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FOR SMOOTH MOTOR CONTROL AND ENERGY SAVINGS

# Low voltage AC drives

## Catalog and price list



- ABB ([www.abb.com](http://www.abb.com)) is a leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact.



**AC drives.  
For smooth  
motor control  
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savings.**

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## Smooth motor control and energy savings

### What is an AC drive?

An AC drive is an electronic device used to adjust the rotating speed and torque of a standard, electric AC motor. The electric motor, in turn, drives a load such as a fan, pump or conveyor.

AC drives are also referred to as frequency converters, variable frequency drives (VFD), variable speed drives (VSD), adjustable frequency drives (AFD), adjustable speed drives (ASD) or inverters.

### ABB – global market and technology leader in AC drives

ABB ([www.abb.com](http://www.abb.com)) is a technology leader in electrification and automation, enabling a more sustainable and resource-efficient future. The company's solutions connect engineering know-how and software to optimize how things are manufactured, moved, powered and operated. Building on more than 140 years of excellence, ABB's 105,000 employees are committed to driving innovations that accelerate industrial transformation.

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Electric motors consume over 45% of the world's electricity. Yet, only 23% of those motors are fitted with variable speed drives. By 2040 the number of motors will double. Adoption of high-efficiency motor systems would cut global electricity consumption by up to 10%.



## Improve your processes with AC drives

- **Increased life time**  
A lower starting current decreases the electrical stress on the motor and network, while a smooth ramp up to full speed also reduces mechanical wear on your equipment, prolonging its lifetime.
- **Increased productivity**  
The use of drives enhances the productivity of applications by reducing unplanned stops caused by excessive heating of the motor or sudden breakdowns of mechanical equipment due to high mechanical stress.
- **Reduced need for maintenance**  
Being able to apply a softer starting moment and vary the speed and torque of an electric motor reduces wear and tear on both the motor and the machine it is driving. The ability to gradually bring a process up to speed helps prevent sudden shock loading, which can, over time, damage both motors and machines.

## Further optimize your processes with AC drives

- **Substantial energy savings**  
Rather than have an electric motor running continuously at full speed, using an electric drive allows the user to slow down or speed up the motor according to demand. Reducing motor speed in line with the actual demand of the process often means substantial energy savings and reduced operating costs.
- **Optimal process control**  
An electric drive facilitates the attainment of the precise speed and torque required for a process, ensuring accuracy and, consequently, contributing to consistent end-product quality and throughput.
- **Efficient system upgrade**  
An electric drive allows for the removal of valves, gears, and belts, while also ensuring network dimensioning based on a lower starting current.
- **Functional safety**  
ABB all-compatible drives have Safe Torque Off (STO) as standard. A wide range of functional safety modules are available as options. All drive-based safety functions are pre-certified and mostly conform to the highest safety levels SIL 3/Pl and communicate over PROFIsafe or CIP Safety protocols.

## ABB drives common features

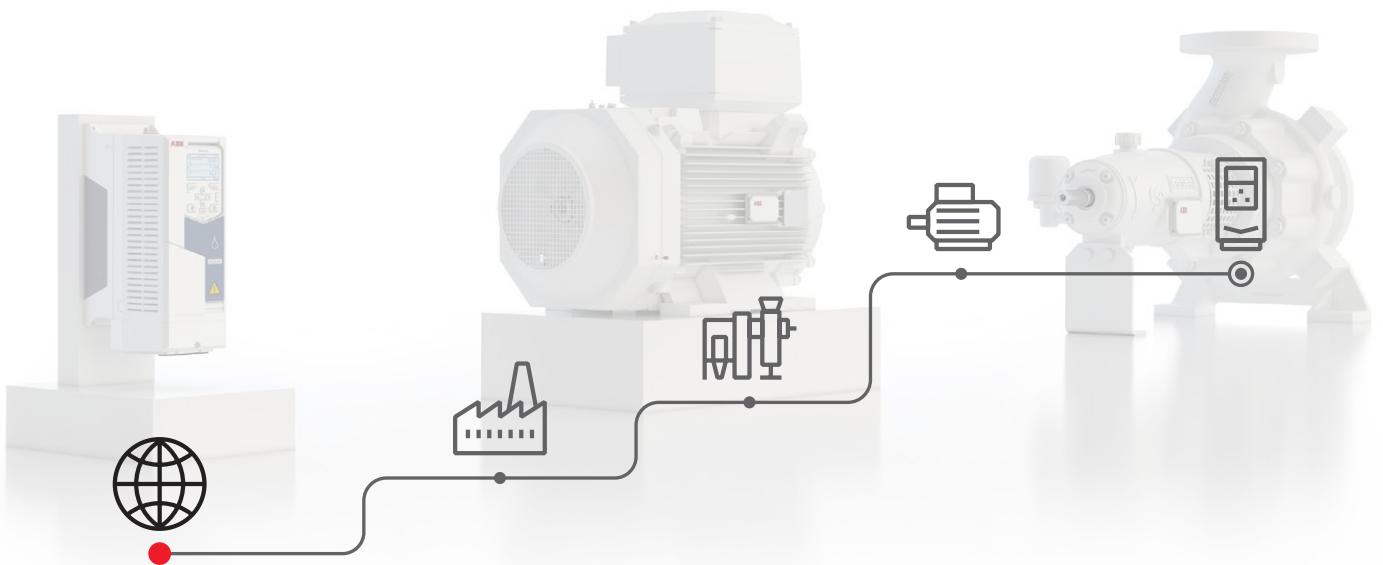
- **Easy to select**  
Finding the right product for your application is easy with our wide selection of ABB drives.
- **Easy to purchase**  
ABB drives are available directly from ABB and through selected ABB channel partners. Contact us to learn more and check the [ABB Channel Partners page](#) for additional details about ABB Value Provider network.
- **Easy to install and commission**  
ABB drives are not only simple to install but also offer a variety of mounting options, ranging from wall-mounted to cabinet-mounted configurations.
- **Easy to operate**  
ABB drives are designed for easy installation, commissioning, and use. The user interface enables instant adjustments to speed or other advanced parameters.



# Choosing the right drive for your application

Step	Process	Action
1	<b>Identify the application</b> Identify the type of application and the likely demands of the drive.	Continue to step 2.
2	<b>Gather the load data: system inertia, required acceleration and deceleration rates, minimum and maximum speeds, overload requirements, etc.</b> This information can often be determined by the performance of the existing motor.	Continue to step 3.
3	<b>Gather the motor data: rated torque, kW, volts, insulation class, speed, etc.</b> Whether an existing motor or a new motor is being used, the motor information is critical to choosing a drive.	Continue to step 4.
4	<b>Choose a drive</b> Match the data gathered in Steps 1 to 3 against the table of drive features on page 7. Select a drive that meets the motor requirements and has all the software features needed for the application.	Continue to step 5.
5	<b>Is the drive offered in the correct kW/amp rating?</b> The drive you choose must be able to supply the necessary current to the motor to produce the torque required. This includes normal and overload conditions. Select current from the tables on pages 15, 20, 21, 24 or 29 depending on drive type selected.	If yes, continue to step 6. If no, go to step 4.
6	<b>Is the drive offered in the correct enclosure and environmental ratings?</b> The drive you choose must be available in an enclosure style that will withstand the application's environment. It also must produce the required current at the application's altitude and ambient temperature.	If yes, continue to step 7. If no, go to step 4.
7	<b>Does this drive have the features needed to meet the application's demands?</b> The drive you choose must have a feature set that matches the application. It also must have sufficient hardware (inputs and outputs, feedback, communications, etc.) to perform the application.	If yes, continue to step 8. If no, go to step 4.
8	<b>Does this drive have the motor control performance to meet the application's demands?</b> The drive you choose must be able to produce the needed torque at the necessary speeds. It must also be able to control speed and torque depending on the application requirements.	If yes, continue to step 9. If no, go to step 4.
9	<b>Congratulations!</b> The ABB AC drive you have chosen has the features and performance needed for a successful application.	

Furthermore, visit **Drive and Motor Selector**: <https://selector.drivesmotors.abb.com/> and see how easy it is to match a drive with a motor.



# ABB AC drive selection table

Specification		ACS180	ACS380	ACS480	ACS580
<b>Voltage and power ranges</b>		1-phase, 200 to 240 V: 0.25 to 3 kW	1-phase, 200 to 240 V: 0.25 to 3 kW	1-phase, 230 V: 0.37 to 3 kW	
		3-phase, 200 to 240 V: 0.37 to 11 kW	3-phase, 200 to 240 V: 0.37 to 11 kW	3-phase, 230 V: 0.37 to 11 kW	3-phase, 200 to 240 V: 0.75 to 75 kW
		3-phase, 380 to 480 V: 0.37 to 22 kW	3-phase, 380 to 480 V: 0.37 to 22 kW	3-phase, 380 to 480 V: 0.75 to 22 kW	3-phase, 380 to 480 V: 0.75 to 500 kW
<b>Protection classes</b>	IP20	●	●	●	○
	IP21	–	–	–	●
	IP54/IP55	–	–	–	● <sup>1)</sup>
	IP66/IP67	–	–	–	–
<b>Mounting arrangements</b>	Optimal for cabinet mounting	●	●	●	●
	Optimal for wall mounting	–	–	–	●
<b>Programming</b>	Parameter programming	●	●	●	●
	Adaptive programming	●	●	●	●
<b>Human-machine interface</b>	Basic control panel	●	●	○	○
	Assistant control panel	○	○	●	●
	Assistant control panel with Bluetooth link	○	○	○	○
<b>Ambient temperature</b>		-10 to +50 °C at heavy duty, -10 to +40 °C at light and nominal duty with derating up to 60 °C (except R0, which has max temp of 50 °C).	-10 to +50 °C at heavy duty, -10 to +40 °C with derating up to 60 °C (except R0, which has max temp of 50 °C).	-10 to +50 °C (14 to 122 °F), no frost allowed. From +50 to +60 °C with derating.	ACS580-01: -15 to +50 °C, no frost allowed, from +40 to +50 °C with derating. ACS580-04: -15 to +55 °C, no frost allowed, from +40 to +55 °C with derating. ACS580-07: 0 to +40 °C, no frost allowed, from +40 to +50 °C with derating.
<b>Inputs and outputs</b>	Digital inputs/outputs	4/1	4/2	6/0	6/0
	Relay outputs	1	1	3 + (6 as option)	3 + (2 as option)
	Analog inputs/outputs	2/1	2/1	2/2	2/2
	Speed feedback	–	○	–	–
<b>Supported fieldbus protocols</b>	Modbus RTU	●	●	●	●
	Profibus DP	–	○	○	○
	DeviceNet™	–	○	○	○
	ControlNet	–	○	○	○
	CANopen®	–	○	○	○
	Ethernet (Modbus/TCP)	–	○	○	○
	Ethernet (EtherNet/IP™)	–	○	○	○
	Ethernet (EtherCAT®)	–	○	○	○
	Ethernet (PROFINET IO)	–	○	○	○
	Ethernet (POWERLINK)	–	○	○	○
Ethernet (OPC UA Server)	–	○	○	○	
<b>EMC compliance (EN 61800-3)</b>	C3, industrial use	●	●	●	●
	C2, commercial use	○	○	●	● for ACS580-01, ○ for ACS580-04/07
	C1, commercial use	○ (conductive emissions)	○ (conductive emissions)	○ (conductive emissions)	○ (conductive emissions)
<b>Chokes</b>	Input chokes	○	○	○	● (built-in)
	Output chokes	○	○	○	○
<b>Brake chopper</b>		●	●	●	● <sup>2)</sup>
<b>Suggested maximum motor cable length</b>		30 to 100 m	30 to 100 m	50 to 150 m	100 to 300 m
<b>Switching frequency</b>		up to 12 kHz	up to 12 kHz	up to 12 kHz	up to 12 kHz
<b>Output frequency</b>		0 to 599 Hz	0 to 599 Hz	0 to 500 Hz	0 to 598 Hz
<b>Overload capacity</b>		150% for 60 s, 180% for 2 s	150% for 60 s, 180% for 2 s	150% for 60 s, 180% for 2 s	150% for 60 s, 180% for 2 s <sup>*)</sup>
<b>PC tools</b>	Drive commissioning tool	○	○	○	○
	Drive offline programming tool	○	○	○	○
	Drive dimensioning tool	–	–	–	○
<b>Approvals</b>		●	●	●	●
<b>RoHS compliance</b>		●	●	●	●

● = Standard  
○ = Option  
– = Not available

<sup>1)</sup> IP66/67 and IP54/55 product variants

<sup>2)</sup> Up to R3 as standard

<sup>\*)</sup> ACS580-01-293A-4 130% for 60 s, ACS580-01-430A-4 125% for 60 s and ACS580-04-880A-4 140% for 60 s.

## Product positioning by applications

Right products to right customers



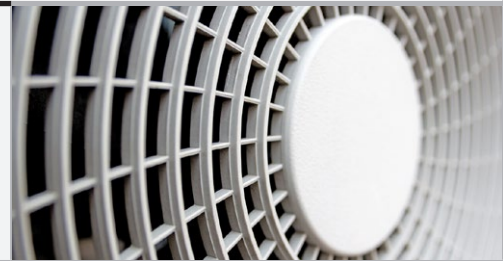
**ACS180**

Simplified solution for basic applications.

Basic set of I/Os, only embedded Modbus communication.

**Variable torque**

**Pumps,  
Fans,  
Agitators**



**Basic constant torque**

**Compressors,  
Belt conveyors,  
Gates**



**High torque requirements**

**Mixers, Extruders,  
Screw conveyors, Centrifuges,  
Rolling mill**

**Accurate precision open  
and close loop**

**Cranes,  
Spindles,  
Winding and unwinding**





**ACS380**



**ACS480**



**ACS580**

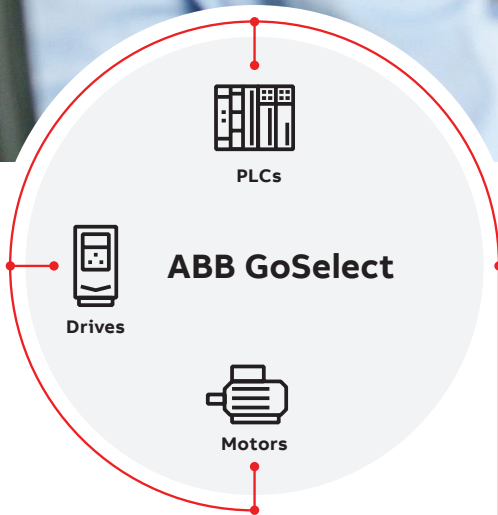
<p>Reliable performance and ease of integration to machine builders.</p>	<p>Compact drive for cabinet integration with ease of use.</p>	<p>Effortless process control for light industry applications with all important features inside.</p>
<p>Full I/O, fieldbus and encoder extensions available.</p>	<p>Full I/O and fieldbus extensions available, user-friendly interface.</p>	<p>Wide I/O and fieldbus option offering, DC choke, EMC C2 filter and user-friendly interface.</p>



## ABB GoSelect web-based tool

Build the optimal solution for your application quickly and easily online

ABB GoSelect is a web-based selection and dimensioning tool for motors, drives, and PLCs. Build the optimal solution for your application and efficiently create, collect, and manage documentation and reports – all in one place.



### Improved productivity

ABB GoSelect's modern, intuitive interface is easy to use. You can start by following the guided selection journey to get help finding the most suitable products. If you have already identified the right product for your application, you can proceed directly to sizing. The tool can also be used to validate the selected solution directly.



### All in one place

With ABB GoSelect you can select, dimension, and validate your solution – all-in-one convenient online portal, with or without logging in. No more searching and saving links or skipping between different tools. The tool eliminates the need to duplicate input data across multiple tools, bringing all your project documentation together in one place. No more wasted time.



### Efficient collaboration

With ABB GoSelect, the whole team can provide their input in one place in real time. You can create different alternatives in one project to make it easy to compare your options and track the project history. No more time-consuming and confusing file exchanges via email.

For more information, see:  
[goselect.motion.abb.com](https://goselect.motion.abb.com)

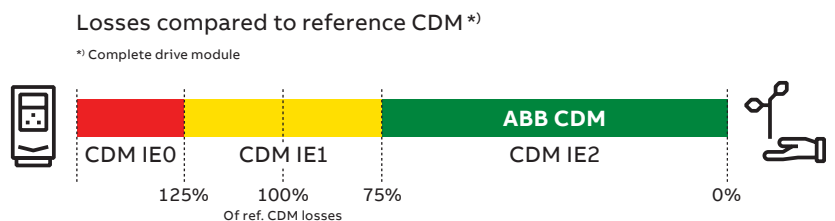


# ABB AC drives comply with the EU Ecodesign requirements

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


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

## Energy efficiency classes for a Complete Drive Module (CDM)



### Markings on the ABB LV AC drives

Unique identifier QR code to Ecodesign information



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

IE2 (90;100) 2,3 %

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

### ABB EcoDesign web-based tool



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

### The regulation was implemented in two steps:

- Step 1: July 1, 2021**
- Power range: from 0.12 to 1000 kW
  - 3-phase LV AC drives with diode rectifier
  - Drive manufacturers must declare power losses in percentage of the rated apparent output power at 8 different operating points as well as standby losses. The international IE level is given at the nominal point. Drives fulfilling the requirements will be CE marked.

### Out of scope of the regulation:

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

**Step 2: July 1, 2023**  
No changes for AC drives

# ABB general purpose drives

## ACS480, 0.37 to 22 kW



### What is it?

The ACS480 is a cabinet optimized compact drive offering the most essential features as standard. Straightforward settings menu and assistants enable fast setup, commissioning, use and maintenance.

ACS480 is a great fit for variable torque and basic constant torque applications, where simplicity, reliability and efficiency matter. However, if higher power range or more options are needed, ACS580 is a great choice.

ACS480 frame sizes: R1, R2, R3, R4



## Typical applications

Industry	Application	Customer benefits
<b>Food and beverage</b> 	Blowers, compressors, conveyors, fans, mills, pumps, dryers	<ul style="list-style-type: none"> <li>• Accurate control of the process increases the speed of food production while saving energy and improving work safety. Precise speed control increases production uptime even when the load varies.</li> <li>• Increased starting torque with boost function allows the same drive series to be used in different applications in the manufacturing plant</li> <li>• Safe Torque Off (SIL 3/PL e) function ensures machine and personnel safety</li> <li>• The easy-to-use control panel with multiple local languages and robust design reduces the time needed for maintenance</li> </ul>
<b>Material handling</b> 	Conveyors	<ul style="list-style-type: none"> <li>• Accurate and precise speed control increases production uptime even when the load varies</li> <li>• Safe Torque Off (SIL 3/PL e) function ensures machine and personnel safety</li> <li>• Minimized downtime with robust and reliable design</li> <li>• Integrated brake chopper enabling faster and more accurate start and stop cycles</li> <li>• User load curve function monitors an input signal as a function of frequency or speed, and load, and gives a warning or fault if the curve does not stay within a user-defined profile</li> </ul>
<b>Printing</b> 	Compressors, presses, winders	<ul style="list-style-type: none"> <li>• Smooth acceleration prevents breaking the paper</li> <li>• The robust design of the drive reduces mechanical stress on process line equipment, lowering maintenance costs and capital expenditure</li> <li>• Precise speed control of applications increases process uptime by optimizing motor control</li> </ul>
<b>Textile</b> 	Bleaching machines, compressors, conveyors, fans, jet dyeing machines, pumps	<ul style="list-style-type: none"> <li>• Precise speed control for high stretching accuracy and better quality of the end product</li> <li>• Adjustable acceleration/deceleration ramps to improve pump control</li> <li>• Real-time clock and timed functions for process optimization</li> <li>• Increased productivity and faster payback times with multiple setups</li> <li>• Built-in counters for additional energy savings and preventive maintenance</li> </ul>
<b>Water handling</b> 	Compressors, pump stations	<ul style="list-style-type: none"> <li>• Additional energy savings with energy optimizer function</li> <li>• Adjustable acceleration/deceleration ramps to improve pump control</li> <li>• Built-in PFC macro to control up to six pumps or compressors, allowing flow optimization</li> <li>• Soft pipe fill helps to avoid sudden pressure peaks and reduce the risk of water hammer</li> <li>• Dry run protection to prevent the pump from running dry</li> <li>• Pump clean function to prevent unplanned downtime caused by pump blockages</li> <li>• PID/loop control to optimize motor speed according to the process variable, such as pressure or flow</li> </ul>
<b>Agriculture</b> 	Fans, irrigators, pumps, sorters	<ul style="list-style-type: none"> <li>• Optimized for cabinet installations with unified height and depth and panel door mounting options</li> <li>• Timed functions to adjust the process control depending on e.g. the time of the day</li> <li>• Three relay outputs and PFC feature to control up to four pumps and to optimize output</li> </ul>
<b>Sawmill</b> 	Wood drying kilns, conveyors for chips	<ul style="list-style-type: none"> <li>• Safe Torque Off (SIL 3/PL e) function ensures machine and personnel safety</li> <li>• Integrated brake chopper speeds up braking and productivity</li> <li>• Heavy-duty rating and higher starting torque improve robustness</li> <li>• Three relay outputs connect even four fans without external components</li> <li>• Turning on and off parallel fans based on the humidity of air (requires an external sensor)</li> </ul>
<b>Automotive</b> 	Conveyors, fans, pumps	<ul style="list-style-type: none"> <li>• Increased productivity and faster payback times with multiple setups</li> <li>• Enhanced quality of end products with smooth control of the motor and process</li> <li>• Safe Torque Off (SIL 3/PL e) function ensures machine and personnel safety</li> <li>• Common fieldbus networks supported</li> <li>• The robust design of the drive reduces mechanical stress on process line equipment, lowering maintenance costs and ensuring high production quality</li> </ul>

**Inputs and outputs**

The figure shows the ACS480 factory-set standard inputs and outputs. All inputs and outputs are freely programmable.

**The base unit includes:**

- 2 digital inputs
- 1 relay output
- Safe Torque Off (SIL 3/PL e)

**The rest of the connections comes with the I/O module (RIIO-01):**

- 2 analog inputs
- 2 analog outputs
- 4 digital inputs
- 2 relay outputs

The standard delivery includes an I/O module. If a fieldbus adapter is needed, it is delivered instead of the I/O module. If the I/Os on the base unit are not enough when using a fieldbus adapter, an optional I/O extension (BIO-01) can be used underneath a fieldbus adapter.



Default factory I/O connection diagram

Terminal	Meaning	Terminal Meaning	Default macro connections
<b>Reference voltage and analog inputs and outputs</b>			
1	SCR	Signal cable shield (screen)	
2	AI1	<b>Output frequency/speed reference:</b> 0...10 V	
3	AGND	Analog input circuit common	
4	+10 V	Reference voltage 10 V DC	
5	AI2	Not configured	
6	AGND	Analog input circuit common	
7	AO1	<b>Output frequency:</b> 0...20 mA	
8	AO2	<b>Output current:</b> 0...20 mA	
9	AGND	Analog output circuit common	
<b>Aux. voltage output and programmable digital inputs</b>			
10	+24 V	Auxiliary voltage output +24 V DC, max. 200 mA	
11	DGND	Auxiliary voltage output common	
12	DCOM	Digital input common for all	
13	DI1	Stop (0)/Start (1)	
14	DI2	Forward (0)/Reverse (1)	
15	DI3	Constant frequency/speed selection	
16	DI4	Constant frequency/speed selection	
17	DI5	Ramp set 1 (0)/Ramp set 2 (1)	
18	DI6	Not configured	
<b>Relay outputs</b>			
19	RO1C	<b>Ready</b> 250 V AC/30 V DC 2 A	
20	RO1A		
21	RO1B		
22	RO2C	<b>Running</b> 250 V AC/30 V DC 2 A	
23	RO2A		
24	RO2B		
25	RO3C	<b>Fault (-1)</b> 250 V AC/30 V DC 2 A	
26	RO3A		
27	RO3B		
<b>EIA-485 Modbus RTU</b>			
29	B+	Embedded Modbus RTU (EIA-485)	
30	A-		
31	DGND		
S100	TERM&BIAS	Serial data link termination switch	
<b>Safe Torque Off</b>			
34	SGND	Safe Torque Off. Factory connection. Both circuits must be closed for the drive to start. See chapter The Safe torque off function in the Hardware manual of the drive.	
35	IN1		
36	IN2		
37	OUT1		
42	+24 V	Auxiliary voltage output. The alternative terminals have the same supply as the base unit.	
43	DGND		
44	DCOM		

**Dimensions and weights**

Frame size	H (mm)	W (mm)	D (mm)	Weight (kg)
R0	223.0	73.0	208.0	1.7
R1	223.0	73.0	208.0	1.7
R2	223.0	97.0	208.0	2.2
R3	220.0	172.0	208.0	2.5
R4	240.0	262.0	213.0	5.6



## Types and voltages

Light-duty use		Heavy-duty use		ABB ordering code Enclosure IP20	Electrical code/ reference code	ABB type code/ order code for IP20	Frame size	Price  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>1-phase, <math>U_N = 230</math> V</b>								
0.37	2.3	0.25	1.8	3AXD50000246137		ACS480-04-02A4-1	R0	
0.55	3.5	0.37	2.4	3AXD50000246144		ACS480-04-03A7-1	R0	
0.75	4.6	0.55	3.7	3AXD50000246151		ACS480-04-04A8-1	R1	
1.1	6.6	0.75	4.8	3AXD50000246168		ACS480-04-06A9-1	R1	
1.5	7.4	1.1	6.9	3AXD50000246175		ACS480-04-07A8-1	R1	
2.2	9.3	1.5	7.8	3AXD50000246182		ACS480-04-09A8-1	R2	
3	11.6	2.2	9.8	3AXD50000246199		ACS480-04-12A2-1	R2	

Light-duty use		Heavy-duty use		ABB ordering code Enclosure IP20	Electrical code/ reference code	ABB type code/ order code for IP20	Frame size	Price  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 230</math> V</b>								
0.37	2.3	0.25	1.8	3AXD50000212903		ACS480-04-02A4-2	R1	
0.55	3.5	0.37	2.4	3AXD50000217311		ACS480-04-03A7-2	R1	
0.75	4.6	0.55	3.7	3AXD50000217328		ACS480-04-04A8-2	R1	
1.1	6.6	0.75	4.8	3AXD50000217335		ACS480-04-06A9-2	R1	
1.5	7.5	1.1	6.9	3AXD50000217342		ACS480-04-07A8-2	R1	
2.2	9.3	1.5	7.8	3AXD50000217359		ACS480-04-09A8-2	R1	
3.0	11.6	2.2	9.8	3AXD50000217366		ACS480-04-12A2-2	R2	
4.0	16.7	3	12.2	3AXD50000217373		ACS480-04-17A5-2	R3	
5.5	24.2	4	17.5	3AXD50000217380		ACS480-04-25A0-2	R3	
7.5	30.8	5.5	25.0	3AXD50000998890		ACS480-04-032A-2	R4	
11.0	46.2	7.5	32.0	3AXD50000998906		ACS480-04-048A-2	R4	

**3-phase,  $U_N = 400$  V (3-phase supply AC voltage range 380-480 V)**

Light-duty use		Heavy-duty use		ABB ordering code Enclosure IP20	Electrical code/ reference code	ABB type code/ order code for IP20	Frame size	Price  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 400</math> V (3-phase supply AC voltage range 380-480 V)</b>								
0.75	2.5	0.55	1.8	3AXD50000047765		ACS480-04-02A7-4	R1	
1.1	3.1	0.75	2.6	3AXD50000047766		ACS480-04-03A4-4	R1	
1.5	3.8	1.1	3.3	3AXD50000047767		ACS480-04-04A1-4	R1	
2.2	5.3	1.5	4	3AXD50000047768		ACS480-04-05A7-4	R1	
3	6.8	2.2	5.6	3AXD50000047769		ACS480-04-07A3-4	R1	
4	8.9	3	7.2	3AXD50000047770		ACS480-04-09A5-4	R1	
5.5	12	4	9.4	3AXD50000047791		ACS480-04-12A7-4	R2	
7.5	16.2	5.5	12.6	3AXD50000047792		ACS480-04-018A-4	R3	
11	23.8	7.5	17	3AXD50000047793		ACS480-04-026A-4	R3	
15	30.5	11	25	3AXD50000199068		ACS480-04-033A-4	R4	
18.5	36	15	32	3AXD50000199075		ACS480-04-039A-4	R4	
22	42.8	18.5	38	3AXD50000199082		ACS480-04-046A-4	R4	
22	48	22	45	3AXD50000199099		ACS480-04-050A-4	R4	

**Light-duty use**

$P_{Ld}$	Typical motor power in light-duty use.
$I_{Ld}$	Continuous current allowing 110% $I_{Ld}$ for 1 min/10 min at 50 °C

**Heavy-duty use ratings**

$P_{Hd}$	Typical motor power in heavy-duty use
$I_{Hd}$	Continuous current allowing 150% $I_{Hd}$ for 1 min/10 min at 50 °C

# ABB general purpose drives

## ACS580, 0.75 to 500 kW



### What is it?

ACS580 drives are ready to control compressors, conveyors, mixers, pumps and fans, as well as many other variable and constant torque applications in light industries. All important features are built-in as standard, simplifying drive selection, and making additional hardware unnecessary. Straightforward settings menu and assistants enable fast setup, commissioning, use and maintenance.


Get it fast. Use it easily. Improve your processes substantially.

ACS580 frame sizes: R1 to R11, and construction types from wall-mounted to drive modules and cabinets



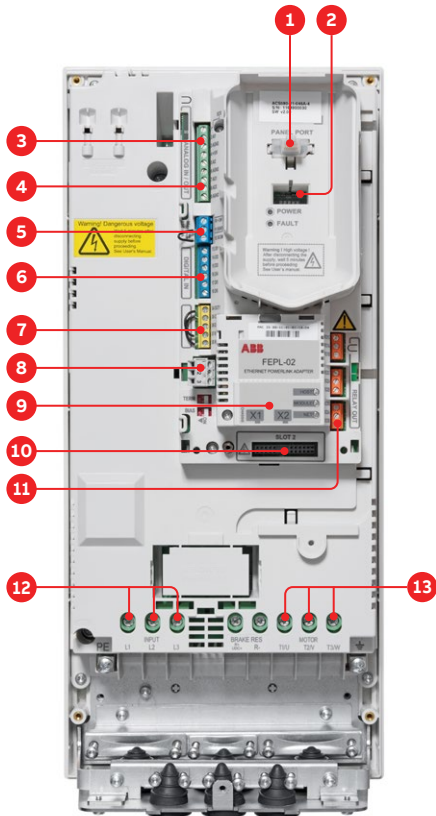


## Typical applications

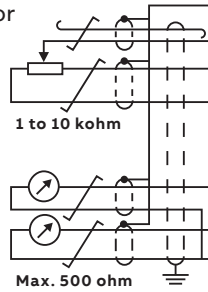
Industry	Application	Customer benefits
<b>Food and beverage</b> 	Blowers, centrifuges, compressors, conveyors, fans, mills, pumps, separators, mixers, dryers, pelletizers	<ul style="list-style-type: none"> <li>Accurate control of the process increases the speed of food production while saving energy and improving work safety. Precise speed and torque control increases production uptime even when the load varies.</li> <li>Increased starting torque with boost function allows the same drive series to be used in different applications in the manufacturing plant</li> <li>Safe Torque Off (SIL 3) function ensures machine and personnel safety</li> <li>The easy-to-use control panel with multiple languages and robust design reduce the time needed for maintenance</li> <li>The ATEX-certified thermistor protection module, Ex II (2) GD meets the safety requirements even in dusty environments</li> </ul>
<b>Rubber and plastics</b> 	Extruders, injection molding machines, pumps	<ul style="list-style-type: none"> <li>Smooth acceleration to prevent breaking the web of plastic film</li> <li>The scalable all-compatible platform allows easy process and component optimization with different drive types that share the same user interface and tools</li> <li>Wide range of supported fieldbus protocols for easy PLC integration</li> </ul>
<b>Material handling</b> 	Conveyors	<ul style="list-style-type: none"> <li>Accurate and precise speed and torque control increase production uptime even when the load varies</li> <li>Safe Torque Off (SIL 3) function ensures machine and personnel safety</li> <li>Minimized downtime with robust and reliable design</li> <li>Swinging choke technology to mitigate harmonics</li> <li>External +24 V supply to keep the communication up when the mains supply is disconnected</li> </ul>
<b>Printing</b> 	Compressors, presses, winders	<ul style="list-style-type: none"> <li>Smooth acceleration to prevent breaking the paper</li> <li>The robust design of the drive reduces mechanical stress on process line equipment, lowering maintenance costs and capital expenditure</li> <li>Precise speed and torque control of applications increases process uptime by optimizing motor control</li> </ul>
<b>Textile</b> 	Bleaching machines, compressors, conveyors, drum washers, extruders, fans, jet dyeing machines, pumps, stenter machines, stretchers, winders	<ul style="list-style-type: none"> <li>Precise speed or torque control for high stretching accuracy and better quality of the end product</li> <li>Adjustable torque limit to prevent damage to mechanical equipment</li> <li>Adjustable acceleration/deceleration ramps to improve pump control</li> <li>Real-time clock and timed functions for process optimization</li> <li>Increased productivity and faster payback times with multiple setups, allowing production of two different products</li> <li>Built-in counters for additional energy savings and preventive maintenance</li> </ul>
<b>Sawmill</b> 	Chippers, conveyors, feeders, dryers, pickers, drying kilns	<ul style="list-style-type: none"> <li>IP55/UL type 12 available up to 250 kW for harsh environments</li> <li>Cabinet-built drive IP54 up to 500 kW</li> <li>Safe Torque Off (SIL 3) function ensures machine and personnel safety</li> <li>External +24 V supply to keep the communications "alive" when the mains supply is turned off</li> <li>ATEX-certified thermistor protection module, Ex II (2) GD</li> </ul>
<b>Industrial pumping</b> 	Compressors, pump stations	<ul style="list-style-type: none"> <li>Additional energy savings with energy optimizer function</li> <li>Adjustable acceleration/deceleration ramps to improve pump control</li> <li>Minimized downtime with robust and reliable design</li> <li>ABB's extensive product and service offering for comprehensive process optimization</li> </ul>
<b>Agriculture</b> 	Fans, irrigators, pumps, sorters	<ul style="list-style-type: none"> <li>IP55/UL 12 available up to 250 kW harsh environments</li> <li>Wall-mounted power range up to 250 kW</li> <li>Drive modules and cabinet-built drives up to 500 kW</li> </ul>
<b>Automotive</b> 	Conveyors, fans, pumps	<ul style="list-style-type: none"> <li>ATEX-certified thermistor protection module, Ex II (2) GD</li> <li>Increased productivity and faster payback times with multiple setups</li> <li>Enhanced quality of end products with smooth control of the motor and process</li> <li>Safe Torque Off (SIL 3) function ensures machine and personnel safety</li> <li>Wide range of fieldbus networks supported, including PROFIBUS and PROFINET IO</li> <li>P55/UL Type 12 available up to 250 kW 400 V and high enclosure rating for harsh environments</li> <li>The robust design of the drive reduces mechanical stress on process line equipment, lowering maintenance costs and ensuring high production quality</li> </ul>

**Inputs and outputs**

ACS580 drives offer a wide range of I/Os as standard. In addition, the drive has two option slots that can be used for extensions, including fieldbus adapters and input/output extension modules. Support for external +24 V supply is available with an option for frames R1 to R5. For frames R6-R11 external +24 V terminals are already integrated on the control board. For further information, please see the ACS580 user manual.

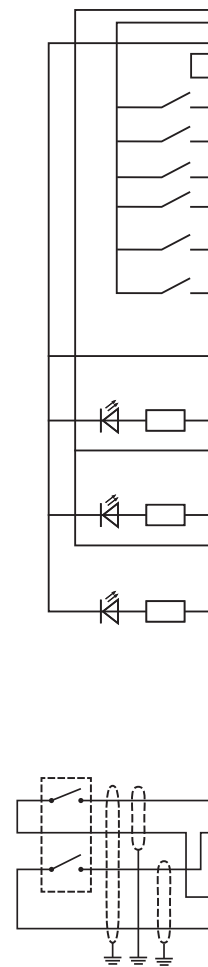


1. Panel port (PC tools, control panel)
2. ABB drive customizer port for programming the drive without mains
3. Analog inputs (2 × AI)
4. Analog outputs (2 × AO)
5. 24 V AC/DC output
6. Digital inputs (6 × DI)
7. Safe Torque Off (STO)
8. Embedded fieldbus
9. Communication options (fieldbuses)
10. I/O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



Default factory I/O connection diagram: Macro ABB standard

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
<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
<b>X6, X7, X8 Relay outputs</b>		
19	RO1C	Ready
20	RO1A	250 V AC/30 V DC
21	RO1B	2 A
22	RO2C	Running
23	RO2A	250 V AC/30 V DC
24	RO2B	2 A
25	RO3C	Fault (-1)
26	RO3A	250 V AC/30 V DC
27	RO3B	2 A
<b>X5 EIA-485 Modbus RTU</b>		
29	B+	
30	A-	Built-in Modbus RTU fieldbus interface
31	DGND	
<b>X4 Safe Torque Off</b>		
34	OUT1	
35	OUT2	
36	SGND	Safe Torque Off. Both circuits must be closed for the drive to start. The circuits are closed with jumper wires in the standard delivery.
37	IN1	
38	IN2	
<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 only in the frame sizes R6-R11. For the frame sizes R1-R5 I/O options (+L) are needed.

**Dimensions and weights**

**Wall mounted frames IP21**

Frame size	H *) (mm)	W (mm)	D (mm)	Weight (kg)
R1	373	125	223	4.6
R2	473	125	229	7.5
R3	490	203	229	13.8
R4	636	203	257	19
R5	732	203	295	28.5
R6	727	252	369	45
R7	880	284	370	54
R8	965	300	393	69
R9	955	380	418	97

\*) Front height of the drive with conduit box



**IP21**

**Wall mounted frames IP55**

Frame size	H *) (mm)	W (mm)	D (mm)	Weight (kg)
R1	403	128	232	5.1
R2	503	128	239	6.7
R3	490	206	237	13
R4	636	206	265	20
R5	732	203	320	29
R6	727	252	380	43
R7	880	284	381	56
R8	965	300	452	77
R9	955	381	477	103

\*) Front height of the drive with conduit box



**IP55**

**Drive modules**

Frame size	IP00/UL open type			Weight (kg)
	H (mm)	W (mm)	D (mm)	
R10	1462	350	529	162
R11	1662	350	529	200



**IP00**

## Types and voltages

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP21	Electrical code/ reference code	ABB type code/order code for IP21 units	Frame size	Price for IP21 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 400</math> V (3-phase supply AC voltage range 380-480 V)</b>								
0.75	2.5	0.55	1.8	3AXD50000038937		ACS580-01-02A7-4	R1	
1.1	3.1	0.75	2.6	3AXD50000038938		ACS580-01-03A4-4	R1	
1.5	3.8	1.1	3.3	3AXD50000038939		ACS580-01-04A1-4	R1	
2.2	5.3	1.5	4	3AXD50000038940		ACS580-01-05A7-4	R1	
3	6.8	2.2	5.6	3AXD50000038951		ACS580-01-07A3-4	R1	
4	8.9	3	7.2	3AXD50000038952		ACS580-01-09A5-4	R1	
5.5	12	4	9.4	3AXD50000038953		ACS580-01-12A7-4	R1	
7.5	16.2	5.5	12.6	3AXD50000038959		ACS580-01-018A-4	R2	
11	23.8	7.5	17	3AXD50000038960		ACS580-01-026A-4	R2	
15	30.4	11	24.6	3AXD50000038961		ACS580-01-033A-4	R3	
18.5	36.1	15	31.6	3AXD50000038962		ACS580-01-039A-4	R3	
22	42.8	18.5	37.7	3AXD50000038963		ACS580-01-046A-4	R3	
30	58	22	44.6	3AUA0000080498		ACS580-01-062A-4	R4	
37	68.4	30	61	3AUA0000080499		ACS580-01-073A-4	R4	
45	83	37	72	3AXD50001062606		ACS580-01-089A-4	R4	
55	100	45	87	3AUA0000080503		ACS580-01-106A-4	R5	
75	138	55	105	3AUA0000080504		ACS580-01-145A-4	R6	
90	161	75	145	3AUA0000080505		ACS580-01-169A-4	R7	
110	196	90	169	3AUA0000080506		ACS580-01-206A-4	R7	
132	234	110	206	3AUA0000080507		ACS580-01-246A-4	R8	
160	278	132	246 <sup>*)</sup>	3AUA0000080508		ACS580-01-293A-4	R8	
200	345	160	293	3AUA0000080509		ACS580-01-363A-4	R9	
250	400	200	363 <sup>**)</sup>	3AUA0000080510		ACS580-01-430A-4	R9	
250	480	200	375	3AXD50001154585		ACS580-01-490A-4	R9	

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP55	Electrical code/ reference code	ABB type code/order code for IP55 units	Frame size	Price for IP55 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 400</math> V (3-phase supply AC voltage range 380-480 V)</b>								
0.75	2.5	0.55	1.8	3AXD50000038964		ACS580-01-02A7-4+B056	R1	
1.1	3.1	0.75	2.6	3AXD50000038965		ACS580-01-03A4-4+B056	R1	
1.5	3.8	1.1	3.3	3AXD50000038966		ACS580-01-04A1-4+B056	R1	
2.2	5.3	1.5	4	3AXD50000038967		ACS580-01-05A7-4+B056	R1	
3	6.8	2.2	5.6	3AXD50000038968		ACS580-01-07A3-4+B056	R1	
4	8.9	3	7.2	3AXD50000038969		ACS580-01-09A5-4+B056	R1	
5.5	12	4	9.4	3AXD50000038970		ACS580-01-12A7-4+B056	R1	
7.5	16.2	5.5	12.6	3AXD50000038976		ACS580-01-018A-4+B056	R2	
11	23.8	7.5	17	3AXD50000038977		ACS580-01-026A-4+B056	R2	
15	30.4	11	24.6	3AXD50000038978		ACS580-01-033A-4+B056	R3	
18.5	36.1	15	31.6	3AXD50000038979		ACS580-01-039A-4+B056	R3	
22	42.8	18.5	37.7	3AXD50000038980		ACS580-01-046A-4+B056	R3	
30	58	22	44.6	3AUA0000083573		ACS580-01-062A-4+B056	R4	
37	68.4	30	61	3AUA0000083574		ACS580-01-073A-4+B056	R4	
45	83	37	72	3AXD50001063115		ACS580-01-089A-4+B056	R4	
45	83	37	72	3AUA0000083577		ACS580-01-088A-4+B056	R5	
55	100	45	87	3AUA0000083578		ACS580-01-106A-4+B056	R5	
75	138	55	105	3AUA0000083579		ACS580-01-145A-4+B056	R6	
90	161	75	145	3AUA0000083580		ACS580-01-169A-4+B056	R7	
110	196	90	169	3AUA0000083581		ACS580-01-206A-4+B056	R7	
132	234	110	206	3AUA0000083582		ACS580-01-246A-4+B056	R8	
160	278	132	246 <sup>*)</sup>	3AUA0000083583		ACS580-01-293A-4+B056	R8	
200	345	160	293	3AUA0000083584		ACS580-01-363A-4+B056	R9	
250	400	200	363 <sup>**)</sup>	3AUA0000083585		ACS580-01-430A-4+B056	R9	

## Light-duty use

$P_{Ld}$	Typical motor power in light-duty use
$I_{Ld}$	Continuous current allowing 110% $I_{Ld}$ for 1 minute every 10 minutes at 40 °C

## Heavy-duty use ratings

$P_{Hd}$	Typical motor power in heavy-duty use
$I_{Hd}$	Continuous current allowing 150% $I_{Hd}$ for 1 min/10 min at 40 °C *) Continuous current allowing 130% $I_{Hd}$ for 1 min/10 min at 40 °C **) Continuous current allowing 125% $I_{Hd}$ for 1 min/10 min at 40 °C

For more technical information, see ACS580 catalog (3AUA0000145061 EN) or ABB drives product guide (3AFE68401771 EN)

## Types and voltages

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP21/IP00	Electrical code/ reference code	ABB type code/order code for IP21/IP00 units	Frame size	Price for IP21/IP00 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 230</math> V (3-phase supply AC voltage range 200-240 V)</b>								
0.75	4.6	0.6	3.5	3AXD50000417346		ACS580-01-04A7-2	R1	
1.1	6.6	0.8	4.6	3AXD50000417353		ACS580-01-06A7-2	R1	
1.5	7.5	1.1	6.6	3AXD50000417360		ACS580-01-07A6-2	R1	
3.0	11.8	2.2	7.5	3AXD50000417377		ACS580-01-012A-2	R1	
4.0	16.7	3.0	10.6	3AXD50000417384		ACS580-01-018A-2	R1	
5.5	24.2	4.0	16.7	3AXD50000417391		ACS580-01-025A-2	R2	
7.5	30.8	5.5	24.2	3AXD50000417407		ACS580-01-032A-2	R2	
11.0	46.2	7.5	30.8	3AXD50000417414		ACS580-01-047A-2	R3	
15.0	59	11	46	3AXD50000417421		ACS580-01-060A-2	R3	
22.0	88	18.5	75	3AXD50001179274		ACS580-01-091A-2	R4	
30	114	22	88	3AXD50000417445		ACS580-01-115A-2	R5	
37	143	30	114	3AXD50000417452		ACS580-01-144A-2	R6	
45	169	37	143	3AXD50000417469		ACS580-01-171A-2	R7	
55	211	45	169	3AXD50000417476		ACS580-01-213A-2	R7	
75	273	55	211	3AXD50000417483		ACS580-01-276A-2	R8	

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP55	Electrical code/ reference code	ABB type code/order code for IP55 units	Frame size	Price for IP55 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 230</math> V (3-phase supply AC voltage range 200-240 V)</b>								
0.75	4.6	0.6	3.5	3AXD50000417490		ACS580-01-04A7-2+B056	R1	
1.1	6.6	0.8	4.6	3AXD50000417506		ACS580-01-06A7-2+B056	R1	
1.5	7.5	1.1	6.6	3AXD50000417513		ACS580-01-07A6-2+B056	R1	
3.0	11.8	2.2	7.5	3AXD50000417520		ACS580-01-012A-2+B056	R1	
4.0	16.7	3	10.6	3AXD50000417537		ACS580-01-018A-2+B056	R1	
5.5	24.2	4	16.7	3AXD50000417544		ACS580-01-025A-2+B056	R2	
7.5	30.8	5.5	24.2	3AXD50000417551		ACS580-01-032A-2+B056	R2	
11.0	46.2	7.5	30.8	3AXD50000417568		ACS580-01-047A-2+B056	R3	
15.0	59	11	46	3AXD50000417575		ACS580-01-060A-2+B056	R3	
22.0	88	18.5	75	3AXD50001179298		ACS580-01-091A-2+B056	R4	
30	114	22	88	3AXD50000417599		ACS580-01-115A-2+B056	R5	
37	143	30	114	3AXD50000417605		ACS580-01-144A-2+B056	R6	
45	169	37	143	3AXD50000417612		ACS580-01-171A-2+B056	R7	
55	211	45	169	3AXD50000417629		ACS580-01-213A-2+B056	R7	
75	273	55	211	3AXD50000417636		ACS580-01-276A-2+B056	R8	

## Light-duty use

$P_{Ld}$	Typical motor power in light-duty use
$I_{Ld}$	Continuous current allowing 110% $I_{Ld}$ for 1 minute every 10 minutes at 40 °C

## Heavy-duty use ratings

$P_{Hd}$	Typical motor power in heavy-duty use
$I_{Hd}$	Continuous current allowing 150% $I_{Hd}$ for 1 min/10 min at 40 °C

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP00	Electrical code/ reference code	ABB type code/order code for IP00 units	Frame size	Price for IP00 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 400</math> V (3-phase supply AC voltage range 380-480 V)</b>								
250	485	200	361	3AUA0000170509		ACS580-04-505A-4	R10	
315	575	250	429	3AUA0000170521		ACS580-04-585A-4	R10	
355	634	250	477	3AUA0000170522		ACS580-04-650A-4	R10	
400	715	315	566	3AUA0000170523		ACS580-04-725A-4	R11	
450	810	355	625	3AUA0000170524		ACS580-04-820A-4	R11	
500	865	400	725*)	3AUA0000170525		ACS580-04-880A-4	R11	

## Light-duty use

$P_{Ld}$	Typical motor power in light-duty use
$I_{Ld}$	Continuous current allowing 110% $I_{Ld}$ for 1 minute every 10 minutes at 40 °C

## Heavy-duty use ratings

$P_{Hd}$	Typical motor power in heavy-duty use
$I_{Hd}$	*) Continuous current allowing 140% $I_{Hd}$ for 1 min/10 min at 40 °C

For more technical information, see ACS580 catalog (3AUA0000145061 EN) or ABB drives product guide (3AFE68401771 EN)

# ABB machinery drives

## ACS180, 0.25 to 22 kW









ACS180 frame sizes: R0, R1, R2, R3, R4

### What is it?

The ACS180 is an all-compatible ABB machinery drive that is ideal for compact machines. This cost-effective and compact drive is optimized for machine builders that require ease of use and reliable machine performance. The ACS180 has everything you need, and nothing you don't! It comes equipped with many built-in features that simplify ordering and delivery, and reduce commissioning costs, with everything provided in a single, compact and ready-to-use package.

The ACS180 drive is designed for installers, machine builders and panel builders.

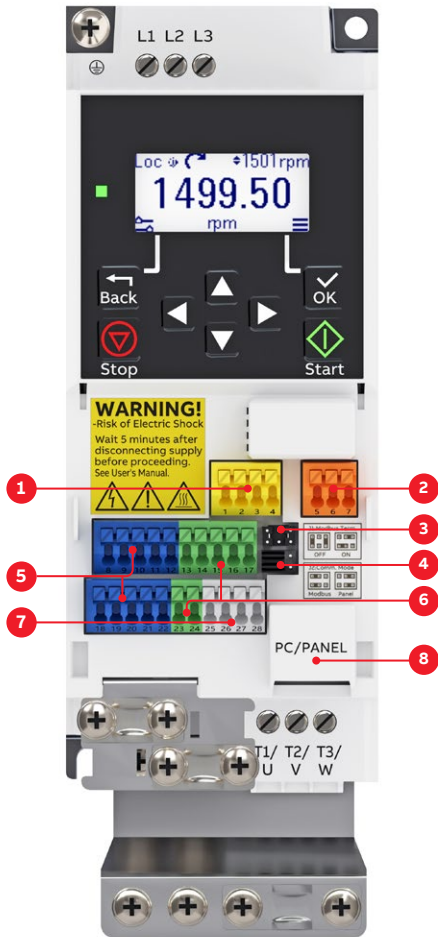
### Typical applications

Industry	Application	Customer benefits
 <b>Food and beverage</b>	Blowers, conveyors, fans, pumps, mixers, dryers, ovens	<ul style="list-style-type: none"> <li>Accurate control and reliable design increase productivity</li> <li>Precise speed and torque control increases production uptime even when the load varies</li> <li>Safe Torque Off (SIL 3) function ensures machine and personnel safety</li> <li>Minimized downtime with robust and reliable design</li> </ul>
 <b>Material handling</b>	Conveyors, polishing, cutting, drills	<ul style="list-style-type: none"> <li>Precise speed or torque control for high stretching accuracy and better quality of the end product</li> <li>Safe Torque Off (SIL 3) function ensures machine and personnel safety</li> <li>Soft acceleration and deceleration can be achieved by S-curve speed ramp, reducing the stress on mechanical parts</li> <li>Minimized downtime with robust and reliable design</li> </ul>
 <b>Textile</b>	Conveyors, drum washers, fans, dyeing machines, pumps	<ul style="list-style-type: none"> <li>Precise speed or torque control for high stretching accuracy and better quality of the end product</li> <li>Adjustable torque limit to prevent damage to mechanical equipment</li> <li>Minimized downtime with robust and reliable design</li> <li>Undervoltage control ensures uninterrupted production during power network disturbances</li> </ul>
 <b>Logistics</b>	Belt conveyors, roller conveyors	<ul style="list-style-type: none"> <li>Accurate and precise speed and torque control increases production uptime even when the load varies.</li> <li>Adjustable torque limit to prevent damage to mechanical equipment</li> <li>Flux braking improves the dynamic performance</li> <li>Safe Torque Off (SIL 3) function ensures machine and personnel safety</li> <li>Implements machine logic with adaptive and sequence programming and reduces the number of external components</li> </ul>
 <b>Plastics</b>	Auxiliary devices for extrusion and injection molding machines, cooling pumps and fans	<ul style="list-style-type: none"> <li>Accurate and precise speed and torque control increases production uptime even when the load varies</li> <li>Smooth acceleration to prevent breaking the web of plastic film</li> <li>The scalable all-compatible platform allows easy process and component optimization with different drive types that share the same user interface and tools</li> </ul>
 <b>Commercial appliance</b>	Washing machines, automatic gates, rotary gate, treadmills	<ul style="list-style-type: none"> <li>Compact design for installing in commercial appliances</li> <li>Enhanced quality of end products with smooth control of the motor and process</li> <li>Adjustable torque limit to prevent damage to mechanical equipment</li> <li>Safe Torque Off (SIL 3) function ensures machine and personnel safety</li> <li>Built-in EMC filter for domestic environment</li> </ul>

**Inputs and outputs**

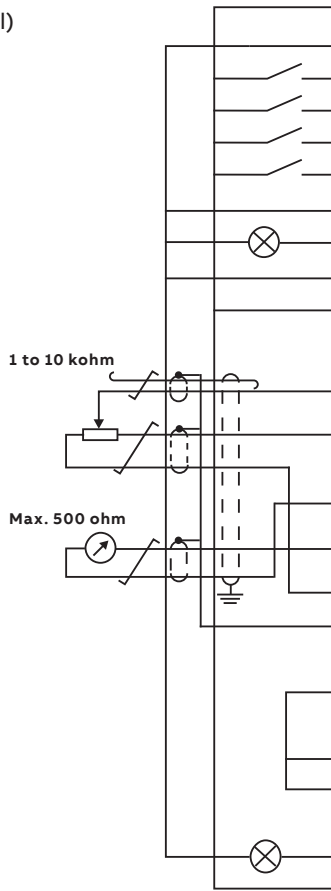
ACS180 drives offer a wide range of standard interfaces via spring terminals. The standard variant includes:

- 4 DI + 1 DO + 2 AI + 1 AO + 1 RO + STO + 10 & 24 VDC
- Embedded Modbus RTU (external panel)



1. Safe Torque Off (STO)
2. Relay output
3. Modbus termination
4. Communication mode jumper
5. Digital inputs and outputs
6. Analog inputs and outputs
7. EIA-485 Modbus RTU
8. Panel connector (external panel or adapter for PC connection)

**Default I/O connections of standard variant**



Terminals	Descriptions
<b>Digital inputs and outputs</b>	
21 24 V	Aux. voltage output +24 V DC
22 DGND	Aux. voltage output common
8 DI1	Digital input 1: Stop (0)/Start (1)
9 DI2	Digital input 2: Forward (0)/Reverse (1)
10 DI3	Digital input 3: Speed selection
11 DI4	Digital input 4: Speed selection
12 DCOM	Digital input common for all
18 DO	Digital output (running)
19 DO COM	Digital output common
20 DO SRC	Digital output auxiliary voltage
<b>Analog inputs and outputs</b>	
14 AI1/DI5	Analog input 1/Digital input 5: Speed reference (0...10 V)
13 AGND	Analog input circuit common
15 AI2	Analog input 2 (not used)
16 AGND	Analog input circuit common
17 AO	Analog output: Output frequency (0...20 mA)
23 10 V	Reference voltage +10 V DC
24 SCREEN	Signal cable shield (screen)
<b>Safe Torque Off (STO) *)</b>	
1 S+	Safe Torque Off function. Connected at the factory. Drive starts only when both circuits are closed.
2 SGND	
3 S1	
4 S2	
<b>Relay output</b>	
5 NC	No fault [Fault (-1)]
6 COM	
7 NO	
<b>EIA-485 Modbus RTU</b>	
25 B+	Embedded Modbus RTU (EIA-485) External panel and Modbus RTU share same port internally.
26 A-	
27 AGND	
28 SHIELD	
<b>Termination</b>	

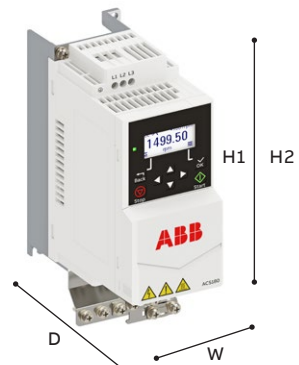
<b>PC/PANEL connection</b>	
<b>PC/PANEL(RJ45)</b>	Use standard Cat 5e or better Ethernet cable with male RJ45 connector to connect external control panel. Or use the BCBL-01 (USB to EIA-485) cable to connect the drive with PC directly. Note: This connection is not a network port, DO NOT connect it to Ethernet.

\*) Only with S-variant.

**Dimensions and weights**

ACS180 IP20					
Frame size	Height 1 (mm)	Height 2 (mm)	Width (mm)	Depth (mm)	Weight (kg)
R0	174	209	70	143	0.9
R1	190	220	70	143	1.3
R2	202	230	120	143	1.9
R3	205	241	170	174	3.3
R4	205	240	260	178	5.3

Height 1: Total height of the drive without grounding plate.  
Height 2: Total height of the drive with grounding plate



## Types and voltages

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP21	Electrical code/ reference code	ABB type code/order code for IP21 units	Frame size	Price for IP21 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>1-phase, <math>U_N = 230</math> V (range 200 to 240 V). The power ratings are valid at nominal voltage 230 V (0.25 to 3 kW).</b>								
0.37	2.4	0.25	1.8	3AXD50000716562		ACS180-04S-02A4-1	R0	
0.55	3.5	0.37	2.4	3AXD50000716579		ACS180-04S-03A7-1	R0	
0.75	4.6	0.55	3.5	3AXD50000716586		ACS180-04S-04A8-1	R0	
1.1	6.6	0.75	4.5	3AXD50000716593		ACS180-04S-06A9-1	R1	
1.5	7.5	1.1	6.6	3AXD50000716609		ACS180-04S-07A8-1	R1	
2.2	9.3	1.5	7.5	3AXD50000716616		ACS180-04S-09A8-1	R1	
3	11.6	2.2	9.3	3AXD50000840359		ACS180-04S-12A2-1	R2	

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP21	Electrical code/ reference code	ABB type code/order code for IP21 units	Frame size	Price for IP21 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 230</math> V (range 200 to 240 V). The power ratings are valid at nominal voltage 230 V (0.25 to 11 kW).</b>								
0.37	2.3	0.25	1.8	3AXD50000827374		ACS180-04S-02A4-2	R0	
0.55	3.5	0.37	2.3	3AXD50000827510		ACS180-04S-03A7-2	R0	
0.75	4.6	0.55	3.2	3AXD50000827534		ACS180-04S-04A8-2	R0	
1.1	6.6	0.75	4.6	3AXD50000827589		ACS180-04S-06A9-2	R1	
1.5	7.4	1.1	6.6	3AXD50000827602		ACS180-04S-07A8-2	R1	
2.2	9.3	1.5	7.4	3AXD50000827626		ACS180-04S-09A8-2	R1	
3	14.6	2.2	9.3	3AXD50000822232		ACS180-04S-15A6-2	R2	
4	16.7	3	14.6	3AXD50000814114		ACS180-04S-17A5-2	R2	
5.5	24.2	4	16.7	3AXD50000814268		ACS180-04S-25A0-2	R3	
7.5	30.8	5.5	24.2	3AXD50000874354		ACS180-04S-033A-2	R3	
11	46.2	7.5	30.8	3AXD50000814589		ACS180-04S-048A-2	R4	
11	50.2	11	44	3AXD50000814619		ACS180-04S-055A-2	R4	

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP21	Electrical code/ reference code	ABB type code/order code for IP21 units	Frame size	Price for IP21 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 400</math> V (range 380 to 480 V). The power ratings are valid at nominal voltage 400 V (0.37 to 22 kW).</b>								
0.55	1.7	0.37	1.2	3AXD50000716623		ACS180-04S-01A8-4	R0	
0.75	2.5	0.55	1.8	3AXD50000716630		ACS180-04S-02A6-4	R0	
1.1	3.1	0.75	2.4	3AXD50000716647		ACS180-04S-03A3-4	R0	
1.5	3.8	1.1	3.3	3AXD50000716654		ACS180-04S-04A0-4	R1	
2.2	5.3	1.5	4	3AXD50000716661		ACS180-04S-05A6-4	R1	
3	6.8	2.2	5.6	3AXD50000716678		ACS180-04S-07A2-4	R1	
4	8.9	3	7.2	3AXD50000716685		ACS180-04S-09A4-4	R1	
5.5	12	4	9.4	3AXD50000814077		ACS180-04S-12A6-4	R2	
7.5	16.2	5.5	12.6	3AXD50000814176		ACS180-04S-17A0-4	R2	
11	23.8	7.5	17	3AXD50000814237		ACS180-04S-25A0-4	R3	
15	30.5	11	25	3AXD50000874316		ACS180-04S-033A-4	R3	
18.5	36	15	32	3AXD50000814497		ACS180-04S-038A-4	R4	
22	42	18.5	38	3AXD50000814435		ACS180-04S-045A-4	R4	
22	48	22	45	3AXD50000814558		ACS180-04S-050A-4	R4	

## Light-duty use

$P_{Ld}$	Typical motor power in light-duty use.
$I_{Ld}$	Continuous current allowing 110% $I_{Ld}$ for 1 minute every 10 minutes at 40 °C.

## Heavy-duty use ratings

$P_{Hd}$	Typical motor power in heavy-duty use.
$I_{Hd}$	Continuous current allowing 150% $I_{Hd}$ for 1 minute every 10 minutes at 50 °C.





# ABB machinery drives

## ACS380, 0.25 to 22 kW










ACS380 frame sizes: R0, R1, R2, R3 and R4

### What is it?

ACS380 is an all-compatible ABB machinery drive specifically designed to offer high performance, adaptability and reliable operation to machine builders. The customers can configure and optimize the units to match their exact needs – the drive fulfills all their needs by utilizing great motor control accuracy and performance.

Whether the requirement is high starting torque, accurate speed control, stable torque or dynamic response to sudden load variation, the ACS380 drive meets it with or without encoder feedback commanding excellent motor control in a wide range of industries and applications.

### Typical applications

Industry	Application	Customer benefits
 <b>Food and beverage</b>	Mixers, conveyors, mills, compressors, blowers, fans, pumps, dryers, ovens, extruders	<ul style="list-style-type: none"> <li>Precise speed control guarantees food production quality in different conditions</li> <li>Robust design to maximize machine lifetime</li> <li>Safe Torque Off (SIL 3/PL e) function ensures machine and personnel safety</li> <li>Product flexibility to meet requirements of different food production machines</li> </ul>
 <b>Material handling</b>	Conveyors, hoisting, cranes	<ul style="list-style-type: none"> <li>High starting torque for demanding operation and movements</li> <li>Soft acceleration and deceleration with S-curve speed ramp, reducing the stress on the mechanical parts</li> <li>Crane compatible mechanical brake control logic built in, including other crane application features</li> <li>Integrated brake chopper enabling faster and accurate stop and reversing cycles</li> <li>Safe Torque Off (SIL 3) function to prevent unexpected movements (POUS)</li> </ul>
 <b>Textile</b>	Conveyors, drum washers, dyeing machines, spinning, pumps	<ul style="list-style-type: none"> <li>Precise and adjustable speed and torque control for highly accurate stretching management and better quality of the end product</li> <li>Coated circuit boards, 50 °C ambient without derating and minimized air flow through electronics for reliable operation in harsh environments</li> <li>Undervoltage control ensures uninterrupted production during power network disturbance</li> </ul>
 <b>Logistics</b>	Belt conveyors, roller conveyors	<ul style="list-style-type: none"> <li>Accurate and precise speed and torque control increases production uptime even when the load varies</li> <li>Adjustable torque limit to prevent damage to mechanical equipment</li> <li>Flux braking improves the dynamic performance</li> <li>Safe Torque Off (SIL 3) function ensures machine and personnel safety</li> <li>Implements machine logic with adaptive and sequence programming and reduces the number of external components</li> </ul>
 <b>Plastics</b>	Extruders, molding machines, hoppers, polishers	<ul style="list-style-type: none"> <li>Accurate speed control to enable a steady extrusion process</li> <li>Smooth speed profile to prevent plastic film web breakages</li> <li>The scalable all-compatible platform allows easy process and component optimization with different drive types that share the same user interface and tools</li> </ul>
 <b>Lumber and wood</b>	Conveyors, sorting lines, sanding, cutting, spindles	<ul style="list-style-type: none"> <li>High starting torque for demanding operation and movements</li> <li>Soft acceleration and deceleration with S-curve speed ramp, reducing the stress on the mechanical parts</li> <li>Mechanical brake control logic built in</li> <li>Integrated brake chopper enabling faster and accurate stop and reversing cycles</li> <li>Safe Torque Off (SIL 3) function to prevent unexpected movements</li> </ul>
 <b>Machine tools</b>	Drills, spindles, special purpose machines	<ul style="list-style-type: none"> <li>Accurate speed control</li> <li>High starting torque</li> <li>Fieldbus connectivity</li> <li>STO</li> </ul>

**Standard variant (ACS380-04xS)**

Meets the most typical machinery requirements.

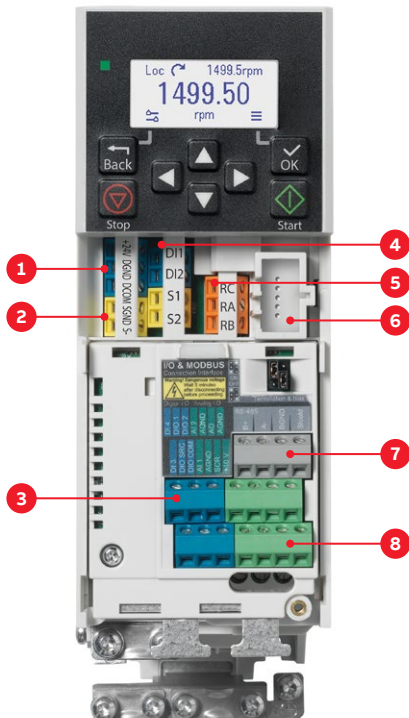
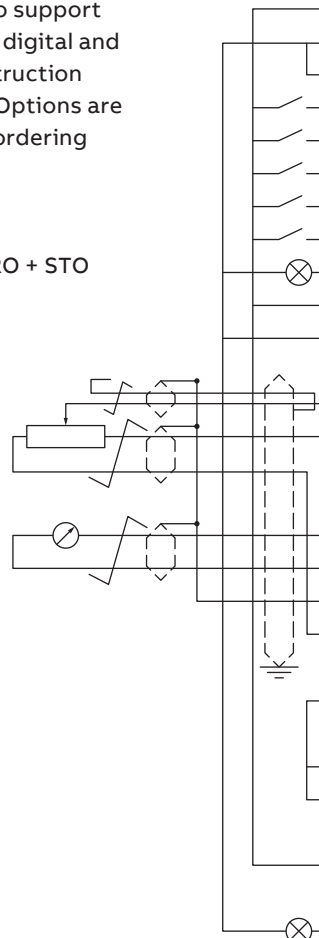
A standard variant (ACS380-04xS) includes BMIO-01 module in the delivery to support Modbus RTU and a wide range of digital and analog I/O. In addition, this construction variant has one side option slot. Options are available as loose items via MRP ordering codes.

**The standard variant includes:**

- 4 DI + 2 DI/DO + 2 AI + 1 AO + 1 RO + STO
- Embedded Modbus RTU

**Default I/O connections of standard variant (ACS380-04xS)**

Terminals	Descriptions
<b>Aux. voltage output and digital connections</b>	
+24 V	Aux. voltage output +24 V DC, max. 250 mA
DGND	Aux. voltage output common
DCOM	Digital input common for all
DI 1	Digital input 1: Stop (0)/Start (1)
DI 2	Digital input 2: Forward (0)/Reverse (1)
DI 3	Digital input 3: Speed selection
DI 4	Digital input 4: Speed selection
DIO 1	Digital input function: Ramp set 1 (0)/Ramp set 2 (1)
DIO 2	Digital output function: Ready to run (0)/Not ready (1)
DIO SRC	Signal cable shield (screen)
DIO COM	Digital input common for all
<b>Reference voltage and analog I/O</b>	
AI 1	Output frequency/Speed reference (0...10 V)
AGND	Analog input circuit common
AI 2	Not configured
AGND	Analog input circuit common
AO	Output frequency (0...20 mA)
AGND	Analog output circuit common
SCR	Signal cable shield (screen)
+10 V	Reference voltage
<b>Safe Torque Off (STO)</b>	
S+	Safe Torque Off function. Connected at the factory. The drive starts only when both circuits are closed. Refer to the Safe Torque Off function in the hardware manual.
SGND	
S 1	
S 2	
<b>Relay output</b>	
RC	No fault [Fault (-1)]
RA	
RB	
<b>EIA-485 Modbus RTU</b>	
B+	Embedded Modbus RTU (EIA-485)
A-	
BGND	
Shield	
Termination	



1. Auxiliary voltage outputs
2. Safe Torque Off connections
3. Digital inputs and outputs
4. Digital inputs
5. Relay output connection
6. Cold configuration connection for CCA-01
7. EIA-485 Modbus RTU
8. Analog inputs and outputs

Dimensions and weights

Dimensions and weights (IP20 / UL open type)											
Frame size	H1 (mm)	H2 (mm)	H3 (mm)	W1 (mm)	W2 (mm)	W3 (mm)	D1 (mm)	D2 (mm)	M1 (mm)	M2 (mm)	Weight (kg)
R0	205	223	170	70	86	94	176	191	50	191	1.4
R1	205	223	170	70	86	94	176	191	50	191	1.4
R2	205	223	170	95	111	119	176	191	75	191	2
R3	205	241	170	170	186	194	176	191	148	191	3.3
R4	205	240	170	260	276	284	181	196	234	191	5.3

H1 = Mounting surface height (back)

H2 = Height, total

H3 = Enclosure height (front)

W1 = Width without side option

W2 = Width with side option BAPO-01

W3 = Width with side options BTAC-02, BREL-01

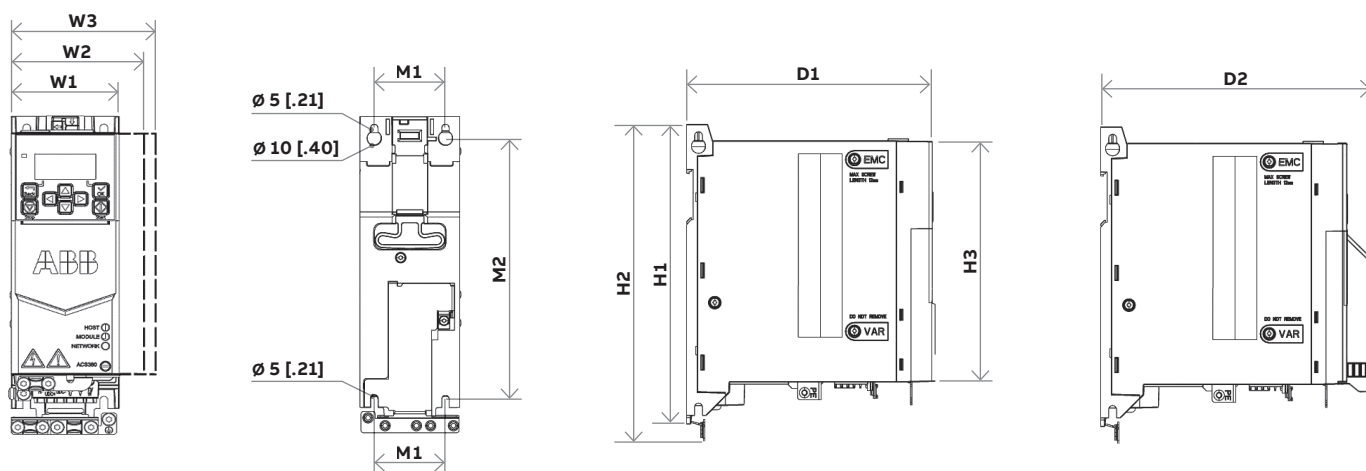
D1 = Depth

D2 = Depth with deeper cover \*)

M1 = Mounting hole distance 1

M2 = Mounting hole distance 2

\*) Deeper cover (with BIO-01 or FSPS-21 or FSCS-21) will increase normal depth (D1) by 15 mm



Dimensions and weights (drive with UL type 1 kit)											
Frame size	H1 (mm)	H2 (mm)	H3 (mm)	W1 (mm)	W2 (mm)	W3 (mm)	D (mm)	M1 (mm)	M2 (mm)	Weight (kg)	
R0	205	285	247	70	86	94	191	50	191	1.8	
R1	205	293	247	70	86	94	191	50	191	1.8	
R2	205	293	247	95	111	119	191	75	191	2.5	
R3	205	329	261	170	186	194	191	148	191	4	
R4	205	391	312	260	276	284	196	234	191	6.5	

H1 = Mounting surface height (back)

H2 = Height with UL Type 1 kit, total

H3 = Height with UL type 1 kit, enclosure (front)

W1 = Width without side option

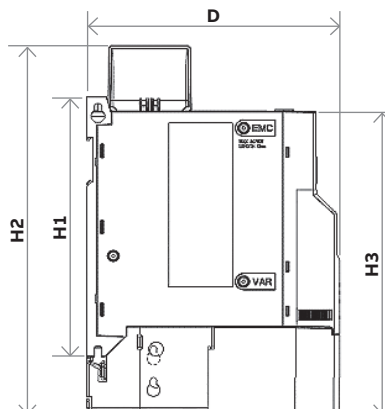
W2 = Width with side option BAPO-01

W3 = Width with side options BTAC-02, BREL-01

D = Depth

M1 = Mounting hole distance 1

M2 = Mounting hole distance 2



For other variants and options see the ACS380 catalog (3AUA0000187460 EN) or ABB drives product guide (3AFE68491771 EN)

## Types and voltages

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP21	Electrical code/ reference code	ABB type code/order code for IP21 units	Frame size	Price for IP21 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>1-phase, <math>U_N = 230</math> V (range 200 to 240 V). The power ratings are valid at nominal voltage 230 V (0.25 to 3.0 kW).</b>								
0.37	2.3	0.25	1.8	3AXD50000031872		ACS380-040S-02A4-1	R0	
0.55	3.5	0.37	2.4	3AXD50000031873		ACS380-040S-03A7-1	R0	
0.75	4.6	0.55	3.7	3AXD50000031874		ACS380-040S-04A8-1	R1	
1.1	6.6	0.75	4.8	3AXD50000031875		ACS380-040S-06A9-1	R1	
1.5	7.4	1.1	6.9	3AXD50000031876		ACS380-040S-07A8-1	R1	
2.2	9.3	1.5	7.8	3AXD50000031877		ACS380-040S-09A8-1	R2	
3.0	11.6	2.2	9.8	3AXD50000031878		ACS380-040S-12A2-1	R2	

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP21	Electrical code/ reference code	ABB type code/order code for IP21 units	Frame size	Price for IP21 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 230</math> V (range 200 to 240 V). The power ratings are valid at nominal voltage 230 V (0.25 to 15 kW).</b>								
0.37	2.3	0.25	1.8	3AXD50000161850		ACS380-040S-02A4-2	R1	
0.55	3.5	0.37	2.4	3AXD50000161867		ACS380-040S-03A7-2	R1	
0.75	4.6	0.55	3.7	3AXD50000161874		ACS380-040S-04A8-2	R1	
1.1	6.6	0.75	4.8	3AXD50000161881		ACS380-040S-06A9-2	R1	
1.5	7.5	1.1	6.9	3AXD50000161898		ACS380-040S-07A8-2	R1	
2.2	9.3	1.5	7.8	3AXD50000161904		ACS380-040S-09A8-2	R1	
3	11.6	2.2	9.8	3AXD50000162017		ACS380-040S-12A2-2	R2	
4	16.7	3	12.2	3AXD50000162024		ACS380-040S-17A5-2	R3	
5.5	24.2	4	17.5	3AXD50000162031		ACS380-040S-25A0-2	R3	
7.5	30.8	5.5	25	3AXD50000162048		ACS380-040S-032A-2	R4	
11	46.2	7.5	32	3AXD50000162055		ACS380-040S-048A-2	R4	
15	52.8	11	48	3AXD50000162062		ACS380-040S-055A-2	R4	

Light-duty applications		Heavy-duty applications		ABB ordering code Enclosure IP21	Electrical code/ reference code	ABB type code/order code for IP21 units	Frame size	Price for IP21 units  (Eur)
$P_{Ld}$ (kW)	$I_{Ld}$ (A)	$P_{Hd}$ (kW)	$I_{Hd}$ (A)					
<b>3-phase, <math>U_N = 400</math> V (range 380 to 480 V). The power ratings are valid at nominal voltage 400 V (0.37 to 22 kW).</b>								
0.55	1.7	0.37	1.2	3AXD50000031886		ACS380-040S-01A8-4	R0	
0.75	2.5	0.55	1.8	3AXD50000031887		ACS380-040S-02A6-4	R1	
1.1	3.1	0.75	2.6	3AXD50000031888		ACS380-040S-03A3-4	R1	
1.5	3.8	1.1	3.3	3AXD50000031889		ACS380-040S-04A0-4	R1	
2.2	5.3	1.5	4	3AXD50000031890		ACS380-040S-05A6-4	R1	
3	6.8	2.2	5.6	3AXD50000031891		ACS380-040S-07A2-4	R1	
4	8.9	3	7.2	3AXD50000031892		ACS380-040S-09A4-4	R1	
5.5	12	4	9.4	3AXD50000031893		ACS380-040S-12A6-4	R2	
7.5	16.2	5.5	12.6	3AXD50000031894		ACS380-040S-17A0-4	R3	
11	23.8	7.5	17	3AXD50000031895		ACS380-040S-25A0-4	R3	
15	30.5	11	25	3AXD50000162192		ACS380-040S-032A-4	R4	
18.5	36	15	32	3AXD50000162208		ACS380-040S-038A-4	R4	
22	42.8	18.5	38	3AXD50000162215		ACS380-040S-045A-4	R4	
22	48	22	45	3AXD50000162222		ACS380-040S-050A-4	R4	

## Light-duty use








$P_{Ld}$	Typical motor power in light-duty use.
$I_{Ld}$	Continuous current allowing 110% $I_{Ld}$ for 1 minute every 10 minutes at 50 °C.

## Heavy-duty use ratings

$P_{Hd}$	Typical motor power in heavy-duty use.
$I_{Hd}$	Continuous current allowing 150% $I_{Hd}$ for 1 minute every 10 minutes at 50 °C.












# Options and accessories

## ACS480 and ACS580

ACS480 and ACS580 options and accessories						
	Type code	Electrical code/ ordering code		Price (Eur)	ACS480	ACS580
<b>Control panels</b>						
	ACS-AP-S	3AUA0000064884	Assistant control panel, delivered as standard if no other display option is selected. Features commissioning and diagnostic assistants, a multilingual display and a real-time clock.		●	●
	ACS-AP-I	3AUA0000088311	Industrial control panel replaces standard ACS-AP-S control panel. Works with all drives from ABB all-compatible portfolio.		●	●
	ACS-AP-W	3AXD5000025965	Control panel with Bluetooth interface		●	●
	CDUM-01	3AXD5000009843	Blank control panel cover replaces control panel (no control panel)			●
	DPMP-EXT	3AXD50000010763	Combined panel bus adapter and panel platform kit, enables mounting of the control panel on the cabinet door			●
	DPMP-EXT2	3AXD50000048730	Combined Blank panel with RJ45 connector and panel platform kit, enables mounting of the control panel on the cabinet door (RDUM-01 and DPMP-21)		●	
	DPMP-01	3AUA0000108878	Control panel mounting platform (flush)		●	●
	DPMP-02	3AXD50000009374	Control panel mounting platform (surface)		●	●
	DPMP-04 *)	3AXD50000217717	Control panel mounting kit for outdoor installation		●	●
	CDPI-01	3AXD50000004419	Panel bus adapter			●
	CDPI-02 *)	3AXD50000313204	Panel bus adapter		●	
	RDUM-01	3AXD50000040008	Blank panel with RJ45 connector		●	

\*) For availability please contact your local ABB.

**ACS480 and ACS580 options and accessories**

	Type code	Electrical code/ ordering code		Price (Eur)	ACS480	ACS580
<b>Fieldbus adapter modules <sup>1)</sup></b>						
	FDNA-01	68469341	DeviceNet™ protocol		●	●
	FPBA-01	68469325	PROFIBUS DP protocol		●	●
	FCAN-01	68469376	CANopen® protocol		●	●
	FCNA-01	3AUA0000094512	ControlNet protocol		●	●
	FEIP-21	3AXD50000192786	Two-Port EtherNet/IP protocol		●	●
	FMBT-21	3AXD50000049964	Two-Port Modbus/TCP protocol		●	●
	FPNO-21	3AXD50000192779	Two-Port PROFINET IO protocol		●	●
	FECA-01	3AUA0000072069	EtherCAT® protocol		●	●
	FSCA-01	3AUA0000031336	Modbus/RTU		●	●
	FEPL-02	3AUA0000072120	POWERLINK protocol		●	●
	FSPS-21	3AXD50000112821	PROFIsafe safety functions module			●
	FCSC-21	3AXD50001021061	CIP Safety functions module			●
<b>Remote monitoring</b>						
	NETA-21	3AUA0000094517	Ethernet adapter with remote monitoring access can send process data, data logs and event messages independently, without a PLC or a dedicated on-site computer. It has an internal web server for configuration and drive access.		●	●
<b>Input/output extension module</b>						
	CAIO-01	3AXD50000709243	Analogue signal extension 3 x AI and 2 x AO			●
	CMOD-01	3AXD50000004420	External 24 V AC and DC input 2 x RO and 1 x DO			●
	CMOD-02	3AXD50000004418	External 24 V AC and DC input and isolated PTC interface			●
	CHDI-01	3AXD50000004431	Six 115/230 V AC digital inputs and two relay outputs			●
	CAIO-01	3AXD50000709243	Bipolar analog I/O extension module			●
	CPTC-02	3AXD50000033578	ATEX certified PTC interface and external 24 V			●
	BIO-01	3AXD50000191635	I/O extension module used together with a fieldbus module		●	
	BAPO-01	3AXD50000022164	Auxiliary power extension module External 24 V DC input		●	
	BREL-01	3AXD50000022162	Relay output extension module 4 x RO		●	
<b>Drive construction options</b>						
	IP20 shrouds for finger safe operation	+B051	Factory-made enclosure for the IP20 protection class on ACS580-04 drives			●
	Full-size input power cable terminals	+H370	For connecting the ACS580-04 drive to busbars or to multiple cables			●

<sup>1)</sup> One slot available for a fieldbus adapter. Modbus EIA-485 built-in as standard.

## ACS480 and ACS580 options and accessories

Type code	Electrical code/ ordering code		Price (Eur)	ACS480	ACS580
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## Brake units

ACS580 frame sizes R1, R2 and R3 and ACS480 frame sizes R1, R2, R3 and R4 are delivered with an integrated brake chopper as standard. Other units can use external braking choppers and resistors or integrated braking chopper and resistor unit.

			Reference brake resistors are listed in the manuals. Make sure to dimension them correctly.		● ●
ACS-BRK-D	64102931		Integrated braking chopper and resistor. Resistor's resistance 10.5 ohm, continuous output power 7 kW, maximum output power for 20 s is 42 kW for 380 to 480 V units		●
NBRA-658	59006428		Braking chopper module. Maximum braking power depends on a braking cycle, drive's typecode and brake resistor. For further details, please refer to the hardware manual.		●
NBRA-659	59006436				●

## Flange mounting kits



	3AXD50000105311		Flange mounting kit for the frame size R1 IP21		●
	3AXD50000105328		Flange mounting kit for the frame size R2 IP21		●
	3AXD50000105335		Flange mounting kit for the frame size R3 IP21		●
	3AXD50000031460		Flange mounting kit for the frame size R4 IP21		●
	3AXD50000031461		Flange mounting kit for the frame size R5 IP21		●
6438177339694	3AXD50000018852		Flange mounting kit for the frame size R6, IP21		●
6438177339700	3AXD50000018853		Flange mounting kit for the frame size R7, IP21		●
6438177339816	3AXD50000018854		Flange mounting kit for the frame size R8, IP21		●
6438177339823	3AXD50000018855		Flange mounting kit for the frame size R9, IP21		●

## PC tools, configuration tools and adapters



Drive Composer entry	Download free from <a href="http://www.abb.com/drives">www.abb.com/drives</a>		Drive Composer PC tool for startup, configuration, monitoring and process tuning. PC tool is connected to the drive's control panel via USB interface or via Bluetooth if Bluetooth Assistant control panel is used.		● ●
DCPT-01 Drive Composer pro	3AUA0000108087 (1 user license) 3AUA0000145150 (10 users license) 3AUA0000145151 (20 users license)		Drive Composer pro provides the same standard functionality as the free version and some additional features, like graphic control diagrams. The tool has fast monitoring capabilities of multiple signals from several drives in the panel bus. Full backup and restore functions are also included.		● ●
CCA-01	3AXD50000019865		Cold configuration adapter provides serial communication interface to unpowered drives. This adapter ensures safety isolation of both serial communication and control board power supply. The power supply is taken from PC USB port.		● ●





ABB

Remote 114TF01 16.8 Hz  
Output frequency 16.78 Hz  
Motor current 5.56 A  
DC voltage 550.27 V  
Options 15:19 Menu








Control panel with buttons: Stop, Loc/Rem, Start, and a directional pad.

ABB







# Options and accessories








## ACS180 and ACS380

ACS180 and ACS380 options and accessories						
	Type code	Electrical code/ ordering code		Price (Eur)	ACS180	ACS380
<b>Control panels</b>						
	ACS-AP-S	3AUA0000064884	Assistant control has a graphical multilingual display which helps to set up the essential settings quickly. Can be used with any products in the ABB all-compatible product portfolio.		●	●
	ACS-AP-I	3AUA0000088311	Industrial control panel which offers compatibility to ACS880 drives.		●	●
	ACS-AP-W	3AXD0000025965	Control panel with Bluetooth interface.		●	●
	ACS-BP-S	3AXD50000028828	Basic control panel for cabinet door.		●	●
	DPMP-01	3AUA0000108878	Control panel mounting platform (flush-mounted)		●	●
	DPMP-02	3AXD50000009374	Control panel mounting platform (surface-mounted)		●	●
	DPMP-04	3AXD50000217717	Control panel mounting kit for outdoor installation.		●	●
	BSPL-01	3AXD50000131976	Panel bus adapter for daisy chaining the drives.			●
	BPLG-01	3AXD50000128624	Panel bus termination plug for the last drive.			●

**ACS180 and ACS380 options and accessories**

	Type code	Electrical code/ ordering code		Price (Eur)	ACS180	ACS380
<b>Fieldbus adapter modules</b>						
	FDNA-01	68469341	DeviceNet™			●
	FPBA-01	68469325	PROFIBUS DP, DPV0/DPV1			●
	FCAN-01	68469376	CANopen®			●
	FCNA-01	3AUA0000094512	ControlNet™			●
	FECA-01	3AUA0000072069	EtherCAT®			●
	FEPL-02	3AUA0000072120	Ethernet POWERLINK			●
	FENA-21	3AUA0000089109	2-port Ethernet (EtherNet/IP, Modbus/TCP, PROFINET IO)			●
	FEIP-21	3AXD50000192786	Ethernet/IP™			●
	FMBT-21	3AXD5000049964	Modbus/TCP			●
	FPNO-21	3AXD50000192779	PROFINET IO			●
	BCAN-11	3AXD50000033816	CANopen® (screw terminals)			●
		FSPS-21	3AXD50000112821	PROFIsafe safety functions module		
FSCS-21		3AXD50001021061	CIP Safety functions module			●
<b>Input/output extension module</b>						
	BMIO-01	3AXD50000021262				●
	BIO-01	3AXD50000191635				●
	ACS380 Deeper cover	3AXD50000190188	ACS380 optional deeper cover (Required with BIO-01+Fieldbus or FSPS-21 or FSCS-21)			●
	BAPO-01	3AXD50000022164	External 24 V DC			●
	BREL-01	3AXD50000022162	External relay option (4x relay)			●
	BTAC-02	3AXD50000022163	HTL/TTL Encoder interface + External 24 V DC			●

ACS180 and ACS380 options and accessories						
	Type code	Electrical code/ ordering code		Price (Eur)	ACS180	ACS380
<b>Input chokes</b>						
	CHK-A1	68418500	Compatibility with 1-phase, 200 to 240 V, unit 0.37 kW			●
	CHK-B1	68418518	Compatibility with 1-phase, 200 to 240 V, unit 0.55 to 0.75 kW			●
	CHK-C1	68418526	Compatibility with 1-phase, 200 to 240 V, unit 1.1 to 1.5 kW			●
	CHK-D1	68418534	Compatibility with 1-phase, 200 to 240 V, unit 2.2 to 3 kW			●
	CHK-01	68711185	Compatibility with 3-phase, 200 to 240 V, unit 0.37 kW. Compatibility with 3-phase, 380 to 480 V, unit 0.55 to 1.1 kW.			●
	CHK-02	68711193	Compatibility with 3-phase, 200 to 240 V, unit 0.55 kW. Compatibility with 3-phase, 380 to 480 V, unit 1.5 to 3 kW.			●
	CHK-03	68711215	Compatibility with 3-phase, 200 to 240 V, unit 0.75 to 1.5 kW. Compatibility with 3-phase, 380 to 480 V, unit 4 to 5.5 kW.			●
	CHK-04	68711231	Compatibility with 3-phase, 200 to 240 V, unit 2.2 to 4.0 kW. Compatibility with 3-phase, 380 to 480 V, unit 7.5 to 11 kW.			●
	CHK-05	68711240	Compatibility with 3-phase, 380 to 480 V, unit 15 kW			●
	CHK-06	68711266	Compatibility with 3-phase, 200 to 240 V, unit 5.5 to 7.5 kW. Compatibility with 3-phase, 380 to 480 V, unit 18.5 to 22 kW.			●
CHK-07	68816238	Compatibility with 3-phase, 200 to 240 V, unit 11 to 15 kW. Compatibility with 3-phase, 380 to 480 V, unit 22 kW.			●	
<b>Output chokes</b>						
	ACS-CHK-B3	64324063	Compatibility with 1-phase, 200 to 240 V, units up to 0.75 kW. Compatibility with 1-phase, 200 to 240 V, units up to 1.1 kW.			●
	ACS-CHK-C3	64324080	Compatibility with 1-phase, 200 to 240 V, units up to 0.75 kW. Compatibility with 1-phase, 200 to 240 V, units up to 1.1 kW.			●
	NOCH-0016-6x	61445412	Compatibility with 1-phase, 200 to 240 V, units up to 0.75 kW. Compatibility with 1-phase, 200 to 240 V, units up to 1.1 kW.			●
	NOCH-0030-6x	61445439	Compatibility with 1-phase, 200 to 240 V, units up to 0.75 kW. Compatibility with 1-phase, 200 to 240 V, units up to 1.1 kW.			●
	NOCH-0070-6x	61445455	Compatibility with 1-phase, 200 to 240 V, units up to 0.75 kW. Compatibility with 1-phase, 200 to 240 V, units up to 1.1 kW.			●

ACS180 and ACS380 options and accessories						
	Type code	Electrical code/ ordering code		Price (Eur)	ACS180	ACS380
<b>EMC filter</b>						
	RFI-11	68902371	Compatibility with category C1 and C2, 1-phase, 0.37 kW			●
	RFI-12	68902401	Compatibility with category C1 and C2, 1-phase, 0.75 to 1.1 kW			●
	RFI 32	68902495	Compatibility with category C1 and C2, 3-phase, 0.37 to 4.0 kW			●
	RFI-33	68902509	Compatibility with category C1 and C2, 3-phase, 5.5 to 11 kW			●
	RFI-34	3AUA0000023611	Compatibility with category C1 and C2, 3-phase, 15 to 22 kW			●
<b>PC tool, configuration tools and adapters</b>						
	Drive Composer entry	Download free from <a href="http://new.abb.com/drives/software-tools/drive-composer">new.abb.com/drives/software-tools/drive-composer</a>	Drive Composer PC tool for startup, configuration, monitoring and process tuning. PC tool is connected to the drive's control panel via USB interfaces or via Bluetooth if Bluetooth Assistant control panel is used.			● ●
	DCPT-01	3AUA0000108087 (single user licence). 3AUA0000145150 (10 users licence). 3AUA0000145151 (20 users licence).	Drive Composer pro provides the same standard functionality as the free version and some additional features, like graphic control diagrams. The tool has fast monitoring capabilities of multiple signals from several drives in the panel bus. Full backup and restore functions are also included.			● ●
	CCA-01	3AXD50000019865	Cold configuration adapter provides serial communication interface to unpowered drives. This adapter ensures safety isolation of both serial communication and control board power supply. The power supply is taken from PC USB port.			● ●
	BCBL-01	3AXD50000032449	Using the BCBL-01 cable, the PC can be connected directly to the RJ-45 panel port on the bottom of the ACS180 drive.			● ●
	BSPL-01	3AXD50000131976	Panel bus adapter. RJ-45 cable for daisy chaining drives.			●
	BPLG-01	3AXD50000128624	Panel bus termination plug for the last drive.			●
	USB cable kit	3AUA0000118107	USB cable with ferrite cores, 2 m USB A – USB Mini B (PC connection to assistant panel).			●
	BDRK-01	3AXD50000900183 (For R0 or R1, 5 sets per each package)	DIN rail mounting kit for frames R0 to R1. 5 sets per each package.			●
	BDRK-02	3AXD50000900510 (For R2, 5 sets per each package)	DIN rail mounting kit for frame R2. 5 sets per each package.			●
<b>Remote monitoring</b>						
	NETA-21	3AUA0000094517	Ethernet adapter with remote monitoring access can send process data, data logs and event messages independently, without a PLC or a dedicated on-site computer. It has an internal web server for configuration and drive access.			●

# Introducing the most extensive drives portfolio in the world

## ABB low voltage AC drives

The ABB low voltage AC drives product range, from 0.25 to 5600 kW, is the widest available from any manufacturer. These drives are the global benchmark that signifies reliability, simplicity, flexibility and ingenuity throughout the entire life cycle of the drive.

Several ABB drives feature calculators that provide energy consumption data. This information can be used to further analyze and tune a process for even greater energy savings.

The portfolio is supported by a selection of PC tools, fieldbus and communication options.

## ABB general purpose drives

ABB general purpose drives are ideal in those situations where there is a need for simplicity to install, commission and use. They are designed to control a wide range of standard drive applications, including pump, fan and constant torque use, such as conveyors.

## ABB machinery drives

ABB machinery drives can be configured to meet the precise needs of industries and order-based configuration is an integral part of the offering. Covering a wide power and voltage range with standard and optional features, the drives are readily programmable, making their adaptation to different applications easy.

## ABB industrial drives

The ABB industrial drive portfolio is designed for heavy industrial applications such as those found in pulp and paper, metals, mining, cement, power, chemical, oil and gas, water and wastewater and food and beverage. Drives adapted and approved for use in the marine environment are also included within this portfolio.



### Industry-specific drives

Our industry specific ABB drives provide our customers with dedicated drive solutions for AC motor control used in industries such as HVAC and water and wastewater. Working closely with these industries, we have developed targeted functionality to help you improve your overall operating performance while also helping to reduce energy use. Built-in application macros in the drives help you easily set up and tailor processes.

### ABB DC drives

ABB's DC drive portfolio, from 9 to 18000 kW, provides the highest power-to-size ratio on the market. The drives are designed for most industries including metals, cement, mining, pulp and paper, printing, food and beverage, wire manufacturing, test rigs, ski lift and cranes. ABB DC drives are available as complete cabinets, modules for cabinet assembly, and as retrofit kits. With built-in field exciters and integrated PLCs, they are the best DC drives choice for all new and retrofit applications.

### ABB medium voltage drives

ABB offers an extensive portfolio of variable speed drives for medium voltage applications with a power range from 250 kW to over 100 MW. ABB medium voltage drives are used in a wide range of applications in industries such as metals, marine, mining, cement, power, chemical, oil, gas, water and wastewater. The drives are equipped with air or water cooling and with different line supply connection options. Some products come with an integrated input transformer or with the capability to operate direct-to-line without an input transformer, and therefore minimize both, weight and space.

### Power controller

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

### ABB Programmable Logic Controllers (PLCs)

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



To find more information please visit:  
[new.abb.com/drives](http://new.abb.com/drives)

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## Our service expertise, your advantage

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

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

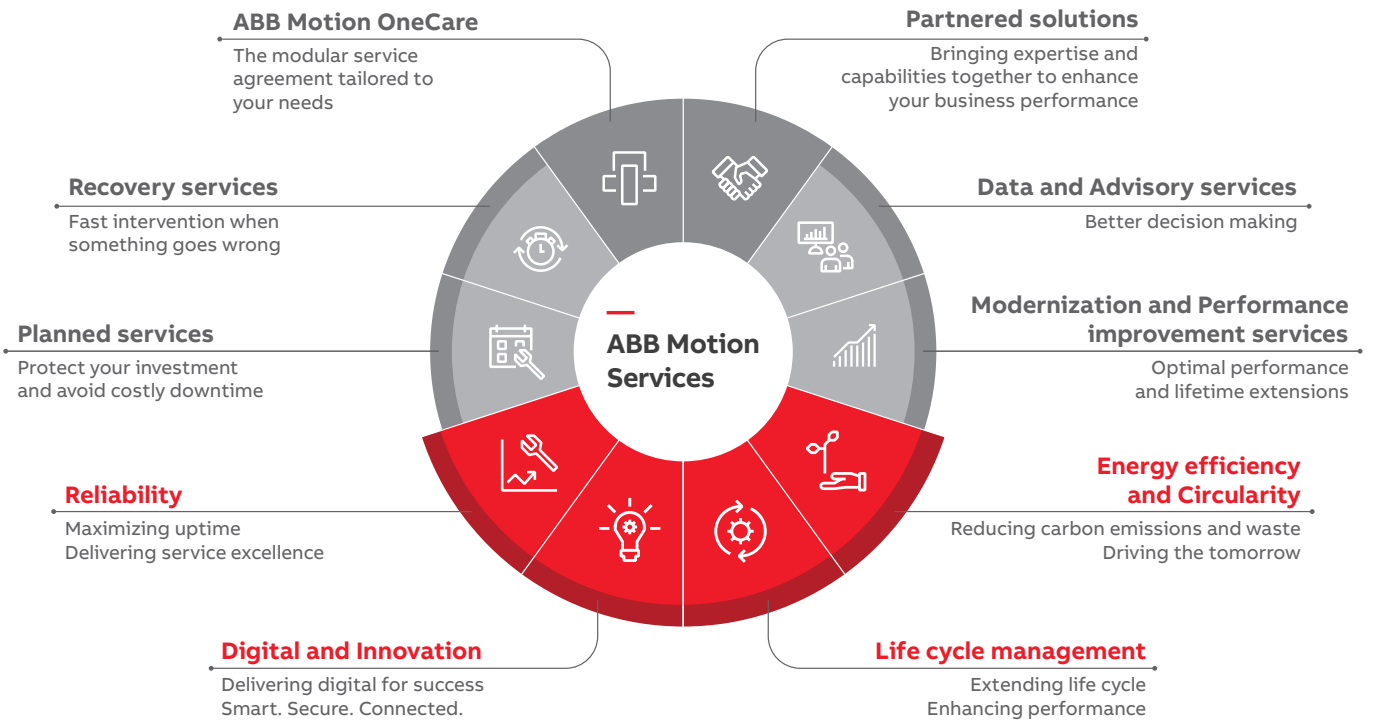
Digitalization enables new smart and secured ways to prevent unexpected downtime while optimizing the operation and maintenance of your assets. We securely connect and monitor your motors, drives or your entire powertrain to our easy to use cloud service solutions. Connecting your applications also gives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

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

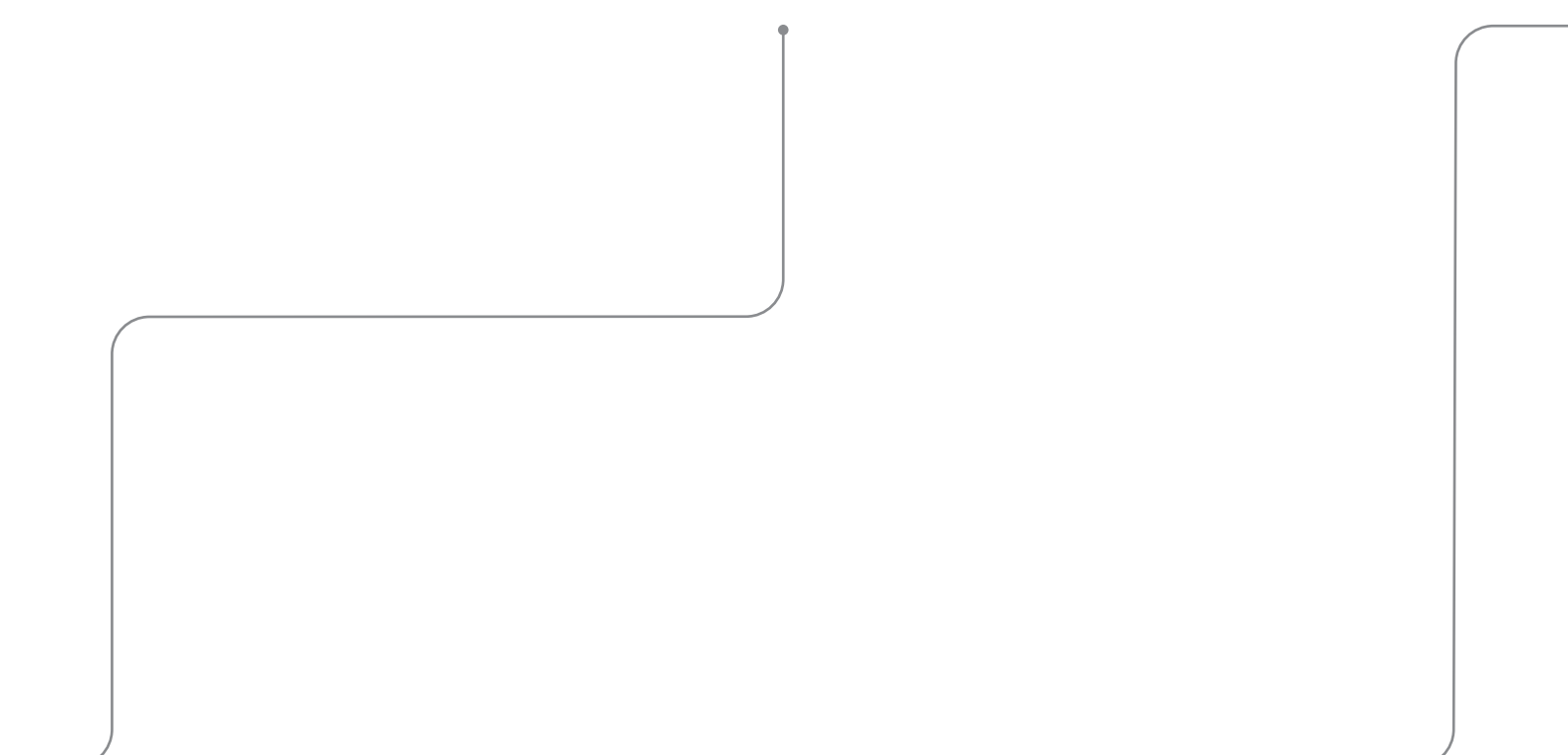
Our tailored to your needs service offerings and digital solutions will enable you to unlock new possibilities. Not only are we your premier supplier of motion equipment, we are your trusted partner and advisor offering support throughout the entire life cycle of your assets. We ensure your operations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







**OUR EXPERTISE**  
**YOUR ADVANTAGE**

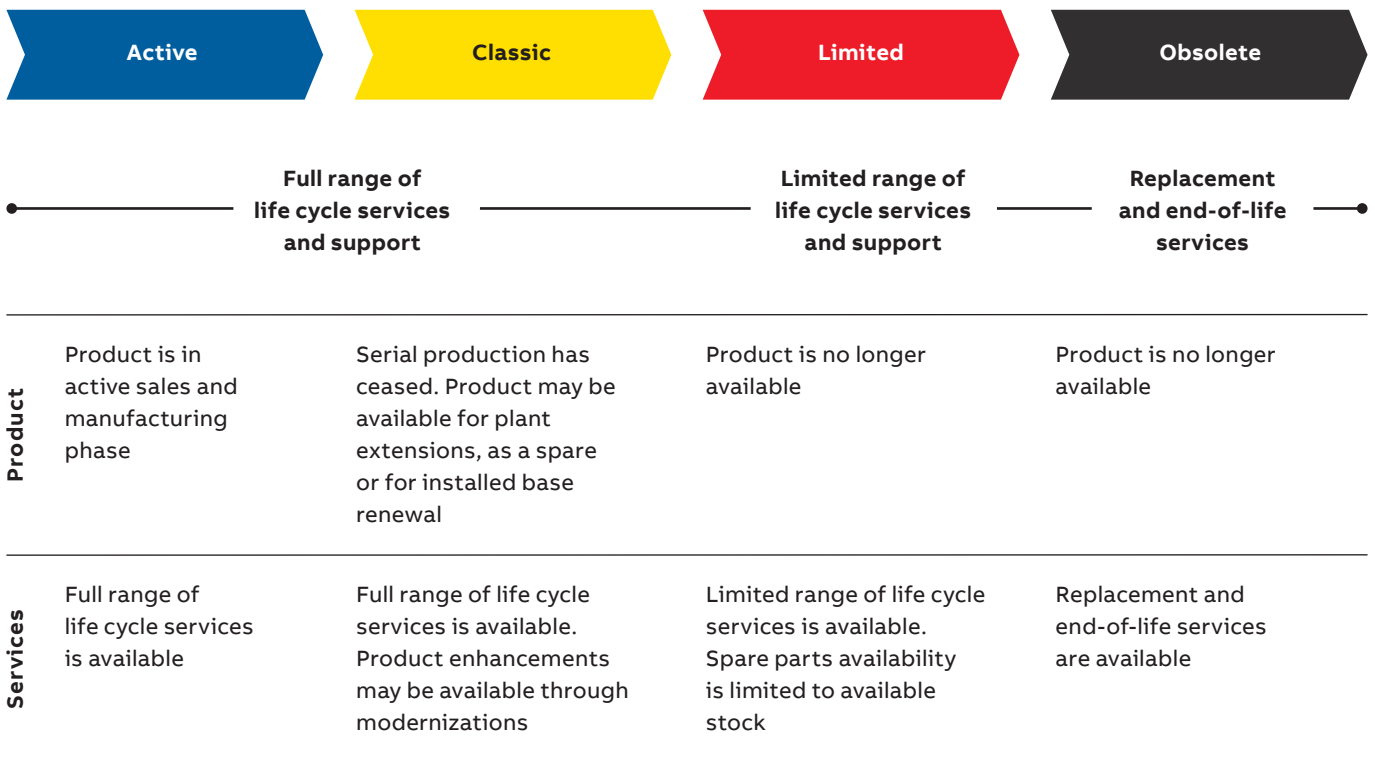


# ABB Drives Life Cycle Management

## A life time of peak performance

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

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

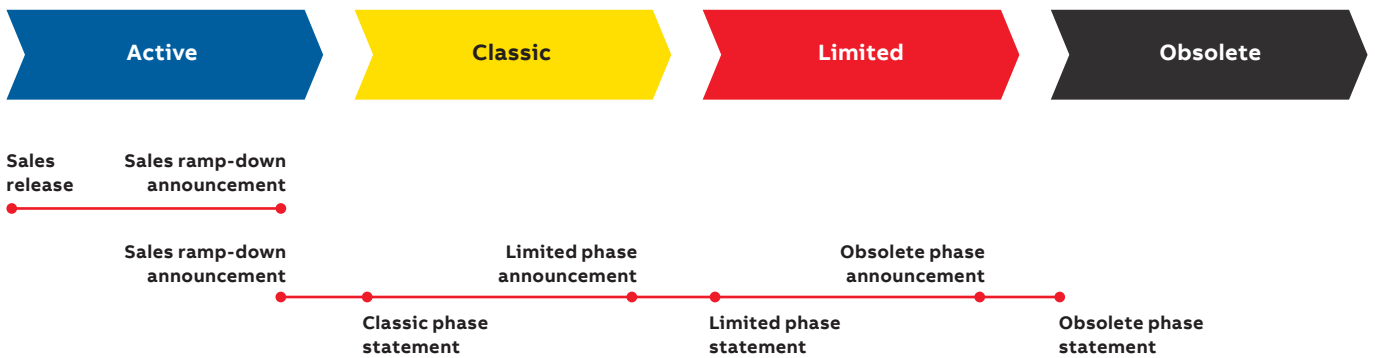




## Keeping you informed throughout the life cycle

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

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



### Sales release

Details about product portfolio and release schedule.

### Sales ramp down announcement

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

### Life cycle phase change announcement

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

### Life cycle phase statement

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



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

**[new.abb.com/drives](https://new.abb.com/drives)**

**[new.abb.com/drives/drivespartners](https://new.abb.com/drives/drivespartners)**

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