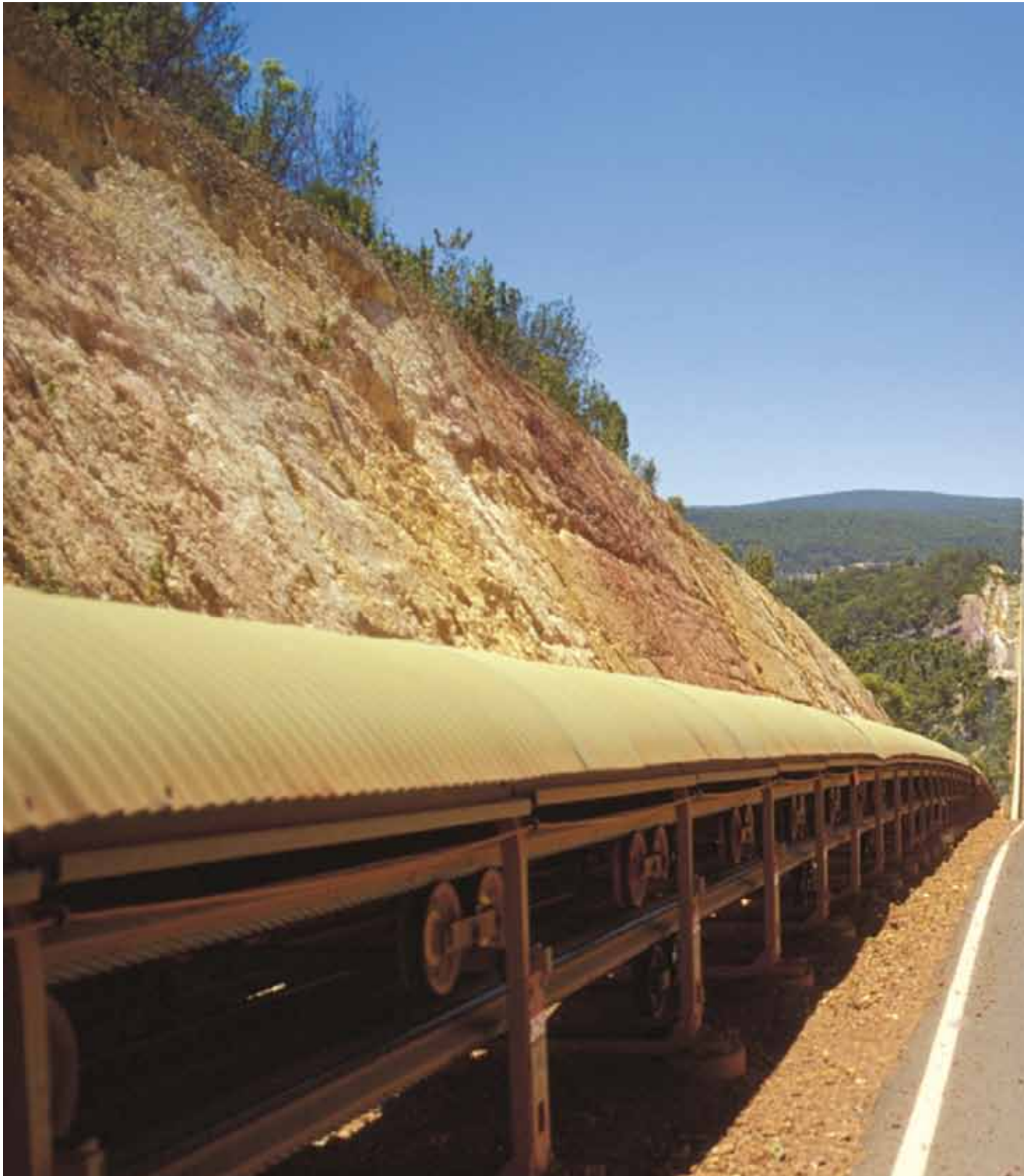




Product brochure

Medium voltage AC drive
ACS 1000, ACS 1000i
315 kW – 5 MW, 2.3 – 4.16 kV



ACS 1000, ACS 1000i – reliable power control

The ACS 1000 family of drives, one of the most successful variable speed drives in its class, provides simple and reliable power control.

Power control of induction motors

Drawing from over a century of industrial manufacturing experience, ABB provides a simple and reliable approach to power control: the ACS 1000 family of drives for speed and torque control of 315 to 5000 kW induction motors for voltages of 2.3, 3.3, 4.0 and 4.16 kV. It is available with air or water cooling.

The air cooled drive can be supplied with separate input transformer (ACS 1000) or as a fully integrated drive (ACS 1000i) which includes input transformer and, optionally, input contactor.

Operational experience

With over one thousand installations worldwide, the ACS 1000 family is one of the most successful variable speed drives in its class.

Since its introduction in 1997, it has set the benchmark for reliable and efficient control of medium voltage applications such as pumps, fans, conveyors, extruders and compressors.

Key product features

- Retrofit-ready for existing motors and suitable for most medium voltage applications
- Output sine filter for pure sinusoidal voltage and current output: standard motors, no motor derating, no voltage stress and no common mode voltages on the motor insulation
- Fuseless design for reliable, non-aging, maintenance-free circuit protection
- DTC control platform for exceptionally high torque and speed control performance
- Integrated or separate input transformer for highest system design flexibility
- High level of personal safety due to arc protection

Fields of application

| Industries | Applications |
|-----------------------------|---|
| Cement, mining and minerals | Conveyors, crushers, mills, fans and pumps |
| Chemical, oil and gas | Pumps, compressors, extruders, mixers and blowers |
| Marine | Thrusters, pumps and compressors |
| Metals | Fans and pumps |
| Pulp and paper | Fans, pumps, refiners, vacuum pumps and chippers |
| Power generation | Fans, pumps, conveyors and coal mills |
| Water | Pumps |
| Other applications | Test stands and wind tunnels |

Retrofit-ready simplicity

The ACS 1000 family is optimized for retrofits. With its network-friendly diode rectifiers, the motor-friendly output sine filter and its input transformer flexibility, it can fit where you need it.

Network friendly

Depending on the network conditions, the drives of the ACS 1000 family can be equipped with a 12- or 24-pulse diode rectifier which meets the stringent requirements for current and voltage harmonic distortion as defined by IEEE, IEC and EN. This eliminates the need for costly harmonic analysis or installation of network filters when applying a new drive.

Output sine filter – perfect for standard motors and retrofit applications

Voltage reflections and common mode voltages, caused by any inverter topology, are a real concern for medium voltage motors. They cause excessive stress to a standard motor insulation and create harmful bearing currents, both with potentially disastrous consequences. Furthermore, the motor is subjected to additional harmonic heating generated by the inverter switching if no further precautions are taken.

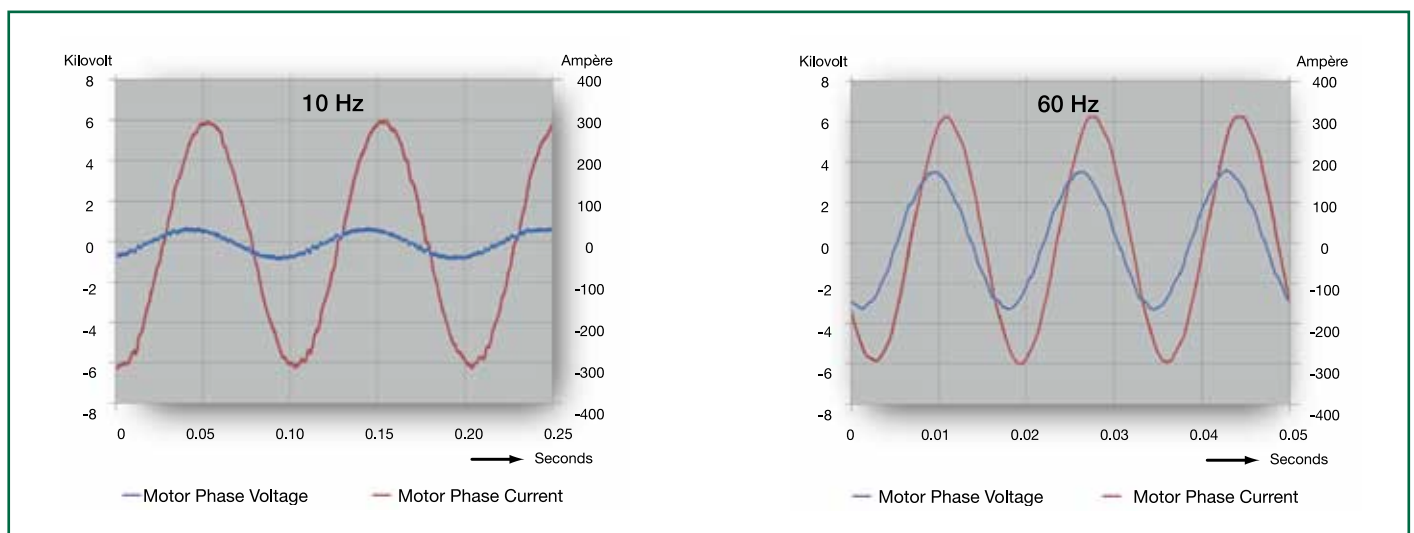
With an ACS 1000 or ACS 1000i, all these detrimental effects are totally eliminated by its unique output sine filter, being an integral part of the drive. The result is an excellent waveform of voltage and current, supplied to the motor.

Benefits

- Compatibility with standard induction motors without derating
- Ability to retrofit to existing motors
- Motor efficiency same as Direct-On-Line (DOL) operation
- Reduced motor noise
- Use of standard cables
- No limitation of motor cable length

System design flexibility

The ACS 1000 family can be configured with either an integrated dry-type or separately installed input transformer. This flexibility enables the use of oil-filled transformers when the transformer will be mounted outdoors. The advantage is that heat losses from the input transformer are not dissipated in the electrical room. The integrated input transformer, on the other hand, simplifies installation and commissioning (three cables in - three cables out).



The ACS 1000 drives family provides smooth and accurate motor control even at low speed and full torque (left diagram: 10 Hz, 100% torque) throughout the full operating range of speed and load (right diagram: 60 Hz, 100% torque).

Reliable and efficient components

Reliable components

IGCT semiconductors

The ACS 1000 and ACS 1000i use 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.

Fuseless

The converter design does not require any medium voltage power fuses, which are known to be unreliable, costly and subject to aging. The ACS 1000 and ACS 1000i use dedicated IGCTs, instead, which provide faster and better protection for the power components.

Long-life capacitors

Electrolytic capacitors, which have a poor life expectancy, are not used in the ACS 1000 and ACS 1000i. Advanced, environmental friendly, rapeseed oil-filled foil capacitors, designed for a long lifetime, are used instead.

Powerful motor control platform

The motor control platform of the ACS 1000 drives family is ABB's award-winning Direct Torque Control (DTC). It provides rapid, accurate and stepless control from zero to full speed and can deliver full torque with optimal speed accuracy over the whole speed range, even without encoder.

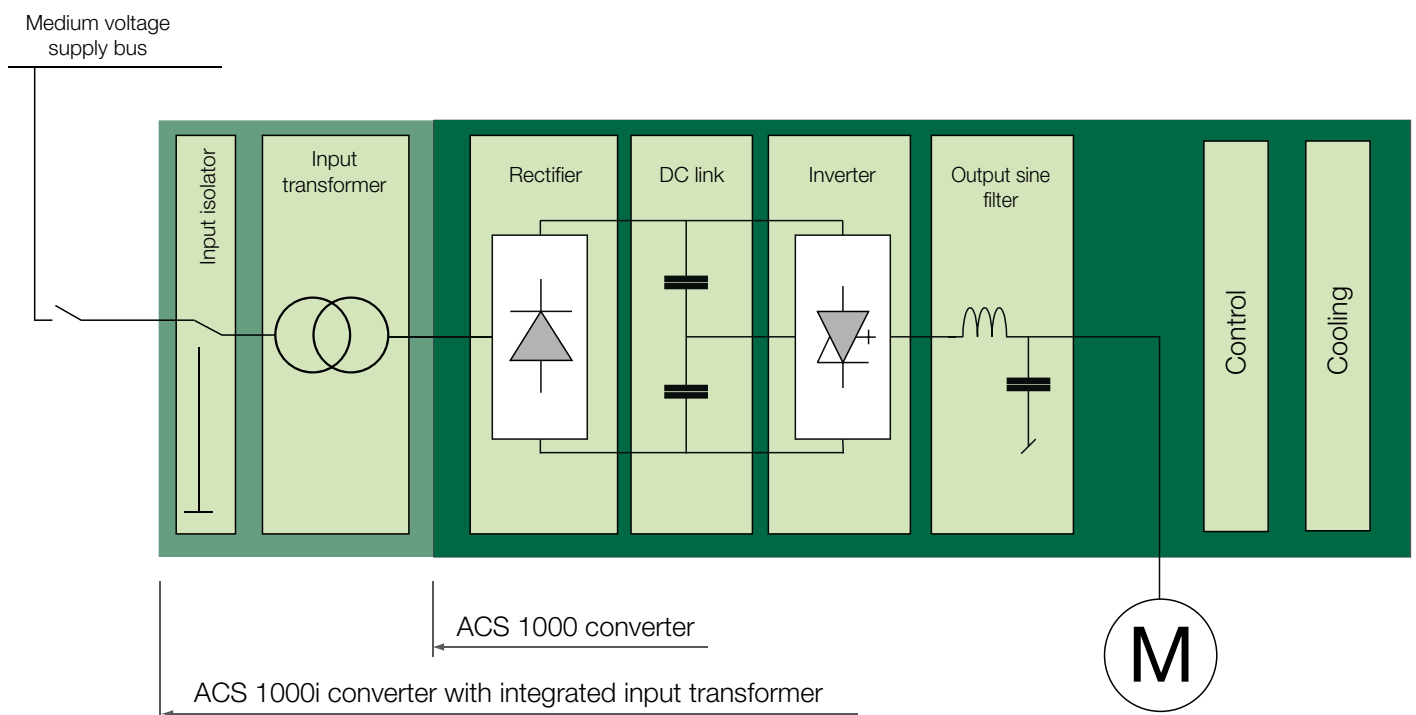
Power loss ride through

A special feature of DTC is its ability to ride through short main supply voltage interruptions so that in most cases the process is not affected.

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 ACS 1000 and ACS 1000i fulfill the IAC requirements for arc containment assuring personal safety. For higher currents, the ACS 1000 cabinet can be equipped with a pressure relief flap. Optionally, the ACS 1000 and ACS 1000i are available with ABB's Arc Guard System™ for very fast arc detection.



The ACS 1000 drives family's well proven three-level inverter, without series or parallel connected power semiconductors, is one of the least complex, most robust and efficient drive topologies.

ACS 1000 air cooled



Cable connection section for top and bottom entry/exit

Integrated fan for low noise level

IGCT power semiconductors



Control electronics mounted on swing frame

Application and motor control board with fast digital signal processor and DTC

Fiber optics for noise immunity and galvanic isolation

12-pulse input bridge as standard

24-pulse input bridge as option

Output filter capacitor

ACS 1000 water cooled



Cable connection section for top and bottom entry/exit

IGCT inverter stacks on swing frame for easy access



Control electronics mounted on swing frame

Application and motor control board with fast digital signal processor and DTC

Fiber optics for noise immunity and galvanic isolation

Output filter choke

12-pulse input bridge as standard

24-pulse input bridge as option

Water cooling cabinet with heat exchangers and deionization unit

ACS 1000i air cooled with integrated input transformer and input contactor (optional)



Input isolator

Fused input contactor (optional)

24-pulse input transformer

3-level voltage source inverter using IGCT power semiconductors



Power cable connection section for top and bottom entry

24-pulse input bridge as standard

Control electronics mounted on swing frame

DC link capacitor

Application and motor control board with fast digital signal processor and DTC

Fiber optics for noise immunity and galvanic isolation

Features and benefits

| Features | Advantages | Benefits |
|--|--|---|
| Flexible input transformer configuration | The air cooled drives of the ACS 1000 family are available with integrated or separate input transformer, which can be placed outside the electrical room. | <ul style="list-style-type: none"> – Integrated transformer for quick installation and commissioning – Separate transformer reduces the air-conditioning requirements. The losses from the transformer do not dissipate into the electrical room |
| Network and motor friendliness | <p>The 12-/24-pulse rectifier meets the most stringent requirements of international standards for current and voltage harmonic distortion.</p> <p>The sine filter gives an excellent output waveform, eliminating harmonics and common mode voltage and reducing stress on the motor.</p> | <p>Minimum network harmonics to avoid system interferences and utility penalties</p> <ul style="list-style-type: none"> – Elimination of voltage stresses for a longer motor lifetime – Motors can be used without derating and long cable runs between motor and drive are not a problem |
| Reliable and efficient components | <p>ABB's IGCT high power switching device results in low parts count, providing an efficient and reliable converter.</p> <p>The cooling equipment is available with redundant fans or pumps.</p> | High reliability for minimum downtime |
| Direct Torque Control (DTC) | <p>The fast control provided by Direct Torque Control (DTC) allows optimum process control and exact motor performance with minimum torque ripple and lowest energy consumption</p> <p>A special feature of DTC is its ability to ride through short main supply voltage interruptions</p> | <p>Fast, accurate and robust process control for constant product quality, minimum raw material waste and minimum machinery wear</p> <p>Power loss ride through</p> |
| Simple access | The ACS 1000 and ACS 1000i have been designed to allow easy front access | Simple and efficient maintenance |
| Arc protection | The ACS 1000 and ACS 1000i are IAC classified | High level of personal safety |
| 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 1000 and ACS 1000i allow smooth and simple system integration into the customer's industrial environment.

Flexible control interface

ABB offers an open communication strategy, enabling connection to higher-level process controllers. The ACS 1000 and ACS 1000i 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

Monitoring and diagnostics

The ACS 1000 and ACS 1000i are available with an intelligent remote monitoring and diagnostics system, which allows secure access to the drive from any location in the world.

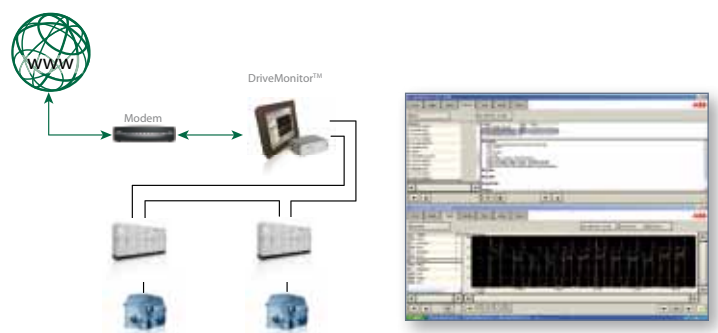
DriveMonitor™ allows real-time access to the drive. It supports monitoring and diagnostics of ABB drives for new and existing installations.

The optional tool consists of a hardware module, 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. Diagnostic procedures and trending can cover not only the converter itself but other parts of the shaft train as well.

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)



Testing, service and support

The ACS 1000 and ACS 1000i are backed by unrivalled service and support from the customer's initial inquiry throughout the entire life cycle of the drive system.

Testing

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 modern test facilities.

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

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.

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
- providing efficient product support and maintenance for improved reliability
- adding functionality to the initial product

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.

Services for ABB's medium voltage drives

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



Data sheet ACS 1000, ACS 1000i

Inverter type

Three-level Voltage Source Inverter (VSI) with fast-switching power semiconductors – Integrated Gate Commutated Thyristors (IGCTs), without parallel or series connected devices

Motors

Induction motors;

ACS 1000: 315 – 2000kW air cooled

1800 – 5000kW water cooled

ACS 1000i: 315 – 2000kW air cooled

Standards

All common standards including EN (IEC), CE, UL, cUL, GOST

Input

ACS 1000:

Any medium voltage level, 50 Hz or 60 Hz, can be applied to the appropriate primary side of the converter input transformer.

ACS 1000i:

Voltage range: 4.16 – 7.2 kV, 60 Hz/6.0 – 6.6 kV, 50 Hz, on request up to 11 kV

Variation (ACS 1000, ACS 1000i):

-5% / +10% of nominal voltage, down to

-25% safe operation with derated output.

Higher variation on request.

Auxiliary voltage

400 VAC ±10%, 50/60 Hz

480 VAC ±10%, 60 Hz

575 VAC ±10%, 60 Hz, 3 phase

UPS (Uninterruptible Power Supply)

If available, an UPS can be connected for control power supply, 110 – 240 VAC ±10%, single phase. Alternatively the drive can be equipped with back-up batteries.

Output frequency

0 to ±66 Hz (±82.5 Hz optional)

Output voltage

Standard: Sinusoidal, 0 – 2.3 kV,

0 – 3.3 kV, 0 – 4.0/4.16 kV

Nominal output voltage 4.0 kV according to NEMA MG1. 4.16 kV is available on request.

Input bridge

ACS 1000 Standard: 12-pulse

Optional: 24-pulse

ACS 1000i Standard: 24-pulse

Efficiency of converter

ACS 1000 typically > 98%

ACS 1000i typically > 96% (incl. integrated transformer)

Input power factor

Fundamental: > 0.97; Total: > 0.96

Overload capacity

Standard: Normal use, 10% short term overload capacity allowed for one minute every 10 minutes

Optional: For higher overload capacity contact ABB

Ambient temperature

+1° C to 40° C / 34° F to 104° F (higher with derating)

Enclosure classes

ACS 1000

Air cooled: IP21, IP22, IP31, IP32, IP42

Water cooled: IP31, IP54

ACS 1000i IP21, IP42

Control interface (optional)

- All common fieldbuses 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

Auxiliary voltage fault, cabinet temperature supervision, overcurrent, short circuit detection, earth fault, input phase loss, output phase loss, overvoltage, motor overload, motor underload, motor stall and overspeed protection, communication fault, main circuit breaker supervision and many others

Maritime properties

- Marine certification: available for ABS, CCS, DNV
- Mechanics: Vibration dampers, maritime handgrips, anti-condensation heaters, locking device for 90° open doors

Example options

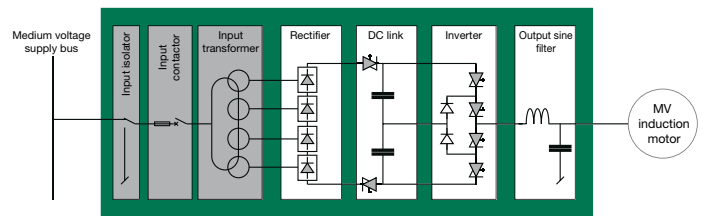
- Motor supervision I/Os
 - Fault/alarm: overtemperature, vibration of bearings
 - PT 100: winding and bearing temperatures
- Transformer supervision I/Os:
 - Fault/alarm: overtemperature, Buchholz
 - PT 100: winding temperatures
- Hardwired signals for remote drive control
 - References: start/stop, speed/torque, etc.
 - Status feedback signals: ready/running
 - Analog signals: current/voltage/power, etc.
- Redundant cooling for enhanced reliability
- Braking chopper for effective motor braking and short deceleration times
- Bi-directional bypass (start-up bypass for synchronous transfer of up to 4 motors to the line and taking back machine from line to VSD operation)
- ABB DriveMonitor™ for remote monitoring and diagnostics
- ABB Arc Guard System™ for very fast arc detection

Data sheet ACS 1000i with integrated transformer

| Motor data | | | Converter | Converter data | | | |
|---------------------------------------|---------------|-------|---------------|----------------|-----------|--------|------------|
| Voltage ** | Shaft power * | | Type code | Power | Current * | Length | Weight *** |
| kV | kW | hp | | kVA | A | mm | kg |
| 3'300 V - air cooled | | | | | | | |
| 3.3 | 315 | 420 | ACS 1043-A1-A | 400 | 70 | 3300 | 3900 |
| 3.3 | 355 | 480 | ACS 1043-A1-B | 450 | 79 | 3300 | 3900 |
| 3.3 | 400 | 540 | ACS 1043-A1-C | 500 | 87 | 3300 | 3900 |
| 3.3 | 450 | 600 | ACS 1043-A1-D | 550 | 96 | 3300 | 3900 |
| 3.3 | 500 | 670 | ACS 1043-A1-E | 600 | 105 | 3300 | 3900 |
| 3.3 | 560 | 750 | ACS 1043-A1-F | 700 | 122 | 3300 | 4300 |
| 3.3 | 630 | 840 | ACS 1043-A2-G | 750 | 131 | 3300 | 4300 |
| 3.3 | 710 | 950 | ACS 1043-A2-H | 850 | 149 | 3300 | 4300 |
| 3.3 | 800 | 1'070 | ACS 1043-A2-J | 950 | 166 | 3300 | 4300 |
| 3.3 | 900 | 1210 | ACS 1043-A2-K | 1100 | 192 | 3300 | 4300 |
| 3.3 | 1000 | 1340 | ACS 1043-A2-L | 1200 | 210 | 3300 | 5100 |
| 3.3 | 1120 | 1500 | ACS 1043-A3-M | 1350 | 236 | 3300 | 5100 |
| 3.3 | 1250 | 1680 | ACS 1043-A3-N | 1500 | 262 | 3300 | 5100 |
| 3.3 | 1400 | 1880 | ACS 1043-A3-P | 1700 | 297 | 3300 | 5500 |
| 3.3 | 1500 | 2010 | ACS 1043-A3-Q | 1900 | 332 | 3300 | 5500 |
| 4'000 V / 4'160 V - air cooled | | | | | | | |
| 4.0 | 300 | 400 | ACS 1044-A1-A | 400 | 58 | 3300 | 4000 |
| 4.0 | 340 | 450 | ACS 1044-A1-B | 400 | 58 | 3300 | 4000 |
| 4.0 | 370 | 500 | ACS 1044-A1-C | 450 | 65 | 3300 | 4000 |
| 4.0 | 450 | 600 | ACS 1044-A1-D | 550 | 79 | 3300 | 4000 |
| 4.0 | 520 | 700 | ACS 1044-A1-E | 650 | 94 | 3300 | 4000 |
| 4.0 | 600 | 800 | ACS 1044-A1-F | 750 | 108 | 3300 | 4000 |
| 4.0 | 670 | 900 | ACS 1044-A1-G | 800 | 115 | 3300 | 4000 |
| 4.0 | 750 | 1000 | ACS 1044-A1-H | 900 | 130 | 3300 | 4000 |
| 4.0 | 930 | 1250 | ACS 1044-A2-J | 1150 | 166 | 3300 | 4900 |
| 4.0 | 1120 | 1500 | ACS 1044-A2-K | 1350 | 195 | 3300 | 4900 |
| 4.0 | 1300 | 1750 | ACS 1044-A3-L | 1550 | 224 | 3300 | 5600 |
| 4.0 | 1490 | 2000 | ACS 1044-A3-M | 1800 | 260 | 3300 | 5600 |
| 4.0 | 1680 | 2250 | ACS 1044-A3-N | 2000 | 289 | 3300 | 5600 |
| 4.0 | 2010 | 2700 | ACS 1044-A3-P | 2330 | 347 | 3300 | 5600 |

Notes:

- * Indicative information only.
- ** Higher output voltages available with step-up transformer.
- *** Weight indications are approximate; based on 6.0 – 6.6 kV/50 Hz line supply voltage.



Typical ACS 1000i diagram

| General dimension | Frame size A1 | Frame size A2/A3 |
|-------------------|---|---|
| Cabinet height | 2050 mm (6 ft 7 in) excl. cooling fans | 2150 mm (7 ft 1 in) excl. cooling fans |
| | 2517 mm (8 ft 3 in) incl. fan hood | 2562 mm (8 ft 4 in) incl. fan hood |
| | 2617 mm (8 ft 6 in) incl. redundant fan hood and/or IP 42 | 2662 mm (8 ft 7 in) incl. redundant fan hood and/or IP 42 |
| Cabinet depth | 1121 mm (3 ft 8 in) | 1121 mm (3 ft 8 in) |

Data sheet ACS 1000 for induction motors (external transformer)

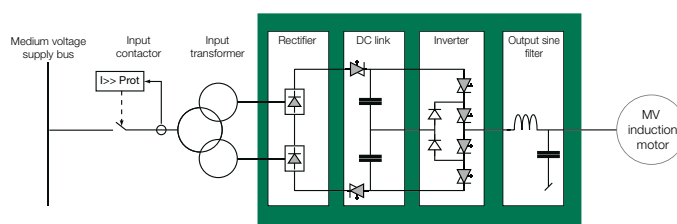
| Motor data | | | Converter | Converter data | | | |
|------------------------------|---------------|------|---------------|----------------|-----------|--------|------------|
| Voltage ** | Shaft power * | | Type code | Power | Current * | Length | Weight *** |
| kV | kW | hp | | kVA | A | mm | kg |
| 2'300V - air cooled | | | | | | | |
| 2.3 | 300 | 400 | ACS 1012-A1-A | 400 | 100 | 3000 | 1600 |
| 2.3 | 340 | 450 | ACS 1012-A1-B | 400 | 100 | 3000 | 1600 |
| 2.3 | 370 | 500 | ACS 1012-A1-C | 450 | 113 | 3000 | 1600 |
| 2.3 | 450 | 600 | ACS 1012-A1-D | 550 | 138 | 3000 | 1600 |
| 2.3 | 520 | 700 | ACS 1012-A1-E | 650 | 163 | 3000 | 1600 |
| 2.3 | 600 | 800 | ACS 1012-A1-F | 750 | 188 | 3000 | 1600 |
| 2.3 | 670 | 900 | ACS 1012-A1-G | 800 | 201 | 3000 | 1600 |
| 2.3 | 750 | 1000 | ACS 1012-A1-H | 900 | 226 | 3000 | 1600 |
| 2.3 | 930 | 1250 | ACS 1012-A2-J | 1150 | 289 | 3000 | 1750 |
| 2.3 | 1120 | 1500 | ACS 1012-A2-K | 1350 | 339 | 3000 | 1750 |
| 2.3 | 1300 | 1750 | ACS 1012-A3-L | 1550 | 389 | 3000 | 2000 |
| 2.3 | 1490 | 2000 | ACS 1012-A3-M | 1800 | 452 | 3000 | 2000 |
| 2.3 | 1680 | 2250 | ACS 1012-A3-N | 2000 | 502 | 3000 | 2000 |
| 3'300V - air cooled | | | | | | | |
| 3.3 | 315 | 420 | ACS 1013-A1-A | 400 | 70 | 3000 | 1600 |
| 3.3 | 355 | 480 | ACS 1013-A1-B | 450 | 79 | 3000 | 1600 |
| 3.3 | 400 | 540 | ACS 1013-A1-C | 500 | 87 | 3000 | 1600 |
| 3.3 | 450 | 600 | ACS 1013-A1-D | 550 | 96 | 3000 | 1600 |
| 3.3 | 500 | 670 | ACS 1013-A1-E | 600 | 105 | 3000 | 1600 |
| 3.3 | 560 | 750 | ACS 1013-A1-F | 700 | 122 | 3000 | 1600 |
| 3.3 | 630 | 840 | ACS 1013-A1-G | 750 | 131 | 3000 | 1600 |
| 3.3 | 710 | 950 | ACS 1013-A1-H | 850 | 149 | 3000 | 1600 |
| 3.3 | 800 | 1070 | ACS 1013-A2-J | 950 | 166 | 3000 | 1750 |
| 3.3 | 900 | 1210 | ACS 1013-A2-K | 1100 | 192 | 3000 | 1750 |
| 3.3 | 1000 | 1340 | ACS 1013-A2-L | 1200 | 210 | 3000 | 1750 |
| 3.3 | 1120 | 1500 | ACS 1013-A2-M | 1350 | 236 | 3000 | 1750 |
| 3.3 | 1250 | 1680 | ACS 1013-A2-N | 1500 | 262 | 3000 | 1750 |
| 3.3 | 1400 | 1880 | ACS 1013-A2-P | 1700 | 297 | 3000 | 1750 |
| 3.3 | 1600 | 2150 | ACS 1013-A3-Q | 1900 | 332 | 3000 | 2000 |
| 3.3 | 1800 | 2410 | ACS 1013-A3-R | 2150 | 376 | 3000 | 2000 |
| 3.3 | 2000 | 2680 | ACS 1013-A3-S | 2400 | 420 | 3000 | 2000 |
| 3'300V - water cooled | | | | | | | |
| 3.3 | 2000 | 2680 | ACS 1013-W1-S | 2400 | 420 | 4200 | 3300 |
| 3.3 | 2250 | 3020 | ACS 1013-W1-T | 2700 | 472 | 4200 | 3300 |
| 3.3 | 2500 | 3350 | ACS 1013-W1-U | 3000 | 525 | 4200 | 3300 |
| 3.3 | 2800 | 3750 | ACS 1013-W2-V | 3350 | 586 | 4700 | 3680 |
| 3.3 | 3150 | 4220 | ACS 1013-W2-W | 3750 | 656 | 4700 | 3680 |
| 3.3 | 3550 | 4760 | ACS 1013-W2-X | 4250 | 744 | 4700 | 3680 |
| 3'300V - water cooled | | | | | | | |
| 3.3 | 4000 | 5360 | ACS 1013-W3-Y | 4750 | 831 | 4700 | 3680 |
| 3.3 | 4500 | 6030 | ACS 1013-W3-Z | 5350 | 936 | 4700 | 3680 |
| 3.3 | 5000 | 6710 | ACS 1013-W3-1 | 5950 | 1041 | 4700 | 3680 |

Data sheet ACS 1000 for induction motors (external transformer) continued

| Motor data | | | Converter | Converter data | | | |
|-------------------------------|---------------|------|---------------|----------------|-----------|--------|------------|
| Voltage ** | Shaft power * | | Type code | Power | Current * | Length | Weight *** |
| kV | kW | hp | | kVA | A | mm | kg |
| 4'000 V - air cooled | | | | | | | |
| 4.0 | 300 | 400 | ACS 1014-A1-A | 400 | 58 | 3000 | 1600 |
| 4.0 | 340 | 450 | ACS 1014-A1-B | 400 | 58 | 3000 | 1600 |
| 4.0 | 370 | 500 | ACS 1014-A1-C | 450 | 65 | 3000 | 1600 |
| 4.0 | 450 | 600 | ACS 1014-A1-D | 550 | 79 | 3000 | 1600 |
| 4.0 | 520 | 700 | ACS 1014-A1-E | 650 | 94 | 3000 | 1600 |
| 4.0 | 600 | 800 | ACS 1014-A1-F | 750 | 108 | 3000 | 1600 |
| 4.0 | 670 | 900 | ACS 1014-A1-G | 800 | 115 | 3000 | 1600 |
| 4.0 | 750 | 1000 | ACS 1014-A1-H | 900 | 130 | 3000 | 1600 |
| 4.0 | 930 | 1250 | ACS 1014-A2-J | 1150 | 166 | 3000 | 1750 |
| 4.0 | 1120 | 1500 | ACS 1014-A2-K | 1350 | 195 | 3000 | 1750 |
| 4.0 | 1300 | 1750 | ACS 1014-A3-L | 1550 | 224 | 3000 | 2000 |
| 4.0 | 1490 | 2000 | ACS 1014-A3-M | 1800 | 260 | 3000 | 2000 |
| 4.0 | 1680 | 2250 | ACS 1014-A3-N | 2000 | 289 | 3000 | 2000 |
| 4.0 | 1860 | 2500 | ACS 1014-A3-P | 2300 | 330 | 3000 | 2000 |
| 4'000 V - water cooled | | | | | | | |
| 4.0 | 1860 | 2500 | ACS 1014-W1-P | 2300 | 332 | 4200 | 3300 |
| 4.0 | 2240 | 3000 | ACS 1014-W1-Q | 2700 | 390 | 4200 | 3300 |
| 4.0 | 2610 | 3500 | ACS 1014-W2-R | 3100 | 447 | 4700 | 3680 |
| 4.0 | 2980 | 4000 | ACS 1014-W2-S | 3600 | 520 | 4700 | 3680 |
| 4.0 | 3360 | 4500 | ACS 1014-W2-T | 4000 | 577 | 4700 | 3680 |
| 4.0 | 3730 | 5000 | ACS 1014-W2-U | 4500 | 650 | 4700 | 3680 |
| 4.0 | 4100 | 5500 | ACS 1014-W3-V | 4900 | 707 | 4700 | 3680 |
| 4.0 | 4470 | 6000 | ACS 1014-W3-W | 5300 | 765 | 4700 | 3680 |
| 4.0 | 5250**** | 7035 | ACS 1014-W3-X | 6090 | 879 | 4700 | 3680 |

Notes:

- * Indicative information only.
- ** Higher output voltages available with step-up transformer.
- *** Weight indications are approximate.
- **** Motor shaft power up to 5600 kW is available on request.



Typical ACS 1000 diagram

| General dimension | Air cooled | Water cooled |
|-------------------|--|--|
| Cabinet height | 2005 mm (6 ft 6 in) | 2020 mm (6 ft 6 in) |
| | 2070 mm (6 ft 8 in) incl. lifting eyes | 2070 mm (6 ft 8 in) incl. lifting eyes |
| | 2285 mm (7 ft 6 in) incl. air exhaust hood | |
| Cabinet depth | 900 mm (3 ft) | 900 mm (3 ft) |

Contact us

For more information contact your local ABB representative
or visit:

www.abb.com/drives

