for stand-alone cranes
  - C2/C3 EMC filters, braking options, du/dt filters

For further information, see catalog "ABB machinery drives, ACS850, 0.37 to 560 kW", code: 3AUA0000041481 EN.



The flexible  
workhorse  
for many high  
performance  
applications

#### ACSM1 highlights

- Wide power range, different product variants and programming flexibility ensure an optimum solution for both single and multi-axis systems
- Control of synchronous and asynchronous motors with direct torque control (DTC) in open or closed loop
- Regenerative supply for applications with high braking power duty cycles

#### Features

- Three-phase operation 230 to 500 V AC
- 3 to 635 A rms, power range 0.75 to 355 kW
- IP20 enclosure for cabinet installation (UL open)
- Suitable for single drive and multidrive configurations
- Speed, torque and motion control
- Controls synchronous and induction motors
- Integrated safe torque off (STO) as standard
- Innovative memory unit for easy drive management
- Options
  - Various control options for encoder feedback and communication with master and I/O extension
  - Cooling variants: air, cold-plate, push-through
  - Winder control program
  - Regenerative supply

For further information, see catalog "ABB motion control drives, ACSM1", code: 3AFE68675073 EN.





## ABB industrial drives for comprehensive solutions for all industries

ABB industrial drives are highly flexible AC drives that enable uncompromised productivity for industrial applications. The drives cover a power and voltage range up to 5600 kW and 690 V. The drives are designed for heavy industrial applications such as those found in pulp and paper, metals, mining, cement, power, chemical, oil and gas, water and wastewater, marine, and food and beverage.

# ACS800 series, wall-mounted and free-standing single drives



Wall-mounted industrial drives with everything built-in



Complete regenerative drives in a compact package

Single drives are complete AC drives, which can be installed without any additional cabinet or enclosure. A single drive configuration contains a rectifier, optional EMC filter, reactor, DC link and an inverter in one single AC drive unit. Single drives are available as wall-mounted, free-standing and cabinet-built constructions. The key features of these drives are programmability and configurability during both ordering and commissioning, which makes adaptation to different applications easy.

## ACS800-01, wall-mounted drives highlights

- Compact wall-mounted drives with all important features built into the drive, saving installation space and time
- Standard features include a choke for harmonic filtering and drive protection, extensive and flexible I/O and a control panel for easy access to drive settings and a silent long lifetime cooling fan
- A wide range of options and software alternatives enable optimal solutions for different applications

### Features

- Power range 0.55 to 200 kW (230 to 690 V)
- 6-pulse wall-mounted drives, IP21 as standard (UL type 1), IP55 as option (UL type 12)
- Built-in harmonic filtering choke
- High performance and overload capacity for all applications
  - Reliable and full-featured drive
  - Startup assistant
- Direct torque control (DTC) for high performance motor control
- Built-in options
  - I/O extension modules
  - Fieldbus adapter modules
  - Pulse encoder and fiber optic link module
  - EMC filter, braking chopper
  - Marine type approved design

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.

## ACS800-11, regenerative drives, wall-mounted, highlights

- All functions of a regenerative drive, such as an active supply unit, a LCL line filter and a charging circuitry, integrated inside the drive
- Regenerative drives save energy compared to other braking methods as energy is fed back to the network
- Extensive range of built-in features and options for optimal solutions to different applications

### Features

- Power range 5.5 to 110 kW (230 to 690 V)
- Regenerative wall-mounted drives, IP21 as standard (UL type 1)
- Built-in active supply unit and LCL filter for distortionless regenerative operation
- Advanced regenerative drive in one package
  - Complete full-performance drive
  - Built-in application know-how in software solutions
  - Startup assistant
- Direct torque control (DTC) for high performance motor control
- Built-in options
  - I/O extension modules
  - Fieldbus adapter modules
  - Pulse encoder and fiber optic link module
  - EMC filter

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.

# ACS800 series, wall-mounted and free-standing single drives



Tackling effects of harmonics with a compact drive



Free-standing drive for narrow bookshelf installations

## ACS800-31, low harmonic drives, wall-mounted, highlights

- Harmonic issues eliminated without the need for additional filtering equipment or complicated multi-pulse transformer arrangements
- Active supply unit and low harmonic line filter integrated in the drive, resulting in less cabling and installation on site
- Extensive range of built-in features and options for optimal solutions to different applications

## ACS800-02, free-standing drive highlights

- Narrow free-standing drives for compact installations
- Drives also allow side-by-side or sideways (flat type) installations
- The drives feature a wide range of standard features including a choke for harmonic filtering and drive protection, extensive and flexible I/O and a control panel for easy access to drive settings
- A broad range of built-in features and options for optimal solutions to different applications

### Features

- Power range 5.5 to 110 kW (230 to 690 V)
- Wall-mounted low harmonic drives, IP21 as standard (UL type 1)
- Complete drive package
- Total harmonic current distortion less than 5%
- Power factor as unity
- Direct torque control (DTC) for high performance motor control
- Easy startup
  - Plug and play
  - Startup assistance
- Built-in options according to ACS800 series

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.

### Features

- Power range 45 to 560 kW (230 to 690 V)
- 6-pulse free standing drives, IP21 as standard (UL type 1)
- Ultra compact drive
  - Everything inside
  - Two mounting directions
  - Narrow design
- Direct torque control (DTC) for high performance motor control

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.





With direct torque control (DTC) there is no need for motor feedback in 95% of applications.

- Introduction
- Low voltage drives
- Motion control drives
- Medium voltage drives
- DC drives
- Power controller
- PLCs
- Connectivity and software
- Drive services

# ACS800 series, cabinet-built single drives



Robust and flexible single drives for heavy industrial applications



High availability in harsh environmental conditions

ABB's cabinet-built single drives are drives that are mounted into a cabinet and the complete assembly is offered and delivered as one package. Often the cabinet will include additional accessories such as contactors and earth fault protection units. Cabinet drives are typically made-to-order products.

## ACS800-07, cabinet-built single drives highlights

- Robust design based on a compact single module including rectifier and inverter
- A wide range of standardized configurations and application engineering available for customized solutions
- Extensive range of built-in features and options

## ACS800-07LC, liquid-cooled cabinet-built single drives highlights

- A fully enclosed drive cabinet with direct liquid cooling optimized for harsh environmental conditions
- Extremely compact, customizable and reliable design for a broad range of medium and high power applications
- High availability delivered with features such as built-in redundancy and the ability to run a partial load even when one of the modules is not operating

### Features

- Power range 45 to 2800 kW (380 to 690 V)
- IP21 as standard, IP22, IP42 (UL type 1), IP54 and IP54R as option (UL type 12)
- 6/12-pulse cabinet-built drives
  - Rugged drive for demanding applications
  - Reliable and easy to use
  - Wide range of powers and voltages
- Compact and modular design
- Direct torque control (DTC) for high performance motor control
- Customized solutions
  - Preconfigured or order-based solutions by application engineering
  - Industry-specific hardware and software solutions

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.

### Features

- Power range 200 to 5600 kW (380 to 690 V)
- Fully enclosed cabinet, IP42 as standard, IP54 as option
- Liquid-cooled cabinet-built drives for harsh conditions
  - Compact size
  - Fully enclosed cabinet
  - 98% of heat dissipation through coolant, no additional air conditioning needed
- Direct torque control (DTC) for high performance motor control
- Customized solutions
  - Order-based solutions by application engineering
  - Industry and marine specific hardware and software solutions
  - Marine type approved design

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.



Regenerative drives for energy conservation in demanding applications



Benefits of liquid cooling and regenerative supply in a compact package

#### ACS800-17, regenerative drives, cabinet-built 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
- Especially suitable for demanding applications with fast transition between motoring and generating that benefit from the DTC control method

##### Features

- Power range 45 to 2500 kW (380 to 690 V)
- IP21 as standard, IP22, IP42 (UL type 1), IP54 and IP54R as option (UL type 12)
- Advanced regenerative drive in one package
  - Complete full-performance drive
  - Direct torque control (DTC) for high performance motor control
  - Easy startup
- Customized solutions
  - Preconfigured or order-based solutions by application engineering
  - Industry and marine specific hardware and software solutions

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.

#### ACS800-17LC, liquid-cooled cabinet-built regenerative single drives highlights

- Combines the benefits of direct liquid cooling and regenerative operation to deliver an extremely compact, efficient and silent drive that helps to conserve energy
- High availability delivered with features such as built-in redundancy and the ability to run a partial load even when one of the modules is not operating
- Extensive range of built-in features and options enable optimal solutions for different applications

##### Features

- Power range 55 to 5200 kW (380 to 690 V)
- Fully enclosed cabinet, IP42 as standard, IP54 as option
- Liquid-cooled regenerative cabinet-built drives
  - 98% of heat dissipation through coolant, no additional air conditioning needed
  - Fully enclosed cabinet
  - Rugged design
  - Silent operation
- Direct torque control (DTC) for high performance motor control
- Customized solutions
  - Order-based solutions by application engineering
  - Industry and marine specific hardware and software solutions
  - Marine type approved design

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.

# ACS800 series, cabinet-built single drives



Tackling effects of harmonics with a comprehensive drive solution



Tackling effects of harmonics together with efficient liquid cooling

## ACS800-37, cabinet-built low harmonic drives highlights

- Enables exceptionally low harmonic content in the network with a total current distortion of less than 5.0%
- Active supply unit and low harmonic line filter integrated in the drive, resulting in less cabling and installation on site
- Extensive range of built-in features and options enable optimal solutions for different applications

## ACS800-37LC, cabinet-built liquid-cooled low harmonic single drives highlights

- Combining the benefits of direct liquid cooling and low harmonic drive for an extremely compact and efficient drive that eliminates harmonic issues
- Enables exceptionally low harmonic content in the network with a total current distortion of less than 5.0%
- Extensive range of built-in features and options for optimal solutions to different applications

### Features

- Power range 45 to 2700 kW (380 to 690 V)
- IP21 as standard, IP22, IP42 (UL type 1), IP54 and IP54R as option (UL type 12)
- Cabinet-built low harmonic drives
- Minimal network distortion
- Power factor as unity
- Direct torque control (DTC) for high performance motor control
- Easy startup
  - Plug and play
  - Startup assistant
- Customized solutions
  - Preconfigured and order-based solutions by application engineering

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.

### Features

- Power range 55 to 5200 kW (380 to 690 V)
- Fully enclosed cabinet, IP42 as standard, IP54 as option
- Liquid-cooled low harmonic cabinet-built drives
  - Fully enclosed cabinet
  - Rugged design
  - Low noise level
- Direct torque control (DTC) for high performance motor control
- Low harmonic content exceeding the requirements of IEEE519 standard
- Customized solutions
  - Order-based solutions by application engineering
  - Marine type approved design

For further information, see catalog "ABB industrial drives, ACS800, single drives, 0.55 to 5600 kW", code: 3AFE68375126 EN.

# ACS800 series, multidrives



Comprehensive and efficient process control



Liquid-cooled process control in a compact package

ABB's multidrives are built from ABB industrial drive modules connected to a common DC bus. This enables a single power entry and common braking resources for several drives.

This construction simplifies the total installation and results in many benefits including savings in cabling, reduced installation and maintenance costs, reduced line currents and more.

## ACS800, air-cooled multidrives highlights

- Flexible and compact multidrive configurations for a broad range of industrial processes
- Extensive programmability and optional control programs for a wide range of applications
- Designed for easy installation, commissioning and maintenance

### Features

- Power range 1.1 to 5600 kW (380 to 690 V)
- IP21 as standard, IP22, IP42 (UL type 1), and IP54 as option (UL type 12)
- Common DC busbar
- Single power line connection
- Shared energy and motor-to-motor braking without braking chopper or regenerative supply unit
- Reduced line current
- Common braking resourced to several drives
- Does not require the use of a separate MCC
- Savings in cabling, installation and maintenance costs

ABB multidrives are made up of several different units. These sections are called multidrive units and the most important ones are:

- Inverter units, ACS800-107
- Regenerative IGBT supply units, ACS800-207
- Diode supply units, 6- and 12-pulse ACS800-307 and -507
- Regenerative thyristor supply units, 6- and 12-pulse ACS800-407 and -807
- Braking unit, ACS800-607
- Control units as an option

## ACS800, 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.
- 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

### Features

- Power range 1.1 to 5600 kW (380 to 690 V)
- Fully enclosed cabinet, IP42 as standard, IP54 as option
- Common DC busbar
- Fully enclosed cabinet
- For harsh environments
- Silent operation
- Compact size
- Customized solutions
  - Industry and marine specific hardware and software solutions
  - Marine type approved design

### Features

- Inverter units, ACS800-107LC
- Regenerative IGBT supply units, ACS800-207LC
- Diode supply units, 6-pulse ACS800-307LC, 12-pulse ACS800-507LC, 18-pulse ACS800-1107LC and 24-pulse ACS800-1207LC
- Liquid-cooling unit, ACS800-1007LC
- Braking unit, ACS800-607LC

For further information, see the catalog "ABB industrial drives, ACS800, multidrives, 1.1 to 5600 kW", code: 3AFE68248531 EN.

# ACS800 series, single drive modules



Compact drive modules optimized for cabinet assembly



Drive modules with regenerative supply for energy savings

ABB's single drive modules are designed for fast, cost-effective installation and integration into a customer's own cabinet. Modules enable OEMs, system integrators and panel builders to build their own drive while benefitting from ABB drives' technology such as DTC motor control, adaptive programming and a wide range of built-in and external options. ABB provides detailed cabinet installation instructions and other support material to help customers build their own solutions.

## ACS800-04 and ACS800-04LC highlights

- Drive modules have been designed to minimize cabinet space use, make assembly as easy as possible, and give maximum flexibility
- All drive modules, regardless of the power and voltage, have the same customer interface and I/O making system design and training easier
- Everything necessary comes built-in and a wide selection of different I/O and communications options is available. Also, liquid-cooled drive modules are available to meet higher power requirements.

### Features

- Air-cooled power range 0.55 to 1900 kW (230 to 690 V)
- Liquid-cooled power range 200 to 2240 kW (380 to 690 V)
- IP00, IP20
- Optimized design for cabinet assembly
- Compact and modular design allowing a wide range of variants
- Easy cabling
- EMC compliant modules available
- Wide range of built-in options
- Marine type approved design as option

For further information, see catalog "ABB industrial drives, ACS800, drive modules, 0.55 to 2900 kW", code: 3AFE68404592 EN.

## ACS800-14 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
- All modules, regardless of the power and voltage, have the same customer interface and I/O making system design and training easier

### Features

- Power range 75 to 1700 kW (380 to 690 V)
- IP00
- Optimized design for cabinet assembly
- Compact and modular design allowing a wide range of variants
- Long lifetime cooling fan and capacitors
- Separate controllers for galvanic isolation
- Active supply unit can be configured for low harmonic mode (2 to 4% harmonic distortion) or regenerative mode for better dynamic performance
- Assembly kits for Rittal cabinets and generic cabinets

For further information, see catalog "ABB industrial drives, ACS800, drive modules, 0.55 to 2900 kW", code: 3AFE68404592 EN.

# ACS800 series, multidrive modules



ABB's multidrive modules are designed to be installed in cabinets that feature a common DC bus. They are available as inverter modules, supply modules and braking choppers and resistors, and cover a wide range of applications. These modules contain all the drive technology and different types of supply units that convert the AC supply from the mains into a DC supply for the inverter modules. ABB provides full engineering support for designing cabinets.

#### Inverter units ACS800-104 and ACS800-104LC

- Air-cooled power range 1.1 to 2900 kW (380 to 690 V)
- Liquid-cooled power range 1.1 to 2240 kW (380 to 690 V)

#### Diode supply units ACS800-304 (6-pulse), ACS800-704 (6-/12-pulse), ACS800-304LC and ACS800-704LC

- Air-cooled power range 145 to 4200 kW (380 to 690 V)
- Liquid-cooled power range 300 to 3650 kW (380 to 690 V)

#### IGBT supply units ACS800-204 + LCL filters and ACS800-204LC + LCL filters

- Air-cooled range is from 2.2 to 2900 kW
- Liquid-cooled power range 181 to 2370 kW (380 to 690 V)
- Provides regenerative capacity plus additional filtering of harmonics in the supply

For further information, see catalog "ABB industrial drives, ACS800, drive modules, 0.55 to 2900 kW", code: 3AFE68404592 EN.







## All-compatible industrial drives – Simplifying your world without limiting your possibilities

The ACS880 series drives introduce a new generation of industrial drives. These drives are easily adaptable to suit different customer needs and integrate into various industry solutions. The drives are part of ABB's new all-compatible drives portfolio that is designed to provide customers across industries and applications with unprecedented levels of compatibility, flexibility and ease of use. The new ACS880 industrial drives are compatible with virtually all types of processes, automation systems, user groups and business requirements. Yet, despite the drives' wide-ranging capabilities, they are remarkably easy to use and integrate.

The ACS880 drives offering will grow alongside with the ACS800 drives. They are available as single drives, multidrives and drive modules.

Introduction

Low voltage drives

Motion control drives

Medium voltage drives

DC drives

Power controller

PLCs

Connectivity and software

Drive services

# 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

### 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 (+940 or +944)
- Flange 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
- 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 for easy setup and maintenance
- 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 control programs
- 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

For further information, see catalog "ABB industrial drives, ACS880, single drives, 0.55 to 250 kW", code: 3AUA0000098111 EN.



All-compatible  
drive cabinet  
tailored to  
customer needs

## ACS880-07, 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

### Features

- Power range 45 to 2800 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
- 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 for easy setup and maintenance
- 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 control programs
- 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

For further information, see catalog "ABB industrial drives, ACS880, single drives, 0.55 to 3200 kW", code: 3AUA0000098111 EN.



Capture and utilize braking energy with all-compatible drives

### ACS880-17, 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

#### Features

- Power range 160 to 3200 kW/380 to 690 V
- IP22 as standard (UL type 1), IP42 and IP55 (UL type 12) as option
- 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 for easy setup and maintenance
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application control programs
- 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

For further information, see catalog "ABB industrial drives, ACS880, single drives, 0.55 to 3200 kW", code: 3AUA0000098111 EN.



Manage and control harmonics with all-compatible drives

### ACS880-37, cabinet-built ultra-low harmonic single drives highlights

- Produces exceptionally low harmonic content in the drives input, which is achieved without external filters of 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

#### Features

- Power range 160 to 3200 kW/380 to 690 V
- IP22 as standard (UL type 1), IP42 and IP55 (UL type 12) as option
- 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 for easy setup and maintenance
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application control programs
- 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

For further information, see catalog "ABB industrial drives, ACS880, single drives, 0.55 to 3200 kW", code: 3AUA0000098111 EN.

# ACS880 series, all-compatible industrial drives



All-compatible space-saving multidrives

All-compatible drive modules for easy cabinet assembly



## 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 for easy setup and maintenance
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application control programs
- 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, 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 for easy setup and maintenance
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application control programs
- 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

For further information, see catalog "ABB industrial drives, ACS880, drive modules, 0.55 to 3200 kW", code: 3AUA0000115038 EN.

For further information, see catalog "ABB industrial drives, ACS880, multidrives, 1.5 to 5600 kW", code: 3AUA0000115037 EN.



## All-compatible single drive modules for optimized cabinet assembly

### ACS880-04/-04F, 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 630 to 2200 kW/380 to 690 V for -04XT and -04 single drive module packages
- Degree of protection IP00 and IP20 (UL open type)
- Possibility for flat mounting minimizing the depth of the module
- Flange 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 for easy setup and maintenance
- 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 control programs
- 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

For further information, see catalog "ABB industrial drives, ACS880, drive modules, 1.5 to 3200 kW", code: 3AUA0000115038 EN.





Capture and utilize braking energy with all-compatible drives



Manage and control harmonics 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

#### 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
- Removable memory unit for easy setup and maintenance
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application control programs
- 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

For further information, see catalog "ABB industrial drives, ACS880, single drives, 0.55 to 3200 kW", code: 3AUA0000098111 EN.

### 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

#### Features

- Power range 250 to 2200 kW/380 to 690 V
- 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
- Removable memory unit for easy setup and maintenance
- Drive's energy efficiency information and the energy optimizer feature help to improve process efficiency
- ATEX certified with ABB motors for explosive atmospheres
- Application control programs
- 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

For further information, see catalog "ABB industrial drives, ACS880, single drives, 0.55 to 3200 kW", code: 3AUA0000098111 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 HVAC, water and wastewater and elevators. 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. Built-in application macros in the drives help you easily set up and tailor the drives to meet the needs of your processes.

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Medium voltage drives

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PLCs

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Drive services



## All-compatible drives for water – Securing the flow of water and wastewater



Robust design  
securing optimal  
flow of water and  
wastewater

### ACQ580, wall-mounted (-01) and cabinet-built (-07) drive highlights

- Robust drives offering high enclosure classes
- Dedicated pump application functionalities
- Integrated safety functionalities
- Easy to commission, configure and use

#### Features

- Power and voltage range:
  - 3-phase, 0.75 to 250 kW, 380 to 480 V (-01)
  - 3-phase, 75 to 250 kW, 380 to 480 V (-07)
- Enclosure class: IP21 (-01, -07), IP42 (-07), IP54 (-07), IP55 (-01)
- Built-in pump application programs
- AP programming
- Hand-Off-Auto control panel
- Built-in choke and EMC filter, category C2
- Functional safety: Safe torque off (STO) as standard
- Extended connectivity to I/O

For further information, see catalog “ABB drives for water and wastewater, ACQ580, 0.75 to 250 kW”, code: AUA0000194172 EN.



# ABB drives for water and wastewater



Designed for water and wastewater processes with built-in pumping functions

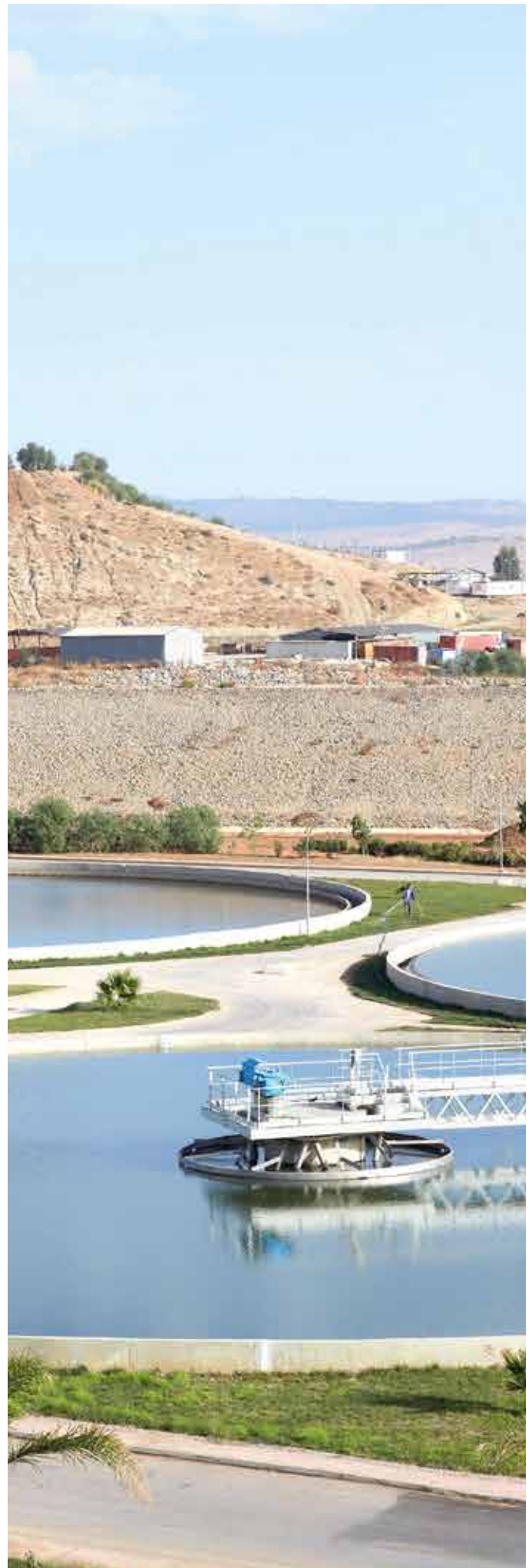
## ACQ810 highlights

- Built-in, customizable control software for water and wastewater processes
- Shares operating times between pumps
- Reduces stress on the pumping system
- Compatible with SynRM motors

## Features

- Power range 1.1 to 500 kW (3-phase 380 to 400 V)
- Power range 0.37 to 22 kW (3-phase 200 to 240 V)
- Built-in EMC Category C3, C2 with optional filter
- Safe torque off feature as standard
- Removable memory module
- Programmable using DriveSPC
- Direct torque control
- Control panel comes standard with the drive (except frame G)
- Built-in pump application programs

For further information, see catalog "ABB industry specific drives, ACQ810, 0.37 to 500 kW", code: 3AUA0000160101 EN.



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# ABB drives for HVAC



The compact drive for HVAC pump and fan OEM applications up to 4 kW



Proven reliability and flexibility across HVAC applications

## ACS320 highlights

- Embedded BACnet MS/TP, N2, FLN and Modbus RTU
- Built-in HVAC application control
- Saves energy in HVAC systems

## ACH550 highlights

- With over 600,000 drives installed, the ACH550 has proven its reliability and flexibility across HVAC applications
- Embedded BACnet MS/TP, N2, FLN and Modbus RTU
- Built-in HVAC application control and built-in swinging choke for harmonics reduction
- Saves energy in HVAC systems

### Features

- Power range 0.37 to 4 kW (3-phase 380 to 480 V)
- Embedded BACnet MS/TP, N2, FLN and Modbus RTU
- Built-in HVAC application control
- Two PID controllers
- Timers with real-time clock
- Pump and fan controls
- Cooling fan control
- Pump cleaning
- Energy optimizer feature
- Sleep function

For further information, see flyer "ABB drives for HVAC, ACS320, 0.37 to 4 kW", code: 3AUA0000125438 EN.

### Features

- Power range 0.75 to 355 kW (3-phase 380 to 480 V)
- Power range 0.75 to 75 kW (3-phase 208 to 240 V)
- Power range 1-phase 208 to 240 V (50% derating)
- Two built-in PID controllers
- Tailor made HVAC control panel, with 18 languages built-in
- Real-time clock and calendar
- Built-in timers
- Energy efficiency
- Optional flange mounting

For further information, see brochure "ABB drives for HVAC, ACH550, 0.75 to 355 kW", code: 3AFE68295378 EN.

# All-compatible drives for HVAC



Comprehensive climate control, effortless operation

## ACH580 highlights

- Guaranteed IES package efficiency levels through drive/motor collaboration
- Works with virtually any motor in any HVAC application
- Simple to select, install and use
- Seamless integration to applications and jobsites in languages users and systems speak

### Features

- Premium drive for HVAC&R applications
- Power range 0.75 to 250 kW (3-phase 380 to 480 V)
- Wall-mounted drives: IP21 as standard, IP55 as option
- Cabinet-built drives: IP21 as standard, IP42 or IP54 as option
- Public networks compliant with standard EMC C2 filter and built-in swinging choke
- User friendly operation with HVAC control panel with Hands-Off-Auto functionality
- BMS communication embedded with BACnet MS/TP, Modbus RTU and N2
- Loop controllers that can be used as trimming loop or to control external devices
- Real time clock and built-in timers for timed operation of the drive and control of external HVAC devices
- STO as standard
- The ultra low harmonic drive variant ensures a pollution-free electric supply and allows the motor to be run at full voltage even in situations where the network voltage is reduced

For further information, see catalog "ABB drives for HVAC, ACH580, 0.75 to 250 kW", code: 3AUA0000186691 EN.

# ABB drives for elevators



Take your elevators to the next level

## ACL30 highlights

- Built-in, customizable elevator control software
- Compatible with all elevator motor types
- Supports geared and gearless motors, with or without a machine room
- Silent motor and braking chopper control
- Embedded Modbus RTU

### Features

- Power range 2.2 to 32 kW (3-phase 180 to 480 V AC)
- Programmable with DriveSPC
- Integrated safe torque off (STO) eliminates the need for contactors on the motor side
- Removable memory unit for fast and easy commissioning and maintenance
- 6 digital inputs, 1 relay output
- 3 bidirectional digital I/Os
- Low voltage support for rescue operation
- Built in control functions
  - Fast absolute encoder offset autotuning
  - Automatic configuration of absolute encoder interface
  - Speed controller with three different parameter sets
  - Temperature controlled silent cooling fan
  - Rollback compensation
  - Automatic inertia compensation
  - Torque boost
  - Start and stop torque ramps

For further information, see flyer "ACL30 drives", code: 3AUA0000173872 EN.



## ABB motion control drives provide capability without complexity

ABB motion control drives offer flexible technologies and high performance motor control to solve a wide variety of applications. The range includes powers from less than 1 kW to more than 100 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 motion 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.



Compact motion control drive for simple applications



Compact motion control drive with embedded safety and EtherCAT® technology

## MicroFlex Analog highlights

- Compact motion control drive for single and three-phase operation
- +/- 10 V analog speed/torque demand or Pulse + Direction inputs
- Choice of resolver feedback or incremental encoder/SSI

### Features

- 1 or 3-phase operation from 105 to 250 V AC
- 3, 6 and 9 A rms
- IP20 enclosure for cabinet installation (UL open)
- Auto-tuning and anti-resonance digital filters
- Suitable for single drive and multi-axis systems
- Controls rotary and linear AC servo motors
- Options
  - Space saving footprint EMC filter
  - Brake units

For further information, see flyer "ABB motion control drives, MicroFlex brushless AC servo drives", code: 3AUA0000123110 EN.

## MicroFlex e150 highlights

- Compact motion control drive with embedded safety for single and three-phase operation
- EtherNet technology including EtherCAT® for real-time motion control
- Advanced MINT programming for multitasking control of communications, logic, motion and HMI interaction in a powerful yet simple programming language

### Features

- 1 or 3-phase operation from 105 to 250 V AC
- 3, 6 and 9 A rms
- IP20 enclosure for cabinet installation (UL open)
- Embedded real-time EtherNet including EtherCAT®, Modbus TCP and EtherNet/IP™
- Suitable for single drive and multi-axis systems
- Controls rotary and linear AC servo motors
- Safe torque off feature as standard
- Options
  - Resolver adapter OPT-MF-201
  - Space-saving footprint EMC filter
  - Brake units

For further information, see flyer "ABB motion control products, MicroFlex e150 servo drives", code: 3AUA0000097609 EN.

# ABB motion control drives



Versatile motion control drive with integrated real-time EtherNet technology



Compact motion control drive with software selected EtherNet technology

## MotiFlex e180 highlights

- Wide range of motion functions
- EtherCAT®, Modbus TCP, EtherNet/IP™ and POWERLINK
- Dynamic control of rotary and linear servo motors
- Safety as standard with integrated safe torque off in accordance to IEC 61800-5-2, SIL 3, PL e
- HIPERFACE DSL one cable solutions

## MicroFlex e190 highlights

- Compact motion control drive with embedded safety for single and three-phase operation
- Software selectable EtherNet protocols including EtherCAT®, POWERLINK, Modbus TCP
- EtherNet/IP™ and PROFINET IO
- Advanced motion programming for multitasking control of communications, logic, motion and HMI interaction in a powerful yet simple programming language

### Features

- Servo duty output current 3 to 50 A (3-phase 200 to 480 V AC)
- IP20 enclosure for cabinet installation (UL open)
- Suitable for stand-alone and multi-axis motion systems
- Integrated safe torque off (STO) as standard
- Memory unit for control of drive settings and functionality level
- Real time EtherNet operation with EtherCAT® and POWERLINK
- Controls rotary and linear AC servo motors
- Options
  - Different speed/position feedback interfaces
  - Drive functionality levels (Slave/Single axis MINT motion)
  - External EMC filters, chokes and braking resistors

For further information, see catalog "ABB motion control products, MotiFlex e180 servo drives", code: 3AUA0000168683 EN.

### Features

- 1 or 3-phase operation from 105 to 250 V AC
- 1.6, 3, 6 and 9 A rms 200% overload up to 3s
- 1.6, 2.5, 5 and 7.5 A rms 300% overload up to 3s
- IP20 enclosure for cabinet installation (UL open)
- Embedded real-time EtherNet including EtherCAT®, POWERLINK, Modbus TCP
- EtherNet/IP™ and PROFINET IO (software selectable)
- Suitable for single drive and multi-axis systems
- Controls rotary and linear AC servo motors
- Safe torque off feature as standard
- Simulated encoder output
- Second encoder input for dual feedback operation or electronic gearing
- PTO and analog operation
- EMC bonding plate
- Options
  - Resolver adapter
  - Motion programming
  - Space-saving footprint EMC filter
  - Brake units

For further information, see flyer "ABB motion control products, MicroFlex e190 servo drive", code: 3AUA0000201840 EN.

## Compact motion controller with real-time EtherNet POWERLINK technology



### NextMove ESB-2 and e100

- Compact panel mount motion controllers
- Stepper and analog axis control
- CANopen® manager for system expansion
- MINT programming for multitasking control of communications, logic, motion and HMI interaction in simple motion applications
- e100 features EtherNet POWERLINK technology for real-time motion control

#### Features

- 1 to 16 axes interpolated axes via POWERLINK
- Additional CN profiled POWERLINK axes
- 4 x PTO (stepper) axes
- e100: 3 analog axes; ESB-2: 4 analog axes
- Maximum of 30 axes of control
- Digital and analog I/O including 4 x high speed registration latches
- Options
  - Differential/single-ended stepper interfaces
  - Up to 16 axes of interpolated motion

For further information, see flyer “ABB motion control products, NextMove e100 real-time EtherNet motion controller”, code: 3AUA0000116020 EN.

### Complete motion control solutions highlights

The motion control 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.

#### Features

- CP600 HMI range offers 64k touchscreen displays from 4,3” to 15”, portrait and landscape versions
- 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
- AC500 PLC offers comprehensive and scalable platform, which is based on IEC 61131-3 and PLCopen
- NextMove motion controllers offer a choice of hardware platform and feature CANopen® expansion, on board I/O and powerful MINT motion control programming
- A wide range of rotary servo motors and gearheads

For further information, see brochure “ABB motion control solutions”, code: 3AUA0000068580 EN.







## 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 and pulp and paper.

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# ABB general purpose and industrial drives offer ease-of-use with standard motors



Effortless energy efficiency for a wide range of applications



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

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

## ACS580MV highlights

- Simple to select, order, commission and operate
- All essential features built into the drive
- Straightforward settings menu and assistants
- Energy efficiency features for optimal energy use
- Universal connectivity
- Member of ABB's all-compatible drives portfolio

### Features

- Power range 200 kW to 6.3 MW (6.0 to 11 kV)
- Air cooling
- Cabinet-built drives, IP21 as standard, IP42 as option
- VSI – Voltage Source Inverter, multiple-pole diode rectifier, multilevel output
- Emergency stop cat. 0 as standard, (SILCL 3/PL e) as an optional variant
- 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 GOST-R

For further information, see catalog "ACS580MV", code: 3BHT490775R0001.

## ACS1000 highlights

- Retrofit-ready for existing motors
- Output sine filter for pure sinusoidal voltage and current output
- Integrated or separate input transformer for highest system design flexibility

### 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
- Seismic design
- Marine certification available for ABS, CCS, DNV
- IEC, EN and UL certified

For further information, see catalog "ACS1000", code: 3BHT490400R0001.



Technology leading industrial drive for a broad range of applications

#### ACS2000 highlights

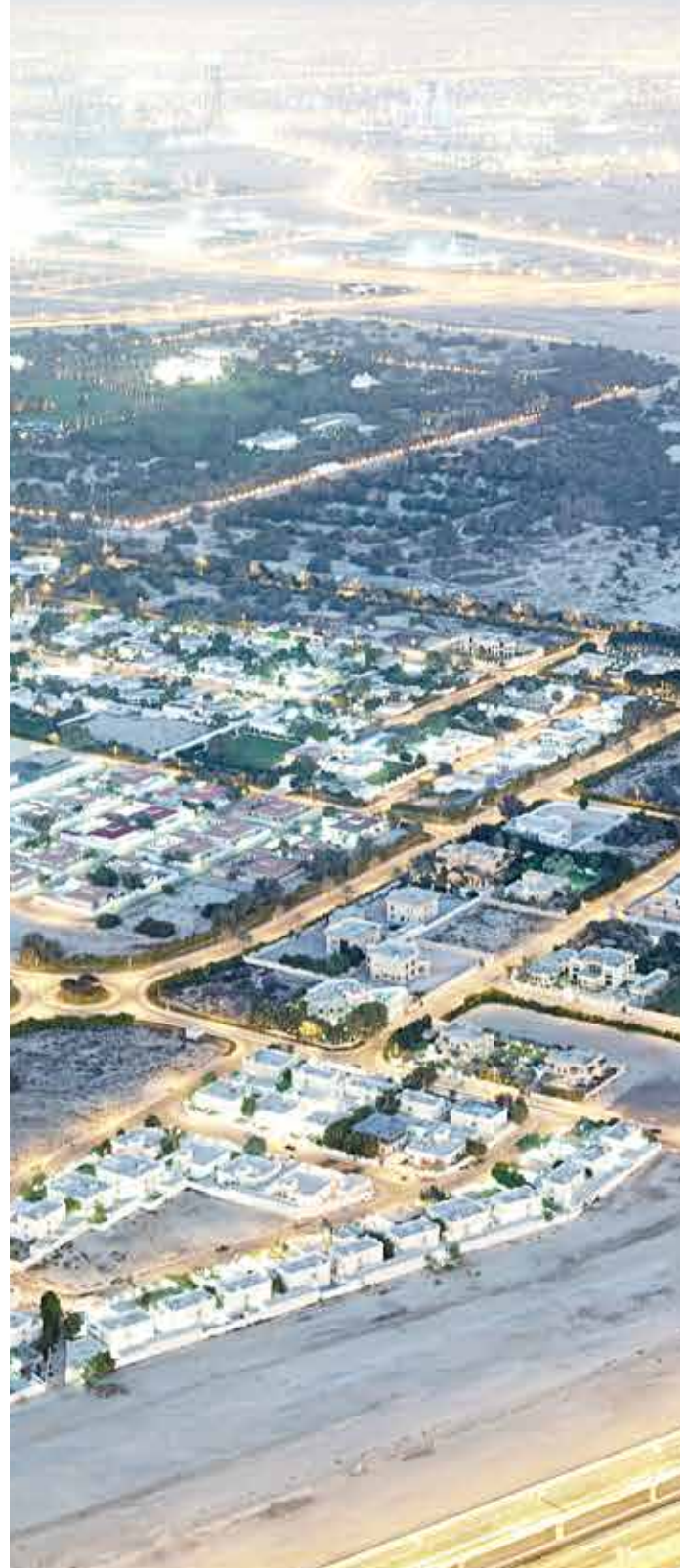
- Suitable for use with or without an input isolation transformer
- Available as low harmonic or regenerative drive
- Market specific design to comply with IEC and NEMA specific industry standards
- Flexible connectivity and various options offer an optimum solution for different applications

#### Features

- Power range 250 to 3.2 MW (4.0 to 6.9 kV)
- 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

For further information, see catalog "ACS2000", code: 3BHT490640R0001.

Improving energy efficiency is the fastest, the most sustainable and the cheapest way to reduce greenhouse gas emissions.



# ABB special purpose drives for engineered solutions to specific needs



Superior arc protection for a high level of personal safety



Modular drive for demanding applications

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.

## ACS5000 highlights

- Highest level of personnel safety due to arc fault resistant design with fast fault elimination
- High reliability due to proven design and low parts count
- Available with combined transformer (common cooling water loop) or for connection to an external input isolation transformer

## ACS6000 highlights

- Modular drive designed for the most demanding single or multi-motor applications
- 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

### Features

- Power range 2 to 36 MW and higher on request (6.0 to 6.9 kV, 10 to 13.8 kV)
- Air and water cooling
- Superior arc protection function for very fast arc detection and elimination (IAC classified)
- Low harmonic solution (36-pulse configuration)
- Suitable for single loop cooling (external heat exchanger or fin-fan)
- Available for induction, synchronous and permanent magnet motors
- Options
  - Suitable for high speed applications up to 250 Hz
  - Hot standby for fast startup (pre-charged system with open MCB)
  - IP54 enclosure protection
  - Marine approved design for offshore applications

For further information, see catalog "ACS5000", code: 3BHT490501R0001.

### 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

For further information, see catalog "ACS6000", code: 3BHT490399R0001.



Proven technology  
for high powers

#### MEGADRIVE-LCI highlights

- Suitable for high power and high voltage applications
- Available as variable speed drives and soft starters

#### Features

- Air-cooled power range 2 to 31 MW
- Water-cooled power range 7 to 72 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

For further information, see catalog "MEGADRIVE-LCI", code: 3BHT490112R0001.





## 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 is built on ABB's common all-compatible drives platform and comes with integrated functional safety (STO SILCL 3/PL e) for DC drives as a standard.

The drives can be also used in revamp or upgrade solutions. The power range is from 9 up to 18000 kW in 12-pulse systems.

## ABB standard drives designed for machine manufacturers



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

Standard drives offer ideal DC drive solutions for machine manufacturers – both in new installations or as a replacement for older analog devices. Various interfaces and compact design provide machine manufacturers with maximum flexibility for machine integration.

### DCS550-S modules 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 9 kW up to 545 kW
- 230 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.

## ABB industrial drives offer flexibility for a broad range of applications



Fits with all process applications, providing high flexibility and scalability up to 5200 A per single module

Industrial drives are designed for industrial applications and are available both as complete DC drives and as modules to meet the requirements of end users, machine builders and system integrators. These drives are highly flexible DC drives and can be configured to meet the precise needs of industrial applications.

### DCS800-S modules highlights

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

#### Features

- Power 10 kW up to 4160 kW
- 230 to 1000 V AC
- 20 to 5200 A DC
- 0 to 1160 V DC
- Compact design, highest power-to-size ratio in its class
- Integrated field exciter
- Numerous optional features to adapt the drive to various applications
- Freely programmable by means of an integrated IEC 61131-PLC
- 6- and 12-pulse configuration
- Drive-to-drive link for fast communication between drives including master follower configurations
- Common PC tool Drive Window for commissioning and maintenance
- IBA remote monitoring
- Built-in options
  - IO extensions modules
  - Fieldbus modules
  - Second encoder or resolver

For further information, see catalog “ABB DC Drives, DCS800” code: 3ADW000192.

# ABB industrial drives offer flexibility for a broad range of applications



Complete delivery of a tested drive system in a compact enclosure



Modernization solutions for improved production performance and reliability

## DCS800-A/DCS880 – complete drive solutions highlights

- Wide range of power, max. 18 MW
- Proven type tested design
- Fully routine tested for short commissioning and downtime
- Approvals for different markets (eg, marine or US)

### Features

- Power 10 kW up to 18 MW
- 230 to 1200 V AC
- 20 to 20000 A DC
- 0 to 1500 V DC
- Individually adaptable to customer requirements
- High power solutions in 6- and 12-pulse up to 20000 A, 1500 V
- Individually factory load tested
- Very flexible cable connections to bottom, top or rear
- Marine approvals DNV, ABS, RMT etc.
- US market approval UL
- Degree of protection IP21, IP22, IP31, IP42, IP54R
- Built-in safety functions (eg, STO/SS1)

For further information, see catalog “DCS800-A Enclosed Converter”, code: 3ADW000198.

## DCS800-E, -R/DCS880 – modernization solutions 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 of by partial upgrade

### Features

- Upgrade of existing control electronics by reusing existing thyristors (DCS800-R)
- Fully mounted, cabled and tested panel solution for an existing cubicle, ready for insertion (DCS800-E)
- Prepared upgrade packages for classic and obsolete drives (eg, DCS500, TYRAK)

For further information, see catalog “DC Drives Modernization – Expansion – Modernization”, code: 3ADW000007.



# ABB's new all-compatible DC drives with built-in functional safety



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

Whatever the application, the new DCS880 industrial drives offer users an integrated solution based on safety, simplicity, connectivity and reliability. They are flexible DC drives that can meet the precise needs of a broad range of industrial environments and applications via easy customer-specific configuration.

## DCS880-S modules highlights

- High power density save space in existing installations
- User-friendly due to startup 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 10 kW up to 4800 kW
- 230 to 1200 V AC
- 20 to 5200 A DC
- 0 to 1200 V DC
- Built-in STO (SIL 3 / PL e)
- Compact design, highest power-to-size ratio in its class
- Integrated field exciter up to 35 A
- Freely programmable by means of an integrated IEC 61131-PLC
- 6-, 12- and 24-pulse configuration and M3- and M6 configuration
- Drive-to-drive link for fast communication between drives including master follower configurations
- Common PC tool Drive Composer for commissioning and maintenance
- Built-in options
  - IO extensions modules
  - Fieldbus modules
  - Second encoder or resolver
  - Functional safety options FSE-31 and FSO-21

For further information, see catalog "ABB DC Drives, DCS880", code: 3ADW000465.



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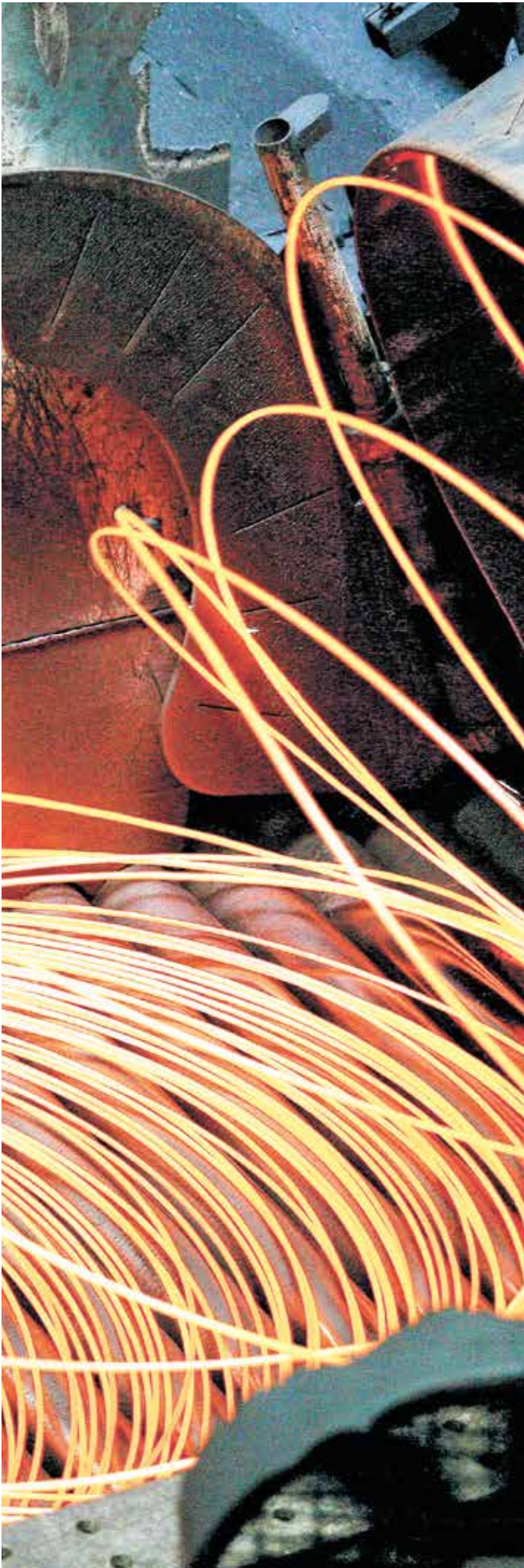
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Drive services



## ABB thyristor power controllers offer precise control of heaters

With the DCT880 ABB offers its customers a thyristor power controller for precise control of resistive or inductive heaters and infrared heaters in applications for annealing, drying, melting or heating in glass, plastic or metal industry.



With a variety of control methods, it is ideal for controlling electro-thermal processes.

#### DCT880-W highlights

- Ideal for controlling electro-thermal processes
- Suitable for all resistive and inductive loads, infrared heaters and ultraviolet lamps
- Integrated temperature controller and free process controllers
- Reduces energy costs by load optimization and multitap
- Programmable (IEC 61131-3) and flexible
- Support of all common fieldbuses including PROFINET and EtherNet
- Large, high contrast display with USB port

#### Features

- 16 A to 4200 A
- 110 to 1200 V
- 2-phase, 3-phase and 3 × 1-phase
- Phase angle, full-wave burst and half-wave mode
- U, I, P, I<sup>2</sup> or direct temperature control
- All common load configurations incl. star, delta, open, transformer load and multitap
- Integrated load monitoring (true RMS) and compensation of aging heating elements
- PC tool Drive Composer for startup, configuration and process tuning is connected via EtherNet or USB interface

For further information, see brochure "ABB Thyristor power controller DCT880", code: 3ADW000429.





## Programmable Logic Controllers

ABB offers a comprehensive range of scalable Programmable Logic Controllers (PLCs) and robust HMI control panels as well as high-availability and condition monitoring solutions. Since its launch in 2006, 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 automation applications.

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

Introduction

Low voltage drives

Motion control drives

Medium voltage drives

DC drives

Power controller

PLCs

Connectivity and software

Drive services

# PLC Automation product family



Comprehensive range of scalable PLCs



Operational information at one single touch

## AC500 PLC platform highlights

- The AC500, AC500-eCo, AC500-S and AC500-XC scalable PLC ranges provide solutions for small, middle and high-end applications.
- Our AC500 platform offers different performance levels and is the ideal choice for high availability, extreme environments 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: This compact PLC offers flexible and economical configurations for your modern control system. The ideal choice for smaller applications.
- AC500: Our powerful flagship PLC with a wide range of performance, communications and I/O capabilities for industrial applications including condition monitoring. The ideal choice for complex high speed machinery and networking solutions.
- AC500-XC: Extreme Condition PLC variant of the AC500 platform with extended operating temperature, immunity to vibration and hazardous gases, use at high altitudes and in humid conditions.
- AC500-S: This safety PLC (SIL 3, PL e) is designed for safety applications involved in factory or machinery automation area. The ideal choice to implement and manage complex safety solutions.
- For more information, please see [www.abb.com/plc](http://www.abb.com/plc).

## CP600 and CP600-eCo control panels highlights

- The CP600-eCo and CP600 HMI control panels 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 a single touch.

### Features

#### CP600-eCo

- The economic control panel series offers touch screen graphic displays from 4.3" up to 10.1".
- The user-friendly configuration software PB610-B Panel Builder 600 Basic provides the most commonly used HMI functions. Comprehensive sets of graphic symbols are available to support the design of tailor-made HMI solutions.

#### CP600

- This control panel series offers a wide range of touch screen graphic displays from 4.3" up to 15".
- The user-friendly configuration software PB610 Panel Builder 600 provides state-of-the-art HMI functions.
- Comprehensive sets of graphic symbols are available to support the design of tailor-made HMI solutions. CP600-WEB panels are available for the visualization of HMI applications provided by the AC500 WebServer. They include the Microbrowser instead of an HMI application.



Powerful PLC offering with a wide range of performance levels



Cost-effective and compact PLC

#### AC500 PLC highlights

- Where most competitors require multiple product ranges to deliver comparable functionalities, ABB's AC500 PLC offers scalability and a wide range of performance levels within one simple concept.
- Featuring an integrated web server and the IEC 60870-5-104 remote control protocol for all EtherNet versions.

#### Features

- CPU is available in a number of high performance and large memory configurations including up to 4 GB of internal data storage
- Up to 4 communication modules in any configuration which can communicate with most fieldbus devices
- Slaves for PROFIBUS DP®, CANopen®, EtherCAT® and PROFINET®
- One or two EtherNet interfaces on CPU for programming via PC, internet protocols (web server, FTP, e-mail, time sync and more), OPC DA/AE, IEC 60870-5-104, Modbus® TCP or integrated PROFINET® IO / EtherCAT® (eg, PM595)
- COM2 (Sub-D9, RS232/RS485), programming via PC, ASCII protocol, Modbus® RTU (master or slave)
- COM1 (spring terminal, RS232/RS485), programming via PC, CS31 bus (master), ASCII protocol, Modbus® RTU (master or slave)
- Programming with IEC 61131-3 standard languages or with C and C++
- Digital and analog S500 I/O modules can be configured to best meet customer requirements and to offer local and/or remote expansion options using most industry standard communications protocols

#### AC500-eCo PLC highlights

- Meets the demands for cost-efficiency of the compact PLC market whilst offering total inter-operability with the core AC500 range.
- Up to 10 I/O modules can be connected to the CPU, fast counter onboard CPU with up to 50 kHz.
- Web server, FTP server and Modbus® TCP for all EtherNet versions.
- A pulse train output module is available for multi-axis positioning.

#### Features

- CPU variants with 128 kByte or 512 kByte program memory
- Program processing time 0.08 µs per instruction
- One onboard RS485 serial interface (2nd is optional)
- Optional SD card adapter for data storage and programming backup
- Web server for EtherNet CPUs, suitable for your demands the visualization can be programmed with the integrated WebVisualization
- Web server memory 512 kByte / 1024 kByte depending on CPU type
- Wide range of analog and digital S500-eCo I/O modules available
- Prewiring is possible via the use of pluggable terminal blocks

# PLC Automation product family



The rugged variant for extreme indoor and outdoor conditions

## AC500-XC PLC highlights

- “Extreme conditions” modules for extended operating temperature ranges in rough environments, immunity to vibration and hazardous gases, suitable for high altitudes, humid conditions, etc.
- The built-in protection against dirt, water, gases, dust makes it the perfect alternative to costly cabinets.



For functional safety applications involved in factory or machinery automation area

## AC500-S PLC highlights

- Featuring a consistent look and feel across the entire range, the AC500 is the PLC of choice for applications where uncompromised flexibility, comprehensive integration and seamless communication are a must.
- Automation Builder seamlessly integrates your safety application in ABB PLC, Safety, Drives, Motion, HMI and Robotics.
- Through integrated standard languages, such as IEC 61131-3, Automation Builder is easy to use thus allowing you to get started in virtually no time at all.
- And what is more: intuitive system configuration using one single tool ensures optimal transparency.

### 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 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

### Features

- The AC500-S Safety PLC, ABB's latest addition to the AC500 family, facilitates the implementation of 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 crane engineering, wind power generation, robotics and hoisting applications.
- Safety programming with Structured Text (ST) and full support for Function Block Diagram (FBD) and Ladder Diagram (LD) programming gives you greater flexibility and simplifies safety application development.
- The AC500-S Safety PLC is also available in a version for extreme conditions.



# Automation Builder



## Automation Builder for next level engineering productivity

### Automation Builder highlights

- Automation Builder integrates engineering and maintenance for PLC, drives, motion, IoT software, control panels and robotics.
- Automation Builder is the integrated software suite for machine builders and system integrators wanting to automate their machines and systems in a productive way.
- Virtual commissioning allows machine builders and system integrators to simulate and automate all kinds of applications with minimum effort. This enables seamless testing of the complete system at an early stage. Even complex systems can be built up quickly and efficiently, ensuring smooth interaction of all the components, as well as high reliability and system safety.

### 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 the proven ABB tools RobotStudio, Drive Manager, Drive Composer pro, MINT WorkBench, zenon Editor, Panel Builder and succeeds Control Builder Plus.
- Build solutions with Drive application programming (IEC 61131-3), Drive management, configuration and diagnosis with common process data editor, and Drive engineering in Drive composer pro.
- Speed up your project with the powerful ECAD and MS EXCEL® interfaces of Automation Builder.
- Virtual commissioning allows the simulation of your automation system with minimum effort, including drives, PLCs, HMIs and robots for seamless testing of the complete system before involving real hardware.
- Download Automation Builder from [www.abb.com/automationbuilder](http://www.abb.com/automationbuilder)

# ABB zenon IoT software



## Information, integrity, insights

### zenon IoT software highlights

- With more than 300 supported communication protocols and drivers, simple to setup ERP and cloud interfaces, zenon becomes a key component in the Digital Factory.
- zenon is protected by a security system designed even for critical infrastructures.
- zenon comes with audit trail, batch and production scheduling capabilities for the food and beverages industries and is a certified energy data management system.
- Easy to use reporting functions give deep insight into your customer's production processes.
- zenon's multi user engineering capabilities and object oriented design ensures low startup cost and high engineering productivity for your team.
- With zenon, ABB offers automation solutions including drives, automation, electrification, support and service for machine builders and system integrators from a single vendor.

### 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 SPS
- HTML5 Webserver
- FDA CFR 21 Part 11 compliant
- GAMP 5 compliant
- Weihenstephan pack and food standard compliant
- Certified SAP ERP and MS Azure interface



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.

# Connectivity and software tools



ABB drives are connected to automation systems using embedded protocols and fieldbus adapters. All major fieldbus protocols are supported allowing flexibility and compatibility with the automation system. Different software tools and remote monitoring solutions offer support throughout the drive's life cycle.

## Fieldbuses

- BACnet MS/TP and IP
- CANopen®
- ControlNet
- DeviceNet™
- EtherCAT®
- EtherNet/IP™
- EtherNet POWERLINK
- FLN
- InterBus-S
- LonWorks®
- Modbus RTU
- Modbus/TCP
- N2
- PROFIBUS DP
- PROFINET IO
- SERCOS II
- IBA

## Remote monitoring

Remote monitoring allows access to a drive via a local internet connection and a standard web browser. This enables easy application and drive diagnostics, monitoring, configuration and even drive control when needed.

## Software tools

ABB drives are supported by a selection of software tools used for drive selection, commissioning, programming, daily operation and maintenance, monitoring, and process tuning.

## Engineering and sales tools

- DriveSize
- EnergySave calculator
- Functional safety design tool

## Startup and maintenance tools

- DriveAnalyzer
- DriveBrowser
- Drive Composer entry/pro
- DriveConfig
- DriveMonitor
- DriveStudio
- DriveWindow
- DriveWindow Light

## Integration and programming

- DriveAP
- DriveOPC
- DriveSPC
- MINTWorkBench
- Automation Builder

## Mobile tools

- Drivebase
- Drivetune

# ABB drive services

## Your choice, your future

### The future of your drives depends on the service you choose.

Whatever you choose, it should be a well-informed decision. No guesswork. We have the expertise and experience to help you find and implement the right service for your drive equipment. You can start by asking yourself these two critical questions:

- Why should my drive be serviced?
- What would my optimal service options be?

From here, you have our guidance and full support along the course you take, throughout the entire lifetime of your drives.

### Your choice, your business efficiency

ABB Drive Care agreement lets you focus on your core business. A selection of predefined service options matching your needs provides optimal, more reliable performance, extended drive lifetime and improved cost control. So you can reduce the risk of unplanned downtime and find it easier to budget for maintenance.

### We can help you more by knowing where you are!

Register your drive at [www.abb.com/drivereg](http://www.abb.com/drivereg) for extended warranty options and other benefits.



## Service to match your needs

Your service needs depend on your operation, life cycle of your equipment and business priorities. We have identified our customers' four most common needs and defined service options to satisfy them. What is your choice to keep your drives at peak performance?

### Is uptime your priority?

Keep your drives running with precisely planned and executed maintenance.

#### Example services include:

- ✓ Life Cycle Assessment
- ✓ Installation and Commissioning
- ✓ Spare Parts
- ✓ Preventive Maintenance
- ✓ Reconditioning
- ✓ ABB Drive Care agreement
- ✓ Drive Exchange

### Is rapid response a key consideration?

If your drives require immediate action, our global network is at your service.

#### Example services include:

- ✓ Technical Support
- ✓ On-site Repair
- ✓ Remote Support
- ✓ Response time agreements
- ✓ Training

### Need to extend your assets' lifetime?

Maximize your drive's lifetime with our services.

#### Example services include:

- ✓ Life Cycle Assessment
- ✓ Upgrades, Retrofits and Modernization
- ✓ Replacement, Disposal and Recycling

### Is performance most critical to your operation?

Get optimal performance out of your machinery and systems.

#### Example services include:

- ✓ Advanced services
- ✓ Engineering and Consulting
- ✓ Inspection and Diagnostics
- ✓ Upgrades, Retrofits and Modernization
- ✓ Workshop Repair
- ✓ Tailored services



Operational efficiency



Rapid response



Life cycle management



Performance improvement

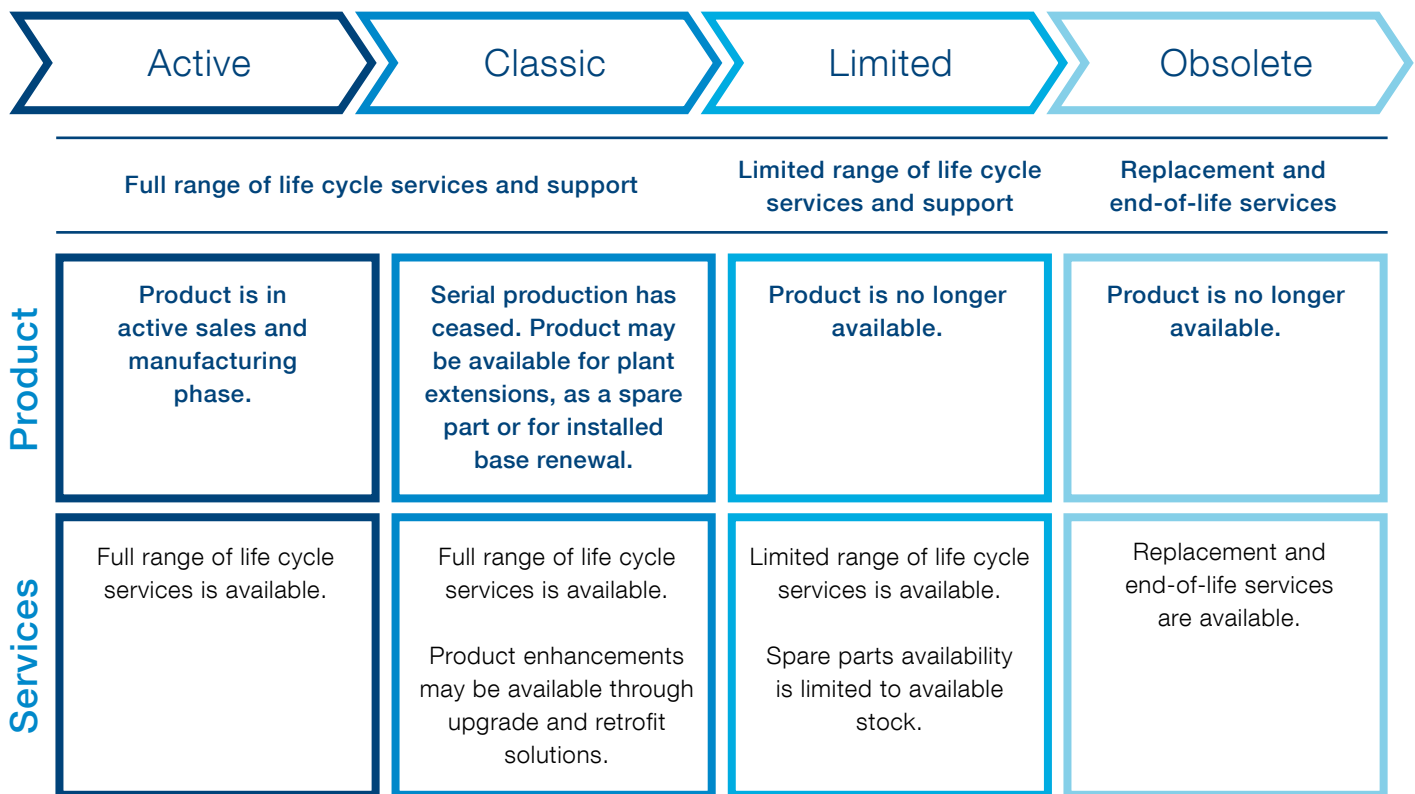
# ABB drive services

## A lifetime 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.

ABB drives life cycle phases explained:



### Keeping you informed

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.

### Step 1 Life Cycle Status Announcement

Provides early information about the upcoming life cycle phase change and how it affects the availability of services.

### Step 2 Life Cycle Status Statement

Provides information about the drive's current life cycle status, availability of product and services, life cycle plan and recommended actions.





# Contact us

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

[www.abb.com/drives](http://www.abb.com/drives)  
[www.abb.com/drivespartners](http://www.abb.com/drivespartners)  
[www.abb.com/plc](http://www.abb.com/plc)  
[www.abb.com/automationbuilder](http://www.abb.com/automationbuilder)

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