ABB drives

Product guide for low voltage AC drives

ABB drives

Applications where drives are used vary widely in terms of control requirements and environmental conditions. To meet the different demands ABB has designed an extensive portfolio of products that is made available through ABB sales offices and channel partners. This product guide gives an overview of ABB's portfolio of drives.

ABB component drives

ABB component drives meet the requirements of OEMs, installation companies and panel builders. It is a component that is bought, together with other components, from a logistical distributor. The drive is stocked, and the number of options and variants is optimized for logistical distribution.

ABB general machinery drives

ABB general machinery drives meet the requirements of serial OEMs by supporting a wide range of machinery applications that demand high repeatability. The drives have features that make them easy to install and integrate**.** The drive construction has been made in a way that the logistical costs for the customer are kept minimal.

ABB decentralized drives

ABB decentralized drives are designed so that they can be mounted close to the process; i.e. either attached to the motor to create so called integral motor drives or mounted against the wall. Because of this, they must meet the requirements of harsh environments. Decentralized drives are characterized by the high IP 65 protection class and fieldbus options for decentralized control. These types of drives are perhaps best suited to the automotive industry and conveyor machinery.

ABB standard drives

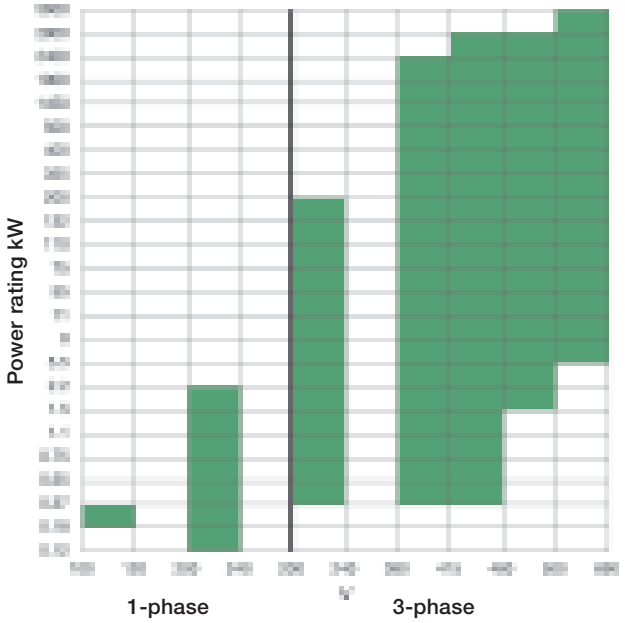
ABB standard drives are simple to buy, install, configure and use, saving considerable time. They are widely available through ABB's distributors, hence the use of the term standard. The drives have common user and process interface with fieldbus, common software tools for sizing, commissioning, maintenance and common spare parts.

ABB industrial drives

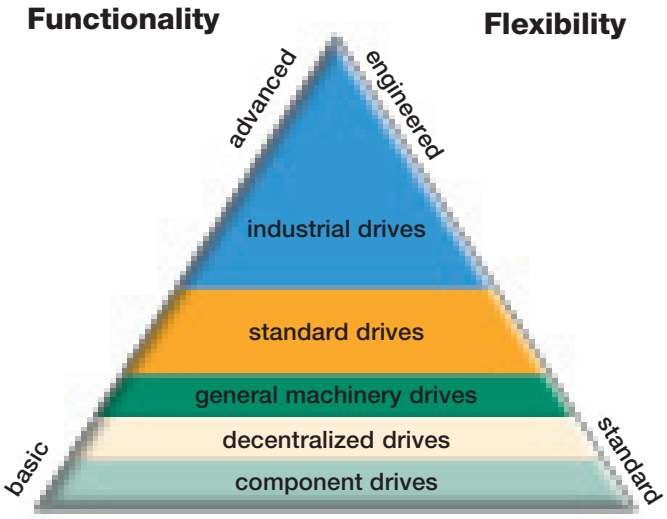
ABB industrial drives are designed for industrial applications, and especially for applications in process industries such as the pulp & paper, metals, mining, cement, power, chemical, and oil & gas industries. ABB industrial drives are highly flexible AC drives that can be configured to meet the precise needs of industrial applications, and hence order-based configuration is an integral part of the offering. These drives cover a wide range of powers and voltages, including industrial voltages up to 690 V. ABB industrial drives come with a wide range of inbuilt options. A key feature of these drives is programmability, which makes adaptation to different applications easy.

ABB drives for specific industries or applications

In addition to the products described in this product guide, ABB offers drives that are designed to meet the requirements of specific industries or applications. This offering includes e.g. drives for marine applications that have been type approved by ABS, DNV and Lloyd's, drives for HVAC, drives for crane applications, drives for extruder applications, and more. Please contact ABB or one of ABB's channel partners for more information.



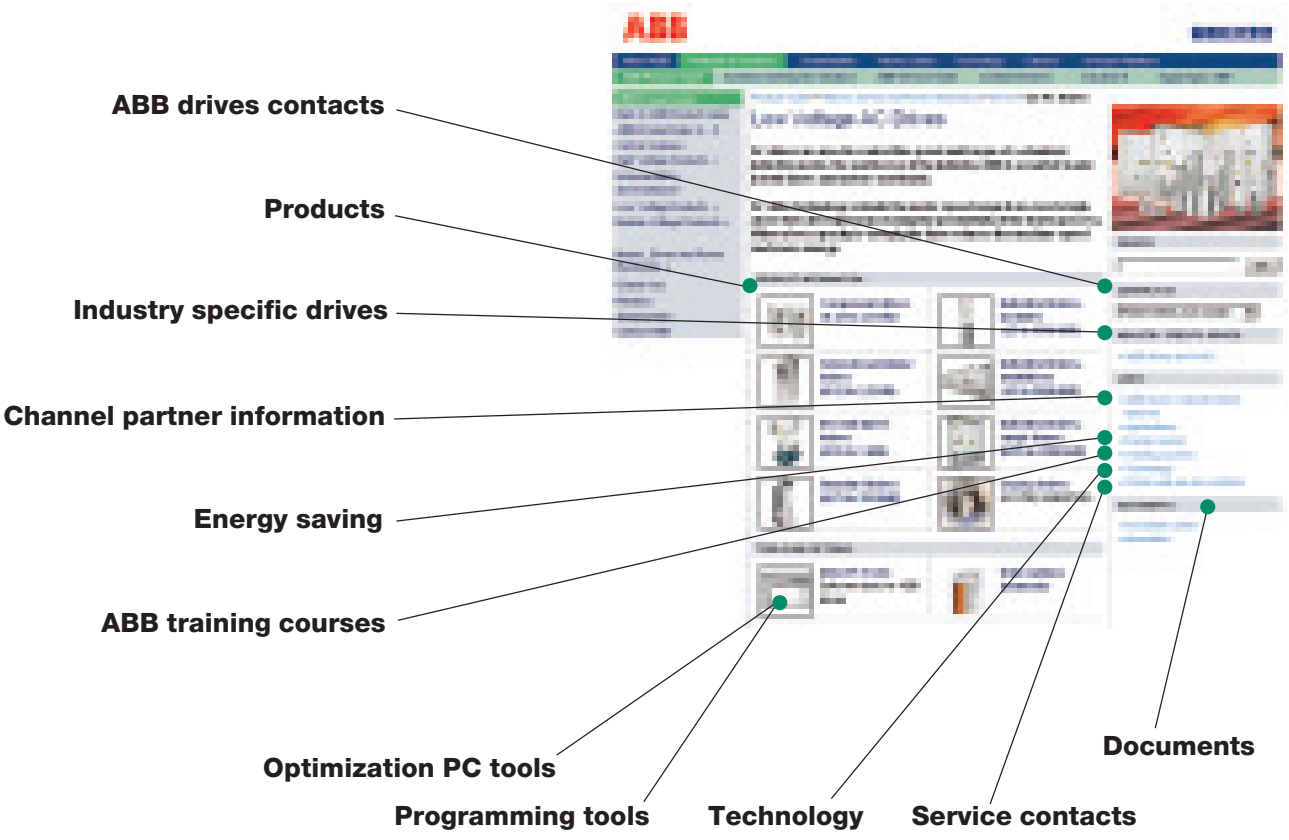
ABB's portfolio of drives.



The figure shows how each class of drives is positioned with regard to flexibility and functionality.

www.abb.com/motors&drives

You will find the latest information on ABB drives from these pages.



Quickfinder

The table below lists some important features of ABB drives. Its main purpose is to highlight the differences between the different product categories. For each category of products it is indicated whether a feature is available.

Features		ABB component drives	ABB general machinery drives
Voltage & power		1-ph 100 - 120 V: 0.18 - 0.37 kW 1-ph 200 - 240 V: 0.18 - 2.2 kW 1-ph 200 - 240 V: 0.12 - 2.2 kW 3-ph 200 - 240 V: 0.37 - 2.2 kW	1-ph 200 - 240 V: 0.18 - 2.2 kW 3-ph 200 - 240 V: 0.37 - 2.2 kW 3-ph 380 - 480 V: 0.37 - 2.2 kW
Supply options	12 pulse diode	–	–
	Regenerative 6-/12-pulse	–	–
	Low harmonic regenerative	–	–
Enclosure class	IP 00	–	–
	IP 20	●	●
	IP 21	○*	○
	IP 22	–	–
	IP 42	–	–
	IP 54/ IP 54R/ IP 55	–	–
	IP 65	–	–
Mechanical construction	Module	●	●
	Wall-mounted	○*	○
	Free-standing	–	–
	Cabinet-built	–	–
Motor control	DTC (open/closed)	–	–
	Sensorless vector	–	–
	Scalar	●	●
Software functionality/ features	Basic	●	–
	Medium	–	●
	Advanced	–	–
Programmability	Parameter programming	●*	●
	Block programming	–	–
	Control solutions for specific applications	–	–
I/O	Analogue input/output	1 / 0	2 / 1
	Digital input / output	3 / 1	5 / 2
	Speed feedback	–	–
	Motor thermal protection relay	–	–
Fieldbuses	Modbus	–	● / ○
	PROFIBUS	–	○
	Modbus Plus	–	–
	DeviceNet	–	○
	LonWorks®	–	–
	Ethernet	–	–
	ControlNet	–	–
	CANopen	–	–
	InterBus-S	–	–
	TCP/IP connection	–	–
Cooling method	Direct air cooling	●	●
	Water cooling	–	–
EMC compliance (EN 61800-3)	No EMC filter	●*	●
	2nd unrestricted	○*	○
	1st restricted	○*	○
	1st unrestricted	●**	–
Harmonic filter / choke	Choke	○	○
	Swinging choke	–	–
Dynamic braking (resistor)		*	○
HW options	du/dt filters	○	○
	Sine filters	–	–
	Coated boards	–	–
	Common mode filter	–	–
	Cabinet options	–	–
Switching frequency		up to 16kHz	up to 16kHz
Safety options	Prevention of unexpected start-up	–	–
	Emergency stop	–	–
PC tools	DriveWindow Light in PC	–	○
	DriveWindow	–	–
	DriveOPC	–	–
	DriveSize	–	–
	DriveAP	–	–
Approvals	CE	●	●
	UL	●	●
	cUL	●	●
	CSA	–	–
	C-Tick	●	●
	GOST R	–	–
Industry specific products	HVAC	–	–
	Marine drive	–	–

Use this table to make your initial choice and go to the next pages to find more details about each product category.

● = standard
○ = option
– = not available
* = ACS100 only
** = ACS50 only

	ABB decentralized drives	ABB standard drives	ABB industrial drives drive modules	ABB industrial drives stand-alone single drives	ABB industrial drives multidrives
	3-ph 380 - 480 V: 0.55 - 2.2 kW	3-ph 208 - 240 V: 0.75 - 75 kW 3-ph 380 - 480 V: 0.75 - 355 kW	3-ph 230 V: 0.55 - 200 kW 3-ph 400 V: 1.1 - 1600 kW 3-ph 500 V: 1.5 - 2000 kW 3-ph 690 V: 5.5 - 1900 kW	3-ph 230 V: 0.55 - 200 kW 3-ph 400 V: 1.1 - 1450 kW 3-ph 500 V: 1.5 - 1900 kW 3-ph 690 V: 5.5 - 2800 kW	– 3-ph 400 V: 1.1 - 2400 kW 3-ph 500 V: 1.5 - 2900 kW 3-ph 690 V: 5.5 - 5600 kW
	– – –	– – –	○ ○ ○	○ – ○	○ ○ ○
	– – – – – – ●	– – ● – – ○ –	● ●/○ – – – – –	– – ● ○ ○ ○ –	– – ● ○ ○ ○ –
	– or integrated with the motor – –	– ● ● –	● – – –	– ● ● ●	– – – ●
	– – ●	– ● ●	● – ●	● – ●	● – ●
	– ● –	– ● –	– – ●	– – ●	– – ●
	● – –	● – –	● ● ○	● ● ○	● ● ○
	2 / 1 5 / 2 – –	2 / 2 6 / 3+(3) – –	3+(2) / 2+(2) 7+(6) / 3+(6) ○ –	3+(2) / 2+(2) 7+(6) / 3+(6) ○ ○	3+(2) / 2+(2) 7+(6) / 3+(6) ○ ○
	● ○ – ○ ○ – – ○ ○ –	● ○ – ○ ○ – ○ ○ ○ –	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	○ ○ ○ ○ ○ ○ ○ ○ ○ ○
	● –	● –	● ○	● ○	● ○
	● ● ● ●	– ● ● ○	● ○ ○ –	● ○ ○ –	● ● ○ –
	● –	– ●	● –	● –	● –
	○	○	○	○	○
	○ – – – –	○ – ○ ●(> 100 kW) –	●/○ ○ ○ ●/○ –	●/○ ○ ○ ●/○ ○	●/○ ○ ● ●/○ ●
	up to 8 kHz	up to 12 kHz	DTC	DTC	DTC
	– –	– –	○ –	○ ○	○ ●
	– – – – –	○ – – ○ –	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
	● ● ● – ● –	● ● ● – ● ●	● ● ● ● ●/pending ●	● ●/○ ●/○ ●/○ ●/pending ●	● ○/pending ○/pending ○/pending ●/pending ●
	–	● –	– ○	– ○	– ○

ABB component drives
ABB general machinery drives
ABB decentralized drives

ABB component drives

ABB component drives meet the requirements of OEMs, installation companies and panel builders.

- Series ACS50
- Power range 1-ph supply 0.18 - 0.37 kW, (100 - 120 V)
- Power range 1-ph supply 0.18 - 2.2 kW, (200 - 240 V)
- IP 20 as standard
- No programming - easy and descriptive interface

For further information, see technical catalogue "ABB component drive, ACS50, 0.18 kW - 2.2 kW", code: 3AFE 68216061 EN

- Series ACS100
- Power range 1-ph supply 0.12 - 2.2 kW, (200 - 240 V)
- Power range 3-ph supply 0.37 - 2.2 kW, (200 - 240 V)
- IP 20 as standard
- Support for different mounting arrangements

For further information, see technical catalogue, "ACS100, ACS140, ACS160, 0.12 kW - 2.2 kW", code: 3AFE 64564102 EN

ABB general machinery drives

ABB machinery drives are designed to meet the requirements of a wide range of machinery applications.

- Series ACS140
- Power range 1-ph supply 0.12 - 2.2 kW, (200 - 240 V)
- Power range 3-ph supply 0.37 - 2.2 kW, (200 - 480 V)
- IP 20 as standard
- High repeatability
- Support for different mounting arrangements

For further information, see technical catalogue, "ACS100, ACS140, ACS160, 0.12 kW - 2.2 kW", code: 3AFE 64564102 EN

ABB decentralized drives

ABB decentralized drives are designed to be mounted close to or attached to the motor. They meet the requirements of harsh environments with good communication capabilities.

- Series ACS160
- Power range 0.55 - 2.2 kW, (380 - 480 V)
- IP 65 / NEMA4 as standard
- Motor mounting kits for various motors (option)
- Fieldbus communication options for decentralized drives

For further information, see technical catalogue, "ACS100, ACS140, ACS160, 0.12 kW - 2.2 kW", code: 3AFE 64564102 EN

ABB standard drives

ABB standard drives are simple to buy, install, configure and use, saving considerable time. They are widely available through ABB's distributors.

Wall-mounted drives

- Series ACS550-01
- Power range 0.75 - 110 kW, (200 - 240 V, 380 - 480 V)
- IP 21 as standard, IP 54 as option
- Swinging choke to reduce harmonics
- Assistant control panel
- Sensorless vector control

For further information, see technical catalogue "ABB standard drive ACS550, 0.75 kW - 355 kW", code: 3AFE 64792857 EN

Free-standing drives

- Series ACS550-02
- Power range 132 - 355 kW, (380 - 480 V)
- IP 21 as standard
- Assistant control panel
- Sensorless vector control

For further information, see technical catalogue "ABB standard drive ACS550, 0.75 kW - 355 kW", code: 3AFE 64792857 EN

- **ABB drives for HVAC applications**

For further information, see sales brochure "ABB drives for HVAC applications, ACH550, 0.75 kW - 355 kW", code: 3AFE 68295378 EN

ABB industrial drives

Stand-alone single drives

ABB industrial drives are robust yet flexible drives designed for industrial applications. Stand-alone single drives are complete AC drives, which can be installed without any additional cabinet or enclosure.

Wall-mounted drives

- Series ACS800-01
- Power range 0.55 - 110 kW, (230 - 690 V)
- IP 21 as standard, IP 55 as option
- Wide range of inbuilt options

For further information, see technical catalogue "ABB industrial drives, ACS 800, stand-alone single drives, 0.55 kW - 2800 kW", code: 3AFE 68375126 EN

- **Marine type approved design available as option**

For further information about the ACS800-01 marine drive, see technical catalogue "ABB drives for marine ACS800-01, 0.75 to 110 kW", code: 3AFE 68326753 EN

- Series ACS800-11, regenerative drives
- Power range 7.5 to 110 kW, (230 - 500 V)
- IP 21 as standard
- Active supply unit can regenerate energy back to the mains. Together with inbuilt LCL line filtering provides a low harmonic drive solution in one package.

For further information, see technical catalogue "ABB industrial drive ACS800-11, 7.5 kW - 110 kW", code: 3AFE 68440807 EN

Free-standing drives

- Series ACS800-02
- Power range 45 - 560 kW, (380 - 690 V)
- IP 21 as standard
- Extremely compact

For further information, see technical catalogue "ABB industrial drives, ACS 800, stand-alone single drives, 0.55 kW - 2800 kW", code: 3AFE 68375126 EN

Cabinet-built drives

- Series ACS800-07
- Power range 55 - 2800 kW, (380 - 690 V)
- IP 21 as standard, IP 22, IP 42, IP 54 and IP 54R as option
- Up to 500 kW, based on a single module including rectifier and inverter
- Above 500 kW, separate rectifier and inverter modules

- Series ACS800-17, regenerative drives
- Power range 75 - 1120 kW, (380 - 690 V)
- IP 21 as standard, IP 22, IP 42 and IP 54R as option
- Active supply unit can regenerate energy back to the mains. Together with inbuilt LCL line filtering provides a low harmonic drive solution in one package.

For further information, see technical catalogue "ABB industrial drives, ACS 800, stand-alone single drives, 0.55 kW - 2800 kW", code: 3AFE 68375126 EN

Water-cooled single drives for high power applications

- Series ACS600
- Power range 700 - 4300 kW, (690 V)
- IP 42 as standard, IP 54 as option
- Provides reliable operation under extremely adverse conditions
- Silent and safe operation without the need for air ventilation or air conditioning

For further information, see "ACS600 catalogue", code: 3AFE 64162021 EN

ABB industrial drives

Multidrives are types of industrial drives built from industrial drive modules connected to a common DC bus. The common DC bus is used to supply the drive modules with DC power. The DC power is derived from a single supply unit built into the same installation. This construction simplifies the total installation and results in many benefits: savings in cabling, reduced installation and maintenance costs, reduced line currents, and more.

Multidrives

- Power range 1.5 - 5600 kW, (380 - 690 V)
- IP 21 as standard, IP 22, IP 42, and IP 54 as option
- Plug-in power connectors for easy maintenance and redundancy
- Wide range of inbuilt options, including brake choppers, EMC filters, fuse switches, contactors, communication options etc.

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

- Drive units ACS800-107
- Regenerative IGBT supply units, ACS800-207
- Diode supply units, 6- and 12-pulse ACS800-307 and -507
- Regenerative thyristor supply units, 6- and 12-pulse ACS800-407 and -807
- Braking unit, ACS800-607
- Control units (optional)

For further information about the ACS800 multidrive, see the technical catalogue
“ABB industrial drive, ACS800, multidrive, 1.5 kW - 5600 kW”,
code: 3AFE 68248531 EN

Water-cooled multidrives for high power applications

- Power range 132 - 4300 kW, (690 V)
- IP 42 standard, IP 54 as option
- Solution for harsh environment location
- 6-pulse and 12-pulse configuration or a line regenerative unit is available

For further information, see technical catalogue “ACS600 catalogue”,
code: 3AFE 64162021 EN

ABB industrial drives

Single drive modules

Single drive modules are designed to be installed into a customer's own cabinet. Modules enable OEMs, system integrators and panel builders to build their own drive solutions using ABB drive technology. This gives many of the advantages of ABB drives e.g. DTC motor control, adaptive programming and a wide range of options: both inbuilt and external. ABB provides detailed cabinet installation instructions and other support material to help customers build their own solutions. Modules for single drives require an AC supply.

- Series ACS800-04
- Power range 0.55 to 1900 kW, (230-690 V)
- IP 00, IP 20
- Depending on the size, various compact constructions are available, see pictures
- Motion control

For further information, see technical catalogue "ABB industrial drives, ACS800, drive modules, 0.55 kW - 2000 kW", code: 3AFE 68404592 EN

Multidrive modules

Multidrive modules are designed for drive systems that feature a common DC bus for the flow of energy from the supply modules to the drive modules. Several types of modules are available: inverter modules that contain all the drive technology and different types of supply units that convert the AC supply from the mains into a DC supply for the inverter modules.

Inverter modules

- Series ACS800-104
- Power range 1.1 - 2000 kW, (380 - 690 V)

6-/12-pulse diode supply modules

- Series ACS800-304 (6-pulse) and ACS800-704 (6-/12-pulse)
- Power range 145 - 4200 kW, (380 - 690 V)

Thyristor supply modules

- Series ACS800-404
- Power range 800 - 6000 kW, (380 - 690 V)
- Provide regenerative capacity

For further information, see technical catalogue "ABB industrial drives, ACS800, drive modules, 0.55 kW - 2000 kW", code: 3AFE 68404592 EN

IGBT supply modules + LCL filters

- IGBT supply ACS800-204 modules + LCL filters
- Power range 60 - 1975 kW, (380 - 690 V)
- Provide regenerative capacity plus additional filtering of harmonics in the supply.

Services and support

All the support you need

The ABB drive product lifecycle management model provides proactive service offerings for maximizing drive availability and performance. This four-phase model provides not only optimum support to you but also a smooth transition to a new drive when the service life of your current drive ends. It also provides ABB with a well-structured means of managing different drive generations. With complete lifecycle support, you will always be aware of the support plans for your valuable assets.

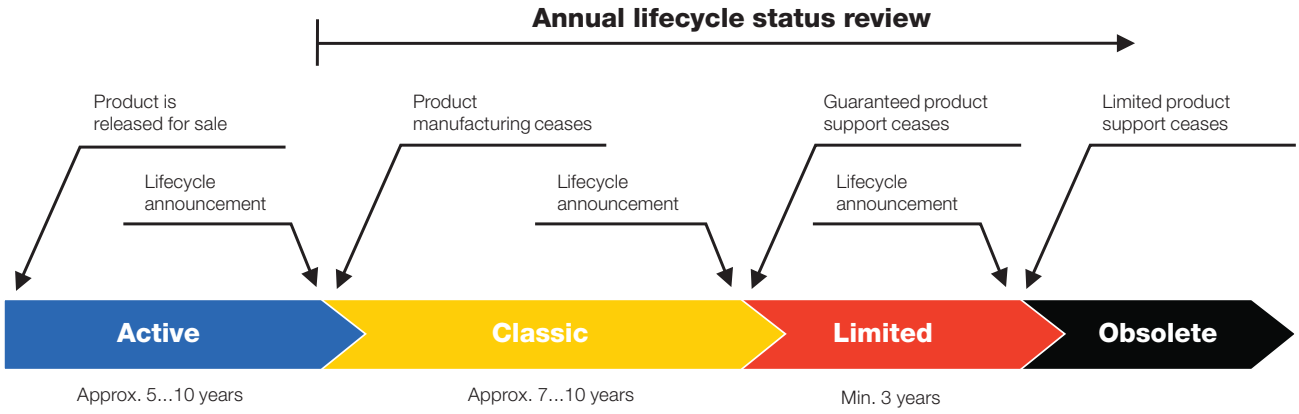
All drive product families have product-specific support programs and maintenance procedures with corresponding service kits and upgrade packages, which contribute to ease of ordering, planning and budgeting maintenance activities.

Globally local

ABB has the largest drive service team of all drive suppliers with field service engineers located throughout the world. In addition, the ABB drives channel partners - the technical partner network with outlets in many countries – provide you with round-the-clock support and service. All ABB's and its channel partners' drive specialists have been trained, audited and certified to exacting standards allowing each to provide fast and professional support where and when you need it.

More details and specific information about our support and service offerings is available in product specific brochures, from local ABB representatives and on the ABB internet pages www.abb.com/motors&drives.

Lifecycle phases and related services



Drives service offerings matched to different lifecycle phases:

Active
Selection & Dimensioning
Installation & Commisioning
Training & Learning
Support & Remote Services
Spare parts & Repair
Maintenance & Field Services
Optimization

Classic
Support & Remote Services
Spare parts & Repair
Maintenance & Field Services
Training & Learning
Migration & Retrofits
Optimization

Limited
Support & Remote Services
Spare parts & Repair
Maintenance & Field Services
Migration & Retrofits
Replacement & Recycling

Obsolete
Sale of spare parts is limited to available inventory. Availability of repair services is contingent on components.

Many ABB products have been and will be supported for over 20 years.

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