
LOW VOLTAGE AC DRIVES

ABB drives for water and wastewater

ACQ580, 1 to 700 HP



ACQ580 series

Always flowing. Never still.

Water utilities require reliable solutions securing the flow of water and wastewater.

The ACQ580 drive for water is part of ABB's all-compatible drives portfolio. This robust drive is designed to secure optimal operation of water and wastewater pumps, while ensuring low energy consumption.

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All-compatible solutions for water and wastewater applications

Environment all-compatible

Achieve your environmental goals with our energy-efficient drive for water and wastewater. The all-compatible drives offer built-in energy efficiency calculators. They help you to analyze and optimize your pump processes to reduce stress on the environment. Other environmentally friendly features include the built-in soft pipe fill function to ensure less water hammering on the water pipes, thus preventing the risk of unwanted leaks, unplanned outage and repair costs.

Process all-compatible

Water and wastewater processes consist of many phases which require optimal performance of your pump solution from start to finish. Our robust drives are available with enclosures up to UL (NEMA) Type 3R. The drive controls virtually any kind of motors from induction and permanent magnet motors to synchronous reluctance motors up to 700 HP. The drive is compatible with a wide range of fieldbus protocols, ensuring reliable communication between the drive and automation system in use.

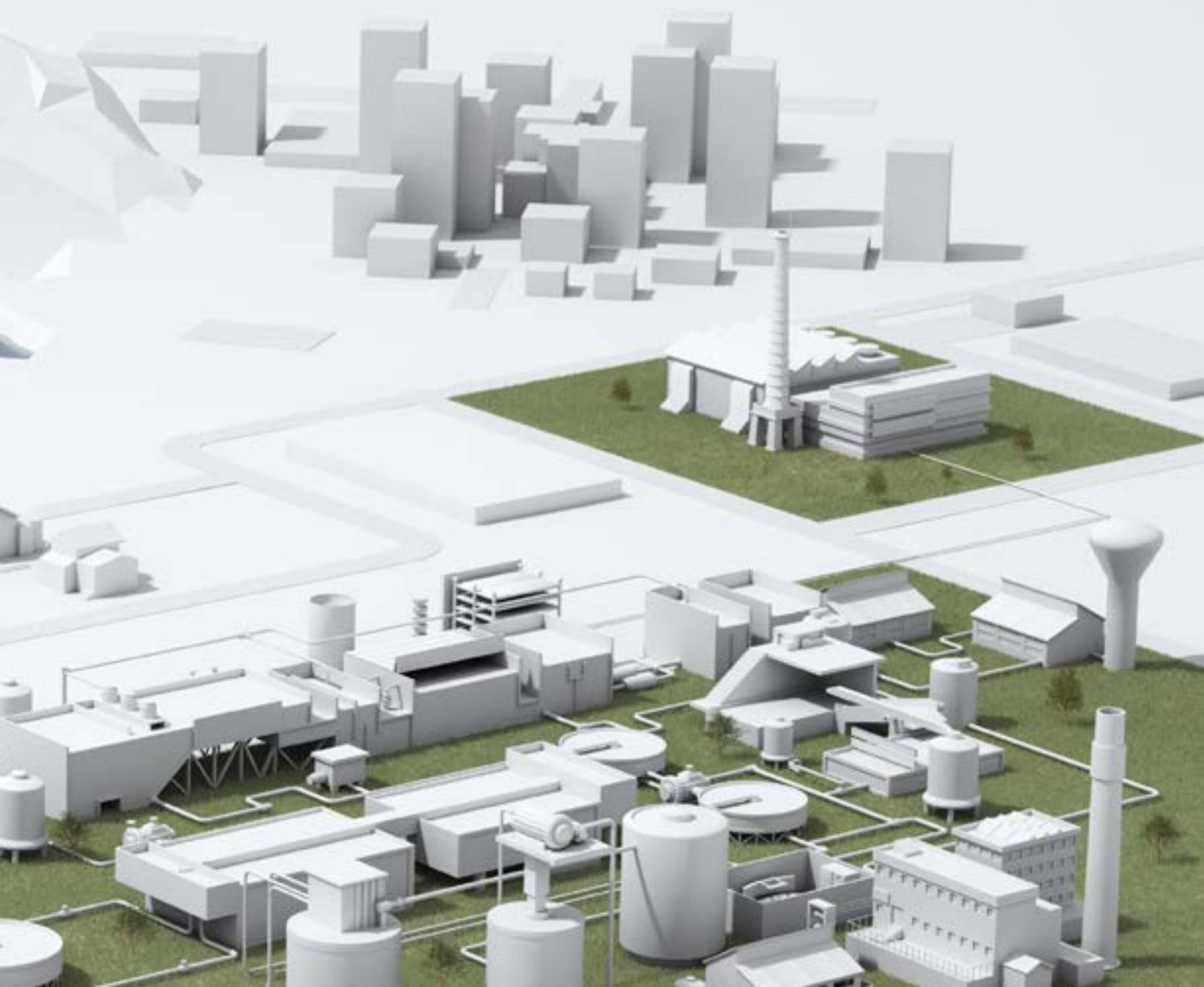


Business all-compatible

As a reliable global partner, we provide water process solutions that help to keep the life cycle costs of your pump solution stable. Additionally, we help keep your water process productive and consistent in an energy efficient way. Our wide range of water industry products and solutions offer optimal flow of water all hours of the day. This means lower energy consumption, improved productivity, flexibility and ease of use. With offices in over 90 countries and a global technical partner network, we offer technical advice and local support worldwide.

Human all-compatible

You can feel confident using our all-compatible drives for water and wastewater. The drive speaks the language of your pump application, making it easy to set up, configure and use. The intuitive Hand-Off-Auto control panel ensures that you have access to the essential information quickly. For accessing your drive from a distance and receiving valuable analytics, we offer remote monitoring solutions.



The energy efficient drive for water and wastewater pumping

Whether your pump system requires redundancy in multi-pump applications or built-in pump application functionalities designed for the water and wastewater industry, the ACQ580 is designed to meet your requirements, ensuring your overall water system is more resilient to downtime and malfunction.

Drive firmware features specific to water and wastewater applications

Pump control and protection features such as, cavitation detection and control, pump deragging, quick ramps for submersible float bearing cooling, etc..

See more on pages 8-11.



Simplicity at your fingertips

The control panel's straightforward primary settings menu with assistants helps you set up the drive quickly and effectively.

See more on pages 18-19.

Speaks water-specific terminology

The drive has built-in pump application control programs to secure optimal operation of the water and wastewater pumps.

See more on page 10.

Boosting energy efficiency

The energy optimizer helps you to save energy, and the energy efficiency information made available to you helps monitor and save the energy used in your processes. The drive meets IE2 energy efficiency requirements.

See more on page 11.



Remote monitoring solutions

Remote monitoring via standard web browsers will help lower costs by reducing the amount of routine site visits.

See more on pages 66-67.



The ACQ580 water and wastewater drives are part of ABB's all-compatible drives portfolio. The drives secure the flow of water and wastewater in the pumping system throughout their whole life cycle. The ACQ580 drive is easy to commission and use. With built-in pump functionalities, the drive keeps the pumping system operating optimally, lowering the energy bill. The drive is used in water and wastewater treatment plants, pumping stations, desalination plants, industrial wastewater facilities and irrigation environments. Inflow pumps, transfer pumps, dosing pumps, sludge pumps, booster pumps, submersible pumps as well as compressors, blowers, decanter centrifuges, mixers and fans can be controlled by the drive.

Controls virtually any kind of motor

The drive has the ability to control almost any motors from induction and permanent magnet motors to synchronous reluctance motors. See more on pages 60-61.



Startup and maintenance tool

Drive composer PC tool for startup, configuration, monitoring and process tuning. The PC tool is connected to the drive's control panel with a standard USB cable. See more on page 23.

Robust with built-in features

A robust performer with an enclosure class up to UL (NEMA) Type 3R, that is simple to select, and easy to install and use. Built-in features such as an EMC filter, choke, a Modbus RTU fieldbus interface and Safe Torque Off (STO) functionality simplify drive selection, installation and use. See more on page 26.



Reliable communication

With its wide range of optional fieldbus adapters and embedded RTU Modbus, the drive enables connectivity with all major automation networks and control systems. See more on page 21.



Input/output extensions

In addition to the standard interfaces, the drive has a built-in slot for additional input/output extension modules. See more on page 21.

Ultra-low harmonic (ULH) solution to meet IEEE519

The ACQ580 ultra-low harmonic drive is designed to minimize the effect of harmonics distortion on your electrical system. The drive keeps the network in the water utility clean and stable. As a result, electrical equipment in the plant wastes less energy as heat and fewer unwelcome disturbances occur.

See more on pages 14-15.



Optimizing the flow of water and wastewater in your pumping solutions

The ACQ580 water and wastewater drive is built to help users, designers, OEMs, system integrators and engineering/consultant professionals secure pumping of water and wastewater in municipal utilities, pumping stations, industrial wastewater facilities, desalination plants and irrigation environments.

Soft pipe filling

Increase the lifetime of the piping and pump system by avoiding pressure peaks.

Quick ramps

Extend the lifecycle of submersible pumps by reducing wear of the mechanical parts using ramp sets to accelerate and decelerate the pumps.

Pump priority

Achieve energy savings with optimal pump alternation by running the higher capacity pumps when the consumption rate is higher.

Cavitation detection and control

Extend the pump lifetime and secure the process by detecting cavitation and ensuring optimal pump speed.

Multi-pump control

Ensure stable and uninterrupted production with multi-pump controls by optimizing the speed and number of running pumps.



Sleep boost

Save energy while extending the life time of the pumps and motors by decreasing start/stop cycles during all hours of the day.

Auto-change

Increase the mean time between repairs and save in service costs by balancing the long-term operation time of all pumps in a parallel pumping system.

Level control

Ensure optimal efficiency when filling or emptying a tank.

Sensorless flow calculation

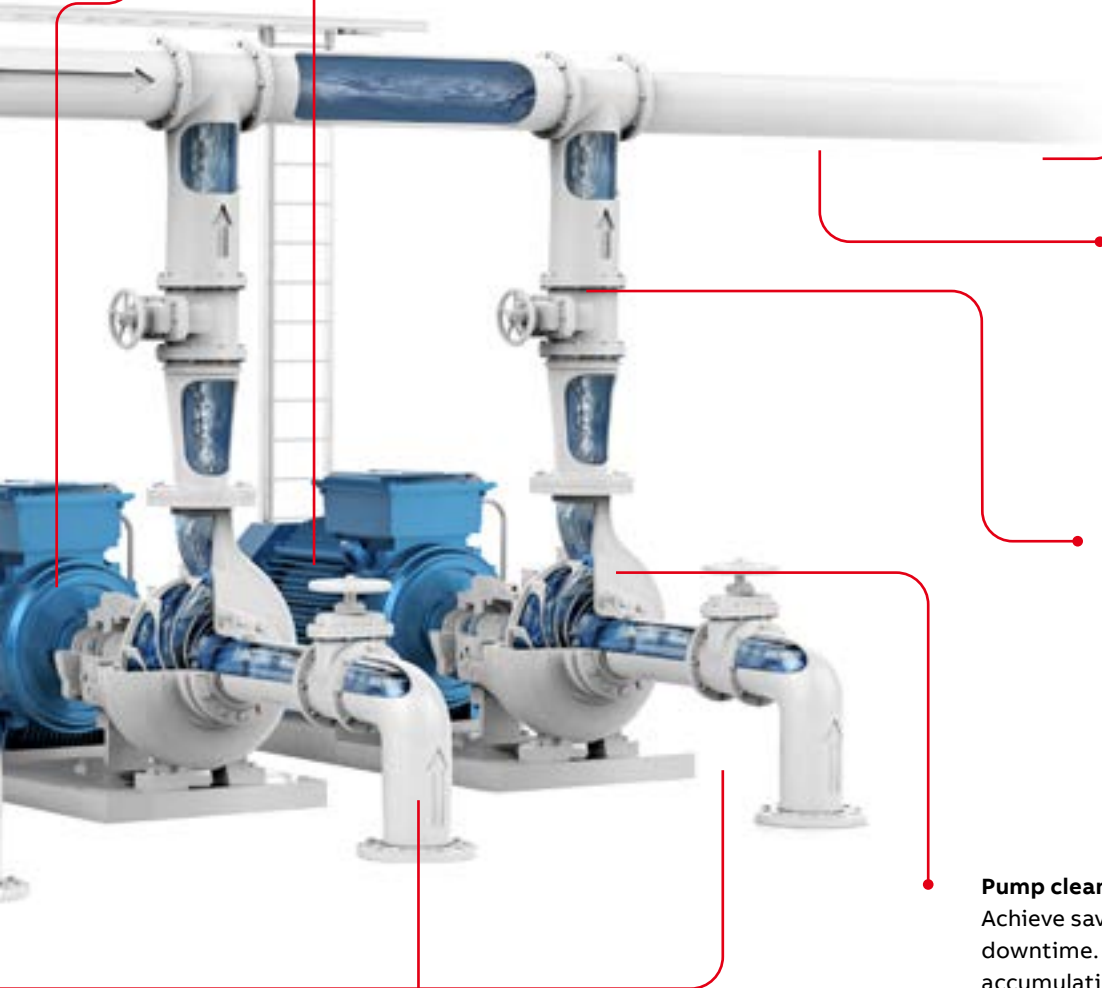
Reduce costs by eliminating the need for external components or backup the flow meters to avoid interruptions in the process.

Flow, pressure and dry pump protection

Protect the pumping system from a low and/or high pressure and flow, as well as prevent the pump from running dry.

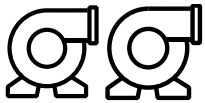
Pump cleaning and deragging

Achieve savings by preventing unplanned downtime. This is made possible as a result of accumulating obstructions being removed from the impeller of the pump.



Built-in pump application software

The built-in pump application software in the ACQ580 drives is designed to enhance the reliability and durability of the water and wastewater application in which it is used. The functions protect the pump and secure its optimal functionality, increasing cost efficiency. The built-in functionalities also support the user in securing the flow of the water and wastewater in the pump solution.



Multi-pump functionality Intelligent Pump Control (IPC)

The function maintains stable process conditions for several parallel pumps (up to 8 pumps at the same time) operating together. It is possible to optimize the speed and number of pumps needed when the required flow or pressure rate is variable. This built-in functionality ensures continuous operation for multi-pump systems even if one or more pumps fail or require maintenance.

Single Pump Control (PFC)

One drive connected to a pump with possibility to connect up to 6 DOL pumps to the system to meet the process requirements.

Soft Pump Control (SPFC)

Same as PFC, but the drive will be connected to a new pump upon startup, enabling smooth acceleration.



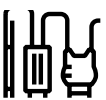
Sensorless flow calculation

Measures the amount of water flowing without the need for external sensors. This enables you to reduce costs as there is no need for setting up and using additional sensors or back up the flow meters to avoid interruptions in the process.



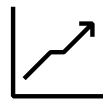
Level control

Control the filling or emptying of wastewater storage and water tower tanks. Level control can be used within a station controlling up to eight pumps. The level control function has varying pre-set water levels and the pumps will start and stop based on measured level. This method allows the pumps to run at an efficient speed and ensures the pump sump does not become over contaminated by sediment.



Soft pipe fill

The soft pipe fill function manages the pressure of water by filling the pipeline with a gentle approach. This helps to avoid sudden pressure peaks and reduces the risk of water hammer which can cause damage to the water pipes.



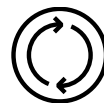
Quick-ramp

Protect bearings when a submersible pump is started without water. Quick ramp allows your pump to reach optimal speed to extend pump life, ensure operation and prevent unplanned outages.



Pump cleaning and deragging

Keeps the impeller of the pump clean by running a sequence of aggressive ramps between configurable pump speeds.



Turbidity reduction

When a pump starts as slow as possible, it creates the lowest turbidity values for the water being moved or extracted. When you combine quick ramps and long normal ramps, the drive will protect and run submersible pumps in the most optimal way.



Pump protection

The built-in protection functionalities ensure that pumps can operate at the best possible conditions. The maximum pressure protections help to protect the pump and the system in case of a blockage in the pipeline. In case of a pipe rupture, the minimum pressure protection can generate an alarm or fault and can be programmed to run at certain speed to avoid dirty water entering the pipeline. The inlet pressure protection can help to avoid cavitation.



Dry run protection

This function prevents the pump from running dry. The water pump shaft and impeller are rotating at fast rates. If there is no dry pump protection, the released heat can damage the pump over time, limiting its lifetime.



Cavitation detection and control

The cavitation detection function slows down the pump speed or stops the pump when cavitation occurs. Cavitation can happen in flow systems when the pressure in inlet side suddenly drops. It causes vapor bubbles and when the bubbles collapse, they can be destructive to a pump's internal components.

General software features of the drive

Startup assistant allows first-time users to quickly customize the drive, out of the box, according to their needs. This is complemented by a built-in help function to make parameter-by-parameter setting easy.

Motor control in scalar and vector control modes. They support a wide range of motors including induction, permanent magnet and synchronous reluctance motors.

The energy optimizer feature optimizes the motor flux so that total energy consumption is reduced when the drive operates below the nominal load. The total efficiency can be improved by 1...20% depending on load torque and speed.

Configurable motor features to monitor, protect and early warn against problems in the motor, the pump or the process.

The drive reduces motor noise by spreading the switching frequencies over a user-specified range.

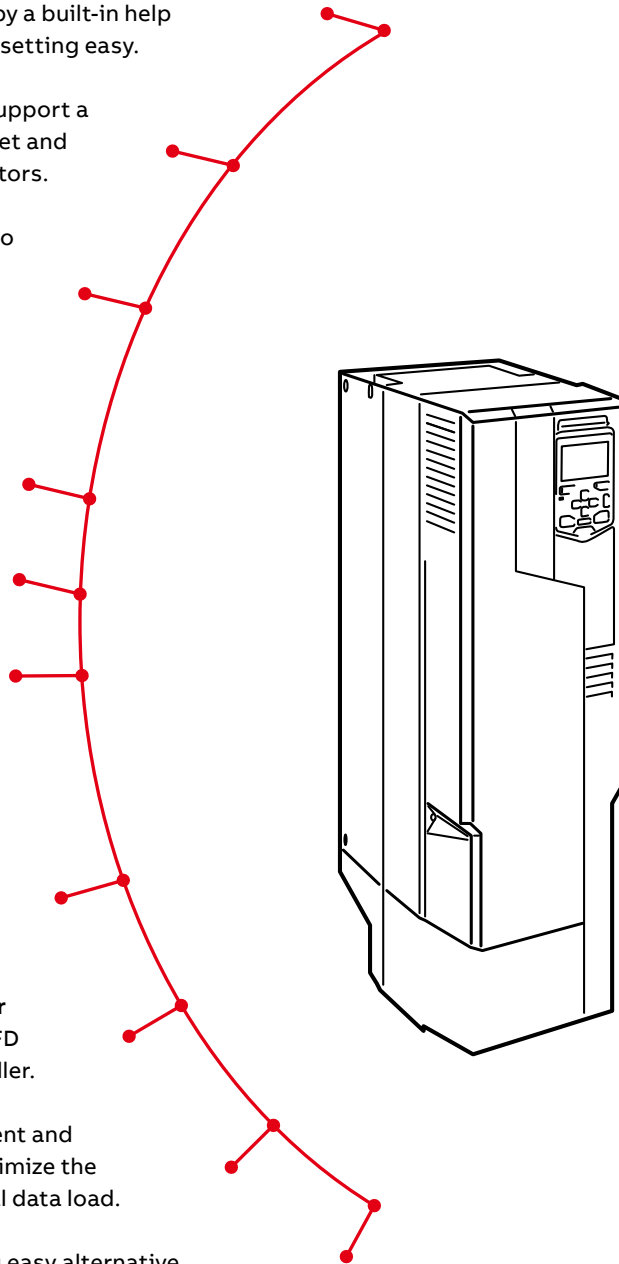
Drive safety and protection features include overcurrent, DC over- and undervoltage, drive overheating and short circuit protection, motor phase loss and supply phase loss detection, external communication loss management and many more.

Diagnostic assistant helps in locating the cause of any disturbance to the drive, and even suggests possible remedies. This reduces process downtime by making repairs or adjustments effortless.

A built-in and stand-alone process PID/loop controller allows you to control the process loop directly from the VFD without an external controller.

Load profile feature collects drive values, such as current and stores them in a log. This enables you to analyze and optimize the application with the help of historical data load.

Adaptive programming provides extra flexibility by offering easy alternative for simple programming needs. Download Drive Composer entry for free to start writing your application.

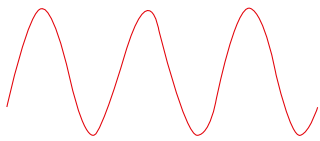


Overcome challenges of harmonics

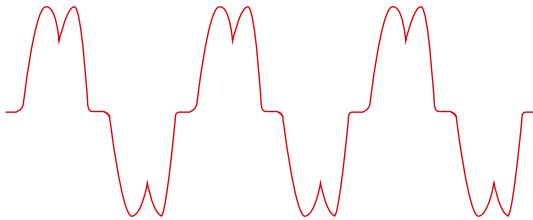
ACQ580 ultra-low harmonic drives have excellent harmonics performance and are perfectly suited for places that cannot handle high harmonic content in the network.

The problem with harmonics

Generators in power plants rotate at constant and regulated speed, resulting in a sine-wave shaped current in an AC grid in the ideal case.



However, in the modern world, the network is not pure sine wave. Electricity networks are affected by harmonics: higher-order oscillations introduced by various types of electrical equipment.



Problems caused by harmonic distortion

High levels of harmonic distortion in an utility can create a wide range of problems. Some of the problems that may be encountered are:

- Premature failure and reduced lifespan of devices often occurs when overheating is present, such as:
 - Overheating of transformers, cables, circuit breakers and fuses
 - Overheating of motors that are powered directly across the line
- Nuisance trips of breakers and fuses due to the added heat and harmonic loading
- Unstable operation of backup generators
- Unstable operation of sensitive electronics that require a pure sinusoidal AC waveform
- Flickering lights

All-in-one concept to meet IEEE519

ABB's ultra-low harmonic (ULH) drives for water are designed with built-in harmonic avoidance systems and complies with IEC61000-3-12. Also extremely low harmonic content helps your system meet IEEE519. Compared to other harmonic

There are many ways to mitigate harmonics and there is no "one size fits all" solution.

The table below compares the THD_i of various harmonic mitigation technologies, along with other comparisons.

	Six-pulse VFD no reactor/ choke	Six-pulse VFD Low DC bus capacitance	Six-pulse VFD + 5% reactor/choke	3-phase VFD Active front end drive ^{*)}
Typical THD _i	90-120%	35-40%	35-45 %	3-5 %
VFD system price ^{**)}	\$	\$	\$\$	\$\$\$
Footprint	◻	◻	◻◻	◻◻◻
Pros	Simple and low cost solution, acceptable for installations with low quantities of small drives.	Simple and low cost solution that results in some mitigation of current harmonics (THD _i).	Standard solution in water and wastewater applications.	Best harmonic performance of any of the solutions. Easy installation, only 3 wires in and 3 wires out. Ability to boost output voltage during low-line conditions. Unity true power factor.
Cons	High harmonic content, not recommended for installations with higher quantities of drives. Susceptible to poor power quality.	Higher voltage distortion (THD _v), more than the six-pulse VFD with 5% reactor/choke. More susceptible to problems caused by poor power quality. Almost no under voltage ride-through ability.	Systems with a large quantity or large sizes of drives, may require additional harmonic mitigation.	The drive itself generates slightly more heat than a standard six-pulse drive with reactor.

^{*)} Valuations are based on ABB low harmonic drives

^{**)} System price considers VFD & installation costs

mitigation solutions, the problems caused by harmonics are avoided in the first place. ULH drives have excellent harmonic performance technology built-in, including active supply unit and integrated low harmonic line filter. There is no need for external harmonic filters or multi-pulse transformers, leading to significant savings in the footprint.

Reliable operation under special conditions

ULH drives ensure that the motor receives the full voltage, even in low-voltage utility conditions or in a fluctuating network. Thanks to the drives’ capability to provide an output voltage up to 15 percent greater than the supply voltage, applications can overcome voltage drops caused by long supply or motor cables. All this is done without costly additional equipment or over sizing of drive system components.

Savings in total cost of ownership

Electrical utilities may charge additional penalties for consuming reactive power. The ULH drive has unity true power factor as a result of its low harmonics and no consumption of reactive power. Additionally, the drive is able to compensate the displacement power factor of the network to which it is connected. This reduces the risk of having additional running

costs or buying additional capacitor banks to correct the power factor.

With an integrated design that leverages drive technology as part of the harmonic solution, there is no risk of nuisance trips due to incompatible components, no need for additional hardware and no additional cooling requirements compared to other harmonic mitigation solutions, like passive and active filters. System level efficiency is better when there are less components in the network. Also, there is savings in the installation and maintenance costs.

In retrofit projects, the transformer might not be sized to meet the harmonic levels caused by non-linear loads such as standard 6-pulse drives, so there is a risk of overloading the transformer. Thanks to the extremely low harmonic content of ULH drives there is no need to oversize the transformer, switchgear, or cables.

When using backup generator power, the ULH drive does not create harmonic content that would require an oversized alternator. It also prevents unstable operation because the ULH never regenerates power back to the source.

	Six-pulse VFD + passive filter	Matrix technology drives	Multi-pulse VFD	Six-pulse VFD + active filter
Typical THD₁	5-10%	5-13 %	12 pulse 10-15% 18 Pulse 5-8% due to actual system dynamics, phase unbalance and background distortion.	4-7%
VFD system price **)	\$\$\$	\$\$\$\$	\$\$\$\$	\$\$\$\$\$
Footprint	□□□□	□□□	□□□□□	□□□□
Pros	Assuming physical space is available, a passive harmonic filter can be added after the drive is installed, if harmonics are determined to be a problem.	Includes regenerative braking.	Traditional harmonic mitigation method.	One active filter can clean up the harmonics from multiple drives/loads.
Cons	Leading power factor at light loads unless the filter’s capacitors are switched out of the circuit. Risk of resonances between the filter capacitors and other capacitors in the system. Complex wiring.	Low harmonic mode (5% THD ₁) does not allow full speed control throughout the entire frequency range, as it can only modulate up to 93% voltage. No under voltage ride-through of power circuitry due to the lack of DC bus.	Very large footprint. Significant number of points of failure. Optimal harmonic performance requires perfectly balanced AC power feed with little background distortion. Complex wiring and special transformer required. Very difficult to retrofit in the field.	Typically the most expensive solution. The filter becomes a single point of failure for harmonic mitigation. A filter failure could result in significant/immediate harmonic related issues within the system. Complex wiring.

Common features throughout the whole ACQ580 product family

ACQ580 drives have the operation logic, standard features and common options throughout the whole portfolio. Learn it once - use it everywhere.



Standard ACQ580 features

Choke and EMC

- Integrated choke technology mitigates harmonics
- Fulfills standard the EN61000-3-12 standard
- EMC C2 filter for -01 and -31 allows safe installation in first environment
- EMC C3 and common mode filter for -04 and -34 allow safe installation in second environment
- Optional EMC C1 filter ensures the best electromagnetic performance for first environment. Available for option +E223 and +F316.

Scalar and vector control for process control

- Scalar control for effortless process control
- Vector control for accurate speed and torque control in demanding applications
- Support for induction, permanent magnet and synchronous reluctance motors (SynRM)

Extensive I/O connections

- The ACQ580 features extensive I/O connections for flexible configuration in various applications
- Colored and bigger terminals for easy commissioning and diagnostics

Assistant control panel and primary settings

- The assistant control panel speaks your language
- USB interface for PC and tool connection

Integrated safe torque off (STO)

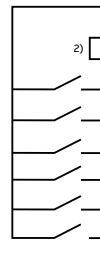
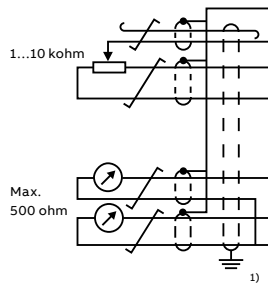
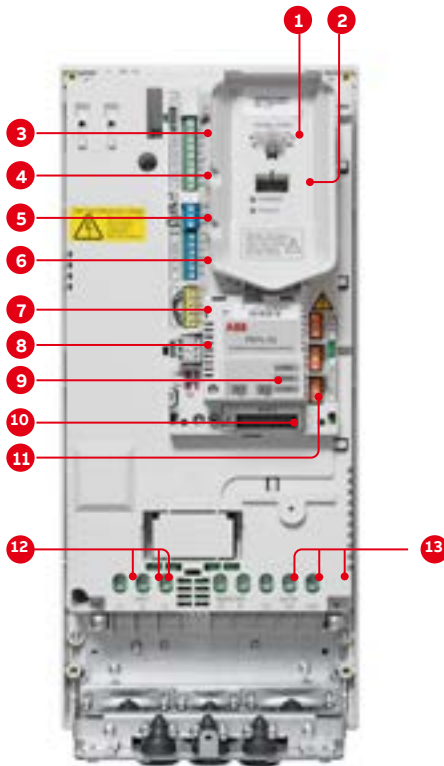
- Safe torque off for implementing safe machinery
- SIL 3, PL e

Comprehensive connectivity

The ACQ580 drives offer a wide range of standard interfaces. In addition, the drive has two option slots that can be used for extensions including fieldbus adapter modules and input/output extension modules.

All signals and functions for each I/O point can be freely configured via drive settings. AI1, AI2 and AO1 can be set individually for either mA or V signals.

Default control connection diagram below:



Terminal	Meaning	Default connections	
X1 Reference voltage and analog inputs and outputs			
1	SCR	Signal cable shield (screen)	
2	AI1	Output frequency/speed reference: 0 to 10 V	
3	AGND	Analog input circuit common	
4	+10 V	Reference voltage 10 V DC	
5	AI2	Actual feedback: 0 to 10 V	
6	AGND	Analog input circuit common	
7	AO1	Output frequency: 0 to 10 V	
8	AO2	Motor current: 0 to 20 mA	
9	AGND	Analog output circuit common	
X2 & X3 Aux. voltage output and programmable digital inputs			
10	+24 V	Aux. voltage output +24 V DC, max. 250 mA	
11	DGND	Aux. voltage output common	
12	DCOM	Digital input common for all	
13	DI1	Stop (0)/Start (1)	
14	DI2	Not configured	
15	DI3	Constant frequency/speed selection	
16	DI4	Not configured	
17	DI5	Not configured	
18	DI6	Not configured	
X6, X7, X8 Relay outputs			
Ready run	19 RO1C	Ready run 250 V AC/30 V DC 2 A	
	20 RO1A		
	21 RO1B		
Run status	22 RO2C	Running 250 V AC/30 V DC 2 A	
	23 RO2A		
	24 RO2B		
Fault status	25 RO3C	Fault (-1) 250 V AC/30 V DC 2 A	
	26 RO3A		
	27 RO3B		
X5 Embedded fieldbus			
29	B+	Embedded fieldbus, EFB (EIA-485)	
30	A-		
31	DGND		
S4	TERM		Termination switch
S5	BIAS		Bias resistors switch
X4 Safe torque off			
34	OUT1	Safe torque off. Factory connection. Both circuits must be closed for the drive to start. See chapter <i>The Safe torque off function</i> in the <i>hardware manual</i> of the drive.	
35	OUT2		
36	SGND		
37	IN1		
38	IN2		
X10 24 V AC/DC			
40	24 V AC/DC+ in	R6 to R11 and all ACQ580-31: Ext. 24 V AC/DC input to power up the control unit when the main supply is disconnected. ³⁾	
41	24 V AC/DC- in		

1. Panel port (PC tools, control panel)
2. ABB drive customizer port for programming the drive without mains with CCA-01 tool
3. Analog inputs (2 × AI)
4. Analog outputs (2 × AO)
5. 24 V AC/DC output
6. Digital inputs (6 × DI)
7. Safe torque off (STO)
8. Embedded fieldbus
9. Communication options (fieldbuses)
10. I/O extensions
11. Relay outputs (3 × RO)
12. Mains connection
13. 13. Motor connection

Notes:

- ¹⁾ Ground the outer shield of the cable 360° under the grounding clamp on the grounding shelf for the control cables.
- ²⁾ Connected with jumpers at the factory.
- ³⁾ For frames R1 to R5, an optional I/O module is required to power up with Ext. 24 V AC/DC (see page 21).

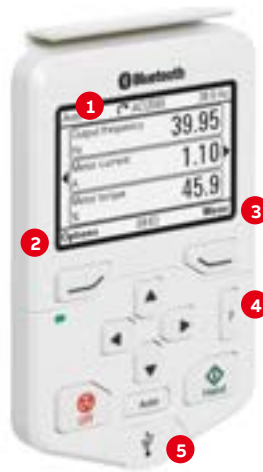
Hand-Off-Auto control panel

The control panel features intuitive use and easy navigation.
High resolution display enables visual guidance.

Almost anyone can set up and commission the ACQ580 drive using available control panels. You do not need to know any drive parameters, as the control panel helps you to set up the essential settings quickly and get the drive into action.

Control of multiple drives

One control panel can be connected to several drives simultaneously using the panel network feature. The user can also select the drive to operate in the panel network.



1. With the customizable **Home views**, you can monitor the values that matter most, e.g. speed, torque or motor temperature. Select the signals from a ready-made list or choose user-defined parameters.

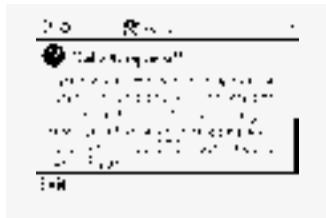
2. **Options** are used to set a reference, change the motor direction, select the drive, edit Home view pages, and see the fault and warning status.

3. All functions of the control panel are accessed through the **main menu**. It is possible to organize parameters in different ways and store essential parameters for different configurations for any specialized application needed.

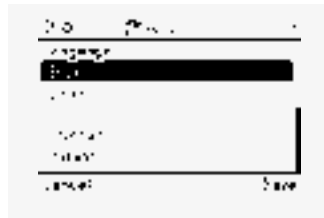
4. The help key provides context-sensitive guidance. Faults or warnings can be resolved quickly since the help key provides troubleshooting instructions.

5. The PC tool can be easily connected to the drive through the **USB connector** on the control panel.

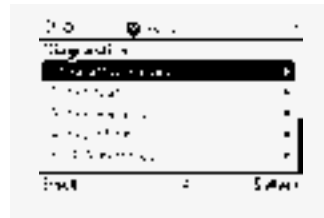
Assistant control panel display



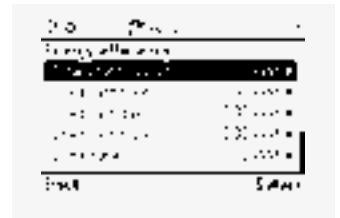
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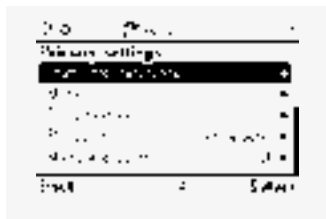
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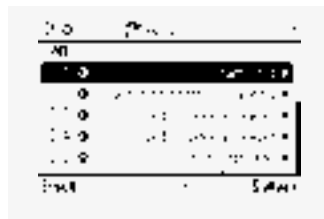
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04



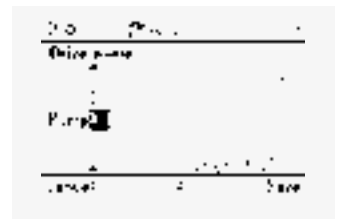
05



06



07



08

01 Help button

- Detailed descriptions related to faults and warnings
- More information about Primary settings options

02 Language options

Access to a selection list that consists of mutually exclusive options such as the language selection list (Access through the main menu).

03 Diagnostics

- Diagnostic information, such as faults and warnings
- Helps to resolve potential problems
- Helps to make sure that the drive setup is functioning correctly

04 Energy efficiency

View and configure parameters related to energy savings, such as kWh counters.

05 Primary settings for ACQ580

With the primary settings you can set motor values, commission multi-pump, set level control, set soft pipe filling etc. pumping features. When using Primary settings, there is no need to browse the parameters.

06 I/O Menu

- Access to each terminal name, number and electrical status
- Possibility to force inputs and outputs
- Access to sub-menus that provides further information on the menu item and allow to make changes to the I/O connections

07 Backups

Possibility to save parameter settings in the control panel memory and restore parameter settings from a backup to the drive.

08 Text editor

Add information, customize text and label the drive.

Control panel options and mounting kits

The standard delivery of the ACQ580 includes the assistant control panel, but it can be replaced by other control panels.



Hand-Off-Auto control panel, ACH-AP-H is included in the delivery. USB connection as standard.



Bluetooth control panel, ACH-AP-W
The optional Bluetooth panel enables connection with the Drivetune mobile app. The app is available for free from Google Play and the Apple App store. Together users can, for example, commission and monitor the drive remotely.



Industrial control panel, ACS-AP-I
The industrial control panel is compatible with all ABB drives, making it simple to use a single panel with different products.



Panel bus adapter, CDPI-01
The panel bus adapter is an ideal choice if there is a need to control multiple drives with a single control panel. The panel bus adapter also offers simplicity for cabinet installations because it can be used with a door mounted control panel to operate the drive easily and safely.



Blank control panel, CDUM-01
The blank control panel can be used for covering the control panel slot if no control panel or panel bus adapter is needed.



Control panel mounting platform, DPMP-01
This mounting platform is for surface mountings. This also requires CDPI-01 (panel bus adapter) and a control panel (assistant, basic, Bluetooth or industrial).



Door mounting kit, DPMP-EXT
The door mounting kit is ideal for cabinet installations. A kit for one drive includes one DPMP-02 (control panel mounting platform) and one CDPI-01 (blank control panel cover with RJ-45 connector).



Control panel door mounting kit for outdoor installation DPMP-04/05
Enables control panel outdoor mounting thanks to IP66 protection class, UV resistance and IK07 impact protection rating. It is suitable for mounting on UL (NEMA) Type 3R, 4 or 4X rated enclosures made with UV resistant materials.



Water control panel door mounting kit DPMP-06-EXT-Q
This kit allows remote mounting of the control panel on a larger enclosure or remotely. The kit contains one DPMP-06 (door mounting platform), one CDPI-01 (panel bus adapter) and a 3m connection cable. The platform is Water branded.



Water control panel door mounting kit DPMP-07-Q
This kit allows remote mounting of the control panel on a larger enclosure or remotely for ACQ580-04 modules. The kit contains one DPMP-07 and a 3m connection cable. The platform is Water branded.



Water control panel door mounting kit for indoor UL (NEMA) Type 4X installation DPMP-08-EXT-Q
This control panel holder kit is IP69k rated for use with UL (NEMA) type 4X rated enclosures. It is NSF169 rated for splash zones, washdown duty and chemical resistance. It is not UV resistant. The kit contains one DPMP-08 (door mounting platform), one ECPI-01 (panel bus adapter) and a 3m connection cable. The platform is Water branded.

Door mounting and daisy chaining

Improve safety and leverage the full potential of the ACQ580 control panel options with a door mounting kit and panel bus adapter.



Door mounting fosters easy operation and safety. It enables you to operate the drive without opening the cabinet door, saving time and keeping all the electronics behind the closed door. Up to 32 drives can be connected to one control panel for even

easier and quicker operation. When daisy chaining the drives, you need only one assistant control panel.

The rest of the drives can be equipped with panel bus adapters.

Cabinet door

Water cabinet mounting panel kit, DPMP-06-EXT-Q

The kit contains one DPMP-06 (door mounting platform), one CDPI-01 (panel bus adapter) and a 3m connection cable.

Assistant control panel

The assistant control panel is delivered as standard with the ACQ580 drives. Also a Bluetooth or industrial control panel can be used.

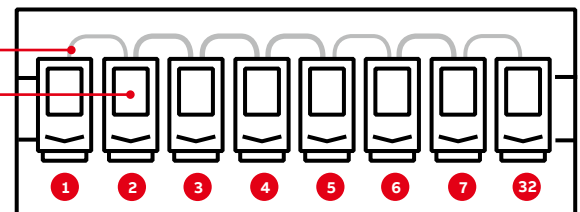
RJ-45 cable for daisy chaining drives

Panel bus adapter, CDPI-01

The panel bus adapter can be ordered with a plus code +J424 or with an MRP code 3AXD50000009843 as a loose option.



Cabinet, outside



Cabinet, inside

Control panel options

The ACH-AP-H Hand-Off-Auto control panel is included as standard in the delivery.

If no code is mentioned in the ACQ580 order, the assistant control panel is automatically added to the delivery. It can be replaced by one of the other +Jxxx options listed below.

Option code	Description	Type designation
	The Hand-Off-Auto control panel as standard in the delivery	ACH-AP-H
+J429	Control panel with Bluetooth interface	ACH-AP-W
+J425	Assistant Control panel with local/remote -logic	ACS-AP-I
+J424	Blank control panel cover (no control panel delivered)	CDUM-01
3AXD50000004419	Panel bus adapter	CDPI-01
3AUA0000108878	Control panel mounting platform (flush mounted, requires panel bus adapter)	DPMP-01
3AXD50000217717	Control panel door mounting kit (Outdoor UL/NEMA 3R, 4 and 4X (IP66), requires panel bus adapter)	DPMP-04
3AXD50000240319	Control panel door mounting kit (Outdoor UL/NEMA 3R, 4 and 4X (IP66), requires panel bus adapter) For AQ580-04 only.	DPMP-05
3AXD50000010763	Control Panel door mounting kit (Contains DPMP-02 &CDPI-01)	DPMP-EXT
3AXD50000361649	Water control panel door mounting kit (Contains DPMP-06 and CDPI-01)	DPMP-06-EXT-Q
3AXD50000371051	Water control panel door mounting kit (Contains DPMP-06 and CDPI-01) For ACQ580-04 only.	DPMP-07-Q
3AXD50000854912	Water control panel door mounting kit (Indoor UL/NEMA 4X/NSF169 washdown (IP69k), contains DPMP-08 and CDPI-01)	DPMP-08-EXT-Q

Communication and connectivity

Options

Fieldbus adapter modules


The ACQ580 comes with Modbus RTU fieldbus interface as standard, and it is also compatible with a wide range of additional fieldbus protocols. Fieldbus communication reduces wiring costs compared to traditional hardwired input/output connections. The fieldbus options can be installed into slot one (1).



Input/output extension modules

Standard input and output can be extended by using optional analog and digital input/output extension modules. The modules are easily installed in the extension slot two (2) located on the drive.

Fieldbus options

	Plus code	Fieldbus protocol	Adapter
	+K451	DeviceNet™	FDNA-01
	+K454	PROFIBUS DP, DPV0/DPV1	FPBA-01
	+K458	Modbus RTU	FSCA-01
	+K475	Two port Ethernet (Ethernet/IP, Modbus/TCP, PROFINET)	FENA-21
	+K490	Two port Ethernet/IP	FEIP-21
	+K491	Two port Modbus/TCP	FMBT-21
	+K492	Two port PROFINET IO	FPNO-21



Options

Plus code	Description	Type designation
+L501	External 24 V AC and DC 2 x RO and 1 x DO	CMOD-01
+L523	External 24 V and isolated PTC interface	CMOD-02
+L512	115/230 V digital input 6 x DI and 2 x RO	CHDI-01
+L525	Analog signal extension 3 x AI and 2 x AO	CAIO-01

Confident performance in challenging environmental conditions

Option code	Description
+C218	Conformally coated printed circuit boards to comply with class C4 (IEC60721-3-3:2019/ISO9223) / class 3C3 (IEC60721-3-3:2002)

ACQ580 drives are available with conformally coated printed circuit boards to provide protection against corrosive chemical gases that can be present in water and wastewater applications. ABB has completed testing on powered drives in controlled environmental chambers using real world concentrations and mixtures to ensure confidence that our products will perform. The boards comply with contamination class C4 according to IEC 60721-3-3:2019 and ISO 9223 and contamination class 3C3 according to IEC 60721-3-3:2002 for H₂S (Hydrogen Sulfide), NH₃ (Ammonia), NO₂ (Nitrogen Dioxide), SO₂ (Sulfur Dioxide) and Cl₂ (Chlorine).

Tools for configuration, monitoring and process tuning

ACQ580 has various tools to simplify the commissioning, operation and monitoring of the drive.



Easy configuration for unpowered drives

With the CCA-01 tool, it is possible to configure drive parameters and even download new software from PC to the unpowered ACQ580. The power is supplied by a PC USB port.



Connection with cable

Using the BCBL-01 cable, the PC can be connected directly to the RJ-45 panel port on the ACQ580 drive.



Drive Composer

The Drive Composer PC tool offers fast and harmonized setup, commissioning and monitoring. Drive Composer entry (a free version of the tool) provides startup and maintenance capabilities and gathers all drive information, such as parameter loggers, faults, and backups into a support diagnostics file.

Drive Composer pro provides additional features such as custom parameter windows, graphical control diagrams of the drive's configuration, and improved monitoring and diagnostics.



Connection to assistant panel

When using the Assistant control panel, the Drive composer tool is connected to the drive using the mini USB connection on the panel.

Description	Type designation
PC cable, USB to RJ45	BCBL-01
Cold configurator adapter, packed kit	CCA-01
Drive Composer pro PC tool (single user license)	DCPT-01

Free Drive Composer entry available at <https://new.abb.com/drives/software-tools/drive-composer>

Drivetune mobile application for wireless access

User-friendly experience with Bluetooth connectivity.

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

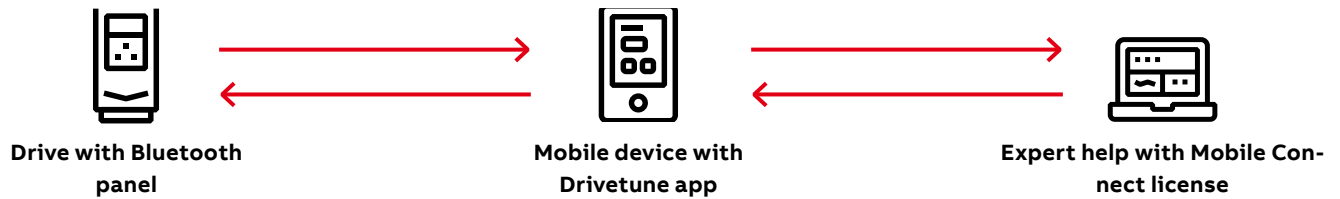
that users won't need to enter hazardous or difficult-to-reach work areas to access information necessary to help them commission and tune the drive.



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

ABB Ability™ Mobile Connect for drives is a module in the Drivetune app. It gives you the access to the technical support for fast problem solving. Mobile Connect makes all the necessary data instantly available to the expert, providing support.

Remote and rapid access to ABB's drive experts can save you and your team considerable time, money and headaches. Check Mobile Connect availability in your country.



Download Drivetune



Drivetune for commissioning and managing drives



Complete offering from wall-mounted drives to cabinet installations

No matter the frame size or power range, all ACQ580 drives bring you ease of use, scalability and quality.

—
01 Wall-mounted drives
(ACQ580-01 and
ACQ580-31)

ACQ580-01 The wall-mounted drive

The wall-mounted drives are available with the power and voltage range from 1 to 150 Hp at 208/230V, 1 to 350 Hp at 480V, and 2 to 250 Hp at 575V. Drives are available as standard with protection class UL (NEMA) Type 1 & 12 / IP21 & IP55 with pluscode +B056. Side-by-side mounting, flange mounting and horizontal mounting are all available for the wall-mounted ACQ580 drives.



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02 Drive modules
(ACQ580-04 and
ACQ580-34)

ACQ580-04 Drive modules for cabinet installations

The ACQ580 drive modules are optimal for system integrators, cabinet builders or OEMs who want to optimize the cabinet design in the 400 to 700 hp range at 480V, but do not want to compromise the easy installation, commissioning and maintenance. Available UL (NEMA) Type Open / IP00.



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03 Packaged drive with
disconnect means
(ACQ580-PC/PD)

ACQ580-31 Ultra-low harmonic drives for wall-mounting

The ULH variant drives produces even below 3% THDi, helping to keep network clean, stable and IEEE519 compliant while eliminating the need for installing external filters or multi-pulse transformers. The ULH drives for wall-mounting are available from 5 to 150 Hp at 480V and protection classes UL (NEMA) Type 1 & 12 / IP21 & IP55.

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03



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04 Packaged drive
(ACQ580-C01)

ACQ580-34 Ultra-low harmonic drives for cabinet installation

The ULH module is optimal for tailored cabinet design and is available from 200 to 400 hp at 480V and protection classes UL (NEMA) Type Open / IP00.

ACQ580-PC/PD packaged drives with disconnect means

The ACQ580 drive with integrated disconnect is a robust, rugged and compact package that enables mounting within line of site of equipment as well as an additional means for lockout tagout. It is available with either a disconnect switch (-PD) or circuit breaker (-PC) as the input disconnect means. Both include fuses and are available in power ranges from 1 to 100 Hp at 208/230V, 1 to 200 Hp at 480V and 2 to 150 Hp at 575V. They are available in UL (NEMA) Type 1 / IP21, UL (NEMA) Type 12 / IP55 (with +B056 pluscode) and UL (NEMA) Type 3R (with +B058 pluscode).

—
04



ACQ580-C01 packaged drive

This enclosed package features an ACQ580 variable frequency drive integrated into a robust UL (NEMA) Type 12 / IP55 enclosure. It has a wide selection of configurable and optional features designed specifically for the water and wastewater applications. It is available for 50 to 75 Hp at 208/230V and 100 to 350 at 480V.

ACQ580-01

The wall-mounted drive



- Take advantage of flexible, cabinet-free installation
- Save space and reduce overall costs
- Maintain productivity in harsh conditions
- Minimize downtime and optimize pump operation

The ACQ580 can be installed in normal equipment rooms, or even dusty and wet environments, thanks to the drive's compact wall mountable construction in both UL (NEMA) Type 1 & 12 / IP21 & IP55 configuration that share the same footprint. The robust and protective design ensures that no additional enclosures or components, such as filters and fans,

are needed. The drives provide smaller capital expenses by avoiding or advancing maintenance of external components, which in turn improves the reliability of the drive and the process.

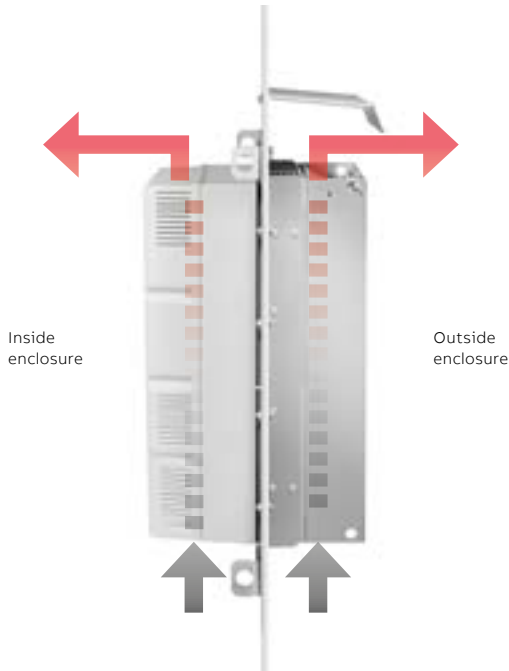
High protection for operation in harsh environments

The wall-mounted UL (NEMA) Type 12 / IP55 drive is designed for applications exposed to dust, moisture and other harsh environments. It is similar in size to the compact UL (NEMA) Type 1 / IP21 drives, which provides significant savings in space, maintenance, engineering, material costs, as well as in setup and commissioning time.



Option code	Description
+B056	IP55/UL type 12 Unit

Flange mounting



The ACQ580 wall-mounted drive offers flange mounting as an option, separating the control electronics from the main circuit cooling airflow, saving space and ensuring optimal cooling. This results in better thermal management in panel installation. The flange mounting option enables smaller cabinets to be used as the backside of the drive is installed outside of the cabinet. This mounting method minimizes the needs for cabinet cooling and decreases the installation cost.

The flange mounting option is only compatible with the standard UL (NEMA) Type 1 / IP21 units. It maintains the UL (NEMA) Type 12 / IP55 protection class on the backside of the drive, while the front side of the drive maintaining UL (NEMA) Type Open / IP20. The option is available as a loose item.

Ordering code	Description
FMK-A/B-R1 580	R1 Frame Flange mounting kit
FMK-A/B-R2 580	R2 Frame Flange mounting kit
FMK-A/B-R3 580	R3 Frame Flange mounting kit
FMK-A/B-R4 580	R4 Frame Flange mounting kit
FMK-A/B-R5 580	R5 Frame Flange mounting kit
FMK-A/B-R6 580/880	R6 Frame Flange mounting kit
FMK-A/B-R7 580/880	R7 Frame Flange mounting kit
FMK-A/B-R8 580/880	R8 Frame Flange mounting kit
FMK-A/B-R9 580/880	R9 Frame Flange mounting kit

ACQ580-04

Drive modules for cabinet installations



- Compact drive module for cabinet mounting
- Save floor space and easy to maintain and service
- High power in compact size
- Easy installation and commissioning with pedestal on wheels and ramp

ACQ580 drive modules have been optimized for assembly into cabinets to ensure high quality and compact installation at minimal cost.

The module variant is UL (NEMA) Type Open / IP00 as standard, but has optional finger shrouds available. For optimized cabinet usage, features include power input connections on the top of the module and power output on the bottom.

Option code	Description
+B051	IP20 Finger shrouds for modules
+H370	Full-size cable connection terminals for input power cables
+0H371	Drive module without full-size output cable connection terminals
+0H354	No pedestal
+OP919	No cabinet installation ramp



ACQ580-31

Ultra-Low Harmonic (ULH) drive for wall-mounting



- Full water functionality and clean supply (THDi less than 3%)
- Effortlessly meets harmonic standards and specifications
- No need to oversize transformers, switchgear or cables
- Simple to install – three wires in, three wires out. No external hardware required

The wall-mountable ultra-low harmonic drives are available in three compact frame sizes, with a power range of 5 to 150 Hp at 480V.

The drive has full water specific functionality and harmonic content even less than 3%. It helps keep the supply clean and meet standards and requirements, like IEEE519, effortlessly. Everything comes as one package – the drive is easy to install and requires no external hardware.

ACQ580 Ultra-low harmonic drive can be installed in wet and dusty environments, with a robust UL (NEMA) Type 12 / IP55 rating available when ordered with a +B056 plus code. A flange mounting kit option allows optimal cooling or space saving in compact cabinets.

Ordering code	Description
FMK-R3 580-31/880-X1	R3 Frame Flange mounting kit
FMK-R6 580-31/880-X1	R6 Frame Flange mounting kit
FMK-R8 580-31/880-X1	R8 Frame Flange mounting kit



ACQ580-34

Ultra-Low Harmonic (ULH) drives for cabinet installation



- Optimized for cabinet builder needs
- High power in compact size and clean supply (THDi less than 3%)
- Easy installation and commissioning, no external filters needed
- Easy to maintain and service with pedestal on wheels and ramp

ACQ580 ultra-low harmonic drive modules have been optimized for assembly into cabinets to ensure high quality and compact installation at minimal cost. The drive module is available from 200 to 400 Hp at 480V. Installation and maintenance is made easy with wheeled pedestal and ramp that allows moving the module in and outside of the cabinet.

The module variant is UL (NEMA) Type Open / IP00 as standard, but has optional finger shrouds available.

Option code	Description
+B051	IP20 Finger shrouds for modules
+H370	Full-size cable connection terminals for input power cables
+0H371	Drive module without full-size output cable connection terminals
+0H354	No pedestal
+OP919	No cabinet installation ramp

ACQ580-PC/PD

Packaged drives with disconnect means



Line of sight mounting with an additional lockout tagout means

Available in multiple enclosure classes; UL (NEMA) Type 1, 12 & 3R

Input disconnect and fast acting fuses included

Compact design for easy installation and maintenance

The ACQ580 packaged drive with disconnect means is a wall-mounted drive with fuses, offered with either an input disconnect switch (ACQ580-PD) or an input circuit breaker (ACQ580-PC). This robust, rugged, and compact package enables mounting within line of site of equipment as well as an additional means for lockout tagout. Indoor rated, UL (NEMA) Type 1 / IP21 and UL (NEMA) Type 12 / IP55 units are available for all power ranges. For outdoor applications, UL (NEMA) Type 3R packaged drive units are available from 1 to 75 HP at 230V, 1 to 75 at 460V, and 2 to 30 HP at 575V. Construction is sheet steel with a tough powder coat paint finish for corrosion resistance.

The ACQ580-PC/PD provides a door-mounted input disconnect operator (padlockable in the OFF position), electronic motor overload protection, a door-mounted control panel with graphical display for local control, provisions for external control connections, and serial communications capability. With a compact design and built-in essential features, this drive allows for simple and quick installation, commissioning and use.

Option code	Description	Available frames
+B056	UL (NEMA) Type 12 / IP55	All
+B058	UL (NEMA) Type 3R	R1 - R4

ACQ580-C01

Packaged drive



Designed to exceed both UL (NEMA) Type 1 & 12 requirements in the same enclosure

Flange mount disconnect

Fans and filters are standard

Wide selection of configurable and optional features designed specifically for water and wastewater applications

The ACQ580-C01 enclosed package features an ACQ580 drive integrated into a robust UL (NEMA) Type 1/12 enclosure. A variety of optional features that are commonly used in water and wastewater applications are available as easy add-ons. These cabinet drives are easy to order, use and maintain.

Indication and control on the door

The ACQ580-C01 cabinet drives offer pilot device packages for simplified selection and addition of the most popular pilot devices to cabinets. There are also individual options that can be combined with the packages. For the WW1 and WW2 packages, the CHDI-01 digital input extension module is included and wired to the control power transformer to support 115V. Pilot devices are 30mm, pilot lights are LED push to test types.

- Package WW1 includes white power on pilot light, amber fault pilot light, red run pilot light and emergency stop.
- Package WW2 includes white power on pilot light, amber fault pilot light, red run pilot light, emergency stop, hand-off-auto selector switch, speed potentiometer and elapse time meter.

Option code	Description
E207	5% input line reactor
E213	3% input line reactor
E205	dV/dt filter
E208	Common mode filter
E220	1.5% output load reactor
F258	Flange mounted circuit breaker with fuses
F262	TVSS surge arrestor
G306	115 VAC control transformer with 1-phase extra 350 VA
G445	WW1 pilot light package
G446	WW2 pilot light package
G327	Ready pilot light
G404	Fault reset pushbutton
G401	Start / stop pushbuttons
G313	Output for motor heater
G449	GE 369 Multilin - motor protection relay
L504	Additional I/O terminal blocks wired to drive standard I/O

Notes:

Standard ACQ580 fieldbus and control panel options are also available.

Not all options are available for all drive types. Not all options can coexist with other options. Check actual availability with ABB.

Technical specifications

ACQ580-01/04

Supply connection	
Voltage and power range	
Input voltage (U1)	
ACQ580-01-xxxA-2	240 V 1-phase input, 3-phase output
ACQ580-01-xxxA-2	208-240 V 3-phase input, 3-phase output
ACQ580-01-xxxA-4	440-480 V 3-phase input, 3-phase output
ACQ580-01-xxxA-6	525-600 V 3-phase input, 3-phase output
ACQ580-04-xxxA-4	440-480 V 3-phase input, 3-phase output
Input voltage tolerance	10% / -15%
Line Limitations	Max ±3% of nominal phase to phase input voltage
Power Factor (cos Φ) at nominal load	0.98
Efficiency at rated power	98%
Power Loss	Approximately 2-3% of rated power
Motor connection	
Supported motor control	Scalar and vector
Supported motor types	Asynchronous motor, permanent magnet motor (vector), SynRM (vector)
Voltage	3-phase, from 0 to supply voltage
Frequency	0 to 500 Hz
Short Term Overload Capacity Variable Torque	110% for 1 min/10min
Peak Overload Capacity Variable Torque	1.35 for 2 second (2 sec / 1 minute)
Switching Frequency	2, 4, 8 or 12 kHz (Up to 150 Hp); 1 or 4 kHz (Over 150 Hp), Automatic fold back in case of overload
Acceleration/Deceleration Time	0 to 1800 s
Short Circuit Current Rating	100 kA (UL) with fusing
External power supply	
R6-R11: Standard	1.50 A at 24 V AC/DC ±10% / 36W
R1-R5: Optional card	1.04 A at 24 V AC/DC ±10% / 25W
Safety	
Safe Torque Off (STO)	
STO Standard Input	17...30 VDC, 55mA
Degree of Protection	
Degree of protection (IEC/EN 60529)	
ACQ580-01	IP21, IP55
ACQ580-04	IP00
Enclosure types (UL 508C/61800-5-1)	
ACQ580-01	UL (NEMA) Type 1 & 12
ACQ580-04	UL Type Open

Inputs and outputs	
2 analog inputs	Selection of Current/Voltage input mode is user programmable.
Voltage reference	0 (2) to 10 V, Rin > 200 kΩ
Current reference	0 (4) to 20 mA, Rin = 100 Ω
Potentiometer reference value	10 V ±1% max. 20 mA
2 analog outputs	AO1 is user programmable, for current or voltage. AO2 current
Voltage reference	0 to 10 V, Rload: > 100 kΩ
Current reference	0 to 20 mA, Rload: < 500 Ω
Applicable potentiometer	1 kΩ to 10 kΩ
Internal auxiliary voltage	24 V DC ±10%, max. 250 mA
Accuracy	+/- 1% full scale range at 25°C (77°F)
Output updating time	2 ms
6 digital inputs	12 to 24 V DC, 10 to 24 V AC, Connectivity of PTC sensors supported by a single digital input. PNP or NPN connection (5 DIs with NPN connection). Programmable
Input Updating Time	2 ms
3 relay outputs	Maximum switching voltage 250 V AC/30 V DC. Maximum continuous current 2 A rms. Programmable, Form C
Contact material	Silver Tin Oxide (AgSnO2)
PTC, PT100 and PT1000	Any of the analog inputs, or digital input 6, are configurable for PTC with up to 6 sensors.
Adjustable filters on analog inputs and outputs	
All control inputs isolated from ground and power	
Operation	
Air Temperature	-15 to +40°C (5 to 104°F) 50°C (122°F) available with derate 0 to -15 °C (32 to 5°F) No Frost Allowed Output derated above +40°C (104°F)
Installation site Altitude	0 to 1000 m (3281 ft) above sea level Output derated above 1000m (3281 ft) up to 4000m (13123ft)
Relative Humidity	5 to 95% No condensation allowed Maximum relative humidity is 60% in the presence of corrosive gasses
Atmospheric pressure	70 to 106 kPa (10.2 to 15.4 PSI) 0.7 to 1.05 atmospheres
Vibration	Risk category IV Certified (IBC 2018)

Technical specifications

ACQ580-01/04

Environmental protections	
Chemical Gasses	IEC 60721-3-3. Class 3C2 as standard and 3C3/C4 as option
Note: Conformal coated PCBs	
Solid Particles	IEC 60721-3-3. Class 3S2 No conductive dust allowed
Pollution degree (IEC/EN 61800-5-1)	Pollution degree 2
Product Compliance	
Standards and directives	
Low Voltage Directive 2006/95/EC	
EMC Directive 2004/108/EC	
60721-3-3: 2002	
60721-3-1:1997	
Quality assurance system ISO 9001 and	
Environmental system ISO 14001	
UL, cUL, CSA and EAC approvals	
Galvanic isolation according to PELV	
RoHS2 (Restriction of Hazardous Substances)	
EN 61800-5-1: 2007; IEC/EN 61000-3-12;	
EN 61800-3: 2017 + A1: 2012 Category C2	
(1st environment restricted distribution);	
Safe torque off (EN 61800-5-2)	
Seismic (IBC, OSHPD)	
Eco-design regulations EU 2019/1781	
EMC (According to EN61800-3)	C2 (1st environment, restricted distribution)
Available Options	
External 24V AC/DC and digital I/O extension (2xRO and 1xDO) (CMOD-01)	
Additional 115/230 V Digital input (6xDI and 2xRO) (CHDI-01)	
Additional analog I/O extension (3xAI bipolar and 2xAO unipolar) (CAIO-01)	
Fieldbus Adapter Modules	EtherNet/IP ,Modbus TCP, PROFIBUS-DP, PROFINET, DeviceNet
Operation, Programming and Diagnostic Tool	Drive Composer Pro / Entry
Cold configuration tool (CCA-01)	
Keypad	
Standard	Hand/Off/Auto
Optional	Bluetooth

Storage (in Protective Shipping Package)	
Air Temperature	-40 to +70°C (-40 to +158°F)
Relative Humidity	Less than 95% No condensation allowed Maximum relative humidity is 60% in the presence of corrosive gasses
Chemical Gasses	IEC 60721-3-3. Class 3S2
Solid Particles	IEC 60721-3-1. Class 1C2
Atmospheric pressure	70 to 106 kPa 0.7 to 1.05 atmospheres
Vibration (ISTA)	
R1....R4	In accordance with ISTA 1A
R5....R9	In accordance with ISTA 3E
R10...R11	Max. 1 mm (0.04 in) (5...13.2 Hz), max. 7 m/s ² (23 fts/s ²)(13.2...100 Hz) sinusoidal
Transportation (in Protective Shipping Package)	
Air Temperature	-40° to 70°C (-40° to 158°F)
Relative Humidity	Less than 95% No condensation allowed Maximum relative humidity is 60% in the presence of corrosive gasses
Atmospheric Pressure	60 to 106 kPa (8.7 to 15.4 PSI) 0.6 to 1.05 atmospheres
Chemical Gasses	IEC 60721-3-2. Class 2C2
Solid Particles	IEC 60721-3-2. Class 2S2
Shock/ Drop (ISTA)	
R1....R4	In accordance with ISTA 1A
R5....R9	In accordance with ISTA 3E
R10...R11	With packing max. 100 m/s ² (330 ft/s ²), 11 ms
Vibration (ISTA)	
R1....R4	In accordance with ISTA 1A
R5....R9	In accordance with ISTA 3E
R10...R11	Max. 3.5 mm (0.14 in) (2...9 Hz), max. 15 m/s ² (49 ft/s ²) (9...200 Hz) sinusoidal

Technical specifications

ACQ580-31/34 ultra-low harmonic

Supply connection	
Voltage and power range	
Input voltage (U1)	
ACQ580-31-xxxA-4	440-480VAC 3-Phase Input, 3 Phase Output
ACQ580-34-xxxA-4	440-480VAC 3-Phase Input, 3 Phase Output
Input voltage tolerance	10% / -15%
Line Limitations	Max \pm 3% of nominal phase to phase input voltage
Power Factor (cos Φ) at nominal load	1.0
Efficiency at rated power	98%
Power Loss	Approximately 2-3% of rated power
Motor connection	
Supported motor control	Scalar and vector
Supported motor types	Asynchronous motor, permanent magnet motor (vector), SynRM (vector)
Voltage	3-phase, from 0 to supply voltage
Frequency	0 to 500 Hz
Short Term Overload Capacity Variable Torque	110% for 1 min/10min
Peak Overload Capacity Variable Torque	1.35 for 2 second (2 sec / 1 minute)
Switching Frequency	2, 4, 8 or 12 kHz (Up to 150 Hp); 1 or 4 kHz (Over 150 Hp), Automatic fold back in case of overload
Acceleration/Deceleration Time	0 to 1800 s
Short Circuit Current Rating (-01/04)	100 kA (UL) with fusing
External power supply	
ACQ580-31, R3 Optional card	1.04 A at 24 V AC/DC \pm 10% / 25W
ACQ580-31, R6,R8: Standard	1.50 A at 24 V AC/DC \pm 10% / 36W
ACQ580-34, R11 Standard	1.50 A at 24 V AC/DC \pm 10% / 36W
Safety	
Safe Torque Off (STO)	
STO Standard Input	17...30 VDC, 55mA
Degree of Protection	
Degree of protection (IEC/EN 60529)	
ACQ580-31	IP21, IP55
ACQ580-34	IP00
Enclosure types (UL 508C/61800-5-1)	
ACQ580-31	UL (NEMA) Type 1 & 12
ACQ580-34	UL Type Open
Inputs and outputs	
2 analog inputs	Selection of Current/Voltage input mode is user programmable.
Voltage reference	0 (2) to 10 V, Rin > 200 k Ω
Current reference	0 (4) to 20 mA, Rin = 100 Ω
Potentiometer reference value	10 V \pm 1% max. 20 mA
2 analog outputs	AO1 is user programmable, for current or voltage. AO2 current
Voltage reference	0 to 10 V, Rload: > 100 k Ω
Current reference	0 to 20 mA, Rload: < 500 Ω
Applicable potentiometer	1 k Ω to 10 k Ω
Internal auxiliary voltage	24 V DC \pm 10%, max. 250 mA
Accuracy	+/- 1% full scale range at 25°C (77°F)
Output updating time	2 ms
6 digital inputs	12 to 24 V DC, 10 to 24 V AC, Connectivity of PTC sensors supported by a single digital input. PNP or NPN connection (5 DIs with NPN connection). Programmable
Input Updating Time	2 ms
3 relay outputs	Maximum switching voltage 250 V AC/30 V DC. Maximum continuous current 2 A rms. Programmable, Form C
Contact material	Silver Tin Oxide (AgSnO ₂)
PTC, PT100 and PT1000	Any of the analog inputs, or digital input 6, are configurable for PTC with up to 6 sensors.
Adjustable filters on analog inputs and outputs	
All control inputs isolated from ground and power	
Operation	
Air Temperature	-15 to +40°C (5 to 104°F) 50°C (122°F) available with derate 0 to -15 °C (32 to 5°F) No Frost Allowed Output derated above +40°C (104°F)
Installation site Altitude	0 to 1000 m (3281 ft) above sea level Output derated above 1000m (3281 ft) up to 4000m (13123ft)
Relative Humidity	5 to 95% No condensation allowed Maximum relative humidity is 60% in the presence of corrosive gasses
Atmospheric pressure	70 to 106 kPa (10.2 to 15.4 PSI) 0.7 to 1.05 atmospheres
Vibration	Risk category IV Certified (IBC 2018)

Technical specifications

ACQ580-31/34 ultra-low harmonic

Environmental protections	
Chemical Gasses	IEC 60721-3-3. Class 3C2 as standard and 3C3/C4 as option Note: Conformal coated PCBs
Solid Particles	IEC 60721-3-3. Class 3S2 No conductive dust allowed
Pollution degree (IEC/EN 61800-5-1)	Pollution degree 2
Product Compliance	
Standards and directives	
Low Voltage Directive 2014/35/EU, EN 61800-5-1:2007	
EMC Directive 2014/30/EU, EN 61800-3:2004 +A1:2012	
EMC Directive 2004/108/EC	
60721-3-3: 2002	
60721-3-1:1997	
EN 61800-5-1: 2007; IEC/EN 61000-3-12; EN61800-3: 2017 + A1: 2012 Category C2 (1st environment restricted distribution);	ACQ580-31 class C2, (1st environment restricted distribution) Frames R1 to R9 (up to 350HP) designed to comply with EMC category C2 requirements as standard. Frames R11 (up to 400 HP) comply with category C3 with standard pre-configured built-in filter.
Quality assurance system ISO 9001 and Environmental system ISO 14001	
UL, cUL, CSA, CE, and EAC approvals	
Galvanic isolation according to PELV	
RoHS2 (Restriction of Hazardous Substances)	
EN 61800-5-1: 2007; IEC/EN 61000-3-12; EN 61800-3: 2017 + A1: 2012 Category C2 (1st environment restricted distribution);	
Safe torque off (EN 61800-5-2)	
Seismic (IBC, OSHPD) (ACQ580-31 Only)	
EMC (according to EN61800-3)	Class C2 (1st environment, restricted distribution)
Harmonics compliance	
ACQ580-31/34 with active front-end helps system to comply with the recommendations of IEEEE519 and G5/4 requirements.	
Functional safety	
STO according to EN 61800-5-2:2016, IEC 61508 Parts 1-2:2010, ISO 13849-1:2015, ISO 13849-2:2012, IEC 62061:2015	
SIL 3/PL e	
Available Options	
External 24V AC/DC and digital I/O extension (2xRO and 1xDO) (CMOD-01)	
Additional 115/230 V Digital input (6xDI and 2xRO) (CHDI-01)	
Additional analog I/O extension (3xAI bipolar and 2xAO unipolar) (CAIO-01)	
Fieldbus Adapter Modules	EtherNet/IP ,Modbus TCP, PROFIBUSDP, PROFINET, DeviceNet
Operation, Programming and Diagnostic Tool	Drive Composer Pro / Entry
Cold configuration tool (CCA-01)	
Keypad	
Standard	Hand/Off/Auto
Optional	Bluetooth
Storage (in Protective Shipping Package)	
Air Temperature	-40 to +70°C (-40 to +158°F)
Relative Humidity	Less than 95% No condensation allowed Maximum relative humidity is 60% in the presence of corrosive gasses
Chemical Gasses	IEC 60721-3-1. Class 1C2
Solid Particles	IEC 60721-3-1. Class 1S2 Contact ABB regarding Class 1S3
Atmospheric pressure	70 to 106 kPa 0.7 to 1.05 atmospheres
Vibration (ISTA) R3 R6,R8 R11	In accordance with ISTA 1A In accordance with ISTA 3E Max. 1 mm (0.04 in) (5...13.2 Hz), max. 7 m/s ² (23 ft/s ²) (13.2...100 Hz) sinusoidal
Transportation (in Protective Shipping Package)	
Air Temperature	-40° to 70°C (-40° to 158°F)
Relative Humidity	Less than 95% No condensation allowed Maximum relative humidity is 60% in the presence of corrosive gasses
Atmospheric Pressure	60 to 106 kPa (8.7 to 15.4 PSI) 0.6 to 1.05 atmospheres
Chemical Gasses	IEC 60721-3-2. Class 2C2
Solid Particles	IEC 60721-3-2. Class 2S2
Shock/ Drop (ISTA) R3 R6,R8 R11	In accordance with ISTA 1A In accordance with ISTA 3E With packing max. 100 m/s ² (330 ft/s ²), 11 ms
Vibration (ISTA) R3 R6,R8 R11	In accordance with ISTA 1A In accordance with ISTA 3E Max. 3.5 mm (0.14 in) (2.999 Hz), max. 15 m/s ² (49 ft/s ²) (9...200 Hz) sinusoidal

How to select a drive?

It is very easy to select the right drive. This is how you build up your own ordering code using the type designation key.

1 Start with identifying your supply voltage.

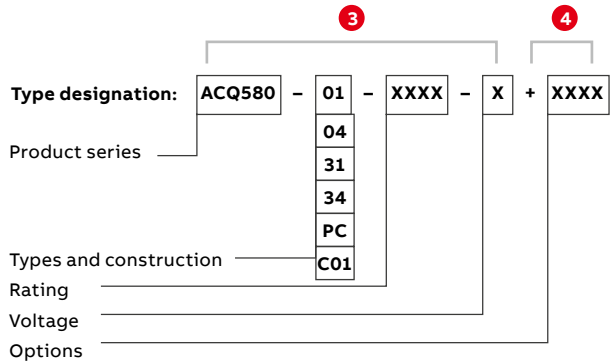
This tells you what rating table to use. The ACQ580 supports 208 to 600 V.

2 Choose your motor's nominal current rating from the ratings table on pages 37 - 41.

3 Select your drive's type code from the rating table based on your motor's nominal current rating.

4 Choose your options.

Details about each option begin on page 18. Add the option codes to the end of the drive's ordering code. Remember to use a "+" before each option code.



Example configuration:

ACQ580-01-124A-4+B056+J429

Wall-mounted 124A, 100 Hp, 480V drive in UL (NEMA) Type 12 / IP55 enclosure and Bluetooth control panel.

Ratings, types and voltages
ACQ580-01, wall-mounted drives

Motor type	Power (kW)	Current (A)	Speed (rpm)	Efficiency (%)	Power factor	Service factor
ACQ580-01-0007	0.75	1.5	1400	0.85	0.85	1.0
ACQ580-01-0015	1.5	3.0	1400	0.85	0.85	1.0
ACQ580-01-0030	3.0	6.0	1400	0.85	0.85	1.0
ACQ580-01-0060	6.0	12.0	1400	0.85	0.85	1.0
ACQ580-01-0120	12.0	24.0	1400	0.85	0.85	1.0
ACQ580-01-0250	25.0	50.0	1400	0.85	0.85	1.0
ACQ580-01-0500	50.0	100.0	1400	0.85	0.85	1.0
ACQ580-01-1000	100.0	200.0	1400	0.85	0.85	1.0
ACQ580-01-2000	200.0	400.0	1400	0.85	0.85	1.0
ACQ580-01-4000	400.0	800.0	1400	0.85	0.85	1.0
ACQ580-01-8000	800.0	1600.0	1400	0.85	0.85	1.0

Pages 38-43

Ratings, types and voltages
ACQ580-01, wall-mounted drives

Motor type	Power (kW)	Current (A)	Speed (rpm)	Efficiency (%)	Power factor	Service factor
ACQ580-01-0007	0.75	1.5	1400	0.85	0.85	1.0
ACQ580-01-0015	1.5	3.0	1400	0.85	0.85	1.0
ACQ580-01-0030	3.0	6.0	1400	0.85	0.85	1.0
ACQ580-01-0060	6.0	12.0	1400	0.85	0.85	1.0
ACQ580-01-0120	12.0	24.0	1400	0.85	0.85	1.0
ACQ580-01-0250	25.0	50.0	1400	0.85	0.85	1.0
ACQ580-01-0500	50.0	100.0	1400	0.85	0.85	1.0
ACQ580-01-1000	100.0	200.0	1400	0.85	0.85	1.0
ACQ580-01-2000	200.0	400.0	1400	0.85	0.85	1.0
ACQ580-01-4000	400.0	800.0	1400	0.85	0.85	1.0
ACQ580-01-8000	800.0	1600.0	1400	0.85	0.85	1.0

Pages 38-43

Door mounting and daisy chaining

Improve safety and leverage the full potential of the ACQ580 control panel options with a door mounting kit and panel bus adapter.

Door mounting kit, DMP-401
This kit is used to mount the control panel on a door. It includes a door mounting kit, a door lock, and a door handle. The door mounting kit is used to secure the control panel to the door. The door lock is used to lock the door when the control panel is not in use. The door handle is used to open the door.

Panel bus adapter, DMP-402
This adapter is used to connect the control panel to the panel bus. It includes a panel bus adapter and a panel bus cable. The panel bus adapter is used to connect the control panel to the panel bus. The panel bus cable is used to connect the panel bus adapter to the panel bus.

Pages 20-33

Ratings, types and voltages

ACQ580-01, wall-mounted drives



Type Code	Nominal Output Ratings		Frame Size
	I_N A	P_N Hp	
1-phase $U_i = 240V$. Power ratings are valid at nominal output voltage $U_n = 230 V$ 60 Hz			
ACQ580-01-04A6-2	2.2	0.5	R1
ACQ580-01-06A6-2	3.2	0.75	R1
ACQ580-01-07A5-2	4.2	1	R1
ACQ580-01-10A6-2	6	1.5	R1
ACQ580-01-017A-2	6.8	2	R1
ACQ580-01-024A-2	9.6	3	R2
ACQ580-01-031A-2	15.2	5	R2
ACQ580-01-046A-2	22	7.5	R3
ACQ580-01-059A-2	28	10	R3
ACQ580-01-075A-2	28	10	R4
ACQ580-01-088A-2	42	15	R5
ACQ580-01-114A-2	54	20	R5
ACQ580-01-143A-2	68	25	R6
ACQ580-01-169A-2	80	30	R7
ACQ580-01-211A-2	104	40	R7
ACQ580-01-273A-2	130	50	R8
ACQ580-01-343A-2	154	60	R9
ACQ580-01-396A-2	192	75	R9

Notes:

I_N Rated current available continuously without overloadability.

P_N Typical motor power with no overload.

I_{LD} Maximum current with 10% overload, allowed for one minute every 10 minutes.

P_{LD} Typical motor power in light-duty use (10% overload). The horsepower (hp) ratings apply to most NEMA 4-pole motors.

I_{HD} Maximum current with 50% overload, allowed for one minute every 10 minutes.

*Continuous current allowing 40% overload for 1 minute every 10 minutes at 40 °C

P_{HD} Typical motor power in heavy-duty use (50% overload).

The ratings apply for the frames R1 to R9 up to +40 °C in enclosure types UL Type 1 (IP21) and UL Type 12.

For derating at high altitudes, temperatures or switching frequencies, see the user's HW manual, document code: 3AXD50000035866.

Ratings, types and voltages

ACQ580-01, wall-mounted drives

Type Code	Light Duty Output Ratings		Heavy Duty Output Ratings		Frame Size
	I_{LD} A	P_{LD} Hp	I_{HD} A	P_{HD} Hp	
3-phase $U_n = 208$ to 240V. Power ratings are valid at nominal output voltage $U_n = 208/230$ V 60 Hz					
ACQ580-01-04A6-2	4.6	1	3.5	0.75	R1
ACQ580-01-06A6-2	6.6	1.5	4.6	1	R1
ACQ580-01-07A5-2	7.5	2	6.6	1.5	R1
ACQ580-01-10A6-2	10.6	3	7.5	2	R1
ACQ580-01-017A-2	16.7	5	10.6	3	R1
ACQ580-01-024A-2	24.2	7.5	16.7	5	R2
ACQ580-01-031A-2	30.8	10	24.2	7.5	R2
ACQ580-01-046A-2	46.2	15	30.8	10	R3
ACQ580-01-059A-2	59.4	20	46.2	15	R3
ACQ580-01-075A-2	74.8	25	59.4	20	R4
ACQ580-01-088A-2	88	30	74.8	25	R5
ACQ580-01-114A-2	114	40	88	30	R5
ACQ580-01-143A-2	143	50	114	40	R6
ACQ580-01-169A-2	169	60	143	50	R7
ACQ580-01-211A-2	211	75	169	60	R7
ACQ580-01-273A-2	273	100	211	75	R8
ACQ580-01-343A-2	343	125	273	100	R9
ACQ580-01-396A-2	396	150	343*	125	R9

Notes:

I_n Rated current available continuously without overloadability.

P_n Typical motor power with no overload.

I_{LD} Maximum current with 10% overload, allowed for one minute every 10 minutes.

P_{LD} Typical motor power in light-duty use (10% overload). The horsepower (hp) ratings apply to most NEMA 4-pole motors.

I_{HD} Maximum current with 50% overload, allowed for one minute every 10 minutes.

*Continuous current allowing 40% overload for 1 minute every 10 minutes at 40 °C

P_{HD} Typical motor power in heavy-duty use (50% overload).

The ratings apply for the frames R1 to R9 up to +40 °C in enclosure types UL Type 1 (IP21) and UL Type 12.

For derating at high altitudes, temperatures or switching frequencies, see the user's HW manual, document code: 3AXD50000035866.

Ratings, types and voltages

ACQ580-01, wall-mounted drives

Type Code	Light Duty Output Ratings		Heavy Duty Output Ratings		Frame Size
	I_{LD} A	P_{LD} Hp	I_{HD} A	P_{HD} Hp	
3-phase $U_N = 380$ to $480V$. Power ratings are valid at nominal output voltage $U_N = 460 V$ 50/60 Hz					
ACQ580-01-02A1-4	2.1	1	1.6	0.75	R1
ACQ580-01-03A0-4	3	1.5	2.1	1	R1
ACQ580-01-03A5-4	3.5	2	3	1.5	R1
ACQ580-01-04A8-4	4.8	3	3.4	2	R1
ACQ580-01-06A0-4	6	3	4	3	R1
ACQ580-01-07A6-4	7.6	5	4.8	3	R1
ACQ580-01-012A-4	12	7.5	7.6	5	R1
ACQ580-01-014A-4	14	10	11	7.5	R2
ACQ580-01-023A-4	23	15	14	10	R2
ACQ580-01-027A-4	27	20	21	15	R3
ACQ580-01-034A-4	34	25	27	20	R3
ACQ580-01-044A-4	44	30	34	25	R3
ACQ580-01-052A-4	52	40	40	30	R4
ACQ580-01-065A-4	65	50	52	40	R4
ACQ580-01-077A-4	77	60	65	50	R4
ACQ580-01-078A-4	78	60	65	50	R5
ACQ580-01-096A-4	96	75	77	60	R5
ACQ580-01-124A-4	124	100	96	75	R6
ACQ580-01-156A-4	156	125	124	100	R7
ACQ580-01-180A-4	180	150	156	125	R7
ACQ580-01-240A-4	240	200	180	150	R8
ACQ580-01-260A-4	260	200	240	150	R8
ACQ580-01-302A-4	302	250	260	200	R9
ACQ580-01-361A-4	361	300	302	250	R9
ACQ580-01-414A-4	414	350	361	300	R9

Notes:

I_N Rated current available continuously without overloadability.

P_N Typical motor power with no overload.

I_{LD} Maximum current with 10% overload, allowed for one minute every 10 minutes.

P_{LD} Typical motor power in light-duty use (10% overload). The horsepower (hp) ratings apply to most NEMA 4-pole motors.

I_{HD} Maximum current with 50% overload, allowed for one minute every 10 minutes.

*Continuous current allowing 40% overload for 1 minute every 10 minutes at 40 °C

P_{HD} Typical motor power in heavy-duty use (50% overload).

The ratings apply for the frames R1 to R9 up to +40 °C in enclosure types UL Type 1 (IP21) and UL Type 12.

For derating at high altitudes, temperatures or switching frequencies, see the user's HW manual, document code: 3AXD50000035866.

Ratings, types and voltages

ACQ580-01, wall-mounted drives

Type Code	Light Duty Output Ratings		Heavy Duty Output Ratings		Frame Size
	I_{LD}	P_{LD}	I_{HD}	P_{HD}	
	A	Hp	A	Hp	
3-phase $U_n = 500$ to $600V$. Power ratings are valid at nominal output voltage $U_n = 575 V$ 50/60 Hz					
ACQ580-01-02A7-6	2.7	2	2.4	1.5	R2
ACQ580-01-03A9-6	3.9	3	2.7	2	R2
ACQ580-01-06A1-6	6.1	5	3.9	3	R2
ACQ580-01-09A0-6	9	7.5	6.1	5	R2
ACQ580-01-011A-6	11	10	9	7.5	R2
ACQ580-01-017A-6	17	15	11	10	R2
ACQ580-01-022A-6	22	20	17	15	R3
ACQ580-01-027A-6	27	25	22	20	R3
ACQ580-01-032A-6	32	30	27	25	R3
ACQ580-01-041A-6	41	40	32	30	R5
ACQ580-01-052A-6	52	50	41	40	R5
ACQ580-01-062A-6	62	60	52	50	R5
ACQ580-01-077A-6	77	75	62	60	R5
ACQ580-01-099A-6	99	100	77	75	R7
ACQ580-01-125A-6	125	125	99	100	R7
ACQ580-01-144A-6	144	150	125	125	R8
ACQ580-01-192A-6	192	200	144	150	R9
ACQ580-01-242A-6	242	250	192	200	R9
ACQ580-01-271A-6	271	250	242	200	R9

Notes:

I_N Rated current available continuously without overloadability.

P_N Typical motor power with no overload.

I_{LD} Maximum current with 10% overload, allowed for one minute every 10 minutes.

P_{LD} Typical motor power in light-duty use (10% overload). The horsepower (hp) ratings apply to most NEMA 4-pole motors.

I_{HD} Maximum current with 50% overload, allowed for one minute every 10 minutes.

*Continuous current allowing 40% overload for 1 minute every 10 minutes at 40 °C

P_{HD} Typical motor power in heavy-duty use (50% overload).

The ratings apply for the frames R1 to R9 up to +40 °C in enclosure types UL Type 1 (IP21) and UL Type 12.

For derating at high altitudes, temperatures or switching frequencies, see the user's HW manual, document code: 3AXD50000035866.

Ratings, types and voltages

ACQ580-04, drive modules



Type Code	Output Ratings				Frame Size
	HP	Nominal	Light Duty	Heavy Duty	
		I_N	I_{LD}	I_{HD}	
3-phase $U_i = 380$ to 480V. Power ratings are valid at nominal output voltage $U_N = 460$ V 50/60 Hz					
ACQ580-04-505A-4	400	505	483	361	R10
ACQ580-04-585A-4	450	585	573	414	R10
ACQ580-04-650A-4	500	650	623	477	R10
ACQ580-04-725A-4	600	725	705	566	R11
ACQ580-04-820A-4	700	820	807	625	R11
ACQ580-04-880A-4	700	880	807	625	R11

Notes:

ACQ580-04 comes standard with common mode filter, DC connection bus bars, full size output terminals, DP-MP-07-Q control panel holder, standard ACH-AP-H control panel and EMC filter for grounded systems. Control section is loose for remote mounting.

I_N Rated current available continuously without overloadability.

I_{LD} Maximum current with 10% overload, allowed for one minute every 10 minutes when parameter 97.02 minimum switching frequency is set to 2kHz or less.

I_{HD} Maximum current with 50% overload, allowed for one minute every 10 minutes.

The ratings apply for frames R10 to R11 up to +40 °C in UL Type Open (IP 00/20).

For derating at high altitudes, temperatures or switching frequencies, see the user's HW manual, document code: 3AXD50000048677.

Ratings, types and voltages

ACQ580-31, ultra-low harmonic drives



Type Code	Light Duty Output Ratings		Heavy Duty Output Ratings		Frame Size
	I_{LD}	P_{LD}	I_{HD}	P_{HD}	
	A	Hp	A	Hp	
3-phase $U_i = 380$ to 480V. Power ratings are valid at nominal output voltage $U_N = 460$ V 50/60 Hz					
ACQ580-31-07A6-4	7.6	5	5.2	3	R3
ACQ580-31-012A-4	12.0	7.5	7.6	5	R3
ACQ580-31-014A-4	14.0	10	12.0	7.5	R3
ACQ580-31-023A-4	23.0	15	14.0	10	R3
ACQ580-31-027A-4	27.0	20	23.0	15	R6
ACQ580-31-034A-4	34.0	25	27.0	20	R6
ACQ580-31-044A-4	44.0	30	34.0	25	R6
ACQ580-31-052A-4	52.0	40	44.0	30	R6
ACQ580-31-065A-4*	65.0	50	52.0	40	R6
ACQ580-31-077A-4*	77.0	60	65.0	50	R6
ACQ580-31-096A-4	96.0	75	77.0	60	R8
ACQ580-31-124A-4	124.0	100	96.0	75	R8
ACQ580-31-156A-4	156.0	125	124.0	100	R8
ACQ580-31-180A-4	180.0	150	156.0	125	R8

Notes:

I_{LD} Maximum current with 10% overload, allowed for one minute every 10 minutes when parameter 97.02 minimum switching frequency is set to 2kHz or less.

P_{LD} Typical motor power in light-duty use (10% overload). The horsepower (hp) ratings apply to most NEMA 4-pole motors.

I_{HD} Maximum current with 50% overload, allowed for one minute every 10 minutes.

P_{HD} Typical motor power in heavy-duty use (50% overload).

* These ratings are not available with the UL Type 12 (IP55) option +B056

The ratings apply for frames R3, R6 and R8 up to +40 °C in enclosure types UL Type 1 (IP21) and UL Type 12 (IP55). For derating at higher altitudes, temperatures or switching frequencies, see the HW manual, document code 3AXD50000045935.

Ratings, types and voltages

ACQ580-34, ultra-low harmonic drive modules



Type Code	Light Duty Output Ratings		Heavy Duty Output Ratings		Frame Size
	I_{LD}	P_{LD}	I_{HD}	P_{HD}	
	A	Hp	A	Hp	
3-phase $U_i = 380$ to $480V$. Power ratings are valid at nominal output voltage $U_N = 460 V$ 50/60 Hz					
ACQ580-34-240A-4	240	200	180	150	R11
ACQ580-34-302A-4	302	250	240	200	R11
ACQ580-34-361A-4	361	300	302	250	R11
ACQ580-34-414A-4	414	350	361	300	R11
ACQ580-34-477A-4	477	400	414	350	R11

Notes:

ACQ580-34 comes standard with common mode filter, EMC filter, ACH-AP-H control panel and control panel holder. Control section is mounted to power section.

I_{LD} Maximum current with 10% overload, allowed for one minute every 10 minutes when parameter 97.02 minimum switching frequency is set to 2kHz or less.

P_{LD} Typical motor power in light-duty use (10% overload).

I_{HD} Maximum current with 50% overload, allowed for one minute every 10 minutes when parameter 97.02 minimum switching frequency is set to 2kHz or less.

P_{HD} Typical motor power in heavy-duty use (50% overload).

The ratings apply for frame R11 up to +40 °C in UL Type Open (IP 00/20).

For derating at higher altitudes, temperatures or switching frequencies, see the HW manual, document code 3AXD50000420035.

Ratings, types and voltages

ACQ580-PC/PD, packaged drive with disconnect means



Type Code	Nominal Output Ratings		Frame Size
	I_N	P_N	
	A	Hp	
3-phase U₁ = 200 to 240V. Power ratings are valid at nominal output voltage U_N = 208/230 V 60 Hz			
ACQ580-Px-04A6-2	4.6	1	R1
ACQ580-Px-06A6-2	6.6	1.5	R1
ACQ580-Px-07A5-2	7.5	2	R1
ACQ580-Px-10A6-2	10.6	3	R1
ACQ580-Px-017A-2	16.7	5	R1
ACQ580-Px-024A-2	24.2	7.5	R2
ACQ580-Px-031A-2	30.8	10	R2
ACQ580-Px-046A-2	46.2	15	R3
ACQ580-Px-059A-2	59.4	20	R3
ACQ580-Px-075A-2	74.8	25	R4
ACQ580-Px-088A-2*	88.0	30	R5
ACQ580-Px-114A-2*	114.0	40	R5
ACQ580-Px-143A-2*	143.0	50	R6
ACQ580-Px-169A-2*	169.0	60	R7
ACQ580-Px-211A-2*	211.0	75	R7
ACQ580-Px-273A-2*	273.0	100	R8

Notes:

* Frames R5-R8 are not available as UL Type 3R

Nominal output is 10% overload, allowed for one minute every 10 minutes.

When creating a type code for these packages, the -Px is replaced by -PC (with circuit breaker) or -PD (with disconnect switch)

The base drive unit for this drive package is an ACQ580-01 drive.

Ratings, types and voltages

ACQ580-PC/PD, packaged drive with disconnect means

Type Code	Nominal Output Ratings		Frame Size
	I_N	P_N	
	A	Hp	
3-phase U1 = 380 to 480V. Power ratings are valid at nominal output voltage $U_N = 460$ V 60 Hz			
ACQ580-Px-02A1-4	2.1	1	R1
ACQ580-Px-03A0-4	3	1.5	R1
ACQ580-Px-03A5-4	3.5	2	R1
ACQ580-Px-04A8-4	4.8	3	R1
ACQ580-Px-07A6-4	7.6	5	R1
ACQ580-Px-012A-4	12	7.5	R1
ACQ580-Px-014A-4	14	10	R2
ACQ580-Px-023A-4	23	15	R2
ACQ580-Px-027A-4	27	20	R3
ACQ580-Px-034A-4	34	25	R3
ACQ580-Px-044A-4	44	30	R3
ACQ580-Px-052A-4	52	40	R4
ACQ580-Px-065A-4	65	50	R4
ACQ580-Px-077A-4	77	60	R4
ACQ580-Px-096A-4*	96	75	R5
ACQ580-Px-124A-4*	124	100	R6
ACQ580-Px-156A-4*	156	125	R7
ACQ580-Px-180A-4*	180	150	R7
ACQ580-Px-240A-4*	240	200	R8

Notes:

* Frames R5-R8 are not available as UL Type 3R

Nominal output is 10% overload, allowed for one minute every 10 minutes.

When creating a type code for these packages, the -Px is replaced by -PC (with circuit breaker) or -PD (with disconnect switch)

The base drive unit for this drive package is an ACQ580-01 drive.

Ratings, types and voltages

ACQ580-PC/PD, packaged drive with disconnect means

Type Code	Nominal Output Ratings		Frame Size
	I _N	P _N	
	A	Hp	
3-phase U₁ = 500 to 600V. Power ratings are valid at nominal output voltage U_N = 575 V 60 Hz			
ACQ580-Px-02A7-6	2.7	2	R2
ACQ580-Px-03A9-6	3.9	3	R2
ACQ580-Px-06A1-6	6.1	5	R2
ACQ580-Px-09A0-6	9	7.5	R2
ACQ580-Px-011A-6	11	10	R2
ACQ580-Px-017A-6	17	15	R2
ACQ580-Px-022A-6	22	20	R3
ACQ580-Px-027A-6	27	25	R3
ACQ580-Px-032A-6	32	30	R3
ACQ580-Px-041A-6*	41	40	R5
ACQ580-Px-052A-6*	52	50	R5
ACQ580-Px-062A-6*	62	60	R5
ACQ580-Px-077A-6*	77	75	R5
ACQ580-Px-099A-6*	99	100	R7
ACQ580-Px-0125A-6*	125	125	R7
ACQ580-Px-0144A-6*	144	150	R8

Notes:

* Frames R5-R8 are not available as UL Type 3R

Nominal output is 10% overload, allowed for one minute every 10 minutes.

When creating a type code for these packages, the -Px is replaced by -PC (with circuit breaker) or -PD (with disconnect switch)

The base drive unit for this drive package is an ACQ580-01 drive.

Ratings, types and voltages

ACQ580-C01, packaged drive

Type Code	Nominal Output Ratings		Frame Size
	I_N	P_N	
	A	Hp	
3-phase U1 = 200 to 240V. Power ratings are valid at nominal output voltage $U_N = 208/230$ V 60 Hz			
ACQ580-C01-143A-2	143	50	R6
ACQ580-C01-169A-2	169	60	R7
ACQ580-C01-211A-2	211	75	R7

Notes:

Nominal output is 10% overload, allowed for one minute every 10 minutes.

The base drive unit for this drive package is an ACQ580-01 drive.

Type Code	Nominal Output Ratings		Frame Size
	I_N	P_N	
	A	Hp	
3-phase U1 = 380 to 480V. Power ratings are valid at nominal output voltage $U_N = 460$ V 60 Hz			
ACQ580-C01-124A-4	124	100	R6
ACQ580-C01-156A-4	156	125	R7
ACQ580-C01-180A-4	180	150	R7
ACQ580-C01-240A-4	240	200	R8
ACQ580-C01-260A-4	260	200	R8
ACQ580-C01-302A-4	302	250	R9
ACQ580-C01-361A-4	361	300	R9
ACQ580-C01-414A-4	414	350	R9

Notes:

Nominal output is 10% overload, allowed for one minute every 10 minutes.

The base drive unit for this drive package is an ACQ580-01 drive.



Dimensions

ACQ580-01, UL Type 1 and UL Type 12

Frame	Height (H)	Height (H)	Width (W)	Width (W)	Depth (D)	Depth (D)	Weight	Weight
	Type 1	Type 12	Type 1	Type 12	Type 1	Type 12	Type 1	Type 12
	in	in	in	in	in	in	lb	lb
R1	14.69	17.78	4.82	5.09	8.78	9.17	11	11
R2	18.62	21.49	4.86	5.10	9.00	9.40	15	15
R3	19.29	20.93	7.99	8.16	9.01	9.32	26	29
R4	25.04	27.03	7.99	8.59	10.13	10.44	42	45
R5	28.83	32.01	7.99	8.59	11.60	12.59	63	64
R6	28.60	34.81	9.92	11.46	14.53	16.40	94	95
R7	34.67	40.86	11.18	12.76	14.58	16.30	120	124
R8	38.01	44.23	11.81	13.80	15.47	17.80	153	170
R9	37.60	46.75	14.96	16.95	16.46	18.78	214	228

Type 12 dimensions include hood dimensions



ACQ580-04, UL Type Open

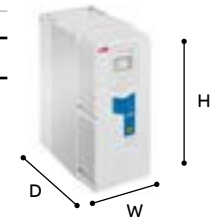
Frame	Height (H)	Width (W)	Depth (D)	Weight
	in	in	in	lb
R10	57.55	13.78	20.81	357
R11	65.43	13.78	20.81	441



ACQ580-31, UL Type 1 and UL Type 12

Frame	Height (H)	Height (H)	Width (W)	Width (W)	Depth (D)	Depth (D)	Weight	Weight
	Type 1	Type 12	Type 1	Type 12	Type 1	Type 12	Type 1	Type 12
	in	in	in	in	in	in	lb	lb
R3	19.49	19.49	8.07	8.07	13.74	14.17	47	52
R6	30.35	36.56	9.92	11.46	15.44	17.65	135	129
R9	38.01	44.22	11.81	13.00	17.23	19.53	247	260

Type 12 dimensions include hood dimensions



ACQ580-34, UL Type Open

Frame	Height (H)	Width (W)	Depth (D)	Weight
	in	in	in	lb
R11	67.80	25.06	19.86	805



Hardware options may affect the dimensions. Please see the corresponding hardware manuals.

Dimensions

ACQ580-PC/PD, UL Type 1, UL Type 12, UL Type 3R

Frame	Height (H)		Width (W)		Depth (D)	
	Type 1	Type 12	Type 1	Type 12	Type 1	Type 12
	in	in	in	in	in	in
R1	24.60	26.50	6.42	6.50	12.42	12.40
R2	28.53	30.22	6.42	6.50	12.63	12.64
R3	34.86	36.51	8.39	8.39	13.22	13.22
R4	40.61	42.54	8.39	8.39	14.26	14.26
R5 - R9	47.72	54.18	n/a	28.24	19.04	19.04

Type 12 dimensions include hood dimensions

ACQ580-C01, UL Type 12

Frame	Height (H)	Width (W)	Depth (D)	Weight
	in	in	in	lb
R6 & R7	74.90	27.75	21.00	998
R8 & R9	88.20	39.50	27.00	1146



Hardware options may affect the dimensions. Please see the corresponding hardware manuals.



Ordering information

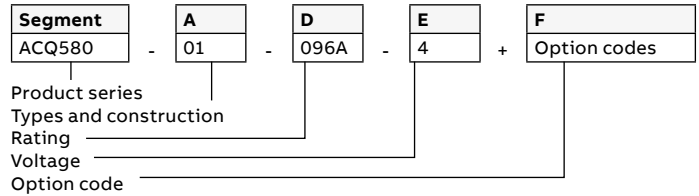
How do I build an ordering code?

ACQ580-01

The type designation tells you the specifications and configuration of the drive.

The table shows the primary drive variants.

Sample type code: ACQ580-01-096A-4+XXXX



Basic codes

Segment	Option	Description
A	Construction	01 = When no additional options are selected: Wall mounted drive, UL (NEMA) Type 1 / IP21, coated circuit boards, assistant control panel with a USB port, DC choke, embedded Modbus RTU, EMC C2 filter, safe torque off, braking chopper in frames R1, R2, R3, cable lead through entry from the bottom, conduit box, quick installation and startup guide
D	Current rating	Refer to the rating table
E	Voltage rating	2 = 208...230 V 4 = 460 V 6 = 575 V

Option codes

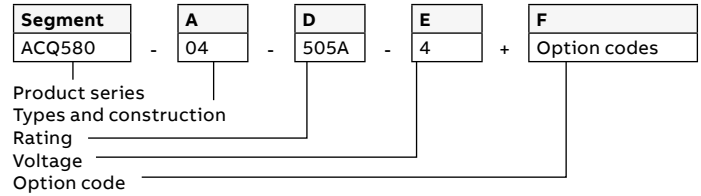
Segment	Option	Code	Description
F	Control panel and panel options	STD	ACH-AP-H Hand-Off-Auto control panel (as standard)
		+OJ400	Removes control panel
		+J424	CDUM-01 Blank control panel cover (no control panel)
		+J425	ACS-AP-I Assistant control panel
		+J429	ACH-AP-W Hand-Off-Auto control panel with a Bluetooth interface
	I/O (one slot available for I/O options)	+L501	CMOD-01 External 24 V AC/DC and digital I/O extension (2×RO and 1×DO)
		+L512	CHDI-01 115/230 V Digital input extension (6×DI and 2×RO)
		+L523	CMOD-02 External 24 V AC/DC and isolated PTC interface
		+L525	CAIO-01 Analog signal extension (3 x AI and 2 x AO)
		Fieldbus	+K451
	+K454		PROFIBUS® DP (FPBA-01)
	+K458		Modbus/RTU adapter (FSCA-01)
	+K475		2-port Ethernet (EtherNet/IP™, Modbus®/TCP, PROFINET®)
+K490	EtherNet/IP™ (FEIP-21)		
+K491	Modbus®/TCP (FMBT-21)		
+K492	PROFINET® IO (FPNO-21)		
Enclosure ratings	+B056	UL (NEMA) Type 12 / IP55. Factory option, retrofit not possible.	
Additional options	+C218	Conformally coated printed circuit boards to comply with class C4 (IEC60721-3-3:2019/ISO9223) / class 3C3 (IEC60721-3-3:2002)	

ACQ580-04

The type designation tells you the specifications and configuration of the drive.

The table shows the primary drive variants.

Sample type code: ACQ580-04-505A-4+XXXX



Basic codes

Segment	Option	Description
A	Construction 04 =	When no additional options are selected: Drive module with ramp, coated circuit boards, loose control unit, assistant control panel with USB port, control panel door mounting kit, embedded Modbus RTU, AC choke, common mode filter, EMC filter, safe torque off, DC connection busbars, full size output cable connection, quick installation and startup guide
D	Current rating	Refer to the rating table
E	Voltage rating	4 = 460 V

Option codes

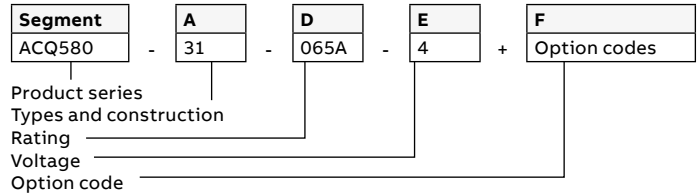
Segment	Option	Code	Description
F	Control panel and panel options	STD	ACH-AP-H Hand-Off-Auto control panel (as standard)
		+0J400	No control panel
		+J425	ACS-AP-I Assistant control panel
		+J429	ACH-AP-W Hand-Off-Auto control panel with a Bluetooth interface
	I/O (one slot available for I/O options) (L501, L523 and L512 available as retrofit options)	+L501	External 24 V DC/AC and Digital I/O extension (2xRO and 1xDO) / CMOD-01
		+L512	115/230V Digital input (6xDI and 2xRO) / CHDI-01
		+L523	External 24 V and isolated PTC interface / CMOD-02
		+L525	CAIO-01 Analog signal extension (3 x AI and 2 x AO)
	Fieldbus (One fieldbus adapter supported. Fieldbus adapters available as loose options for retrofit.)	+K451	DeviceNet™ (FDNA-01)
		+K454	PROFIBUS® DP (FPBA-01)
		+K458	Modbus/RTU adapter (FSCA-01)
		+K475	2-port Ethernet (EtherNet/IP™, Modbus®/TCP, PROFINET®)
		+K490	EtherNet/IP™ (FEIP-21)
		+K491	Modbus®/TCP (FMBT-21)
	+K492	PROFINET® IO (FPNO-21)	
Enclosure ratings	+B051	UL (NEMA) Type Open (IP20 finger safe)	
Construction	+H370	Full-size input terminals	
	+0H371	No full size output terminals	
	+0H534	No pedestal	
	+0P919	No cabinet installation ramp	
Additional options	+C218	Conformally coated printed circuit boards to comply with class C4 (IEC60721-3-3:2019/ISO9223)/class 3C3 (IEC60721-3-3:2002)	

ACQ580-31

The type designation tells you the specifications and configuration of the drive.

The table shows the primary drive variants.

Sample type code: ACQ580-31-065A-4+xxxx



Basic codes

Segment	Option	Description
A	Construction	31 = When no additional options are selected: Ultra low harmonic wall mounted drive, UL (NEMA) Type 1 / IP21, coated circuit boards, assistant control panel with a USB port, embedded Modbus RTU, active front end with LCL filter, common mode filter, EMC C2 filter, safe torque off, cable lead through entry from the bottom, cable box or the conduit plate conduit box, quick installation and startup guide
D	Current rating	Refer to the rating table
E	Voltage rating	4 = 460 V

Option codes

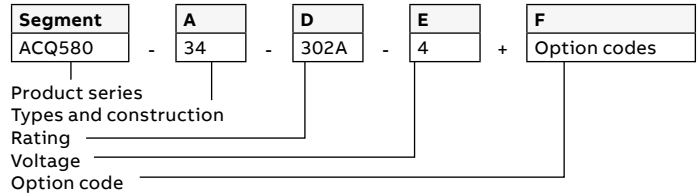
Segment	Option	Code	Description
F	Control panel and panel options	STD	ACH-AP-H Hand-Off-Auto control panel (as standard)
		+J424	CDUM-01 Blank control panel cover (no control panel)
		+J425	ACS-AP-I Assistant control panel
		+J429	ACH-AP-W Hand-Off-Auto control panel with a Bluetooth interface
	I/O (one slot available for I/O options)	+L501	CMOD-01 External 24 V AC/DC and digital I/O extension (2×RO and 1×DO)
		+L512	CHDI-01 115/230 V Digital input extension (6×DI and 2×RO)
		+L523	CMOD-02 External 24 V AC/DC and isolated PTC interface
		+L525	CAIO-01 Analog signal extension (3 x AI and 2 x AO)
		Fieldbus	+K451
	+K454		PROFIBUS® DP (FPBA-01)
	+K458		Modbus/RTU adapter (FSCA-01)
	+K475		2-port Ethernet (EtherNet/IP™, Modbus®/TCP, PROFINET®)
	+K490		EtherNet/IP™ (FEIP-21)
+K491	Modbus®/TCP (FMBT-21)		
	+K492	PROFINET® IO (FPNO-21)	
	Enclosure ratings	+B056	UL (NEMA) Type 12 / IP55. Factory option, retrofit not possible.
	Additional options	+C218	Conformally coated printed circuit boards to comply with class C4 (IEC60721-3-3:2019/ISO9223) / class 3C3 (IEC)60721-3-3:2002

ACQ580-34

The type designation tells you the specifications and configuration of the drive.

The table shows the primary drive variants.

Sample type code: ACQ580-34-302A-4+XXXX



Basic codes

Segment	Option	Description
A	Construction	34 = When no additional options are selected: Ultra low harmonic drive module with ramp, UL (NEMA) Type Open / IP00, coated circuit boards, integrated control unit, assistant control panel with a USB port, control panel door mounting kit, embedded Modbus RTU, active front end with LCL filter, common mode filter, EMC filter, safe torque off, full size output cable connection, quick installation and startup guide
D	Current rating	Refer to the rating table
E	Voltage rating	4 = 460 V

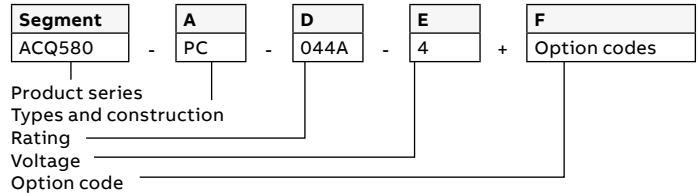
Option codes

Segment	Option	Code	Description
F	Control panel and panel options	STD	ACH-AP-H Hand-Off-Auto control panel (as standard)
		+J425	ACS-AP-I Assistant control panel
		+J429	ACH-AP-W Hand-Off-Auto control panel with a Bluetooth interface
	I/O (one slot available for I/O options) (L501, L523 and L512 available as retrofit options)	+L501	External 24 V DC/AC and Digital I/O extension (2xRO and 1xDO) / CMOD-01
		+L512	115/230V Digital input (6xDI and 2xRO) / CHDI-01
		+L523	External 24 V and isolated PTC interface / CMOD-02
		+L525	CAIO-01 Analog signal extension (3 x AI and 2 x AO)
	Fieldbus (One fieldbus adapter supported. Fieldbus adapters available as loose options for retrofit.)	+K451	DeviceNet™ (FDNA-01)
		+K454	PROFIBUS® DP (FPBA-01)
		+K458	Modbus/RTU adapter (FSCA-01)
		+K475	2-port Ethernet (EtherNet/IP™, Modbus®/TCP, PROFINET®)
		+K490	EtherNet/IP™ (FEIP-21)
		+K491	Modbus®/TCP (FMBT-21)
Enclosure ratings	+B051	UL (NEMA) Type Open / IP20 finger safe	
	Construction	+J424	CDUM-01 Blank control panel cover (no control panel)
+H370		Full-size input terminals	
+0H371		No full size output terminals	
+0H534		No pedestal	
+0P919		No cabinet installation ramp	
Additional options	+C218	Conformally coated printed circuit boards to comply with class C4 (IEC60721-3-3:2019/ISO9223) / class 3C3 (IEC60721-3-3:2002)	

ACQ580-PC/PD

The type designation tells you the specifications and configuration of the drive. The table shows the primary drive variants.

Sample type code: ACQ580-PC-044A-4+XXXX



Basic codes

Segment	Option	Description
A	Construction	<p>PC = When no additional options are selected: Packaged ACQ580-01 wall-mount drive, circuit breaker input disconnect with fuses, UL (NEMA) Type 1 / IP21, assistant control panel with a USB port, supplement installation manual</p> <p>PD = When no additional options are selected: Packaged ACQ580-01 wall-mount drive, disconnect switch input disconnect with fuses, UL (NEMA) Type 1 / IP21, assistant control panel with a USB port, supplement installation manual</p>
D	Current rating	Refer to the rating table
E	Voltage rating	<p>2 = 208...230 V</p> <p>4 = 460 V</p> <p>6 = 575 V</p>

Option codes

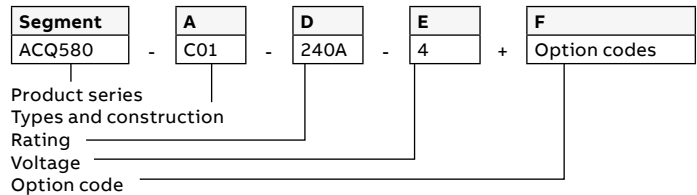
Segment	Option	Code	Description
F	Control panel and panel options	STD	ACH-AP-H Hand-Off-Auto control panel (as standard)
		+0J400	Removes control panel
		+J424	CDUM-01 Blank control panel cover (no control panel)
		+J425	ACS-AP-I Assistant control panel
		+J429	ACH-AP-W Hand-Off-Auto control panel with a Bluetooth interface
	I/O (one slot available for I/O options)	+L501	External 24 V DC/AC and Digital I/O extension (2xRO and 1xDO) / CMOD-01
		+L512	115/230V Digital input (6xDI and 2xRO) / CHDI-01
		+L523	External 24 V and isolated PTC interface / CMOD-02
		+L525	CAIO-01 Analog signal extension (3 x AI and 2 x AO)
		Fieldbus	+K451
+K454	PROFIBUS® DP (FPBA-01)		
+K458	Modbus/RTU adapter (FSCA-01)		
+K475	2-port Ethernet (EtherNet/IP™, Modbus®/TCP, PROFINET®)		
+K490	EtherNet/IP™ (FEIP-21)		
+K491	Modbus®/TCP (FMBT-21)		
+K492	PROFINET® IO (FPNO-21)		
Enclosure ratings	+B056		UL (NEMA) Type 12 / IP55. Factory option, retrofit not possible.
	+B058	UL (NEMA) Type 3R. Factory option, retrofit not possible.	
Additional options	+C218	Conformally coated printed circuit boards to comply with class C4 (IEC60721-3-3:2019/ISO9223) / class 3C3 (IEC60721-3-3:2002)	

ACQ580-C01

The type designation tells you the specifications and configuration of the drive.

The table shows the primary drive variants.

Sample type code: ACQ580-C01-240A-4+XXXX



Basic codes

Segment	Option	Description
A	Construction	C01 = When no additional options are selected: Packaged AQ580-01 wall-mount drive, flange mount disconnect switch input disconnect with fuses, UL (NEMA) Type 12 / IP55, Floor standing enclosure, wire markers, cable lead through entry from the bottom, flush door mounted assistant control panel with a USB port
D	Current rating	Refer to the rating table
E	Voltage rating	2 = 208...230 V 4 = 460 V

Option codes

Segment	Option	Code	Description
F	Control panel and panel options	STD	ACH-AP-H Hand-Off-Auto control panel (as standard)
		+J425	ACS-AP-I Assistant control panel
		+J429	ACH-AP-W Hand-Off-Auto control panel with a Bluetooth interface
I/O Input/Output options	+L504	Incl	Additional I/O Terminal Blocks wired to drive standard I/O (13 total; 2 AI, 2 AO, 6 DI, 3 RO) CHDI-01 115/230 V Digital input extension (6xDI and 2xRO) (Included with Pilot Light Package)
	Fieldbus	+K451	
+K454			PROFIBUS® DP (FPBA-01)
+K458			Modbus/RTU adapter (FSCA-01)
+K475			2-port Ethernet (EtherNet/IP™, Modbus®/TCP, PROFINET®)
+K490			EtherNet/IP™ (FEIP-21)
+K491			Modbus®/TCP (FMBT-21)
+K492			PROFINET® IO (FPNO-21)
Input protection	STD		Flange mounted disconnect switch with fuses (100kA SCCR)
	+F258		Flange mounted circuit breaker with fuses (65kA SCCR)
Input power options (one option available)	+E207		5% Input line reactor
	+E213		3% Input line reactor
Output power options	+E205		dV/dt Filter (cannot be used with 1.5% output load reactor E220)
	+E208		Common mode filter
	+E220		1.5% Output load reactor (cannot be used with dV/dt filter E205)
Pilot devices (30mm, LED push to test)	+G445	Package WW1	Package WW1 (Package includes: white power on pilot light, amber fault pilot light, red run pilot light, emergency stop)
	+G446	Package WW2	Package WW2 (Package includes: white power on pilot light, amber fault pilot light, red run pilot light, emergency stop, hand-off-auto selector switch, speed potentiometer, elapse time meter)
	+G327		Ready Pilot Light (green) (only available with WW# packages)
	+G401		Start / Stop Pushbuttons (green start, red stop) (only available with WW# packages)
	+G404		Fault Reset Pushbutton (only available with WW# packages)
Additional options	+C218		Conformally coated printed circuit boards to comply with class C4 (IEC60721-3-3:2019/ISO9223) / class 3C3 (IEC60721-3-3:2002)
	+F262		TVSS surge arrester
	+G306		115 VAC Control power transformer with 1-phase extra 350 VA wired to a fused terminal (2 line, 2 neutral)
	+G313		Output for Motor Heater (requires external voltage supply)
	+G449		GE 369 Multilin - Motor Protection Relay (available on 200HP-350HP units only)

ABB automation products



VFD-Gateway: Ethernet/IP Gateway module

The VFD-Gateway supports the Ethernet/IP protocol to allow drive data access to and from up to five (5) ABB drives. It uses a standard Ethernet cable on the gateway Ethernet port and serial communications via RS485 using the Modbus RTU protocol to the integral serial port on select ABB drives. The VFD-Gateway is customer DIN rail mountable separate from the drive. The Gateway provides software-free setup via a web browser interface. (Cables not included.)

AC500

ABB's powerful flagship PLC offering provides wide range of performance levels and scalability within a single simple concept where most competitors require multiple product ranges to deliver similar functionality.

AC500-S

A PLC based modular automation solution that makes it easier than before to mix and match standard and safety I/O modules to expertly meet your safety requirements in all functional safety applications. "Extreme conditions" version is also offered.

AC500-eCo

Meets the cost-effective demands of the small PLC market while offering total inter-operability with the core AC500 range. Web server, FTP server and Modbus-TCP for all Ethernet versions. A Pulse Train Out-put module is available for multi-axis positioning.

AC500-XC

"Extreme conditions" modules with extended operating temperature, immunity to vibration and hazardous gases, for use at high altitudes, in humid conditions, etc. It replaces expensive cabinets with its built-in protection against dirt, water, gases and dust.

Water library package

ABB's water library is compatible with the AC500 series PLC's. They provide advanced pumping functions, data logging, remote access and reliable data communication. The libraries ensure saved engineering time and costs as well as ease of use with fast programming possibilities.

Programmability

Automation Builder integrates the engineering and maintenance for PLC, drives, motion, HMI and robotics. It complies with the IEC 61131-3 standard offering all five IEC programming languages for PLC and drive configuration. Automation Builder supports a number of languages and comes with new libraries. FTP functions, SMTP, SNMP, smart diagnostics and debugging capabilities.

Control panels

Our control panels offer a wide range of touchscreen graphical displays from 3.5" up to 15". They are provided with user-friendly configuration software that enables tailor made customized HMI solutions. Rich sets of graphical symbols and the relevant drivers for ABB automation products are provided. Control panels for visualization of AC500 web server applications are available.

Softstarters

ABB's softstarters increase a motor's lifetime by protecting it from electrical stresses. With everything that you need in one unit, from bypass contactor to overload protection, a single Softstarter makes for a compact and complete starting solution.



Our service expertise, your advantage

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

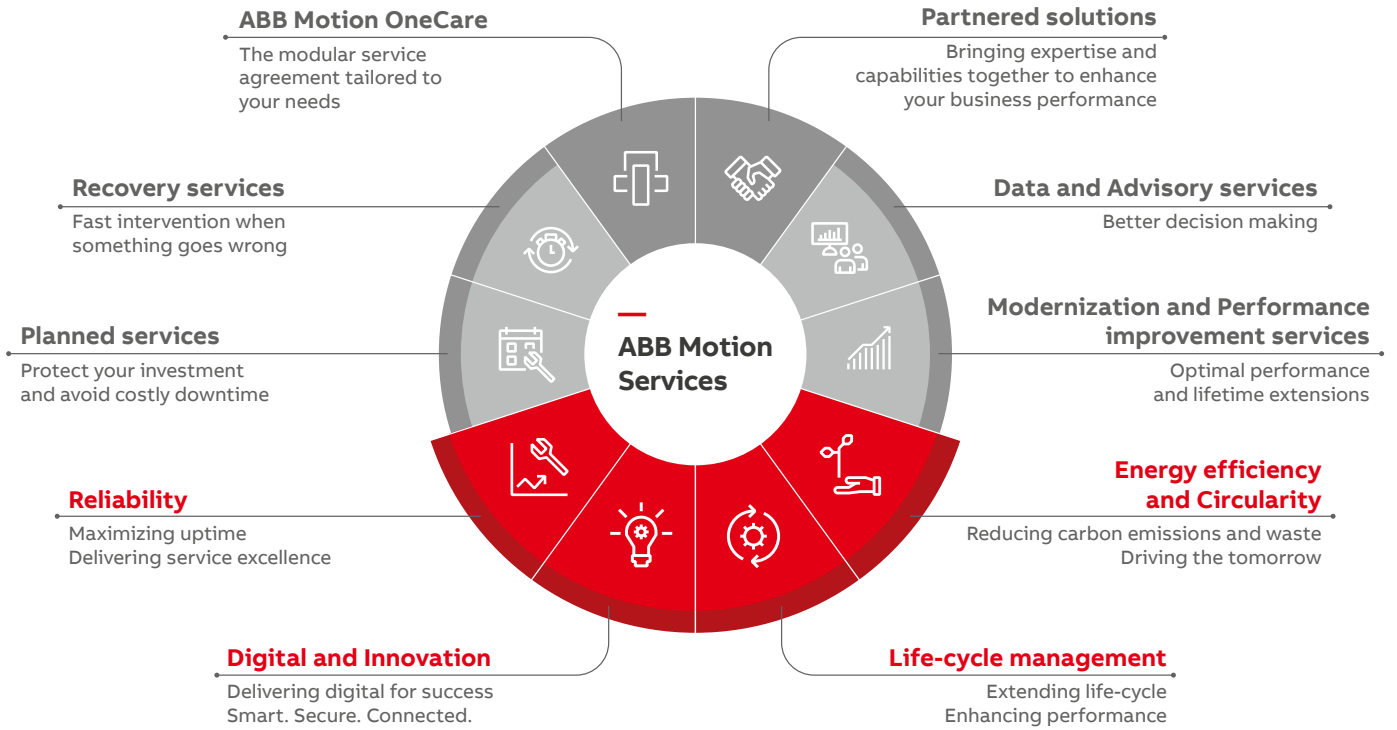
With a service offering tailored to your needs, ABB Motion Services maximizes the uptime and extends the life cycle of your electrical motion solutions, while optimizing their performance and maximizing your energy efficiency gains throughout the entire lifetime of your applications. We help to keep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

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

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

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





OUR EXPERTISE
YOUR ADVANTAGE

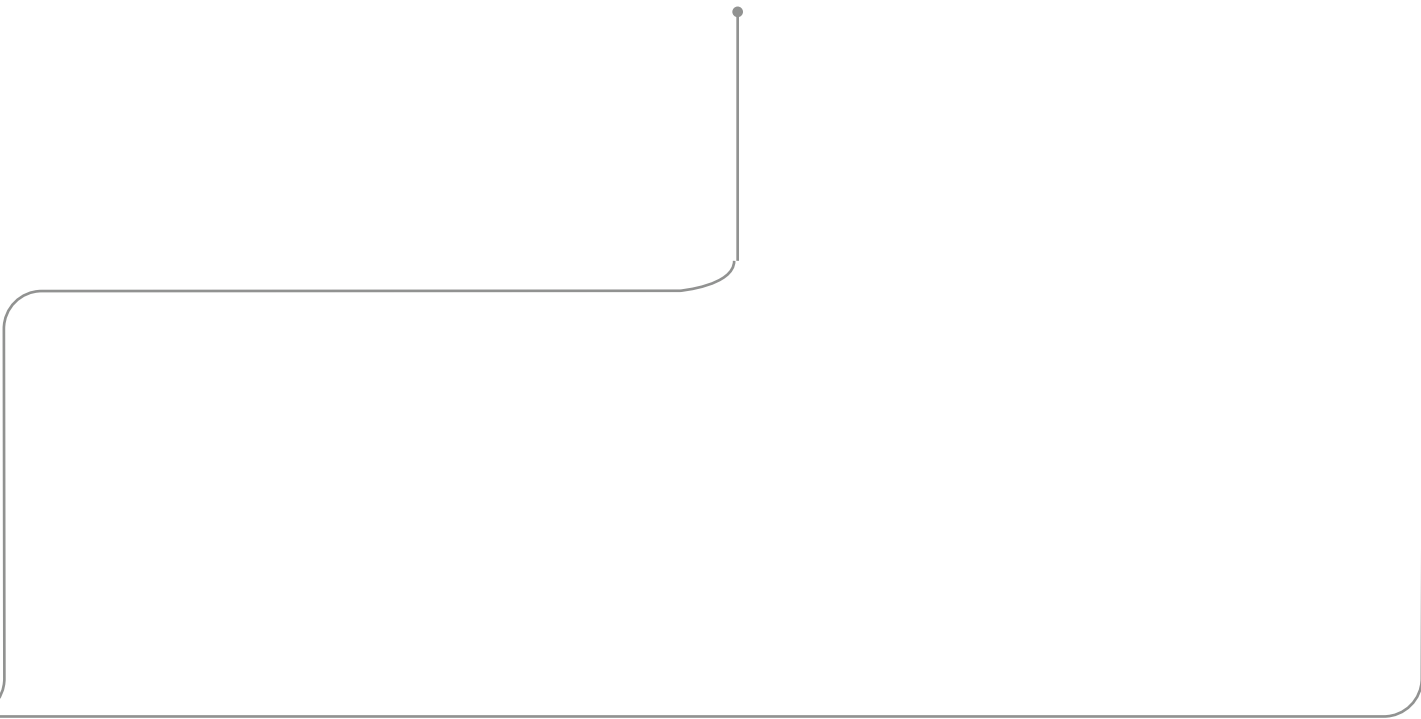


ABB Motion OneCare

The modular service agreement tailored to your needs



ABB Motion OneCare is a customized service agreement that is tailored to suit your service needs. Throughout the lifecycle of your critical drive and motor equipment, ABB will be with you providing digital monitoring, preventive maintenance, spares, and site support when the need arises. ABB Motion OneCare partners with you to make your equipment run reliably on budget, and on time.

ABB Motion OneCare

An ABB Motion OneCare service agreement is tailored specifically to your business needs and budget.

ABB partners with you to help you plan, coordinate and execute your equipment maintenance according to its criticality in your facility. We analyze your equipment's condition and recommend services that optimize your application's uptime, all bundled into a single agreement for easy management.

An ABB Motion OneCare agreement can cover a single service, life-cycle support of a motor, generator, drive or digital services. Alternatively, the entire maintenance can be handled by ABB's experts.

Overview of available services

ABB provides a comprehensive portfolio of conventional and data-driven services to ensure maximum performance of your installed motors, generators and drives. The following is a sample of services that can be combined within an ABB Motion OneCare agreement:

- ABB Ability™ digital services
- Technical support and remote assistance
- Preventive Maintenance (PM) & Failure Coverage
- Availability spares
- On-site maintenance
- Repairs, upgrades and retrofits
- Life-cycle assessments
- Service coordination and training

Key Benefits:

Tailored to your needs – Any of ABB's offerings can be customized to support your goals

Life cycle planning – Ensures predictable and emergency response support throughout the lifetime of your equipment

Ease of response when you need it – Our response time and focused support for your equipment is our top priority

24/7 Technical Support – ABB experts are available 24/7/365 for questions or when issues arise

Factory-trained field technicians – Maintenance and breakdown services are performed by those who know your equipment

ABB Motion OneCare agreement process



We meet with you to understand your needs

Each customer has different maintenance requirements. Do you need rapid site response and troubleshooting to maximize equipment uptime, on-site maintenance services optimized to site conditions or cloud-connected condition monitoring? We provide personnel training and support throughout the life cycle of your motors, generators and drives to keep them running at peak performance.



We assess the condition of your equipment

An on-site assessment identifies the condition and criticality of the motors, generators and drives in your facility. The assessment provides a benchmark for the provision of services.



Together, we determine the service agreement that best fits your needs

Based on your service requirements and the condition of your motors, generators and drives we will tailor a service agreement that fits your needs and budget.



Fulfillment of agreement

Together we coordinate the planned maintenance interventions. We give feedback of all activities carried out and provide an outlook for the delivery of short and mid-term services.



Follow-up and feedback

We keep a watchful eye on the performance of your equipment and offer a regular review to ensure your maintenance requirements are aligned with your production demands.

ABB Ability™ Digital Powertrain

Condition monitoring for drives



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

Condition Monitoring gives you fact-based insight into your powertrain assets, such as drives and motors, via KPIs and signal data, to identify irregularities before they become problems. This helps you make proactive decisions, built on real-time information – and saves you money!

The service can be tailored to fit your needs

Our standard package gives you industry leading monitoring capabilities – whether you want to view the drive status through ABB's Internet portal or integrate this data with your existing monitoring systems.

The standard package includes the following services:

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

The standard package can be supplemented with optional services:

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



Solid fact-based decision making

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



Always stay one step ahead of problems

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



Find the root cause of process issues

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



Remotely analyze and optimize drives

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

Choose the right motor for your application

ABB's line of Baldor-Reliance pump motors serve customer needs from commercial swimming pools to very demanding water / wastewater and petrochemical applications. The motors are available locally in a variety of enclosures and ratings. These motors are designed to the same reliable industrial standards that ABB customers have come to expect.



Jet pump

1/3 - 3Hp (.25-2.2kW) Used for commercial and industrial pumping applications. All come with corrosion resistant stainless shaft.



EC Titanium™

1-20Hp (.75-15kW)
Highly efficient variable speed AC motor available in the market today. Available as integrated motor-drive package or stand-alone design. (IP54)



Closed-coupled motors

1-75Hp (.75-56kW) For commercial and industrial pump applications requiring JM, JP and West Coast Fit.



General purpose

1/12-250Hp (.06-186kW)
Designed for use in a wide variety of industrial applications, these motors are durable and reliable. (IP44)



Inverter-Duty close coupled pump

1-50Hp (.75-37kW) Internal AEGIS bearing protection ring used for bearing current mitigation ideal for variable speed pumping applications.



Severe Duty XT

1-300Hp (.75-22kW)
Versatile motor with severe duty features - this motor is ideal for wastewater applications. (IP54)



P-based vertical solid shaft pump

3-75Hp (2.2-56kW)
Severe duty construction for harsh environment. Normal, medium and high thrust applications. (IP55)



Close coupled pump washdown

25-75Hp (19-56kW)
IP55 totally enclosed pump ideal for wet and corrosive environments. (IP55)



Submersible motors

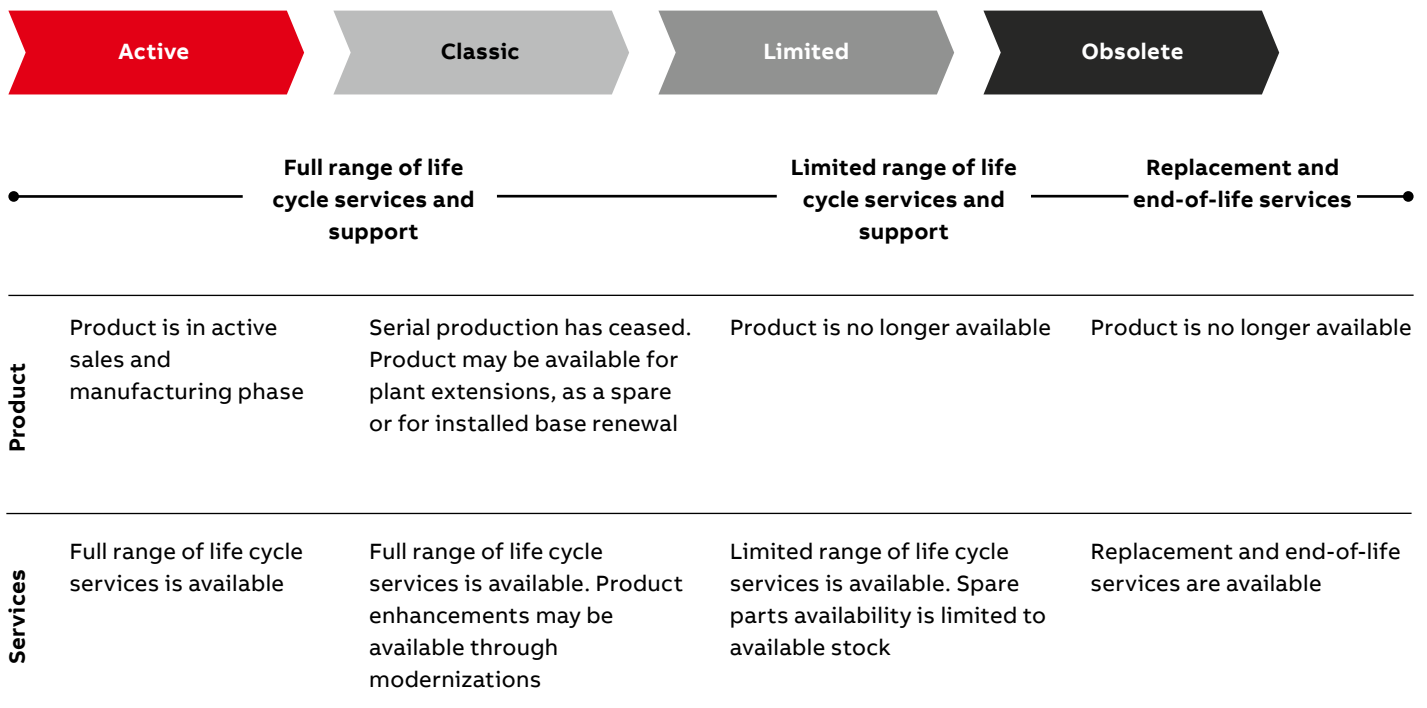
1-100Hp (.75-75kW)
Ideal for slurry pumps and wet pit applications, this motor can be submerged for continuous duty in water or sewage. (IP68)

ABB Drives Life Cycle Management

A life time of peak performance

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

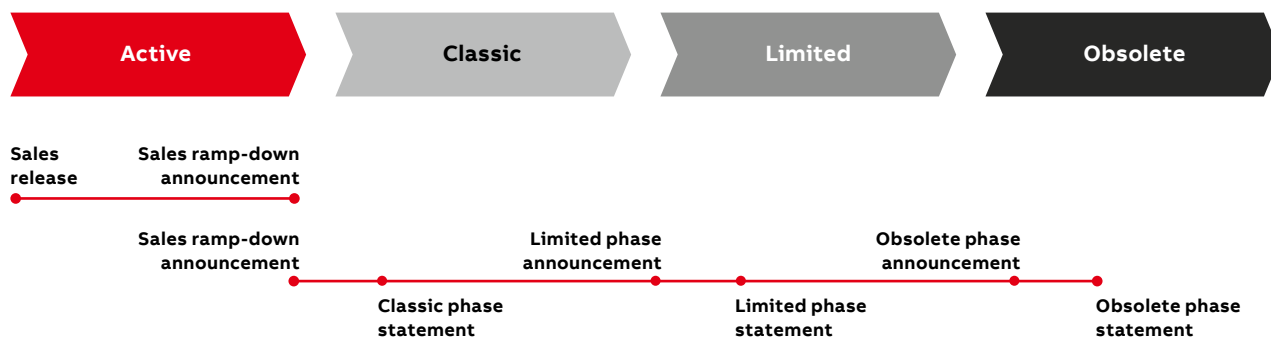
Now it's easy for you to see the exact service and maintenance available for your drives.



Keeping you informed throughout the life cycle

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

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



Sales release

Details about product portfolio and release schedule.

Sales ramp down announcement

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

Life cycle phase change announcement

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

Life cycle phase statement

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

Securing the flow of water and wastewater in the pump system

We want to be part of securing the operation of your water and wastewater utilities and distribution system. We want to help prevent any interruptions in your pump operation. We also want to ensure that the water is flowing in an effortless and energy efficient manner in accordance with required standards and regulations.



Complete offering of devices and services for the water industry

As a global partner, we can manage your water assets and bring you clear benefits from a total cost of ownership perspective. We do this by reducing costs throughout the whole life cycle of your pumping solution. Our portfolio includes drives, motors, PLCs and sensors. We also offer remote monitoring solutions to access information from a pump operating at a distance, saving time and reducing costs. Our devices have been designed to be compatible with each other, which ensures reliable communication and functionality.

Proactive maintenance for minimizing disruption to your pump and water distribution system

Motor-driven applications can be found throughout the water and wastewater industry. They have a high degree of reliance placed upon them and often perform critical duties and have a high in-service value. A possible failure of a device in the water and wastewater distribution system can result in loss of production, and introduce safety and environmental consequences. To reduce the risk of failure, each element of the pump solution – whether a drive, motor, bearing, coupling or gearing – must be properly maintained at the right times in their life cycle. From the moment you make the first inquiry to the disposal and recycling of each component, the services offered by ABB span the entire life cycle of your pump. Throughout the value chain, training, technical support and customized contracts are also available.



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

new.abb.com/drives
new.abb.com/drives/drivespartners
new.abb.com/motors-generators

Online manuals for wall-mounted ACQ580-01 drives



Online manuals for ACQ580-04 drive modules



Online manuals for wall-mounted ACQ580-31 ultra-low harmonic drives



Online manuals for ACQ580-34 ultra-low harmonic drive modules

