Medium voltage AC drives

ABB general purpose drives
ACS580MV
200 to 6300 kW, 6 to 11 kV
Catalog

Power and productivity
for a better world™

What does all-compatible mean for you?

The idea behind all-compatible is simple: the better a drive fits to your processes, users and business and environmental goals, the faster you start enjoying the benefits it brings. The ACS580MV is part of the all-compatible drive portfolio with other drives complementing the offering. The drives share the same architecture and user interfaces, yet there is an optimal drive for virtually any application.

During drive selection, you save time as the drives have many built-in features facilitating the selection process. The simplicity carries on to the drive set up and commissioning. With a user-friendly control panel and state-of-the-art drive design, installation and operation is made easy and optimal.

The total cost of ownership and your impact on the environment is lower with the drives ensuring your processes run efficiently and reliably. The user interfaces and tools enable you to monitor and analyze the drives. Advanced diagnostics ensure highest reliability and a trouble free operation by quickly detecting problems and giving instructions for resolving them. As a result, you can fine-tune the application to get more out of the drives and process using less energy.

Once you have used one all-compatible drive, you can use them all. Your knowledge accumulates with each new installation, resulting in more efficient processes and business.

That’s it. In short, all-compatible means better business sense.

Contents

The all-compatible ACS580MV general purpose drive

The ACS580MV is part of the all-compatible ABB drive portfolio. It turns complicated to simple while ensuring highest reliability.

The drive controls a wide range of applications in different industries, and yet it requires very little setting up or commissioning. All the essential features are built-in as standard, which reduces the need for additional hardware and simplifies drive selection. The drive is easy-to-use in terms of controlling pumps, fans, and many other applications like conveyors and mixers (variable and constant torque).

What if you have other requirements? You can select another member of the all-compatible drives portfolio. The drives share the same user interfaces and options, enabling you to use the knowledge you have gained with the ACS580MV drives. You increasingly keep saving time, and saving time in business means saving money.

Switch on simplicity without trading off efficiency

Simple to operate, safe to use
The standardized interface for fieldbus, I/O's, cable entry and breaker control in combination with emergency off and emergency stop functions ensure easy and safe drive operation.

Simplicity at your fingertips
The control panel's settings menu and assistants help you operate the drive effectively.

Boosting energy efficiency
Energy efficiency information helps you monitor and save the energy used in your process.

The ACS580MV series general purpose drives are part of ABB's all-compatible drives portfolio. They promise you reliability and efficiency throughout their whole life cycle.

The drive is easy to select, install and use. Build-in assistant functionality is helpful to easily operate and maintain the drive.

After commissioning, the next time you will remember you own the drive is when you take a look at your new, lower energy bill.

Monitoring and maintenance tool
Drive composer PC tool for configuration, monitoring and process tuning. PC tool is connected to the drive's control panel via USB or Ethernet interface.

Communication with all major automation networks
Fieldbus adapters enable connectivity with all major industrial automation networks.

Performance-based reliability
Advanced diagnostics and warning system enables users to effectively analyze and resolve issues. The power loss ride-through function of the ACS580MV drive ensures reliable and trouble free operation as well as high robustness against weak network performance.

Human all-compatible

When using an all-compatible drive, you don’t have to know all the parameters or use any programming language. Your own mother tongue and common sense is enough. Straightforward settings menu and assistants help you to operate the drive easily.

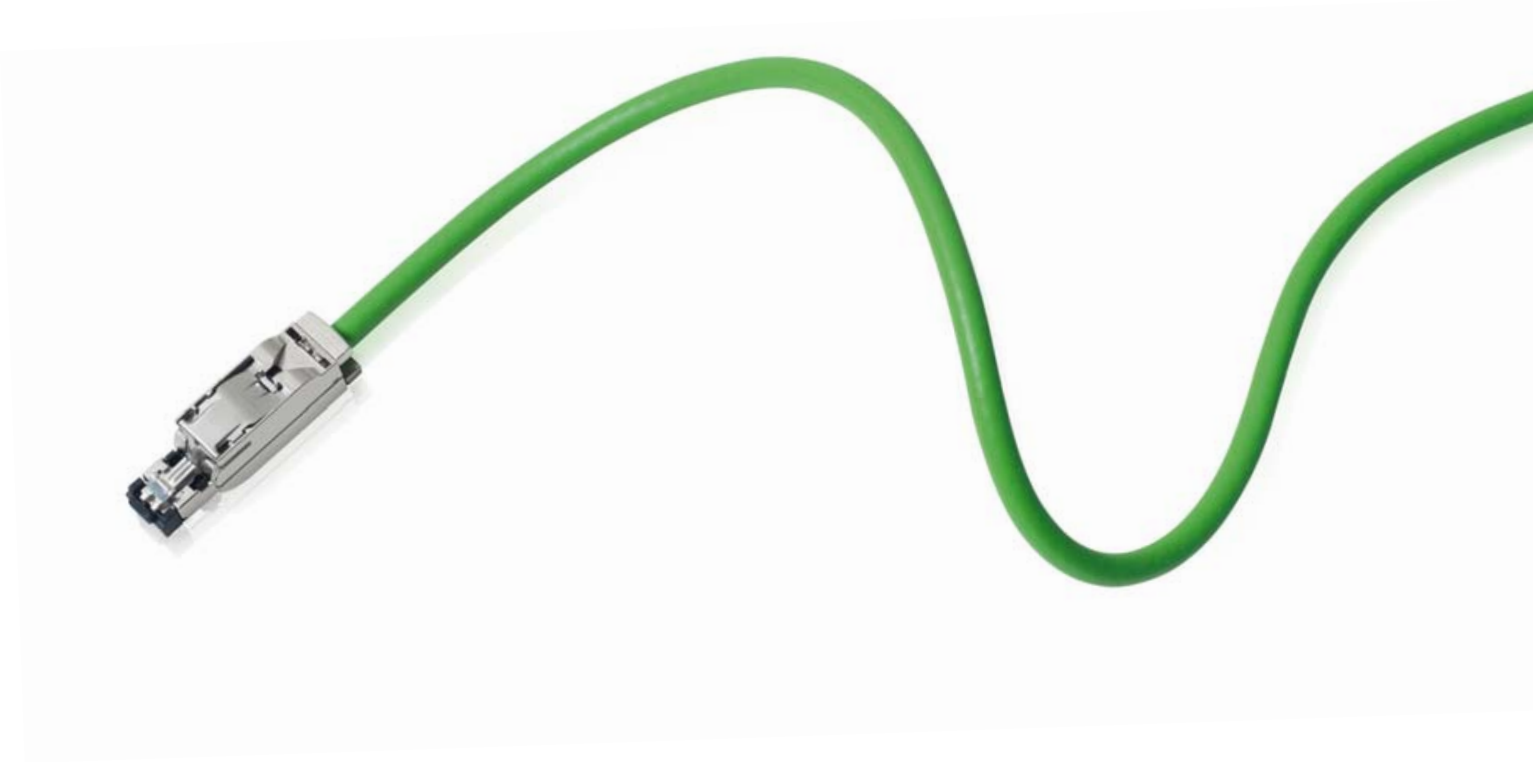
The Drive composer PC tool provides extensive drive monitoring and process tuning capabilities.

The integrated emergency off and emergency stop function ensures high safety for machine operators.

If your process requirements grow, the next all-compatible drive will also have the same interface, look & feel and have the tools, providing you with flexibility without adding complexity.

Learn it once, use it everywhere – simple and flexible drive operation helps you save time and money

What do we mean by communication compatibility? Exactly what it says. You can easily connect the drive to all major automation networks.



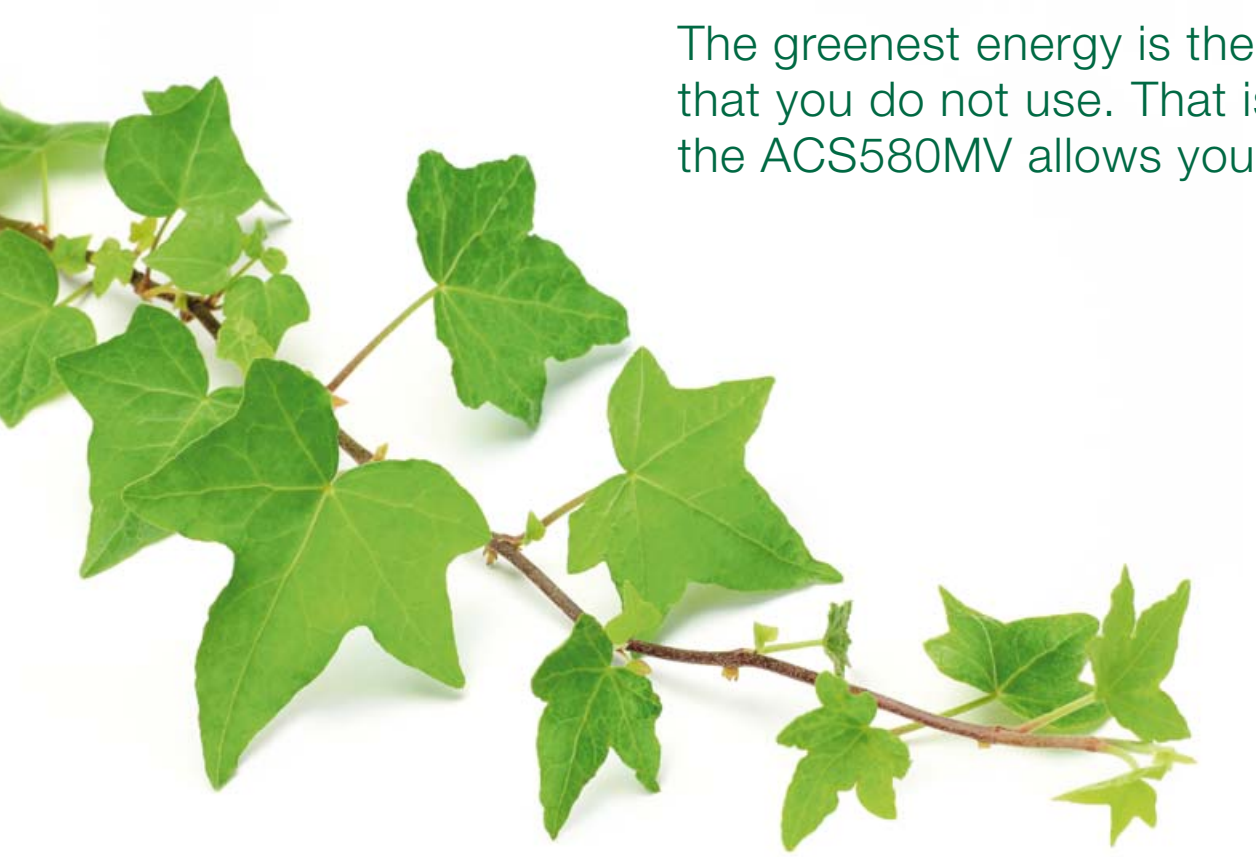
Process all-compatible

The ACS580MV drives are ready for a broad range of standard drive applications, and all essential features for general purpose speed and torque control applications are built-in as standard.

The power range reaches up to 6.3 MW. The various fieldbus adapter options allow communication with all of the major industrial automation networks.

For applications with different requirements the common drives architecture enables the smooth transition to other all-compatible drives in the ABB portfolio, such as the ACS580 general purpose drive or the ACS880 industrial drive.

The greenest energy is the energy that you do not use. That is what the ACS580MV allows you to do.



Environment all-compatible

With ABB and the all-compatible drives you are not only optimizing the energy consumption of an electric motor but also your whole process.

The drive itself helps you to use only the exact amount of energy needed to run your motor. The built-in energy efficiency calculators help you to analyze and optimize processes. With the help of our life cycle services, you will be able to keep your process running reliably and efficiently throughout the life cycle of the drives.

Business all-compatible

Usually, any drive is a justified investment that gives a short payback time by lowering energy consumption and helping improve productivity of the processes.

When you choose an all-compatible drive from ABB, you get more than just a drive.

You get our wide range of products and services to support your business, including our decades of experience in various industries. ABB's local offices and global value provider network members will be near to you.

Mature technology inside, the whole ABB outside, designed to support your business.

The reliable drive for a broad range of applications

The cabinet-built ACS580MV general purpose drive is designed to control pumps, fans, and many other applications like conveyors and mixers (variable and constant torque) as well as for process control in different industries. The drive is equipped with various features that simplify ordering and delivery, and reduces commissioning costs since everything is provided in a compact package.

All essential features for reliable operations

The drive features a new generation of cascaded h-bridge technology which, together with the drive's design, provides superior mitigation of harmonics in a compact design. Other built-in features like power loss ride-through ensures reliable and trouble free operation as well as high robustness against weak network performance. Features like IP42, redundant cooling fans and an advanced preventive warning system ensure highest reliability even in harsh industrial environments. The plug-in fieldbus adapter modules enable connectivity with all major automation systems. The drive and all options have coated boards as standard improving durability in rough surrounding conditions.

Easy to use control panel and PC tool

The control panel and PC tool provide effective drive operation, monitoring and maintenance. The control panel's straightforward settings menu and many built-in assistants ensure easy usage while the Drive composer PC tool offers extensive drive monitoring and process tuning capabilities.

Boosting energy efficiency

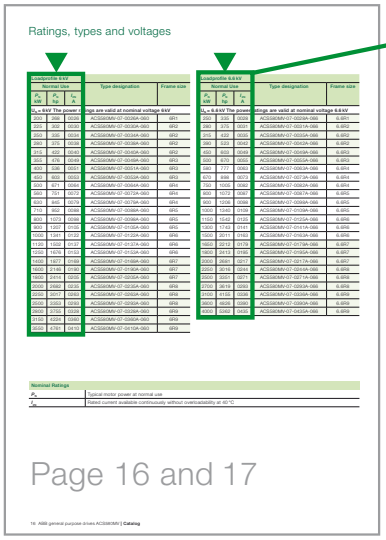
The built-in energy efficiency calculators, including used and saved kWh, CO_2 reduction and money saved, help users fine-tune processes to ensure optimal energy use.

How to select a drive

It is very easy to select the right drive.

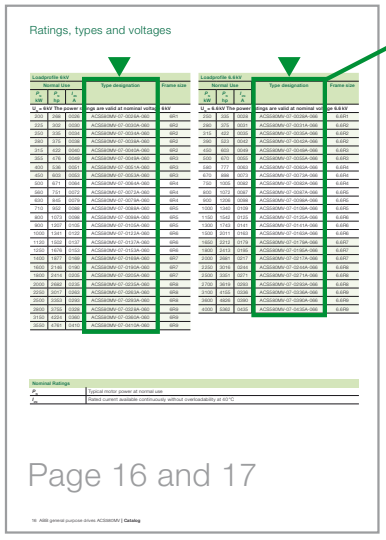
1 **Start with identifying your motor voltage.** This tells you what rating table to use. Please refer to the rating tables on page 16 and 17 for voltage classes of 6, 6.6, 10 and 11 kV.

2 **Choose your motor's nominal power rating** from the rating tables on page 16 and 17.



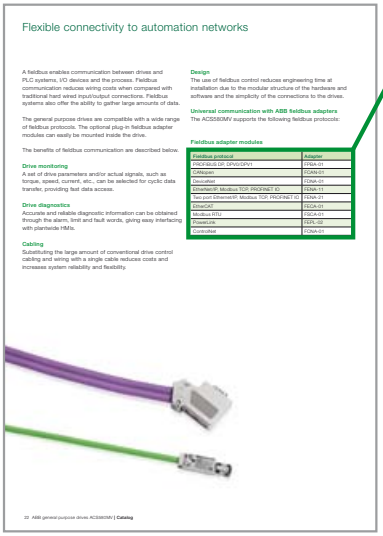
P_N kW	P_N hp	I_{2N} A
250	335	0028
280	375	0031
315	422	0035
390	523	0042
450	603	0049
500	670	0055
580	777	0063
670	898	0073
750	1005	0082
800	1072	0087
900	1206	0098
1000	1340	0109
1150	1542	0125
1300	1743	0141
1500	2011	0163
1650	2212	0179
1800	2413	0195
2000	2681	0217
2250	3016	0244
2500	3351	0271
2700	3619	0293
3100	4155	0336
3600	4826	0390
4000	5362	0435

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



Type designation
ACS580MV-07-0028A-066
ACS580MV-07-0031A-066
ACS580MV-07-0035A-066
ACS580MV-07-0042A-066
ACS580MV-07-0049A-066
ACS580MV-07-0055A-066
ACS580MV-07-0063A-066
ACS580MV-07-0073A-066
ACS580MV-07-0082A-066
ACS580MV-07-0087A-066
ACS580MV-07-0098A-066
ACS580MV-07-0109A-066
ACS580MV-07-0125A-066
ACS580MV-07-0141A-066
ACS580MV-07-0163A-066
ACS580MV-07-0179A-066
ACS580MV-07-0195A-066
ACS580MV-07-0217A-066
ACS580MV-07-0244A-066
ACS580MV-07-0271A-066
ACS580MV-07-0293A-066
ACS580MV-07-0336A-066
ACS580MV-07-0390A-066
ACS580MV-07-0435A-066

4 **Choose your options and spare part package according to your preference** (on pages 22, 23, 24 and 25).



Fieldbus protocol	Adapter
PROFIBUS DP, DPV0/DPV1	FPBA-01
CANopen	FCAN-01
DeviceNet	FDNA-01
EtherNet/IP, Modbus TCP, PROFINET IO	FENA-11
Two port Ethernet/IP, Modbus TCP, PROFINET IO	FENA-21
EtherCAT	FECA-01
Modbus RTU	FSCA-01
PowerLink	FEPL-02
ControlNet	FCNA-01

Type designation: ACS580MV – 07 – 0143A – 100

- Product series
- Construction
- Rating
- Voltage

Technical data

Main connection	
Voltage	6 to 11 kV ±10%, (–25% with reduced power)
Power range	6 kV: 200 to 3550 kW/6.3 kV: 200 to 3500 kW/6.6 kV: 200 to 4000 kW 10 kV: 200 to 5600 kW/10.5 kV: 200 to 6300 kW/11 kV: 200 to 6300 kW
Supply frequency	50/60 Hz ±5%
Power factor	cosφ = 0.96
Converter efficiency (at nominal power)	>98.5%
Motor connection	
Voltage	6 to 11 kV
Frequency	0 to 120 Hz output, up to 80 Hz nominal motor frequency
Motor control	Scalar and vector control
Torque control	Torque step rise time: <10 ms with nominal torque, Non-linearity: ±5% with nominal torque
Speed control	Static accuracy: 20% of motor nominal slip Dynamic accuracy:1% seconds with 100% torque step
Overload	10% (1 min/10 min at 40 °C) as standard, other on request
Maximum motor cable length	600 m (standard)
Output current THD	< 2%
Product compliance	
CE	
GOST-R	
Adjustable speed electrical power drive systems: EMC, IEC 61800-3: (2004+A1:2011, edition 2.1) 2012	
Adjustable speed electrical power drive systems: General requirements, IEC 61800-4: 2002	
Adjustable speed electrical power drive systems: Safety requirements, IEC 61800-5-1: 2007	
Adjustable speed electrical power drive systems: Safety requirements, IEC 61800-5-2: 2007	
Safety of machinery - Electrical equipment of machines: General requirements, IEC 60204-1: 2005	
Safety of machinery - Electrical equipment of machines: Requirements for HV equipment, IEC 60204-11: 2000	
Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems, IEEE 519-1992	
EU RoHS directive 2011/65/EU	
EMC	
According to IEC 61000–2–4: 2002 Class 2; IEC 61800–3: 2012 Category 4	

Environmental limits	
Ambient temperature	
Storage	–40 to +70 °C
Transport	–40 to +70 °C
Operation	0 to +40 °C, no frost allowed
	>40 °C, with derating
Cooling method	
Air-cooled	Dry clean air
Altitude	
0 to 2,000 m	Without derating
Above 2,000 m	With derating
Relative humidity	5 to 95%, no condensation allowed
Degree of protection	IP21 as standard, IP42 as an optional variant*
Contamination levels	No conductive dust allowed
Storage (excl. UPS)	IEC 60721-3-1: 1997, Class: 1K5, 1C2 (chemical gases), 1S2 (solid particles)**, 1M2 (vibration)
Transportation (excl. UPS)	IEC 60721-3-2: 1997, Class: 2K4, 2C2 (chemical gases), 2S2 (solid particles)**, 2M2 (vibration)
Operation	IEC 60721-3-3: (1994+A1:1995+A2: edition 2.2) 2002, Class: 3k4 to 3k3 (chemical gases), 3S1 (solid particles)**, 3M2 (vibration)

* Drive cabinet IP42, fan box outlet IP22D
** C = chemically active substances, S = mechanically active substances

Dimensions

Voltage Class	Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
6 kV	6R1	2571	4050	1176	2000
	6R2	2571	4050	1176	2300
	6R3	2571	4050	1176	2500
	6R4	2571	4050	1176	3500
	6R5	2571	4050	1176	4500
	6R6	2571	4050	1176	4700
	6R7	2571	5450	1376	6500
	6R8	2571	5650	1376	7500
	6R9	2571	5850	1376	9500

Voltage Class	Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
10 kV	10R1	2571	4050	1176	2950
	10R2	2571	4050	1176	3200
	10R3	2571	4050	1176	3400
	10R4	2571	4450	1176	4200
	10R5	2571	4650	1176	4900
	10R6	2571	4650	1176	6000
	10R7	2571	6650	1376	7700
	10R8	2571	6650	1376	9600
	10R9	2571	6850	1376	12 100

Voltage Class	Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
6.6 kV	6.6R1	2571	4250	1176	2150
	6.6R2	2571	4250	1176	2500
	6.6R3	2571	4250	1176	2700
	6.6R4	2571	4250	1176	3800
	6.6R5	2571	4250	1176	4900
	6.6R6	2571	4250	1176	5100
	6.6R7	2571	6250	1376	7450
	6.6R8	2571	6450	1376	8550
	6.6R9	2571	6650	1376	10 800

Voltage Class	Frame size	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
11 kV	11R1	2571	4250	1176	3200
	11R2	2571	4250	1176	3450
	11R3	2571	4250	1176	3700
	11R4	2571	4650	1176	4550
	11R5	2571	5050	1176	5300
	11R6	2571	5050	1176	6500
	11R7	2571	7850	1376	9050
	11R8	2571	7850	1376	11 100
	11R9	2571	8050	1376	13 850

Ratings, types and voltages

Loadprofile 6 kV

Normal Use			Type designation	Frame size
P_N kW	P_N hp	I_{2N} A		
U_N = 6 kV The power ratings are valid at nominal voltage 6 kV				
200	268	0026	ACS580MV-07-0026A-060	6R1
225	302	0030	ACS580MV-07-0030A-060	6R2
250	335	0034	ACS580MV-07-0034A-060	6R2
280	375	0038	ACS580MV-07-0038A-060	6R2
315	422	0040	ACS580MV-07-0040A-060	6R2
355	476	0049	ACS580MV-07-0049A-060	6R3
400	536	0051	ACS580MV-07-0051A-060	6R3
450	603	0053	ACS580MV-07-0053A-060	6R3
500	671	0064	ACS580MV-07-0064A-060	6R4
560	751	0072	ACS580MV-07-0072A-060	6R4
630	845	0079	ACS580MV-07-0079A-060	6R4
710	952	0088	ACS580MV-07-0088A-060	6R5
800	1073	0098	ACS580MV-07-0098A-060	6R5
900	1207	0105	ACS580MV-07-0105A-060	6R5
1000	1341	0122	ACS580MV-07-0122A-060	6R6
1120	1502	0137	ACS580MV-07-0137A-060	6R6
1250	1676	0153	ACS580MV-07-0153A-060	6R6
1400	1877	0169	ACS580MV-07-0169A-060	6R7
1600	2146	0190	ACS580MV-07-0190A-060	6R7
1800	2414	0205	ACS580MV-07-0205A-060	6R7
2000	2682	0235	ACS580MV-07-0235A-060	6R8
2250	3017	0263	ACS580MV-07-0263A-060	6R8
2500	3353	0293	ACS580MV-07-0293A-060	6R8
2800	3755	0328	ACS580MV-07-0328A-060	6R9
3150	4224	0360	ACS580MV-07-0360A-060	6R9
3550	4761	0410	ACS580MV-07-0410A-060	6R9

Loadprofile 6.6 kV

Normal Use			Type designation	Frame size
P_N kW	P_N hp	I_{2N} A		
U_N = 6.6 kV The power ratings are valid at nominal voltage 6.6 kV				
250	335	0028	ACS580MV-07-0028A-066	6.6R1
280	375	0031	ACS580MV-07-0031A-066	6.6R2
315	422	0035	ACS580MV-07-0035A-066	6.6R2
390	523	0042	ACS580MV-07-0042A-066	6.6R2
450	603	0049	ACS580MV-07-0049A-066	6.6R3
500	670	0055	ACS580MV-07-0055A-066	6.6R3
580	777	0063	ACS580MV-07-0063A-066	6.6R4
670	898	0073	ACS580MV-07-0073A-066	6.6R4
750	1005	0082	ACS580MV-07-0082A-066	6.6R4
800	1072	0087	ACS580MV-07-0087A-066	6.6R5
900	1206	0098	ACS580MV-07-0098A-066	6.6R5
1000	1340	0109	ACS580MV-07-0109A-066	6.6R5
1150	1542	0125	ACS580MV-07-0125A-066	6.6R6
1300	1743	0141	ACS580MV-07-0141A-066	6.6R6
1500	2011	0163	ACS580MV-07-0163A-066	6.6R6
1650	2212	0179	ACS580MV-07-0179A-066	6.6R7
1800	2413	0195	ACS580MV-07-0195A-066	6.6R7
2000	2681	0217	ACS580MV-07-0217A-066	6.6R7
2250	3016	0244	ACS580MV-07-0244A-066	6.6R8
2500	3351	0271	ACS580MV-07-0271A-066	6.6R8
2700	3619	0293	ACS580MV-07-0293A-066	6.6R8
3100	4155	0336	ACS580MV-07-0336A-066	6.6R9
3600	4826	0390	ACS580MV-07-0390A-066	6.6R9
4000	5362	0435	ACS580MV-07-0435A-066	6.6R9

Other ratings like 6.3 kV and 6.9 kV possible

Nominal Ratings

P_N	Typical motor power at normal use
I_{2N}	Continuous current rating at 40 °C, allowing 110% I_{2N} for 1 min every 10 min

Loadprofile 10 kV				
Normal Use			Type designation	Frame size
P_N kW	P_N hp	I_{2N} A		
U_N = 10 kV The power ratings are valid at nominal voltage 10 kV				
225	302	0017	ACS580MV-07-0017A-100	10R1
250	335	0021	ACS580MV-07-0021A-100	10R1
280	375	0024	ACS580MV-07-0024A-100	10R1
355	476	0026	ACS580MV-07-0026A-100	10R1
400	536	0033	ACS580MV-07-0033A-100	10R2
450	603	0037	ACS580MV-07-0037A-100	10R2
500	671	0039	ACS580MV-07-0039A-100	10R2
560	751	0045	ACS580MV-07-0045A-100	10R3
630	845	0049	ACS580MV-07-0049A-100	10R3
710	952	0052	ACS580MV-07-0052A-100	10R3
800	1073	0062	ACS580MV-07-0062A-100	10R4
900	1207	0069	ACS580MV-07-0069A-100	10R4
1000	1341	0075	ACS580MV-07-0075A-100	10R4
1120	1502	0082	ACS580MV-07-0082A-100	10R5
1250	1676	0091	ACS580MV-07-0091A-100	10R5
1400	1877	0102	ACS580MV-07-0102A-100	10R5
1600	2146	0116	ACS580MV-07-0116A-100	10R6
1800	2414	0130	ACS580MV-07-0130A-100	10R6
2000	2682	0143	ACS580MV-07-0143A-100	10R6
2250	3017	0156	ACS580MV-07-0156A-100	10R7
2500	3353	0176	ACS580MV-07-0176A-100	10R7
2800	3755	0197	ACS580MV-07-0197A-100	10R7
3150	4224	0219	ACS580MV-07-0219A-100	10R8
3550	4761	0247	ACS580MV-07-0247A-100	10R8
4000	5364	0278	ACS580MV-07-0278A-100	10R8
4500	6035	0310	ACS580MV-07-0310A-100	10R9
5000	6705	0340	ACS580MV-07-0340A-100	10R9
5600	7510	0387	ACS580MV-07-0387A-100	10R9

Loadprofile 11 kV				
Normal Use			Type designation	Frame size
P_N kW	P_N hp	I_{2N} A		
U_N = 11 kV The power ratings are valid at nominal voltage 11 kV				
250	335	0017	ACS580MV-07-0017A-110	11R1
280	375	0019	ACS580MV-07-0019A-110	11R1
315	422	0021	ACS580MV-07-0021A-110	11R1
385	516	0025	ACS580MV-07-0025A-110	11R1
450	603	0030	ACS580MV-07-0030A-110	11R2
510	684	0034	ACS580MV-07-0034A-110	11R2
585	784	0038	ACS580MV-07-0038A-110	11R2
630	845	0041	ACS580MV-07-0041A-110	11R3
710	952	0046	ACS580MV-07-0046A-110	11R3
800	1072	0052	ACS580MV-07-0052A-110	11R3
950	1273	0062	ACS580MV-07-0062A-110	11R4
1100	1475	0072	ACS580MV-07-0072A-110	11R4
1250	1676	0082	ACS580MV-07-0082A-110	11R4
1400	1877	0091	ACS580MV-07-0091A-110	11R5
1550	2078	0102	ACS580MV-07-0102A-110	11R5
1800	2413	0117	ACS580MV-07-0117A-110	11R6
2050	2748	0134	ACS580MV-07-0134A-110	11R6
2350	3150	0153	ACS580MV-07-0153A-110	11R6
2600	3485	0170	ACS580MV-07-0170A-110	11R7
2850	3820	0186	ACS580MV-07-0186A-110	11R7
3150	4223	0205	ACS580MV-07-0205A-110	11R7
3600	4826	0235	ACS580MV-07-0235A-110	11R8
4100	5496	0267	ACS580MV-07-0267A-110	11R8
4600	6166	0300	ACS580MV-07-0300A-110	11R8
5100	6836	0332	ACS580MV-07-0332A-110	11R9
5700	7641	0370	ACS580MV-07-0370A-110	11R9
6300	8445	0410	ACS580MV-07-0410A-110	11R9

Other ratings like 10.5 kV possible

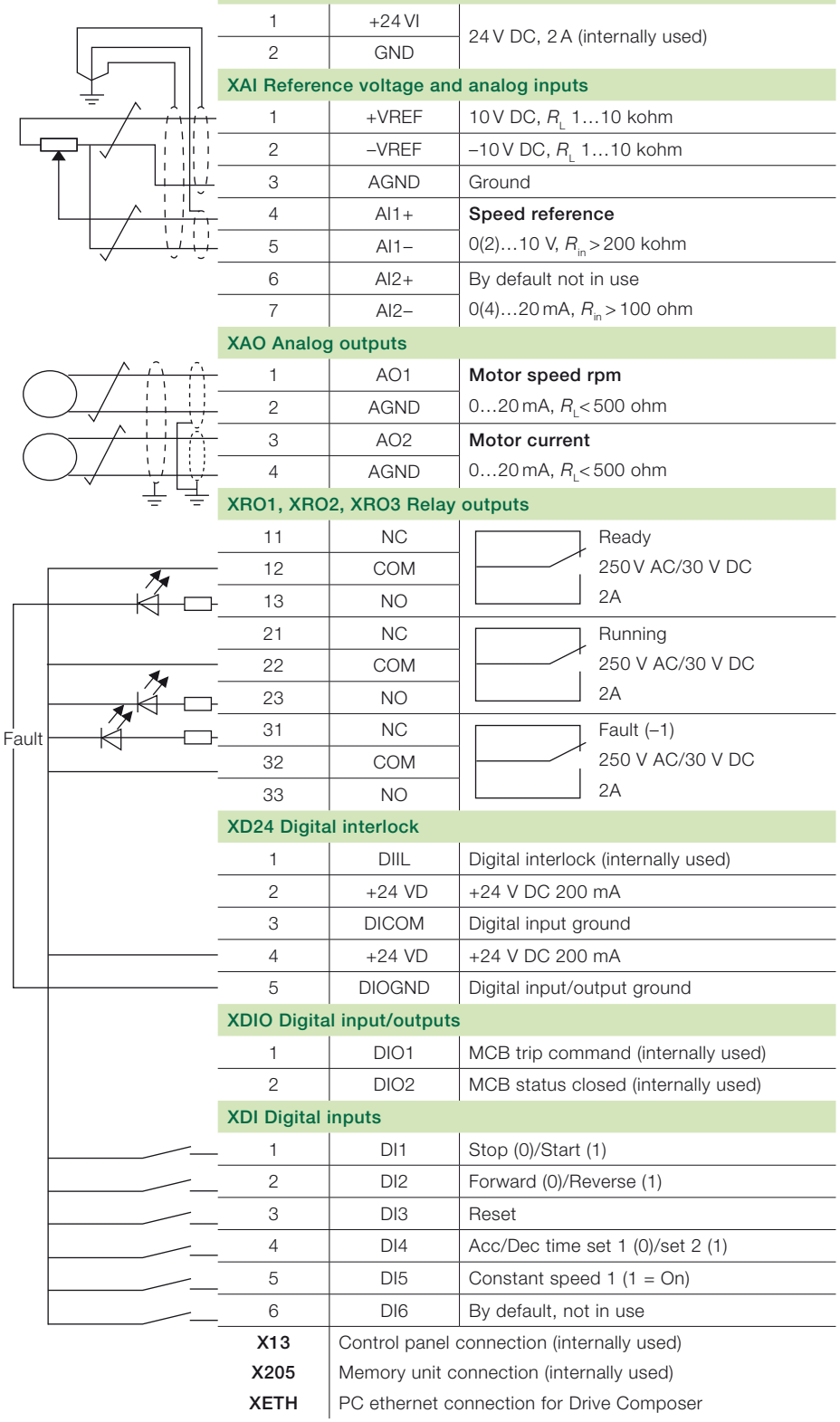
Nominal Ratings	
P_N	Typical motor power at normal use
I_{2N}	Continuous current rating at 40 °C, allowing 110% I_{2N} for 1 min every 10 min

Standard interface and extensions for plug-in connectivity

The ACS580MV drives offer a wide range of standard interfaces. In addition, the drive has two option slots that can be used for extensions including fieldbus adapter modules and input/output extension modules.

Predefined macros enable easy and fast configuration of customer I/O's. ACS580MV offers following 3 macros and configurations in standard which support most frequently used application requirements like sequential control for retrofit.

Central controller
Default control connections for the factory macro



XPOW External power input		
1	+24 VI	24 V DC, 2 A (internally used)
2	GND	
XAI Reference voltage and analog inputs		
1	+VREF	10 V DC, R_L 1…10 kohm
2	–VREF	–10 V DC, R_L 1…10 kohm
3	AGND	Ground
4	AI1+	**Speed reference**
5	AI1–	0(2)…10 V, R_{in} > 200 kohm
6	AI2+	By default not in use
7	AI2–	0(4)…20 mA, R_{in} > 100 ohm
XAO Analog outputs		
1	AO1	**Motor speed rpm**
2	AGND	0…20 mA, R_L < 500 ohm
3	AO2	**Motor current**
4	AGND	0…20 mA, R_L < 500 ohm
XRO1, XRO2, XRO3 Relay outputs		
11	NC	Ready 250 V AC/30 V DC 2A
12	COM	
13	NO	
21	NC	Running 250 V AC/30 V DC 2A
22	COM	
23	NO	
31	NC	Fault (–1) 250 V AC/30 V DC 2A
32	COM	
33	NO	
XD24 Digital interlock		
1	DIIL	Digital interlock (internally used)
2	+24 VD	+24 V DC 200 mA
3	DICOM	Digital input ground
4	+24 VD	+24 V DC 200 mA
5	DIOGND	Digital input/output ground
XDIO Digital input/outputs		
1	DIO1	MCB trip command (internally used)
2	DIO2	MCB status closed (internally used)
XDI Digital inputs		
1	DI1	Stop (0)/Start (1)
2	DI2	Forward (0)/Reverse (1)
3	DI3	Reset
4	DI4	Acc/Dec time set 1 (0)/set 2 (1)
5	DI5	Constant speed 1 (1 = On)
6	DI6	By default, not in use
X13		Control panel connection (internally used)
X205		Memory unit connection (internally used)
XETH		PC ethernet connection for Drive Composer

Customer Interface Terminal Block

X1 Customer Interface Terminal Block		
1 3	MCB close cmd	floating contacts to customer making capability: 40 A thermal current: Ith = 6 A @ 40 °C breaking capability: AC-15 50 Hz Ie(240 V) = 4 A, Ie(500 V = 2 A DC-13 Ie(24 V) = 2.5 A, Ie(110 V) = 0.7 A, Ie(240 V) = 0.4 A minimum load: 17 V, 5 mA isolation rated voltage 690 V AC
5 7	MCB trip/unlock cmd	
9 11	MCB open cmd 1	
13 15	MCB open cmd 2 (if MO2)	
17 19	MCB open status	Connect contact from customer internal supply 24 V DC, 20 mA, max resistance 140 Ω
21 23	MCB closed status	Connect contact from customer internal supply 24 V DC, 5 mA
25 27	MCB ready status	
29 31	Emergency off 1	Connect contacts from customer Max resistance 60 Ω. Internal supply, 24 V DC, 25 mA
33 35	Emergency off 2	
37 39	Remote MCB close cmd	Connect contacts from customer internal supply 24 V DC, 5 mA Switchable
41 43	Remote MCB open cmd	
45 47	Process stop/ Remote disable local mode	
49 51	Alarm	RO, NC/NO can be selective, 250 V AC/30 V DC, 2 A
53 54 55 56 57 58 59	24 V DC	24 V DC for digit input

Available macros for central controller
Hand/Auto macro (changes to factory macro)

XAI Reference voltage and analog inputs		
4	AI1+	**Speed reference (Hand)**
5	AI1–	0(2)…10 V, R_{in} > 200 kohm
6	AI2+	**Speed reference (Auto)**
7	AI2–	0(4)…20 mA, R_L > 100 ohm
XDI Digital inputs		
1	DI1	Stop (0)/Start (1) – Hand
2	DI2	Forward (0)/Reverse (1) – Hand
3	DI3	Hand(0)/Auto(1)
4	DI4	Constant speed 1 (1 = On)
5	DI5	Forward (0)/Reverse (1) – Auto
6	DI6	Stop (0)/Start (1) – Auto

PID control macro (changes to factory macro)

XAI Reference voltage and analog inputs		
4	AI1+	**Process or Speed reference**
5	AI1–	0(2)…10 V, R_{in} > 200 kohm
6	AI2+	**Process feedback**
7	AI2–	0(4)…20 mA, R_L > 100 ohm
XDI Digital inputs		
1	DI1	Stop (0)/Start (1) – Speed control
2	DI2	By default, not in use
3	DI3	Speed control (0)/Process control (1)
4	DI4	Constant speed 1 (1 = On)
5	DI5	Run enable (1 = On)
6	DI6	Stop (0)/Start (1) – Process control

Sequential control macro (changes to factory macro)

XAI Reference voltage and analog inputs		
4	AI1+	**External speed reference**
5	AI1–	0(2)…10 V, R_{in} > 200 kohm
6	AI2+	By default not in use.
7	AI2–	0(4)…20 mA, R_L > 100 ohm
XDI Digital inputs		
1	DI1	Stop (0)/Start (1)
2	DI2	Forward (0)/Reverse (1)
3	DI3	Acc/Dec time set 1 (0)/set 2 (1)
4	DI4	Constant speed selection max.
5	DI5	7 values
6	DI6	

Standard software with versatile features

Commissioning faster than ever before
The DriveStartup tool has a clear, intuitive and visually advanced interface as well as different assistants to make the drive simple to set up. This saves on commissioning time.

Sophisticated process control
The ACS580MV drives offer sophisticated process control in scalar and vector control modes for induction motors. Many embedded protection and other features improve performance of the motor and process.

Flying start
Flying start is available for both scalar and vector control modes. The drive catches a running motor which is often required in applications with long freewheeling times, such as in fan applications.

Load profile
The load profile feature collects drive values such as current to a log. The log shows how the drive is operating and enables you to analyze and optimize the application.

PID built-in
Built-in and stand-alone PID makes the ACS580MV a selfgoverning unit that requires no external logic input from the control room, but requires only an external process measurement.

Optimizing energy use
The ACS580MV drives come with features that help you save and manage energy. You can monitor the hourly, daily and cumulative energy consumption via kWh counters. When the drive replaces a direct-online control, you can follow the saved energy, CO_2 emissions or money, and see how fast the drive brings you a return on investment.

Easy diagnostics for trouble-free operation
The control panel's and Drive composer PC tool's diagnostics menu enables you to effectively analyze and resolve issues. You can quickly analyze why the drive is performing as it is; running, stopped or running at the present speed. Active faults, warnings and event logs are shown in the menu. The menu shows if there are any active limitations to the drive operation and gives instructions on how to resolve them. The entry level drive composer PC tool is available for free via the ABB website.

Easy drive operation with an intuitive control panel

Smooth navigation and process tuning

The control panel is equipped with context-sensitive soft keys and four-direction navigation enabling you to quickly browse and adjust the drive settings. Many flexible data visualizations including bar charts, histograms and trend graphs help you analyze the process. With the panel's text editor, you can for example add information to I/O signals or customize fault and warning messages. You can also label the drive with a unique name.

Easy drive maintenance

Powerful backup and restore functions (with name, date and content) are supported as well as different language versions. Faults or warnings are quickly resolved as the help key provides context sensitive guidance and troubleshooting instructions.

PC tools for drive monitoring and process tuning capabilities

The free version of the Drive composer PC tool provides monitoring and maintenance capabilities, while the professional version provides additional features such as custom parameter windows, control diagrams of the drive's configuration and improved monitoring and diagnostics.

The Drive composer tool is connected to the drive using the USB connection on the assistant control panel or an Ethernet connection on the drive. All drive information such as parameter loggers, faults, backups and event lists are gathered into a support diagnostics file. This provides faster fault tracking, shortens downtime and reduces operational and maintenance costs.

Drive composer pro offers extended functionality

Drive composer pro provides the same standard functionality as the free version, including parameter settings, downloading and uploading files and search parameters. Advanced features such as graphical control diagrams and various displays are also available.

The control diagrams save users from browsing long lists of parameters and help to set the drive's logic quickly and easily. The tool has fast monitoring capabilities of multiple signals from several drives in a PC tool network. Full backup and restore functions are also included.

DriveStartup ensures fast and high quality commissioning

For the effortless drive commissioning the DriveStartup tool is applied. DriveStartup guides step by step through the complete commissioning including reporting and ensures highest quality, reduced commissioning time and therefore reduced costs.

Flexible connectivity to automation networks

A fieldbus enables communication between drives and PLC systems, I/O devices and the process. Fieldbus communication reduces wiring costs when compared with traditional hard wired input/output connections. Fieldbus systems also offer the ability to gather large amounts of data.

The general purpose drives are compatible with a wide range of fieldbus protocols. The optional plug-in fieldbus adapter modules can easily be mounted inside the drive.

The benefits of fieldbus communication are described below.

Drive monitoring
A set of drive parameters and/or actual signals, such as torque, speed, current, etc., can be selected for cyclic data transfer, providing fast data access.

Drive diagnostics
Accurate and reliable diagnostic information can be obtained through the alarm, limit and fault words, giving easy interfacing with plantwide HMIs.

Cabling
Substituting the large amount of conventional drive control cabling and wiring with a single cable reduces costs and increases system reliability and flexibility.

Design
The use of fieldbus control reduces engineering time at installation due to the modular structure of the hardware and software and the simplicity of the connections to the drives.

Universal communication with ABB fieldbus adapters
The ACS580MV supports the following fieldbus protocols:

Fieldbus adapter modules

Fieldbus protocol	Adapter
PROFIBUS DP, DPV0/DPV1	FPBA-01
CANopen®	FCAN-01
DeviceNet™	FDNA-01
EtherNet/IP™, Modbus TCP, PROFINET IO	FENA-11
Two port EtherNet/IP™, Modbus TCP, PROFINET IO	FENA-21
EtherCAT®	FECA-01
Modbus RTU	FSCA-01
PowerLink	FEPL-02
ControlNet™	FCNA-01

Input/output extension modules for increased connectivity

Standard input and output can be extended by using optional analog and digital input/output extension modules. The modules are easily installed in the extension slots located on the main controller.

Typical functions like motor fan on/off can be easily configured by using FIO-11 and FIO-01 modules.

Analog and digital input/output extension modules

Connections	Options
4× DI/O, 2× RO	FIO-01
3× AI (mA/V), 1× AO (mA), 2× DI/O	FIO-11
2× AI (mA/V), 2× AO (mA)	FAIO-01

Cabinet options

The ACS580MV is available with IP42* protection class, thus ensuring a reliable operation of the drive even under harsh environmental conditions.

As an option, the ACS580MV can be equipped with a cabinet heater that prevents humidity condensation inside the cabinet when the drive is not powered such as during plant maintenance or drive shut down time.

The optional low power auxiliary supply package does not require 380 V power supply and is the ideal solution in order to ensure safe line control power supply using customer UPS. This option is also available with a built-in UPS which is recommended in case of an unreliable auxiliary supply.

Protection class
IP42*

* Drive cabinet IP42, fan box outlet IP22D

Cabinet option	Description
Cabinet heater	Additional external 220–240 V power supply required
Low power aux supply package	External single phase supply 100–240 V AC or 120–370 V DC, 3 phase fan supply from internal main transformer. Ideal for safe line control power supply.
Low power aux supply package + int. UPS	External single phase supply 100–240 V AC or 120–370 V DC and internal UPS (~10 min), 3 phase fan supply from internal main transformer. Ideal for high availability in case of unreliable aux. supply.

Cooling

The ACS580MV is fitted with cooling air fans. The cooling air must be free from corrosive materials, humidity and dust. The air temperature should not be above the maximum ambient temperature of 40 °C (50 °C with derating). Before installation please check the information in the technical datasheets.

Optional redundant cooling fans ensure an automatic switch to an additional fan in case of cooling problems and guarantee highest reliability in the process operation. Furthermore, a special interface for the fan box is optional available in order to attach an air duct to the drive cabinet.

Cooling
Redundant cooling fans
Fanbox for air duct connection

Safety features

The integrated emergency off and emergency stop function means high safety for machine operators and is optionally available with SILCL 3/PL e certification.

Safety features
Emergency Stop, Category 0 with opening main contactor/breaker (SILCL 3/PL e)

Specialities

Special environmental conditions and applications require a need-oriented selection and configuration of the drives. The ACS580MV offers a wide range of specialties which can be selected and might determine derating of the drive.

Different supply main voltage than drive output voltage is optionally available and covered by integrated step-up/down transformer.

Extreme environmental conditions such as extended ambient temperature or a high altitude need special consideration when configuring the drive and may have an impact on the cabinet size. For special configurations for constant torque applications (eg. conveyors or mixers), EX applications, varying overloadability and other requests, please contact ABB.

Taking care of your drives, caring about your business

Whether a drive is a part of the product you sell or a component in your production process, reliable and efficient drive operation is key. Our global life cycle services are designed to ensure that the drives keep running exactly as you expect, wherever they are. You will find support from your first meeting with ABB to the drive installation, commissioning and maintenance, all the way up to the eventual drive replacement and recycling. With a large number of offices around the world, we are well placed to offer you technical advice and local support.

Installation and commissioning

Through our global presence and international third party channel companies we offer accurate advice and timely support before and during installation. Our experienced engineers will optimize the drive performance to meet the precise demands of your application.

Technical support and training

ABB's experts are available 24/7 to offer fast and detailed technical advice to keep the customer's process or plant operational. This is supported by our online product manuals and technical support documentation. To complete our support we offer a broad portfolio of training and learning solutions designed to provide the customer with the knowledge to operate and maintain his drives.

Spare part packages

ACS580MV offers optional spare part packages for commissioning, 2 year and 5 year maintenance. It is delivered together with the drive and offers spare parts availability from day one. Inside the packages are all components included which may fail during installation due to misuse and which are required for regular maintenance of the drive for 2 or 5 years.

Extended warranty

Our extended warranty reduces risks associated with drives failure and standard warranty terms and conditions are applied.

Service contracts

Service contracts and other type of agreements are available for your support, from individual service packages to complete drive care contracts covering all maintenance and repairs. ABB and it's third party channel companies are able to tune the service contracts to satisfy your requirements.

Operation and maintenance

ABB has all options covered to keep your processes operational, from regular operation analyses and maintenance assessments to preventive maintenance and reconditioning of the drives. If a failure might occur ABB will guide you through a fast and efficient fault-finding procedure. Should corrective maintenance be needed ABB offers on-site and workshop repairs, fully backed up by a professional stock management ensuring availability and fast delivery of spare parts and exchange modules.

Spare parts and safety equipment	
Spare part kit	**Description**
Minimum – Commissioning spare part kit	Content see spare part kit list
Standard – Maintenance spare part kit 2 year	Content see spare part kit list
Extended – Maintenance spare part kit 5 year	Content see spare part kit list

Notes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