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TECHNICAL CATALOG

## **Low voltage AC drives**

ABB general purpose drives  
ACS580, 1 to 350 hp



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**ACS580 series**

**Easy to use. Reliable.**

**Good for your bottom line.**

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# The all-compatible ACS580 series

## Effortless energy efficiency

ABB's new ACS580 drives provide the quality, reliability, and energy savings you expect from ABB drives as well as new features, such as the new primary settings menu and Bluetooth connectivity, that will make it easier to use and safer to maintain.

With offices in over 90 countries and a network of global technical partners, you can rely on ABB for technical assistance and local support worldwide.

### Save time and money

The ACS580 is simple to install, commission, use, expand, and even upgrade, when the time comes. A compact design makes handling the units easy and with all the essential features built-in, commissioning and setup time is greatly reduced by leveraging the Primary Settings menus and assistants. The assistant control panel, which provides 16 different language options, can be upgraded to an optional Bluetooth control panel to enable wireless commissioning and monitoring.

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The ACS580 is simple to install, commission, use, expand, and even upgrade, when the time comes.

### Keep your system running smoothly

ACS580 drives are designed for customers who value reliability, high quality, and robustness in their applications. Product features, such as coated boards and compact UL Type 12 (IP55) enclosure, make the ACS580 suitable for harsh conditions.

Additionally, all ACS580 drives and their protective functions are thoroughly tested for performance at maximum temperature with nominal loads.



**Contain costs to improve your bottom line**

When you think of VFDs, you likely think of energy savings – and rightly so. Energy savings alone can easily justify the cost of a VFD, even on small applications that traditionally use starters. Just by up-grading from constant to variable speed, you can create energy savings of up to 50%. Add to that the ability to track the savings, in both energy and dollars, so you can evaluate the effectiveness of your system, and adjust accordingly for even more savings.

When your processes runs more efficiently, the result is not only energy savings, but minimized wear and tear on your mechanical equipment, and overall process efficiencies, which results in financial savings.

The ACS580 design helps to contain costs as well. Because all the essential features, including Safe Torque Off (STO), are integrated into the ACS580, the amount of equipment that needs to be installed, commissioned, and maintained is less.

As one of ABB's all-compatible products, fieldbus adapters, flange mounting kit, and PC tools are consistent, to simplify commissioning and minimize your need for training, as well.

**Partner with ABB to achieve success**

We encourage you to collaborate with ABB's factory and local VFD experts who are available throughout the lifecycle of your system. You have access to this team of experts to assist with developing functional, cost-effective, and easy-to-maintain systems, improving designs to meet specific project requirements, ensuring that you include the latest technologies, and training your staff on appropriate topics. Our goal is to ensure your success.

We also offer preventive maintenance to keep your system in tip-top shape and service plans in the event a machine does go down. You can also count on our free, 24/7/365 technical support to assist whenever you need help.

# Switch on simplicity without trading off efficiency

The ACS580 general purpose drive is equipped with built-in features that simplify ordering and delivery, and reduce commissioning costs. Everything is provided in a single, compact and ready-to-use package.



## Start-up and maintenance tool

Drive composer PC tool for start-up, configuration, monitoring and process tuning. The PC tool is connected to the drive's control panel via a USB interface.

## Simple to select, install and use

Built-in features such as an EMC filter, choke, a Modbus RTU fieldbus interface and safe torque off functionality simplify drive selection, installation and use.



## Control at your fingertips

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

## Scalable performance

The ACS580 is a perfect match not only for simple applications, but also for applications where sophisticated speed and torque control are needed.



ACS580 drives are designed for maximum reliability.



**Communication with all major automation networks**  
Optional fieldbus adapters enable connectivity with all major industrial automation networks.



**Adaptive programming**  
Adaptive programming is ideal for creating custom programs for various applications. It does not require expertise in programming.

**Designed for maximum reliability**

Design features like coated circuit boards, minimized airflow through the control board section, earth fault protection and design for 40 °C ambient temperature make the ACS580 an easy choice.



**Remote monitoring**

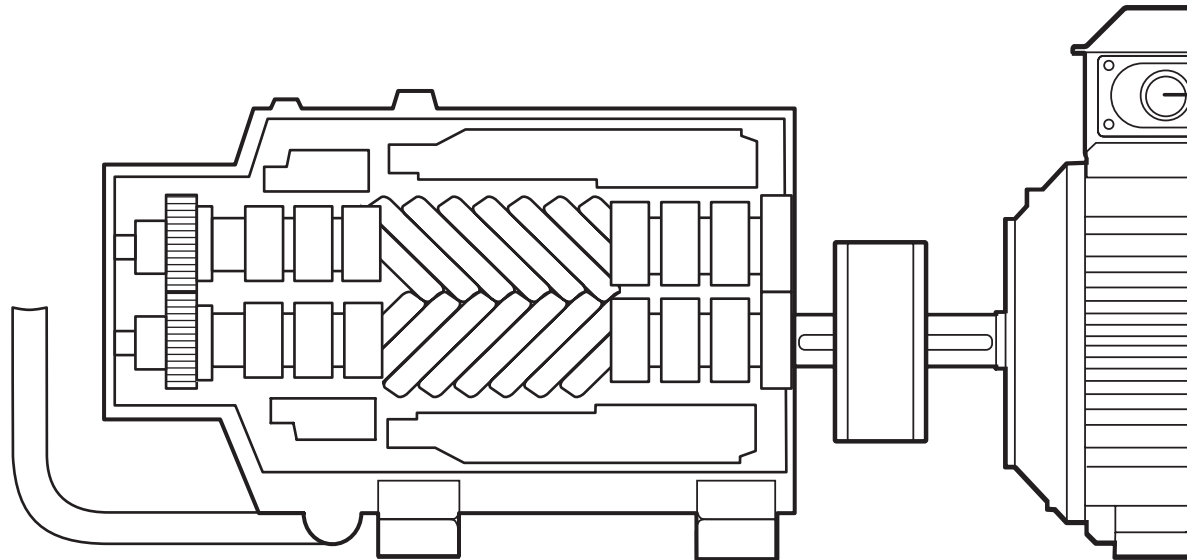
With a built-in web server and stand-alone datalogger, NETA-21 module enables worldwide and secure access to your drives.

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# What does all-compatible mean for your application?

## **Business all-compatible**

The all-compatible drives are not just equipment – they are part of your business strategy. Whether your target is to optimize the productivity of your business or scale it from local to global, all-compatible is there for you. Shared elements throughout the product offering make the transition from one product to another easy. With offices in over 90 countries and a global network of technical partners, we are in a good position to offer technical advice and local support, worldwide.



## **Process all-compatible**

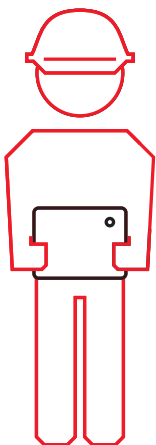
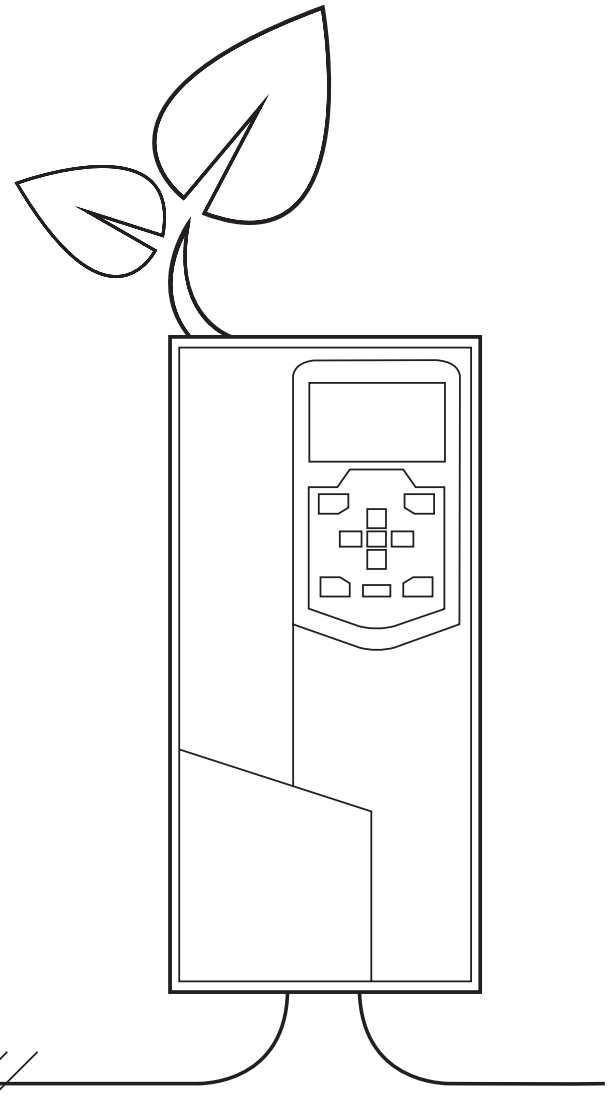
The drives are compatible with various processes. They can control virtually any type of AC motor, provide extensive input/output connectivity and support all major fieldbus protocols. The drives cover a wide voltage and power range, and have the flexibility and scalability to enable one drive platform to control almost any application or process, making your drive selection easy.



**Environment all-compatible**

There is increased demand for industries to reduce their impact on the environment. Our drives can help you reduce energy consumption in a wide range of applications. The energy optimizer feature ensures maximum torque per ampere, reducing energy drawn from the supply. The built-in energy efficiency calculators help you to analyze and optimize your processes. By leveraging our energy appraisals, you can investigate the energy-saving potential of selected applications.

Our wall-mounted ACS580 general purpose drives fulfill the highest energy efficiency class, further reducing environmental impact. In addition, all ACS580 general purpose drives are compatible with high-efficiency and SynRM motors.

**Human all-compatible**

All our drives share easy-to-use interfaces, saving you time during drive commissioning and maintenance. When you have learned it once, you can use it with all the drives in our all-compatible drives portfolio.

With the PC tool, you get extensive drive monitoring capabilities and quick access to the drive settings. Integrated and certified safety features provide safety for machine operators. To further improve the user experience, we have developed mobile apps that can be utilized in interacting with the drive. These apps give you an easy graphical interface for management, maintenance and servicing of your drives.

The control panel supports 16 languages.

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# Typical applications

ACS580 drives improve process performance, increase productivity and ensure machine and personnel safety

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## Pumps

### Standard features

- Power range up to 350hp available in different enclosure versions
- Motor cables up to 1,000 ft (300 m)
- Built-in choke in all ACS580 devices for harmonic mitigation in partial loads



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## Fans

### Standard features

- Compact UL Type 12 devices with coated PCBs for stand-alone installation
- EMC level C2 for installation in the 1st environment
- Support for high efficiency, PM and SynRM motors

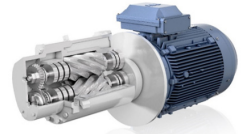


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## Compressors

### Standard features

- Broad support for different fieldbus protocols
- STO for machinery safety
- Power range up to 350hp



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## Conveyors

### Standard features

- Integrated braking chopper up to 30hp
- Compact UL Type 12 enclosure
- STO for machinery safety
- External +24 V supply (optional on R1-R5 frame) to maintain communication when the mains supply is disconnected.



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## Mixers

### Standard features

- Vector control ensures high starting torque at low speeds
- STO for personnel / machinery safety
- Connectivity: Control panels / IO / Fieldbus options
- Coated control boards



# Compact solutions for wall-mounted drives

No matter the frame size or power range, all ACS580 drives bring you ease of use, scalability and quality.

- 01 Wall-mounted ACS580 UL Type 1 drive
- 02 Wall-mounted ACS580 UL Type 12 drive

### Wall-mounted UL Type 1 drives

Wall-mounted UL Type 1 drives are available in a power range of 1 to 350hp at 480V. Side-by-side mounting, flange mounting and horizontal mounting are all available for wall-mounted ACS580 drives.

### Wall-mounted UL Type 12 drives

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



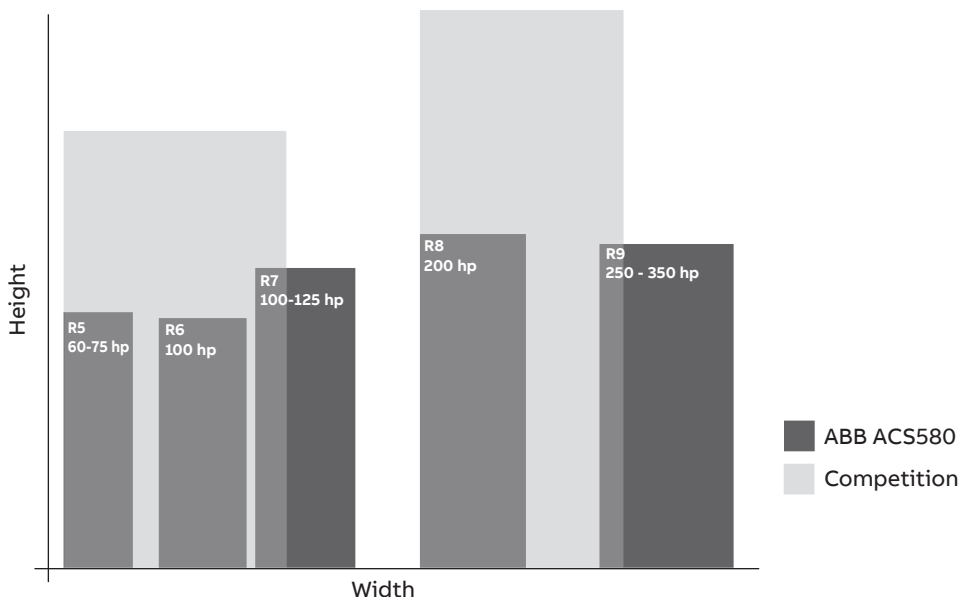
— 01



— 02

### Competitive advantage

The footprint of the ACS580 is significantly smaller when compared to similar horsepower ratings of the competition.



# Common features throughout the whole ACS580 product family



## Standard ACS580 features

### Choke and EMC

- Swinging choke technology to mitigate harmonics
- Fulfills standard the EN61000-3-12 standard
- EMC C2 filter allows installation in first environment

### Scalar and vector control for process control

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

### Extensive I/O connections

- The ACS580 features extensive I/O connections for flexible configuration in various applications
- Colored terminals for easy configuration
- Assistant control panel and primary settings
- The ACS-AP-S assistant control panel speaks 16 different languages
- USB interface for PC and tool connection
- Help button for problem-solving

### Integrated safe torque off (STO)

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

### Brake control

- Braking control is integrated into ACS580 drives. A brake chopper is built-in as standard for ACS580 frames up to R3.

### Performance

- The ACS580 is suitable not only for variable torque applications but also for basic constant torque applications



## Shared features of the ABB all-compatible drives portfolio

### Adaptive programming

- ACS580 firmware includes an easy-to-use and visual adaptive programming feature.
- Adaptive programming can be used to add logical functions and conditions for process fine-tuning.

### Same PC tools for ABB all-compatible drives

- Free Drive Composer entry available at [www.abb.com](http://www.abb.com).
- Same parameter structure makes the all-compatible platform easy to use.

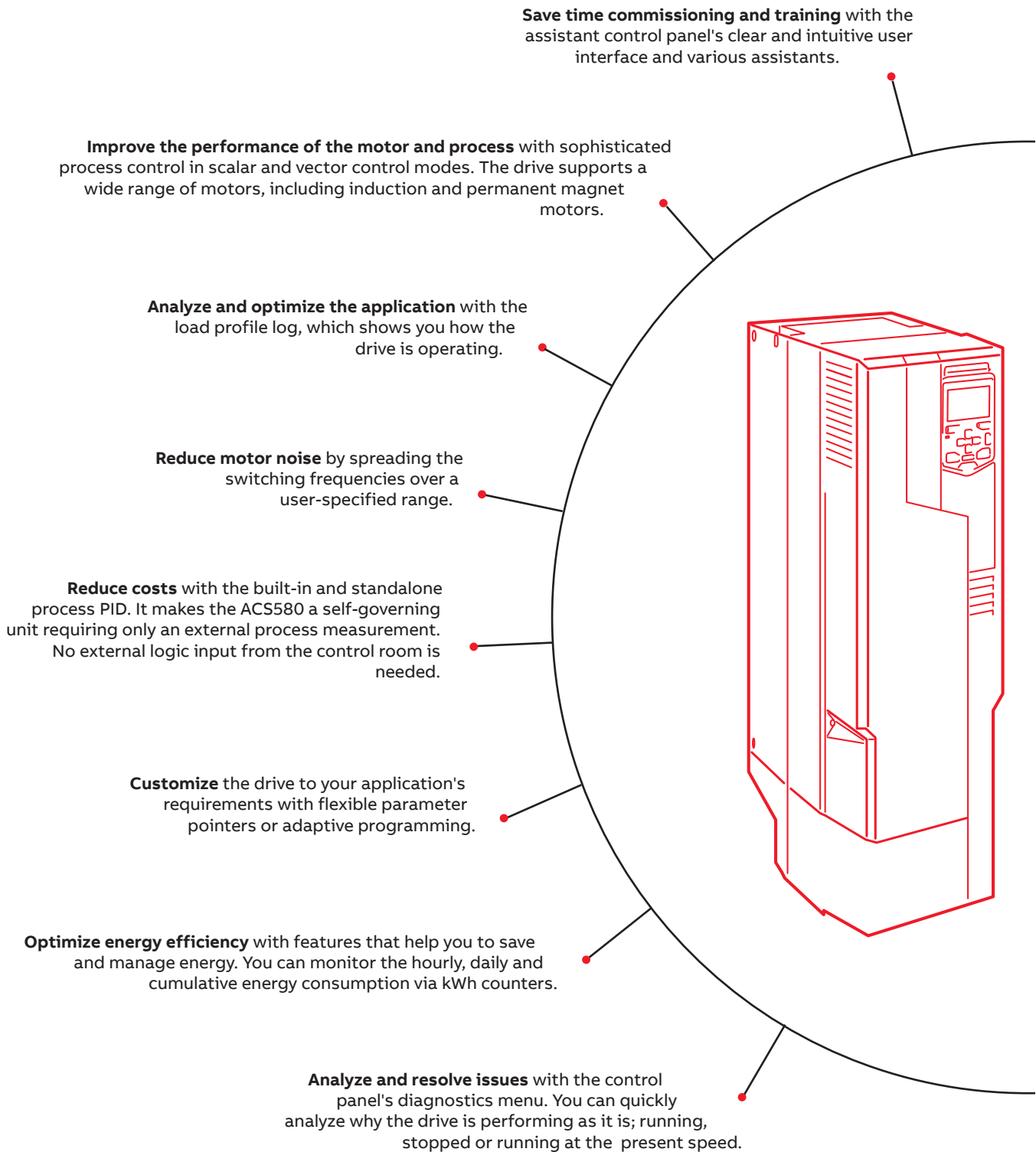
### ATEX-certified PTC thermistor support

- The ACS580 can be equipped with an optional CPTC-02 ATEX-certified PTC sensor.
- The safety integrity level for the CPTC-02 module is SIL 2/PL c.

### Connectivity

- The ACS580 supports F-series fieldbus adapters used in the ABB all-compatible platform.
- Mobile phone connectivity via the optional Bluetooth assistant control panel.
- Fieldbus settings are made easy with the redesigned simple settings menu.

# Standard ACS580 drives software with versatile features

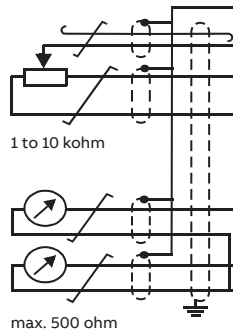


## Standard interface and extensions for plug-in connectivity

ACS580 drives offer a wide range of standard interfaces. In addition, the drive has two option slots that can be used for extensions, including fieldbus adapters and input/output extension modules that allow an external +24 V supply for frame sizes R1 to R5. For further information, please see the ACS580 user manual.

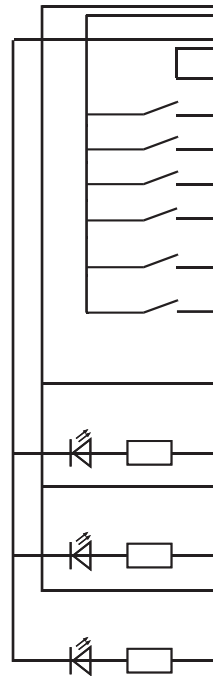


### Default factory I/O connection diagram



Terminal	Meaning	Default macro connections
<b>X1 Reference voltage and analog inputs and outputs</b>		
1	SCR	Signal cable shield (screen)
2	AI1	External frequency reference 1: 0 to 10 V
3	AGND	Analog input circuit common
4	+10 V	Output reference voltage 10 V DC
5	AI2	Not used
6	AGND	Analog input circuit common
7	AO1	Output frequency: 0 to 20 mA
8	AO2	Output current: 0 to 20 mA
9	AGND	Analog output circuit common

1 to 10 kohm  
max. 500 ohm



Terminal	Meaning	Default macro connections
<b>X2 &amp; X3 Aux. voltage output and programmable digital inputs</b>		
10	+24 V	Auxiliary voltage output +24 V DC
11	DGND	Auxiliary voltage output common
12	DCOM	Digital input common for all DI
13	DI1	Start/Stop: Activate to start
14	DI2	Fwd/Rev: Activate to reverse rotation direction
15	DI3	Constant speed selection
16	DI4	Constant speed selection
17	DI5	Ramp pair selection: Activate to select second pair
18	DI6	Not used

Terminal	Meaning	Default macro connections
<b>X6, X7, X8 Relay outputs</b>		
RO1C		Ready
RO1A		250 V AC/30 V DC
RO1B		2 A
RO2C		Running
RO2A		250 V AC/30 V DC
RO2B		2 A
RO3C		Fault (-1)
RO3A		250 V AC/30 V DC
RO3B		2 A

Terminal	Meaning	Default macro connections
<b>X5 EIA-485 Modbus RTU</b>		
29	B+	Built-in Modbus RTU fieldbus interface
30	A-	
31	DGND	

Terminal	Meaning	Default macro connections
<b>X4 Safe torque off</b>		
34	OUT1	Safe torque off. Both circuits must be closed for the drive to start. The circuits are closed with jumper wires in the standard delivery.
35	OUT2	
36	SGND	
37	IN1	
38	IN2	

Terminal	Meaning	Default macro connections
<b>X10* 24 V AC/DC</b>		
40	24 V	AC/DC-in. Ext. 24 V AC/DC input to power up the control unit when the main supply is disconnected
41	24 V	AC/DC+in.

\* The terminals 40-41 are integrated in the frame sizes R6-R11. For the frame sizes R1-R5 I/O options (+L) are needed.

# How to select a drive

The right drive is extremely easy to select. The following instructions show you how to order the right drive for your application.

Start by identifying your supply voltage. Based on the supply voltage, follow either the right side or the middle section of the rating table. See page 18.

Select your drive's order code from the rating table based on your motor's nominal power rating.

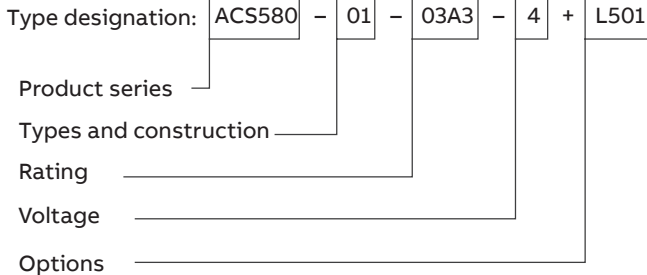
Pages 18



Choose your motor's power and current rating from the rating table on page 18.

Pages 18

Choose your options (on pages 20 and 21) and add the option codes to the drive's order code. Remember to use a "+" mark before each option code.



Pages 19

# Technical data

Mains connection	
<b>Voltage and power range</b>	3-phase, $U_N$ 380 to 480 V, +10%/-15% ACS580-01: 1 to 350 hp (0.75 to 250 kW)
<b>Frequency</b>	from 48 to 63 Hz
<b>Power factor</b>	$\cos\phi = 0.98$
<b>Efficiency (at nominal power)</b>	98%
Motor connection	
<b>Voltage</b>	0 to $U_N$ , 3-phase
<b>Frequency</b>	0 to 500 Hz
<b>Motor control</b>	Scalar and vector control
<b>Torque control</b>	Torque step rise time: <10 ms with nominal torque Non-linearity: $\pm 5\%$ with nominal torque
<b>Speed control</b>	Static accuracy: 20% of motor nominal slip Dynamic accuracy: 1% seconds with 100% torque step
Product compliance	
CE Low Voltage Directive 2006/95/EC, EN 61800-5-1: 2007 Machinery Directive 2006/42/EC, EN 61800-5-2: 2007 EMC Directive 2004/108/EC, EN 61800-3: 2004 + A1: 2012 RoHS directive 2011/65/EU Quality assurance system ISO 9001 and Environmental system ISO 14001 Waste electrical and electronic equipment directive (WEEE) 2002/96/EC RoHS directive 2011/65/EU UL, EAC, RCM, UL, cUL	

EMC according to EN 61800-3: 2004 + A1: 2012	
Frames R1 to R9 with built-in C2 category filter as standard	
Environmental limits	
Ambient temperature	
<b>Transport</b>	-40 to +70 °C
<b>Storage</b>	-40 to +70 °C
<b>Operation area</b>	ACS580-01: -15 to +50 °C. No frost allowed R1 to R9 from +40 to +50 °C with derating
Cooling method	
<b>Air-cooled</b>	Dry clean air
Altitude	
<b>0 to 1,000 m</b>	Without derating
<b>1,000 to 4,000 m</b>	With derating of 1%/100 m
<b>Relative humidity</b>	5 to 95%, no condensation allowed
<b>Degree of protection</b>	ACS580-01: UL Type 1 (IP21) as standard. UL Type 12 (IP55) as option (frames R1 to R9)
<b>Functional safety</b>	Safe torque off (STO according EN 61800-5-2) IEC 61508 ed2: SIL 3. IEC 61511: SIL 3. IEC 62061: SIL CL 3. EN ISO 13849-1: PL e
<b>Contamination levels</b>	No conductive dust allowed
<b>Storage</b>	IEC 60721-3-1. Class 1C2 (chemical gases). Class 1S2 (solid particles)*
<b>Operation</b>	IEC 60721-3-3. Class 3C2 (chemical gases). Class 3S2 (solid particles)*
<b>Transportation</b>	IEC 60721-3-2. Class 2C2 (chemical gases). Class 2S2 (solid particles)*

\*C = chemically active substances

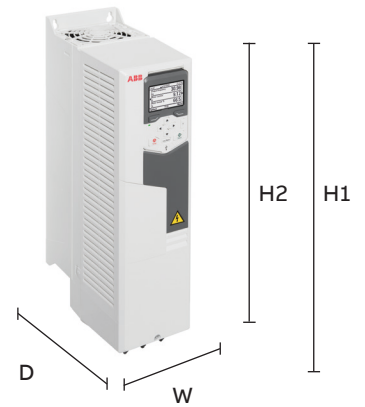
S = mechanically active substances



# Dimensions

ACS580-01 UL Type 1 (IP21)										
Frames	Height				Width		Depth		Weight	
	H1*	mm	H2**	mm	in	mm	in	mm	lb	kg
R1	14.7	373	13	331	4.9	125	8.8	223	10.6	4.8
R2	18.6	473	17	432	4.9	125	9	229	14.3	6.5
R3	19.3	490	---	---	8	203	9	229	26	11.8
R4	22.9	580	---	---	8	203	10.1	257	41.9	19
R5	28.8	732	23.5	596	8	203	11.6	295	62.4	28.3
R6	28.6	727	21.6	548	9.9	252	14.5	369	93.5	42.4
R7	34.6	880	23.6	600	11.2	284	14.6	370	119.1	54
R8	38	965	26.8	680	11.8	300	15.5	393	152.2	69
R9	37.6	955	26.8	680	15	380	16.5	418	213.9	97

\* Front height of the drive with conduit box  
 \*\* Front height of the drive without conduit box



ACS580-01 UL Type 12 (IP55) (option +B056)								
Frames	Height*		Width		Depth		Weight	
	in	(mm)	in	mm	in	mm	lb	kg
R1	15.9	403	5.6	128	9.2	233	11.25	5.1
R2	19.8	503	5.1	128	9.4	239	14.8	6.7
R3	19.3	490	8.1	206	9.3	237	28.7	13
R4	25	636	8	203	10.4	265	44.1	20
R5	28.9	732	8	203	12.6	320	64	29
R6	28.6	726	9.9	252	15	380	94.9	43
R7	34.7	880	11.2	284	15	380	123.5	56
R8	38	965	11.8	300	17.8	452	169.8	77
R9	37.6	955	15	380	18.8	380	227.1	103

\* Front height of the drive with conduit box



# Ratings, types and voltages

## Wall-mounted drives, ACS580-01

3-phase,  $U_N = 440, 460, 480$  V

Type code	Frame Size	Max. output current	Light overload use		Heavy-duty use	
		$I_{max}$ (A)	$I_{Ld}$ (A)	$P_{Ld}$ (hp)	$I_{Hd}$ (A)	$P_{Hd}$ (hp)
ACS580-01-02A1-4	R1	2.9	2.1	1	1.6	0.75
ACS580-01-03A0-4	R1	3.8	3	1.5	2.1	1
ACS580-01-03A5-4	R1	5.4	3.5	2	3	1.5
ACS580-01-04A8-4	R1	6.1	4.8	3	3.4	2
ACS580-01-06A0-4	R1	7.2	6	3	4	3
ACS580-01-07A6-4	R1	8.6	7.6	5	4.8	3
ACS580-01-012A-4	R1	11.4	12	7.5	7.6	5
ACS580-01-014A-4	R2	19.8	14	10	11	7.5
ACS580-01-023A-4	R2	25.2	23	15	14	10
ACS580-01-027A-4	R3	37.8	27	20	21	15
ACS580-01-034A-4	R3	48.6	34	25	27	20
ACS580-01-044A-4	R3	61.2	44	30	34	25
ACS580-01-052A-4	R4	76	52	40	40	30
ACS580-01-065A-4	R4	104	65	50	52	40
ACS580-01-077A-4 †	R4	122	77	60	65	50
ACS580-01-078A-4	R5	122	77	60	65	50
ACS580-01-096A-4	R5	148	96	75	77	60
ACS580-01-124A-4	R6	178	124	100	96	75
ACS580-01-156A-4	R7	247	156	125	124	100
ACS580-01-180A-4	R7	287	180	150	156	125
ACS580-01-240A-4	R8	350	240	200	180	150
ACS580-01-260A-4	R8	418	260	200	240*	150
ACS580-01-302A-4 †	R8	TBD	302	250	260	200
ACS580-01-361A-4	R9	542	361	300	302	250
ACS580-01-414A-4	R9	542	414	350	361**	300

† Coming soon

### Nominal ratings

$I_N$  Rated current available continuously without overloadability at 40 °C.

$P_N$  Typical motor power in no-overload use.

### Maximum output current

$I_{max}$  Maximum output current. Available for 2 seconds at start, then as long as allowed by drive temperature.

### Light-overload use

$I_{Ld}$  Continuous current allowing 110%  $I_{Ld}$  for 1 minute every 10 minutes at 40 °C.

$P_{Ld}$  Typical motor power in light-overload use.

### Heavy-duty use

$I_{Hd}$  Continuous current allowing 150%  $I_{Hd}$  for 1 minute every 10 minutes at 40 °C.  
 \* Continuous current allowing 130%  $I_{Hd}$  for 1 minute every 10 minutes at 40 °C.  
 \*\* Continuous current allowing 125%  $I_{Hd}$  for 1 minute every 10 minutes at 40 °C.

$P_{Hd}$  Typical motor power in heavy-duty use.

The ratings apply for the frames R1 to R9 up to +40 °C in enclosure class 21.

For derating at higher altitudes, temperatures, switching frequencies or enclosure classes, see the HW manuals, document codes: 3AXD50000018826 and 3AXD50000015497.

# Control panel options

—  
01 Assistant control panel is included as standard.

—  
02 Optional Bluetooth panel. USB connection as standard.

—  
03 By using the CDPI-01 panel adapter, the assistant control panel is able to manage up to 32 drives.

## Assistant control panel

Set up the drive using the assistant control panel delivered as standard with all ACS580 drives. There is no need to know any drive parameters, as the control panel helps to set up the essential settings quickly and get the drive into action.

- Drive setup with the primary settings menu including embedded assistants
- Process monitoring with one glance at the control panel's editable home view showing you the status of the drive and process
- Drive maintenance with the help function providing context-sensitive guidance and troubleshooting instructions
- Drive diagnostics under the diagnostics menu informing the user of the root cause.

## Bluetooth panel

The optional Bluetooth panel enables connection with the Drivetune mobile app. The app is available for free on the Google Play and the Apple App store.

Some of the Drivetune features are: commissioning, troubleshooting, monitoring and controlling the drive. Drivetune also has full parameter access.



## Control panel options

Assistant control panel ACS-AP-S is included as standard in the delivery. ACS-AP-S (+J400) can be replaced by +J options below.

Option code	Description	Type designation
+J400	Assistant control panel (+J400 option automatically included)	ACS-AP-S
+J425	Industrial Assistant control panel*	ACS-AP-I
+J429	Control panel with Bluetooth interface*	ACS-AP-W
+J424	Blank control panel cover (no control panel delivered)	CDUM-01
3AXD5000004419	Panel bus adapter	CDPI-01
3AUA0000108878	Control panel mounting platform (flush mounted, requires also panel bus adapter on the drive)	DPMP-01
3AXD50000010763	Door mounting kit for the panel, surface mounted (for one drive, contains both DPMP-02 and CDPI-01)	DPMP-EXT

\* Also compatible with ACS880 drives

# Additional options

04 Cold configuration adapter CCA-01

05 Remote monitoring tool NETA-21

06 Drive composer PC tool

## Safe configuration for unpowered drives

The CCA-01 cold configuration adapter provides a serial communication interface for unpowered ACS580 drives. With the adapter, safety isolation of both serial communication and control board power supply is possible. The power supply is taken from a PC USB port.

## Remote monitoring access worldwide

The NETA-21 remote monitoring tool gives easy access to the drive via the Internet or local Ethernet network. NETA-21 comes with a built-in web server. Compatible with standard web browsers, it ensures easy access to a web-based user interface. Through the web interface, the user can configure drive parameters, and monitor drive log data, load levels, runtime, energy consumption, I/O data and bearing temperatures of the motor connected to the drive.

## PC tools

The Drive composer PC tool offers fast and harmonized setup, commissioning and monitoring for all-compatible drives. The free version of the tool provides start-up and maintenance capabilities and gathers all drive information, such as parameter loggers, faults, backups and lists, 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.



Ordering code	Description	Type designation
3AXD50000019865	Cold configurator adapter, packed kit	CCA-01

## Remote monitoring option

Ordering code	Description	Type designation
3AUA0000094517	2 x panel bus interface 2 x 32 = max. 64 drives 2 x Ethernet interface SD memory card USB port for WLAN/3G	NETA-21

# Connectivity options

- 07 ACS580 is compatible with many fieldbus protocols
- 08 Input/output extension modules

## Fieldbus adapter modules

The ACS580 general purpose drives are compatible with a wide range of fieldbus protocols. The drive comes with Modbus RTU fieldbus interface as standard. Fieldbus communication reduces wiring costs when compared to traditional hard-wired input/output connections.



Option code	Fieldbus protocol	Adapter
+K451	DeviceNet™	FDNA-01
+K454	PROFIBUS DP, DPV0/DPV1	FPBA-01
+K457	CANopen®	FCAN-01
+K458	Modbus RTU	FSCA-01
+K462	ControlNet	FCNA-01
+K469	EtherCAT®	FECA-01
+K470	POWERLINK	FEPL-02
+K473	EtherNet/IP™, Modbus TCP, PROFINET IO	FENA-11
+K475	Two port EtherNet/IP™, Modbus TCP, PROFINET IO	FENA-21

## 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 slots located on the drive.



### I/O options

Option 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
+L537	ATEX certified PTC interface and external 24V	CPTC-02

# EMC – electromagnetic compatibility

Every ACS580 drive is equipped with a built-in filter to reduce high-frequency emissions. EMC product standard (EN 61800-3) category C2 is fulfilled in wall-mounted drives.

## EMC standards

The EMC product standard (EN 61800-3) covers the specific EMC requirements stated for drives (tested with motor and motor cable) within the EU. EMC standards such as EN 55011 or

EN 61000-6-3/4 are applicable to industrial and domestic equipment and systems, including the components inside the drive. Drive units complying with the requirements of EN 61800-3 are compliant with comparable categories in EN 55011 and EN 61000-6-3/4 but not necessarily vice versa. EN 55011 and EN 61000-6-3/4 do not specify cable length or require a motor to be connected as a load. The emission limits are comparable to EMC standards according to the table below.

## Domestic environments versus public low voltage networks

The first environment includes domestic premises. It also includes establishments directly connected without an intermediate transformer to a low voltage power supply network that supplies buildings used for domestic purposes. The second environment includes all establishments directly connected to public low voltage power supply networks.

Comparison of EMC standards				
EMC according to EN 61800-3 product standard	EN 61800-3 product standard	EN 55011. product family standard for industrial, scientific and medical (ISM) equipment	EN 61000-6-4, generic emission standard for industrial environments	EN 61000-6-3, generic emission standard for residential, commercial and light-industrial environment
1 <sup>st</sup> environment, unrestricted distribution	Category C1	Group 1. Class B	Not applicable	Applicable
1 <sup>st</sup> environment, restricted distribution	Category C2	Group 1. Class A	Applicable	Not applicable
2 <sup>nd</sup> environment, unrestricted distribution	Category C3	Group 2. Class A	Not applicable	Not applicable
2 <sup>nd</sup> environment, restricted distribution	Category C4	Not applicable	Not applicable	Not applicable

EMC compliance and maximum cable length of ACS580-01/07 units*					
Type	Voltage	Frame sizes	1 <sup>st</sup> environment, restricted distribution, C2, grounded network (TN)	2 <sup>nd</sup> environment, unrestricted distribution, C3, grounded network (TN)	2 <sup>nd</sup> environment, unrestricted distribution, C3, ungrounded network (IT)
ACS580-01	380 - 480 V	R1 - R5	Standard device, cable length 100 m	Standard device, cable length 100 m	-
<b>ACS580-01</b>	<b>380 - 480 V</b>	<b>R6 - R9</b>	<b>Standard device, cable length 150 m</b>	<b>Standard device, cable length 150 m</b>	-

\* Motor cable operational functionality up to 300 m. See ACS580 hardware manuals 3AXD50000018826, 3AXD50000015497, 3AXD50000045815 and 3AXD50000032622 for frame specific information.

# Cooling and fuses

## Cooling

ACS580 drives are fitted with variable-speed cooling air fans. The cooling air must be free from corrosive materials and not exceed the maximum ambient temperature of 40°C for frames R1 to R9 (50°C with derating). The speed-controlled fans cool the drive only when needed, which reduces overall noise level and energy consumption.

## Fuse connections

Standard fuses can be used with ABB general purpose drives. For input fuses, see the table below.

## Wall-mounted drives, ACS580-01

Cooling air flow and recommended input protection fuses for 380 to 415 V units										
Type designation	Frame size	Cooling Air Flow 380 to 480V units					Recommended UL Input Protection fuses			
		Heat dissipation*		Air flow		Max. noise level**	I <sub>N</sub>	Voltage rating	Bussmann type***	UL class
		W	BTU/Hr	m3/h	ft3/hr					
ACS580-01-02A1-4	R1	45	155	34	20	55	15	600	JJS-15	T
ACS580-01-03A0-4	R1	55	187	34	20	55	15	600	JJS-15	T
ACS580-01-03A5-4	R1	66	224	34	20	55	15	600	JJS-15	T
ACS580-01-04A8-4	R1	84	288	34	20	55	15	600	JJS-15	T
ACS580-01-06A0-4	R1	106	362	50	29	55	15	600	JJS-15	T
ACS580-01-07A6-4	R1	133	454	50	29	55	15	600	JJS-15	T
ACS580-01-012A-4	R1	174	593	50	29	55	15	600	JJS-15	T
ACS580-01-014A-4	R2	228	777	128	75	66	30	600	JJS-30	T
ACS580-01-023A-4	R2	322	1100	128	75	66	30	600	JJS-30	T
ACS580-01-027A-4	R3	430	1469	179	105	70	40	600	JJS-40	T
ACS580-01-034A-4	R3	525	1791	179	105	70	50	600	JJS-50	T
ACS580-01-044A-4	R3	619	2114	179	105	70	60	600	JJS-60	T
ACS580-01-052A-4	R4	835	2852	134	79	69	80	600	JJS-80	T
ACS580-01-065A-4	R4	1024	3497	134	79	69	90	600	JJS-90	T
ACS580-01-077A-4 <sup>†</sup>	R4	1240	4235	139	82	63	110	600	JJS-110	T
ACS580-01-078A-4	R5	1240	4235	139	82	63	110	600	JJS-110	T
ACS580-01-096A-4	R5	1510	5157	139	82	63	150	600	JJS-150	T
ACS580-01-124A-4	R6	1476	5041	435	256	67	200	600	JJS-200	T
ACS580-01-156A-4	R7	1976	6748	450	265	67	225	600	JJS-225	T
ACS580-01-180A-4	R7	2346	8012	450	265	67	300	600	JJS-300	T
ACS580-01-240A-4	R8	3336	11393	550	324	65	350	600	JJS-350	T
ACS580-01-260A-4	R8	3936	13422	550	324	65	400	600	JJS-400	T
ACS580-01-302A-4 <sup>†</sup>	R8	4836	16516	1150	677	68	500	600	JJS-500	T
ACS580-01-361A-4	R9	4836	16516	1150	677	68	500	600	JJS-500	T
ACS580-01-414A-4	R9	6036	20614	1150	677	68	600	600	JJS-600	T

<sup>†</sup> Coming soon

\* Heat dissipation value is a reference for cabinet thermal design

\*\* The maximum noise level is at full fan speed. When the drive is not operating at full load and at maximum ambient temperature the noise level is lower.

\*\*\*ABB does not require Bussmann brand fuses. Fuses which meet the appropriate UL class type, current rating, and are rated at 600V, 200 kA may be used.

## dv/dt filters

dv/dt filtering suppresses inverter output voltage spikes and rapid voltage changes that stress motor insulation. Additionally, dv/dt filtering reduces capacitive leakage currents and high-frequency emissions from the motor cable as well as high-frequency losses and bearing currents in the motor.

The need for dv/dt filtering depends on the motor insulation. For information on the construction of the motor insulation, consult the manufacturer. More information on the dv/dt filters can be found in the ACS580 hardware manual.

External dv/dt filter for ACS580-01

ACS580 480 V	du/dt filter type * 3 filters included, dimensions apply to one filter.		
	Unprotected IP00	Protected to IP22	Protected to IP54
ACS580-01-02A1-4	V1K4A00	V1K4A01	V1K4A03
ACS580-01-03A0-4	V1K4A00	V1K4A01	V1K4A03
ACS580-01-03A5-4	V1K6A00	V1K6A01	V1K6A03
ACS580-01-04A8-4	V1K6A00	V1K6A01	V1K6A03
ACS580-01-06A0-4	V1K8A00	V1K8A01	V1K8A03
ACS580-01-07A6-4	V1K12A00	V1K12A01	V1K12A03
ACS580-01-012A-4	V1K18A00	V1K18A01	V1K18A03
ACS580-01-014A-4	V1K25A00	V1K25A01	V1K25A03
ACS580-01-023A-4	V1K27A00	V1K27A01	V1K27A03
ACS580-01-027A-4	V1K35A00	V1K35A01	V1K35A03
ACS580-01-034A-4	V1K45A00	V1K45A01	V1K45A03
ACS580-01-044A-4	V1K55A00	V1K55A01	V1K55A03
ACS580-01-052A-4	V1K80A00	V1K80A01	V1K80A03
ACS580-01-065A-4	V1K80A00	V1K80A01	V1K80A03
ACS580-01-077A-4 †	V1K110A00	V1K110A01	V1K110A03
ACS580-01-078A-4	V1K110A00	V1K110A01	V1K110A03
ACS580-01-096A-4	V1K130A00	V1K130A01	V1K130A03
ACS580-01-124A-4	V1K160A00	V1K160A01	V1K160A03
ACS580-01-156A-4	V1K200A00	V1K200A01	V1K200A03
ACS580-01-180A-4	V1K250A00	V1K250A01	V1K250A03
ACS580-01-240A-4	V1K305A00	V1K305A01	V1K305A03
ACS580-01-260A-4	V1K305A00	V1K305A01	V1K305A03
ACS580-01-302A-4 †	V1K362A00	V1K362A01	V1K362A03
ACS580-01-361A-4	V1K362A00	V1K362A01	V1K362A03
ACS580-01-414A-4	V1K420A00	V1K420A01	V1K420A03

† Coming soon

Dimensions and weights of the dv/dt filters

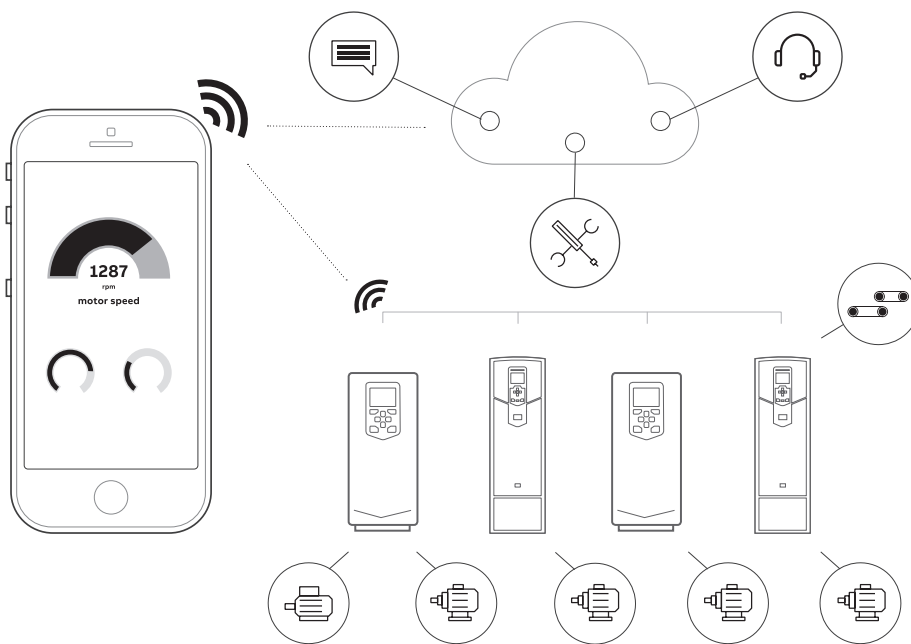
du/dt filter	Height in	Width in	Depth in	Weight lb
V1K4A00	9	5.5	7.25	8
V1K8A00	9	5.5	7.25	8
V1K12A00	9	5.5	7.25	8
V1K18A00	9	5.5	8.25	12
V1K25A00	9	5.5	8.25	12
V1K27A00	9	5.5	8.25	14
V1K35A00	12	8	9	17
V1K45A00	12	8	9	17
V1K55A00	12	8	9	23
V1K110A00	12	8	10.25	40
V1K130A00	8.5	11	9.5	55
V1K160A00	8.5	11	10.5	60
V1K200A00	8.5	11	10.25	60
V1K250A00	8.5	11	10.25	65
V1K305A00	8.75	11	12.25	80
V1K362A00	8.5	11.75	12	80
V1K420A00	10	11.75	13.75	95
V1K4A01	9	5.5	10	11
V1K8A01	9	5.5	10	11
V1K12A01	9	5.5	10	11
V1K18A01	9	5.5	10	15
V1K25A01	9	5.5	10	15
V1K27A01	9	5.5	10	15
V1K35A01	12	8	11.5	23
V1K45A01	12	8	11.5	23
V1K55A01	12	8	11.5	23
V1K110A01	16.5	18	15	68
V1K130A01	16.5	18	15	83
V1K160A01	16.5	18	15	83
V1K200A01	16.5	18	15	93
V1K250A01	16.5	18	15	93
V1K305A01	16.5	18	30	117
V1K362A01	16.5	18	30	117
V1K420A01	16.5	18	30	132
V1K4A03	11.45	10	12	25
V1K8A03	11.45	10	12	25
V1K12A03	11.45	10	12	25
V1K18A03	11.45	10	12	25
V1K25A03	11.45	10	12	29
V1K27A03	19.18	15.62	19.5	29
V1K35A03	19.18	15.62	19.5	56
V1K45A03	19.18	15.62	19.5	56
V1K55A03	19.18	15.62	19.5	56
V1K110A03	19.18	15.62	19.5	74
V1K130A03	19.18	15.62	19.5	89
V1K160A03	19.18	15.62	19.5	99
V1K200A03	19.18	15.62	19.5	99
V1K250A03	19.18	15.62	19.5	99
V1K305A03	22.15	20.62	28.5	109
V1K362A03	22.15	20.62	28.5	109
V1K420A03	22.15	20.62	28.5	156



# Save time, ease troubleshooting and improve drive performance with ABB smartphone apps

## Better connectivity and user experience with Drivetune

Easy and fast access to product information and support



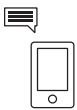
### Manage your drives and the process lines and machines they control



Easy access to cloud-based drive and process information from anywhere via an online connection



Start up, commission and tune your drive and application



Simplified user guidance with instant access to drive status and configuration



Performance optimization via drive troubleshooting features and fast support

### Access information anywhere

Download the apps using the QR codes below or directly from the app stores



Drivetune for commissioning and managing drives

# Drive Services

## Your choice, your future

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

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

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

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

### Your choice, your business efficiency

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

We can help you more by knowing where you are! Register your drive at [www.abb.com/drivereg](http://www.abb.com/drivereg) for extended warranty options and other benefits.

### Service to match your needs

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



#### Operational efficiency

##### Example services include:

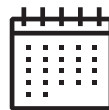
- Drive Care Agreement
- Commissioning
- Spare Parts
- Preventive Maintenance
- Drive Exchange



#### Rapid response

##### Example services include:

- Technical Support
- Drive Exchange
- On-Site Repair
- Spare Parts
- Training



#### Life cycle management

##### Example services include:

- Preventive Maintenance
- Hardware Upgrades
- Control Upgrades
- Retrofits



#### Performance improvement

##### Example services include:

- Drive Care Agreement
- Training
- Preventive Maintenance
- Hardware Upgrades
- Control Upgrades
- Retrofits
- Workshop Repair

# A lifetime of peak performance

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

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

## ABB drives life cycle phases explained:



	Full range of life cycle services and support	Limited range of life cycle services and support	Replacement and end-of-life services
Product	Product is in active sales and manufacturing phase.	Serial production has ceased. Product may be available for plant extensions, as a spare part or for installed base renewal.	Product is no longer available.
Services	Full range of life cycle services is available.	Full range of life cycle services is available. Product enhancements may be available through upgrade and retrofit solutions.	Limited range of life cycle services is available. Spare parts availability is limited to available stock.

### Keeping you informed

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

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

### Step 1

#### Life Cycle Status Announcement

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

### Step 2

#### Life Cycle Status Statement

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

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

[www.abb.com/ACS580](http://www.abb.com/ACS580)  
[www.abb.com/drives](http://www.abb.com/drives)

Online manuals  
for the ACS580 drives



Video playlist:  
ACS580 how-to videos

