



Product brochure

Medium voltage AC drive

ACS 5000, 1.5 MW – 36 MW, 6.0 – 6.9 kV



ACS 5000 – powerful motor control

The ACS 5000 provides powerful and reliable control for induction, synchronous and permanent magnet motors.

The ACS 5000 provides speed or torque control for motor-driven applications in the medium and high power range from 1.5 to 36 MW at motor voltages from 6.0 to 6.9 kV. It is available with air cooling in the lower power range and with water cooling in the medium to high power range.

The compact air-cooled ACS 5000 is a general purpose drive designed to control standard motors, typically used for applications such as pumps, fans, compressors, mixers, mills and conveyors. The high-power water-cooled ACS 5000 provides reliable motor control for high power, high speed or special performance applications such as large pumps, fans, extruders, compressors and SAG and ball mills.

The ACS 5000 is supplied with separate or integrated input isolation transformer.

Proven solution for a wide range of industries

Since its market introduction in 2005 the ACS 5000 has provided reliable and efficient control of medium voltage applications in a wide range of industries.

Key product features

- High system efficiency due to multilevel-fuseless topology, IGCTs and Direct Torque Control (DTC)
- High reliability due to low parts count
- Optimal network friendliness due to 36-pulse configuration
- Modular design for optimum configurations
- High level of personal safety and drive availability due to superior arc protection
- Low cost of ownership due to high efficiency and simplified installation, commissioning and maintenance
- Fast and accurate control performance due to DTC
- Suitable for standard induction, synchronous and permanent magnet motors

Fields of application

Industries	Applications
Cement, mining and minerals	Grinding mills, conveyors, fans and pumps
Chemical, oil and gas	Compressors, extruders and pumps
Metals	Blast furnace blowers, fans and pumps
Pulp and paper	Fans and pumps
Power generation	Gas turbine starters, ID/FD fans and pumps
Water	Pumps
Other applications	Test stands and wind tunnels

ACS 5000 – High performance and low cost of ownership

The ACS 5000 is designed for maximum reliability, efficiency and versatility – features that have a direct impact on the customer’s cost of ownership.

Reliable and efficient

The combination of well-proven components and an innovative topology results in a reliable and efficient drive.

IGCT semiconductors

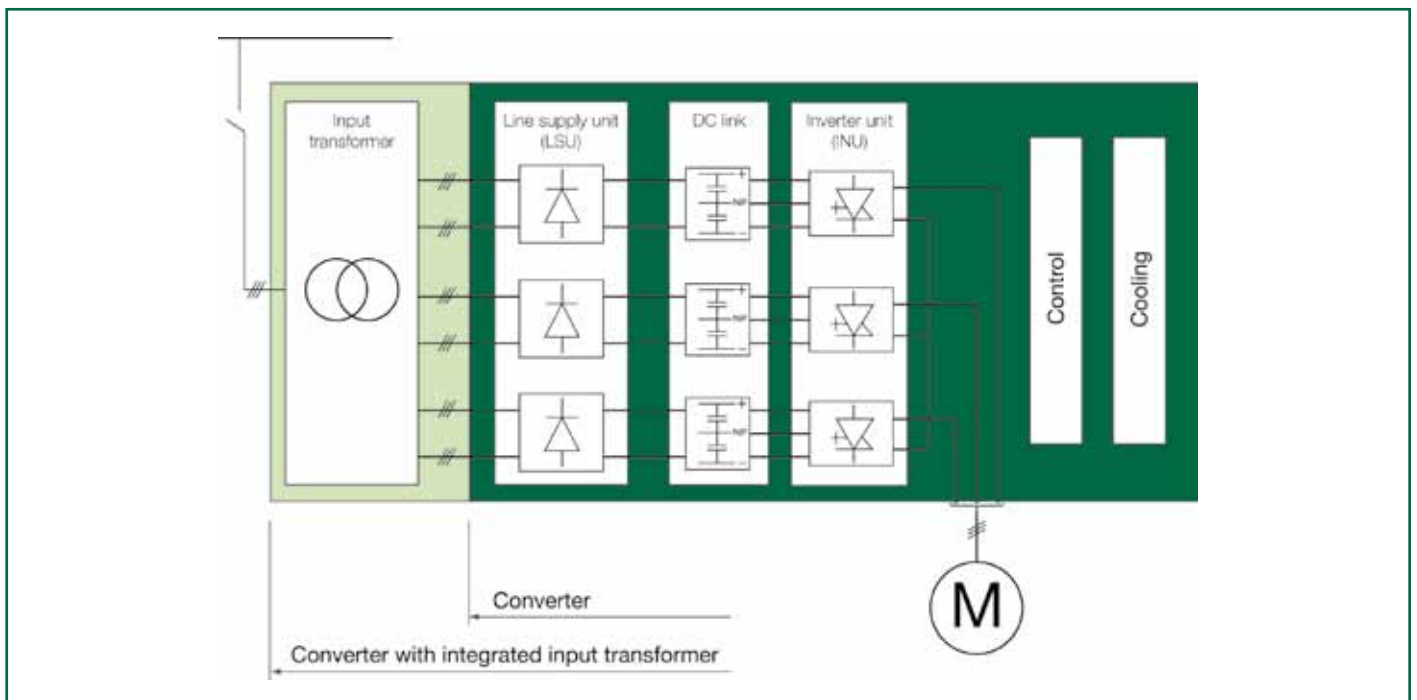
The ACS 5000 uses a power semiconductor known as IGCT (Integrated Gate Commutated Thyristor), which is an ideal switch for high-powered medium voltage applications. The use of IGCTs results in low parts count, providing an efficient and reliable drive.

Long-life DC-link capacitors

Advanced, self-healing, environmentally friendly foil capacitors, designed for a long lifetime, are used in the DC-link. ABB has clearly distinguished itself with this technology compared to unreliable and maintenance-intensive designs based on electrolytic DC-link capacitors.

Fuseless

The converter design does not require any medium voltage power fuses, which are known to be unreliable, costly and subject to aging. Instead of fuses the ACS 5000 uses IGCTs/thyristors, which provide faster and more reliable protection for the power components. The ACS 5000 protection scheme responds in less than 25 μ sec, about two hundred times faster than fuses.



ACS 5000 Voltage Source Inverter Multilevel-Fuseless (VSI-MF) topology

Powerful and application-friendly

During development of the ACS 5000, special attention was given to the entire drive system to provide highest configuration flexibility and ensure powerful and application-friendly performance.

Powerful performance

Fast, reliable and accurate process control in combination with low energy consumption results in top performance. The ACS drive control platform is ABB's award-winning Direct Torque Control (DTC), resulting in the highest torque and speed performance as well as the lowest losses ever achieved in medium voltage drives. Control of the drive is immediate and smooth under all conditions, even during high supply voltage and frequency variations.

Motor friendly

The ACS 5000 topology has an optimum number of switching levels, which provides a multilevel output waveform. This allows the use of standard motors up to 6.9 kV without compromising reliability.

Network friendly

The ACS 5000 is equipped with a 36-pulse rectifier to minimize harmonic distortion. It meets the most stringent requirements for current and voltage harmonic distortion as defined by IEEE, IEC and EN. This eliminates the need for costly harmonics analysis or installation of network filters when applying a new drive.

Flexible

Modular design

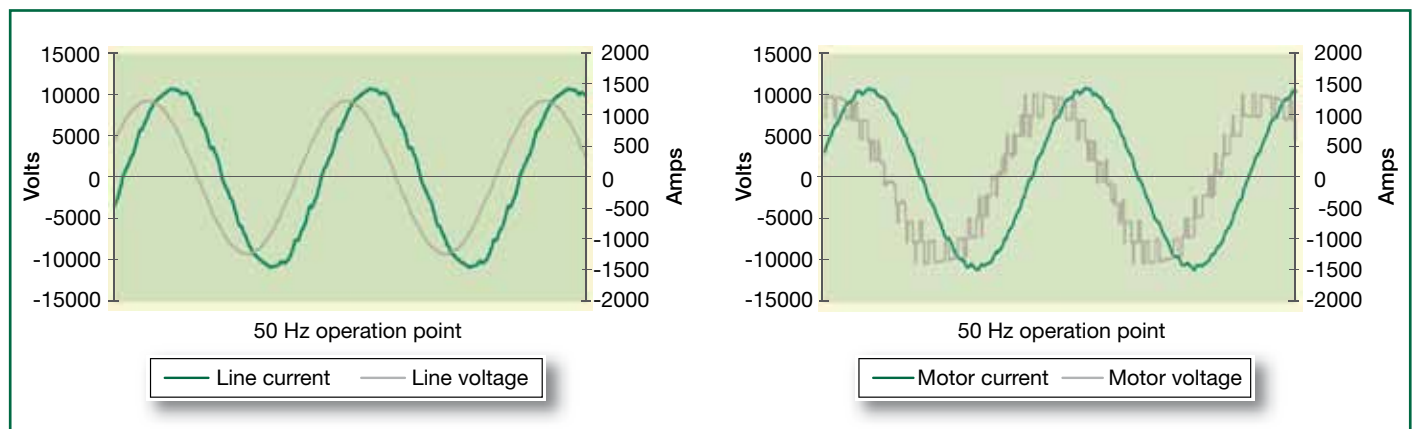
The modular design of the water-cooled ACS 5000 allows the optimum configuration of any drive system. Each configuration, consisting of well-proven and certified modules, fits exactly the customer's requirements.

Transformer flexibility

For highest transformer flexibility, the ACS 5000 is available for connection to an external input isolation transformer or with an integrated input isolation transformer.

High level of personal safety

Electric arcs represent a hazard source for people and goods. For systems where large and dangerous arc fault currents can occur, special attention is required. Therefore, the high-power water-cooled ACS 5000 is equipped with a superior protection function and ABB's Arc Guard System™. This IAC classified solution assures very fast arc detection and elimination (less than 6 ms) to protect people and equipment and eliminate unnecessary production stops.



Line and motor current and voltage

ACS 5000 air cooled – The general purpose drive

2 – 7 MW

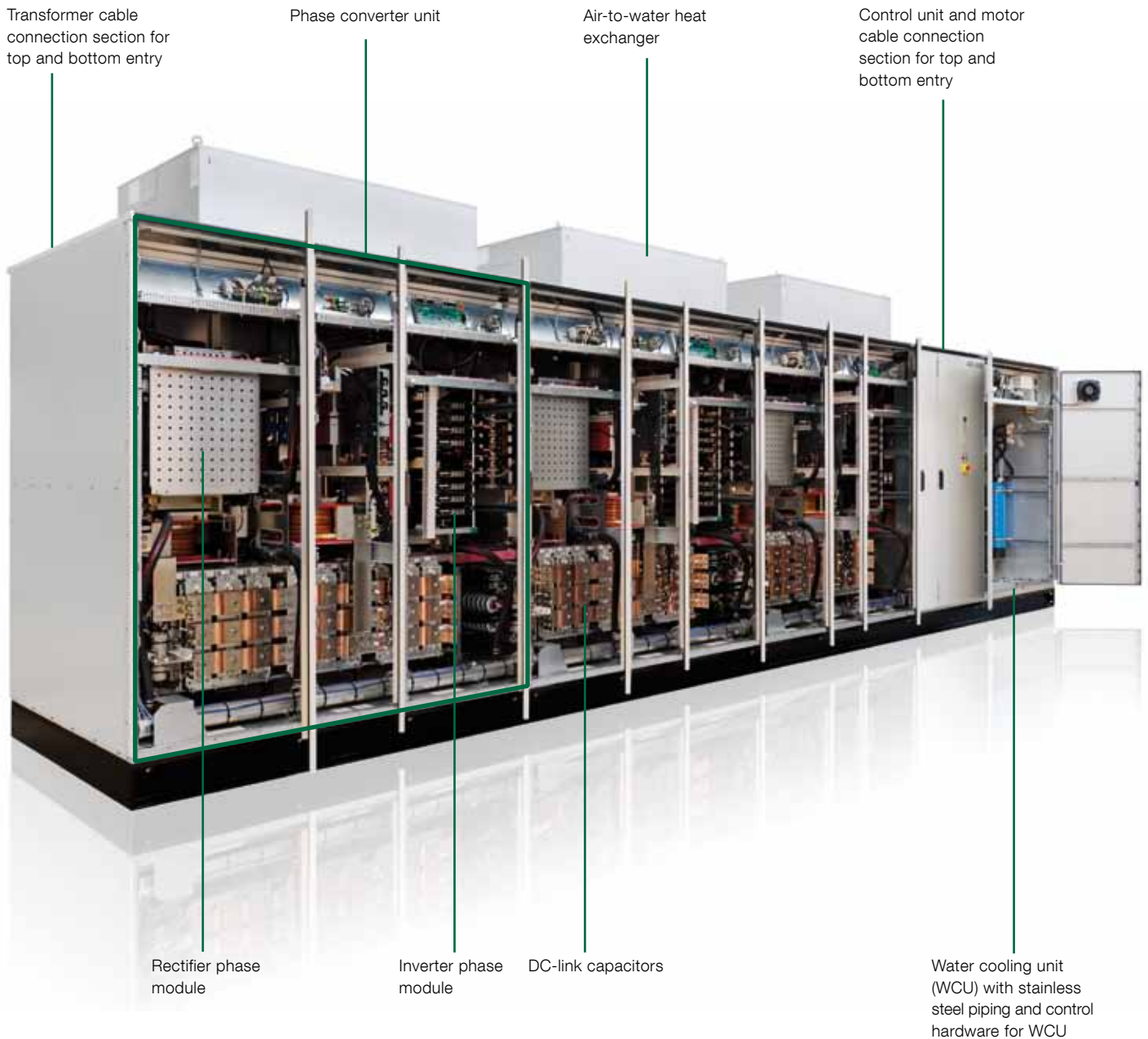


- User-friendly drive control panel for local operation
- Keypad with multi-language display
 - Main supply on/off pushbuttons
 - Emergency off pushbutton

Air-cooled ACS 5000 for operation with separate input isolation transformer, 7 MVA, 6.9 kV

ACS 5000 water cooled – The special purpose drive

5 – 36 MW (higher on request)



Water-cooled ACS 5000, 18 MVA, 6.9 kV

ACS 5000 – features and benefits

The ACS 5000 is designed to deliver value through reliable process control and low cost of ownership.

Features	Advantages	Benefits
Flexible input transformer configuration		
	The ACS 5000 is available with an integrated or a separate input isolation transformer, which can be placed outside the electrical room.	<ul style="list-style-type: none"> – Integrated transformer for quick installation and commissioning. – Separate transformer for minimum air-conditioning. The losses from the transformer do not dissipate into the electrical room.
Reliable and efficient components		
	ABB's IGCT power switching device results in low parts count, providing an efficient and reliable converter.	Highest reliability for minimum down-time
	The ACS 5000 multilevel-fuseless topology results in a drive with unmatched efficiency.	Highest efficiency leads to energy saving and improved productivity
Network and motor friendliness		
	The ACS 5000 36-pulse rectifier meets the most stringent requirements of international standards for current and voltage harmonic distortion.	Elimination of network harmonics to avoid penalties and system interferences. Costly harmonic analysis or network filters are not required.
	The ACS 5000 provides a multilevel output waveform for increased motor friendliness.	Suitable for standard motors
Direct Torque Control (DTC)		
	The fast control provided by DTC allows optimum process control and exact motor performance with minimum torque ripple and lowest energy consumption.	Fast, accurate and robust process control for constant product quality, minimum raw material waste and minimum machinery wear.
Maintenance		
	The modular design of the ACS 5000 simplifies maintenance. It allows easy front access to the drive's components. The cooling equipment is available with redundant fans or pumps.	Faster and easier maintenance which lowers maintenance costs.
Arc protection		
	The ACS 5000 is equipped with a superior system for arc protection.	High level of personal safety and drive availability. Unnecessary production stops are eliminated.
DriveMonitor™ (optional)		
	DriveMonitor™ provides monitoring access to the drive even from remote locations.	User-friendly drive monitoring and remote diagnostics
Service and support		
	ABB, the largest drives supplier worldwide, has a global support network, which provides assistance and spare parts 24 hours/day, 365 days/year	Around the clock access to drive specialists and spare parts

Simple drive system integration

The ACS 5000 allows smooth and simple system integration into the customer's industrial environment.

Open control system

ABB offers an open communication strategy, enabling connection to higher-level process controllers. The ACS 5000 can be installed with all major fieldbus adapters for smooth integration, monitoring and controlling of different processes, according to customer requirements.

DriveOPC

DriveOPC is a software package, which allows communication between ABB drives and the customer's Windows®-based applications.

Benefits

- Standard interface
- Remote connection via LAN (Local Area Network)
- Access to:
 - drive control
 - signals and parameters
 - data and fault loggers

Maintenance

Simple and efficient maintenance is an important factor in lowering operating costs. The modular concept of the ACS 5000 implies minimal maintenance.

Reliable components

ABB drive technologies, such as IGCT power semiconductors and the multilevel-fuseless topology, provide a low parts count, which increases reliability, extends Mean Time Between Failures (MTBF) and improves availability.

Easy access

The ACS 5000 is designed to allow easy front access to the drive's components.

Redundant cooling

The cooling equipment is available with redundant fans or pumps, which increases availability.



Phase converter unit of the water-cooled ACS 5000

Monitoring and diagnostics

The ACS 5000 is available with an intelligent monitoring and diagnostics system, which allows secure access to the drive from any location in the world.



Benefits

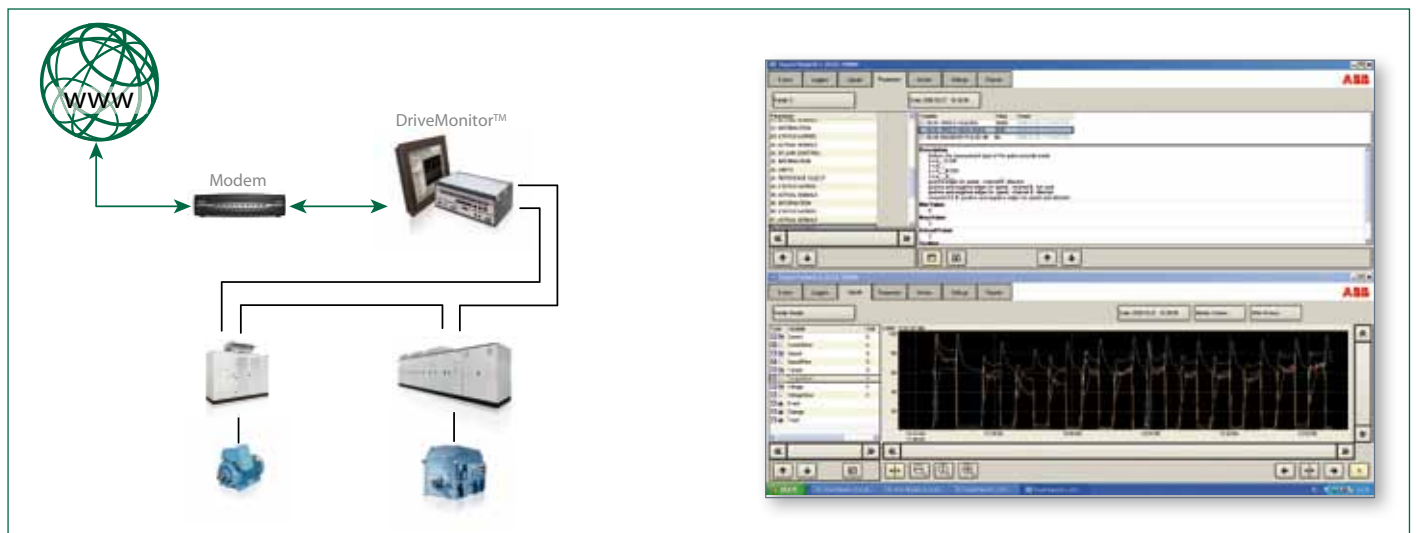
- Early detection to avoid costly repairs
- Reduction of process-critical faults
- Optimization of maintenance cost and schedule over the product life cycle
- Long-term statistics for optimization of process performance
- Easier root cause analysis – reduced Mean Time To Repair (MTTR)

DriveMonitor™ allows real-time access to the drive. It supports monitoring and diagnostics of ABB drives for new and existing installations.

The optional tool consists of a hardware module inside the drive, as well as a software layer that automatically collects and analyzes selected drive signals and parameters.

Long-term monitoring functions deliver important information on equipment status, maintenance tasks needed and possible performance improvements. As experts can gain access to the drive remotely, DriveMonitor™ also helps cut maintenance costs by reducing on-site work.

With extra diagnostic packages, DriveMonitor™ can also monitor other drive system components, such as main circuit breaker, transformer and the driven machine. Special packages related to the application, such as rolling mills, water pumps and compressors, can be integrated into the system.



ACS 5000 for induction or synchronous motors

Depending on the power rating and the application characteristics, the ACS 5000 can be used with induction, synchronous or permanent magnet motors.

ACS 5000 for induction motors

Squirrel cage induction motors are the workhorses of industry due to their versatility, reliability and simplicity.

The ACS 5000 can be applied to induction motors up to 23 MW. It is typically used with induction motors for applications such as pumps, fans, compressors and conveyors.

ACS 5000 for synchronous motors

Alternatively, the ACS 5000 can be used with synchronous motors. Synchronous motors are typically considered for higher power ratings. In addition to their high power capabilities, synchronous motors offer a wide field weakening range as well as the benefits of high efficiency and high performance.

Permanent magnet motors

The ACS 5000 can also be used with permanent magnet motors for low-speed or high-speed applications.



ABB's AMI induction motors



ABB's AMS synchronous motors

Testing

Thorough testing ensures proven functionality and performance and reduces commissioning time.



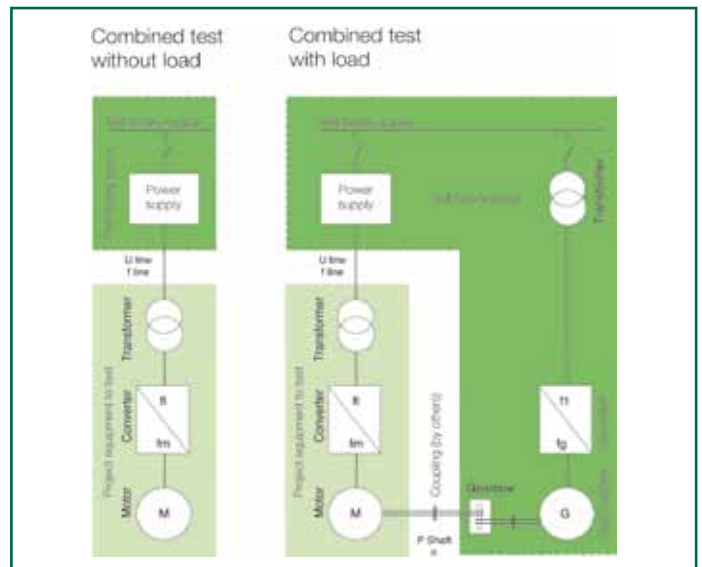
ABB is committed to ensuring the reliability of every drive it delivers. To ensure that quality standards and customer requirements are fully met, every component of a drive is subjected to thorough testing in ABB's test facilities.

Routine test

Routine tests and functional tests form an integral part of the scope of supply of ABB's medium voltage drives. The tests are performed in accordance with international standards and ABB quality assurance procedures.

Combined test

Additionally, ABB can perform a combined test with the complete drive system – including transformer, converter and motor – to verify the performance and to ensure a smooth integration into the customer's facility.



Service and support

The ACS 5000 is backed by unrivalled service and support from the customer's initial inquiry throughout the entire life cycle of the drive system.

Installation and commissioning

Proper installation and commissioning of the equipment, done by qualified and certified commissioning engineers, reduces start-up time, increases safety and reliability and decreases life cycle costs. In addition, operators can be given practical training by experienced specialists on site.

Training

ABB provides extensive training for its medium voltage drives. A range of training programs is offered from basic tutorials to programs tailored to the customer's specific needs.

Life cycle management

ABB's drive life cycle management model maximizes the value of the equipment and maintenance investment by maintaining high availability, eliminating unplanned repair costs and extending the lifetime of the drive.

Life cycle management includes:

- Providing spare parts and expertise throughout the life cycle
- Ensuring efficient product support and maintenance for improved reliability
- Adding functionality to the initial product
- Enabling a smooth transition to a new technology at the end of the life cycle

Services for ABB's medium voltage drives

- Supervision of installation and commissioning
- Training
- Remote diagnostics
- Customized maintenance contracts
- Local support
- 24 x 365 support line
- Spare parts and logistics network
- Worldwide service network

Global network, local presence

Aftersales service is an integral part of providing the customer with a reliable and efficient drive system. The ABB Group of companies operates in more than 100 countries and has a worldwide network of service operations.



Data sheet ACS 5000 air cooled with integrated transformer

Motor data			Converter	Converter data			
Voltage	Shaft power *		Type code	Power	Current	Length	Weight **
kV	kW	hp		kVA	A	mm	kg
6,000 V							
6.0	1500	2010	ACS 5060-A1A-M5	1800	170	5700	7700
6.0	1800	2410	ACS 5060-A1B-M5	2200	210	5700	7700
6.0	2000	2680	ACS 5060-A1C-M5	2500	240	5700	7700
6.0	2500	3350	ACS 5060-A1D-M5	3000	290	6000	9200
6.0	2800	3750	ACS 5060-A2A-M5	3300	315	6400	10200
6.0	3150	4220	ACS 5060-A2B-M5	3700	355	6700	11200
6.0	3550	4760	ACS 5060-A2C-M5	4200	400	6700	11200
6.0	4000	5360	ACS 5060-A2D-M5	4600	440	6700	11200
6.0	4500	6030	ACS 5060-A2E-M5	5300	510	6700	15500
6.0	5000	6700	ACS 5060-A2F-M5	6000	585	6700	15500
6,600 V							
6.6	1600	2140	ACS 5066-A1A-M5	1900	170	5700	7700
6.6	2000	2680	ACS 5066-A1B-M5	2400	210	5700	7700
6.6	2250	3020	ACS 5066-A1C-M5	2800	240	6000	9200
6.6	2500	3350	ACS 5066-A1D-M5	3300	290	6000	9200
6.6	2800	3750	ACS 5066-A2A-M5	3600	315	6400	10200
6.6	3150	4220	ACS 5066-A2B-M5	4100	355	6700	11200
6.6	3550	4760	ACS 5066-A2C-M5	4600	400	6700	11200
6.6	4000	5360	ACS 5066-A2D-M5	5000	440	6700	15500
6.6	4500	6030	ACS 5066-A2E-M5	5800	510	6700	15500
6.6	5600	7500	ACS 5066-A2F-M5	6700	585	6700	15500
6,900 V							
6.9	1600	2140	ACS 5069-A1A-M5	2000	170	5700	7700
6.9	2000	2680	ACS 5069-A1B-M5	2500	210	5700	7700
6.9	2250	3020	ACS 5069-A1C-M5	2900	240	6000	9200
6.9	2800	3750	ACS 5069-A1D-M5	3500	290	6000	9200
6.9	3150	4220	ACS 5069-A2A-M5	3700	315	6700	10200
6.9	3550	4760	ACS 5069-A2B-M5	4200	355	6700	11200
6.9	4000	5360	ACS 5069-A2C-M5	4800	400	6700	11200
6.9	4500	6030	ACS 5069-A2D-M5	5200	440	6700	15500
6.9	5000	6700	ACS 5069-A2E-M5	6100	510	6700	15500
6.9	6000	8040	ACS 5069-A2F-M5	7000	585	6700	15500

Notes:

* Indicative information referring to a typical 4-pole induction motor under nominal supply voltage conditions.

** Weight indications are approximate; listed without excitation unit (for synchronous motors)

Excitation unit for synchronous motor drives (stand-alone cabinet)

Dimensions: 800 x 1000 x 2360 mm (L x D x H)

Weight: approx. 700 kg

General dimensions ACS 5000 air cooled with integrated transformer

Cabinet height: 2360 mm excl. cooling fans

2863 mm incl. cooling fans

2963 mm with redundant cooling fans

Cabinet depth: 1100 mm (up to 1300 mm for subframe 2D, 2E, 2F)

Data sheet ACS 5000 air cooled for operation with external transformer

Motor data			Converter	Converter data			
Voltage	Shaft power *		Type code	Power	Current	Length	Weight **
kV	kW	hp		kVA	A	mm	kg
6,000 V							
6.0	1500	2010	ACS 5060-A1A-D5	1800	170	3300	3000
6.0	1800	2410	ACS 5060-A1B-D5	2200	210	3300	3000
6.0	2000	2680	ACS 5060-A1C-D5	2500	240	3300	3000
6.0	2500	3350	ACS 5060-A1D-D5	3000	290	3300	3000
6.0	2800	3750	ACS 5060-A2A-D5	3300	315	3700	4000
6.0	3150	4220	ACS 5060-A2B-D5	3700	355	3700	4000
6.0	3550	4760	ACS 5060-A2C-D5	4200	400	3700	4000
6.0	4000	5360	ACS 5060-A2D-D5	4600	440	3700	4000
6.0	4500	6030	ACS 5060-A2E-D5	5300	510	3700	4000
6.0	5000	6700	ACS 5060-A2F-D5	6100	585	3700	4000
6,600 V							
6.6	1600	2140	ACS 5066-A1A-D5	1900	170	3300	3000
6.6	2000	2680	ACS 5066-A1B-D5	2400	210	3300	3000
6.6	2250	3020	ACS 5066-A1C-D5	2800	240	3300	3000
6.6	2500	3350	ACS 5066-A1D-D5	3300	290	3300	3000
6.6	3000	4020	ACS 5066-A2A-D5	3600	315	3700	4000
6.6	3150	4220	ACS 5066-A2B-D5	4100	355	3700	4000
6.6	3550	4760	ACS 5066-A2C-D5	4600	400	3700	4000
6.6	4000	5360	ACS 5066-A2D-D5	5000	440	3700	4000
6.6	4500	6030	ACS 5066-A2E-D5	5800	510	3700	4000
6.6	5600	7500	ACS 5066-A2F-D5	6700	585	3700	4000
6,900 V							
6.9	1600	2140	ACS 5069-A1A-D5	2000	170	3300	3000
6.9	2000	2680	ACS 5069-A1B-D5	2500	210	3300	3000
6.9	2250	3020	ACS 5069-A1C-D5	2900	240	3300	3000
6.9	2800	3750	ACS 5069-A1D-D5	3500	290	3300	3000
6.9	3150	4220	ACS 5069-A2A-D5	3700	315	3700	4000
6.9	3550	4760	ACS 5069-A2B-D5	4200	355	3700	4000
6.9	4000	5360	ACS 5069-A2C-D5	4800	400	3700	4000
6.9	4500	6030	ACS 5069-A2D-D5	5200	440	3700	4000
6.9	5000	6700	ACS 5069-A2E-D5	6100	510	3700	4000
6.9	6000	8040	ACS 5069-A2F-D5	7000	585	3700	4000

Notes:

- * Indicative information referring to a typical 4-pole induction motor under nominal supply voltage conditions.
- ** Weight indications are approximate; listed without excitation unit (for synchronous motors)

Excitation unit for synchronous motor drives (stand-alone cabinet)

Dimensions: 800 x 1000 x 2360 mm (L x D x H)
 Weight: approx. 700 kg

General dimensions ACS 5000 air cooled for operation with external transformer

Cabinet height: 2360 mm excl. cooling fans
 2863 mm incl. cooling fans
 2963 mm with redundant cooling fans
 Cabinet depth: 1100 mm

Data sheet ACS 5000 water cooled for operation with external transformer

Motor data			Converter	Converter data			
Voltage	Shaft power *		Type code	Power	Current	Length**	Weight ***
kV	kW	hp		kVA	A	mm	kg
6,000 V							
6.0	6830	9150	ACS 5060-W1A-D5	7000	670	7130	8000
6.0	8480	11360	ACS 5060-W1B-D5	8700	840	7130	8000
6.0	10140	13590	ACS 5060-W1C-D5	10400	1000	7130	8000
6.0	12680	16990	ACS 5060-W2A-D5	13000	1250	9130	10000
6.0	15210	20380	ACS 5060-W2B-D5	15600	1500	9130	10000
6.0	17750	23790	ACS 5060-W3A-D5	18200	1750	13030	12000
6.0	20280	27180	ACS 5060-W3B-D5	20800	2000	13030	12000
6.0	23300	31220	ACS 5060-W4A-D5	23900	2300	15815	20000
6.0	25350	33970	ACS 5060-W4B-D5	26000	2500	15815	20000
6.0	30420	40760	ACS 5060-W4C-D5	31200	3000	15815	20000
6,600 V							
6.6	7510	10060	ACS 5066-W1A-D5	7700	670	7130	8000
6.6	9360	12540	ACS 5066-W1B-D5	9600	840	7130	8000
6.6	11120	14900	ACS 5066-W1C-D5	11400	1000	7130	8000
6.6	13940	18680	ACS 5066-W2A-D5	14300	1250	9130	10000
6.6	16670	22340	ACS 5066-W2B-D5	17100	1500	9130	10000
6.6	19500	26130	ACS 5066-W3A-D5	20000	1750	13030	12000
6.6	22330	29920	ACS 5066-W3B-D5	22900	2000	13030	12000
6.6	25640	34360	ACS 5066-W4A-D5	26300	2300	15815	20000
6.6	27890	37370	ACS 5066-W4B-D5	28600	2500	15815	20000
6.6	33440	44810	ACS 5066-W4C-D5	34300	3000	15815	20000
6,900 V							
6.9	7800	10450	ACS 5069-W1A-D5	8000	670	7130	8000
6.9	9750	13070	ACS 5069-W1B-D5	10000	840	7130	8000
6.9	11700	15680	ACS 5069-W1C-D5	12000	1000	7130	8000
6.9	14530	19470	ACS 5069-W2A-D5	14900	1250	9130	10000
6.9	17450	23380	ACS 5069-W2B-D5	17900	1500	9130	10000
6.9	20380	27310	ACS 5069-W3A-D5	20900	1750	13030	12000
6.9	23300	31220	ACS 5069-W3B-D5	23900	2000	13030	12000
6.9	26810	35930	ACS 5069-W4A-D5	27500	2300	15815	20000
6.9	29150	39060	ACS 5069-W4B-D5	29900	2500	15815	20000
6.9	35000	46900	ACS 5069-W4C-D5	35900	3000	15815	20000

Notes:

- * Indicative information referring to a typical 4-pole induction motor under nominal supply voltage conditions.
- ** Length values are listed without excitation unit (for synchronous motors)
- *** Weight indications are approximate; listed without excitation unit (for synchronous motors)

Excitation unit for synchronous motor drives (stand-alone cabinet)

Dimensions: 800 x 1000 x 2360 mm (L x D x H)
 Weight: approx. 700 kg

General dimensions ACS 5000 water cooled

Cabinet height: 2360 mm excl. cooling fans
 2710 mm incl. auxiliary cooling fans
 Cabinet depth: 1600 mm

Data sheet ACS 5000

Inverter type

Voltage Source Inverter Multilevel-Fuseless (VSI-MF), 9 levels line-to-line, with fast-switching power semiconductors – Integrated Gate Commutated Thyristors (IGCTs), without parallel or series connected devices

Motors

Induction, synchronous and permanent magnet motors

Standards

All common standards including EN, IEC, CE

Input

Medium voltage input transformer for 36-pulse diode rectifier
Variation: $\pm 20\%$ of nominal voltage (optionally up to $+40\%$), down to -30% safe operation with derated output

Auxiliary voltage

Common 380 – 480 VAC, 3-phase, 50 Hz/60 Hz, (up to 690 VAC for water cooled drives)

UPS (Uninterruptible Power Supply)

If available, a UPS can be connected for control power supply, 110 – 240 VAC, single phase or 110/220 VDC. Alternatively the drive can be equipped with back-up capacitors (for short term control power-loss ride-through)

Output frequency

0 to ± 75 Hz, up to ± 250 Hz optional (higher on request)

Output voltage

Standard: 6.0 – 6.9 kV
Optional: 4.16 kV

Efficiency of converter

Typically $> 98.5\%$ (incl. auxiliaries)

Input power factor

Fundamental: > 0.96 (Total: > 0.95)

Ambient temperature

$+1^\circ\text{C}$ to 40°C (higher with derating)
 34°F to 104°F (higher with derating)

Enclosure classes

Standard:	IP 21	air cooled
	IP 32	water cooled
Optional:	up to IP 42	air cooled
	up to IP 54	water cooled

Control interface (optional)

- All common field buses including Profibus, Modbus, Allen-Bradley DeviceNet, Ethernet, ABB Advant Fieldbus AF100 (others on request)
- Extensive range of additional I/O features available

Standard protection functions

Converter:

Overcurrent, short circuit, earth fault, phase loss, overvoltage, undervoltage, overtemperature, output frequency, network disturbance, cooling supervision

Motor:

Overload, stall protection

Example options

- Motor supervision I/Os
 - Fault/alarm: overtemperature, vibration of bearings
 - PT 100: winding and bearing temperatures
- Transformer supervision I/Os:
 - Fault/alarm: overtemperature, Buchholz
 - PT 100: winding temperatures
- Hardwired signals for remote drive control
 - References: start/stop, speed/torque, etc.
 - Status feedback signals: ready/running
 - Analog signals: current/voltage/power, etc.
- Redundant cooling fan (air-cooled ACS 5000) and pump (water-cooled ACS 5000) for enhanced reliability
- Synchronous bypass functionality (for starting of up to six different motors)
- Integrated transformer, input voltage range
 - 6.0 – 6.9 kV, 50 Hz/60 Hz
 - 10.0 – 11.0 kV, 50 Hz/60 Hz
 - 11.0 – 13.8 kV, 50 Hz/60 Hz on demand

Notes

Notes

Contact us

For more information contact your local ABB representative
or visit:

www.abb.com/drives

