

MEDIUM VOLTAGE AC DRIVES

# ABB industrial drives

ACS1000 drives

315 to 5000 kW



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**The flexibility you require.  
The reliability you expect.**

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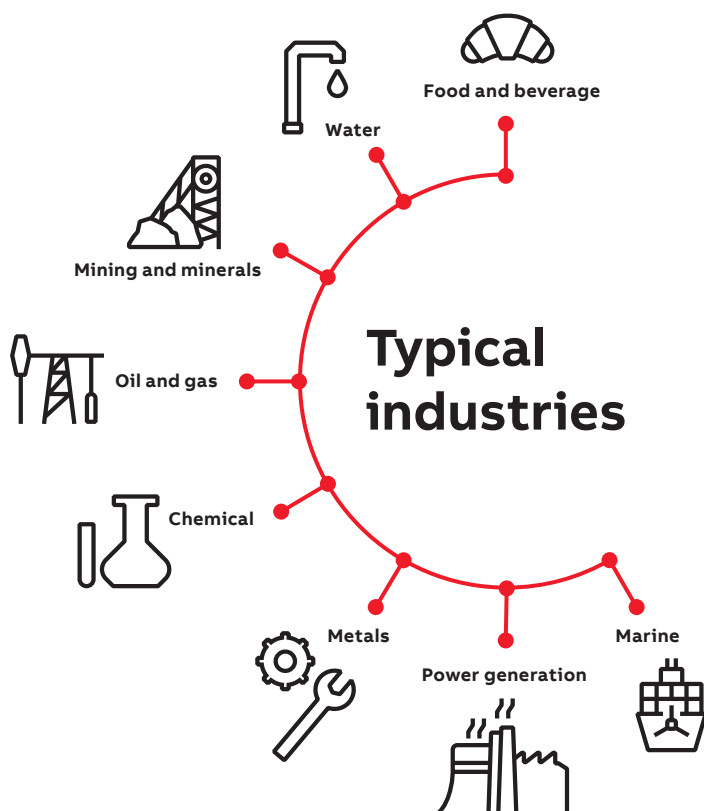
# The ACS1000 industrial drive

## The solution for everyday process control

The industrial all-rounder for a wide variety of applications provides reliable motor control. The well-proven ACS1000 medium voltage drive ensures high productivity, availability and efficiency of your operations.

As part of ABB's industrial drives family ACS1000 medium voltage drives meets the needs of various industrial applications, such as those found in mining, cement, power, chemical, oil and gas, water and wastewater, marine and food and beverage.

At the core of the drives is ABB's direct torque control (DTC) that enables highly accurate process control. Reliable control ensures high productivity, availability and efficiency of your operations.



### Reliability and flexibility

#### Flexible and reliable

With its flexible network connections, its motor-friendly output sine filter and a constant power factor, the ACS1000 can be easily integrated into your existing or new systems.

Tailor the drive to your specific application by selecting from an extended choice of pre-engineered options. The ACS1000 is available with air or liquid cooling. The air-cooled drive can be supplied with an external input transformer or with an integrated input transformer.

Great versatility makes the ACS1000 suitable for operation in different conditions and environments.

High reliability in your daily business is ensured by the drive's simple design and robust control platform that has proven itself over many years.



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# Benefits that add value

Our strong industrial drives family includes the features and functions you require, and make it easy for your business opportunities to work. They support you in improving your processes by integrating your variable speed process control needs into a flexible and comprehensive drive solution.

## Energy efficiency

Our medium voltage drives run your motors based on the demands of your process rather than running them at full speed and ensure optimized power consumption and process efficiency. In this way you can save energy and reduce CO<sub>2</sub> emissions.

## Best fit for your application

The ACS1000 is the perfect fit for your standard applications in any industry. It features a range of pre-engineered solutions to control applications such as pumps, fans, conveyors, extruders and compressors, even in harsh environments.

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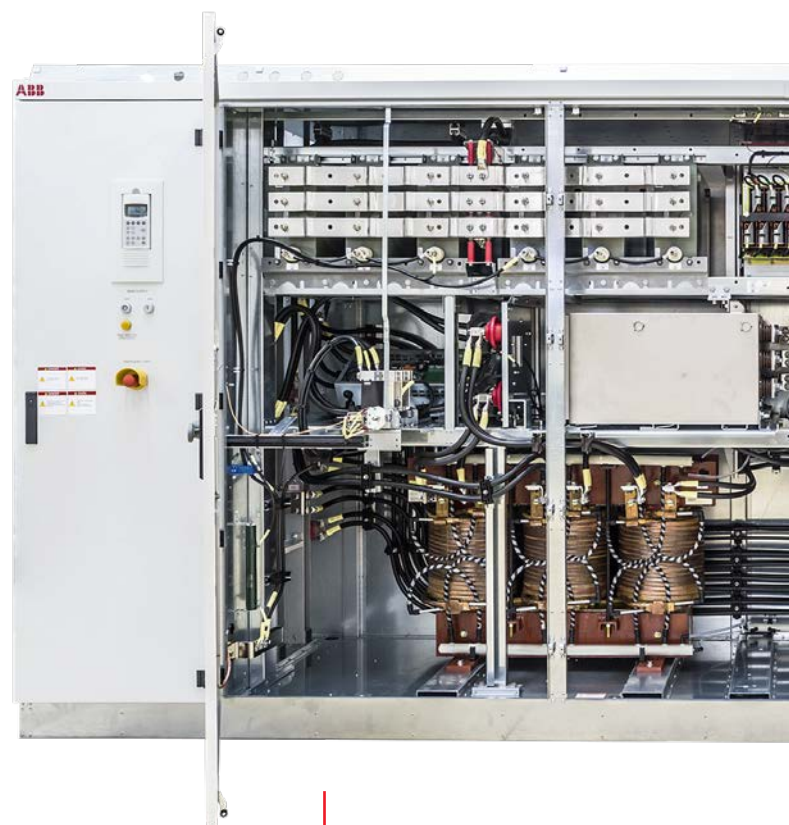
## Design flexibility

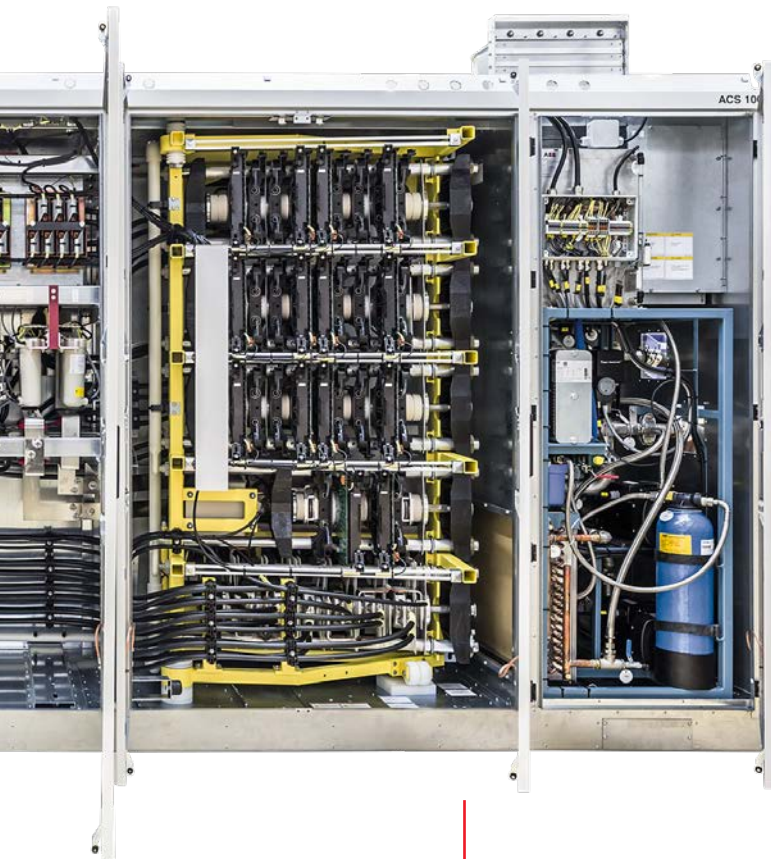
### Design flexibility for smooth integration

Integrating the ACS1000 into your systems is easy and effortless. The drive can be configured with an integrated or external transformer. The flexible design concept eliminates the need for costly harmonic analyses or the installation of network filters.

### Maximum motor compatibility

Thanks to the integrated output sine filter, you can drive standard induction motors, retrofit older motors and use long motor cables.





## Personal safety

### High reliability through well-proven design

Availability of your operations is ensured thanks to the simple, fuseless design. A low parts count and proven components contribute to high uptime and a long lifetime of your drive. Reliability is further increased with the drive's power loss ride-through function.

### Increased productivity due to precise process control

Reduce your energy consumption and increase process efficiency with ABB's direct torque control (DTC) method. The drive control is immediate and smooth in any conditions, ensuring optimum output and productivity.

### ABB Ability™ Condition Monitoring

You can greatly benefit from ABB's Ability™ Remote Condition Monitoring (RCM) service that ensures you are always one step ahead with accurate, real-time information on the condition of your drive, even when it is installed in remote locations.

### High personnel safety

Your workforce and goods are protected from dangerous electric arcs due to the arc-resistant design of the ACS1000. Certified functional safety features and an integrated DC grounding switch make your systems safe and reliable.

### Serviceability

Easy front access to all components ensures that maintenance of the ACS1000 is simple and smooth. In addition to powerful diagnostic tools, you will profit from convenient remote monitoring.

# Reliability across all applications

The ACS1000 medium voltage drive provides reliable motor control for a wide range of applications.



## Applications

### Cement, mining and minerals

Conveyors, crushers, mills, mine hoists, fans and pumps

### Chemical, oil and gas

Pumps, compressors, extruders, mixers and blowers

### Metals

Fans and pumps

### Marine

Fans, pumps, compressors, propulsion and thrusters

### Power generation

Fans, pumps, conveyors and coal mills

### Water

Pumps

### Food and beverage

Fans, pumps, sugar mills

### Other applications

Test stands and wind tunnels





# Simple drive system integration

Installing a medium voltage drive could not be easier with ABB's three cables in – three cables out concept.

## Easier than you think

The ACS1000 can be easily integrated into your processes and systems thanks to its design flexibility and advanced software tools.

## Transformer flexibility

You can connect the ACS1000 to the grid through an integrated or external transformer. The ACS1000 with integrated transformer makes the installation and commissioning particularly fast and simple (three cables in – three cables out). The use of an external transformer reduces the heat losses into the electrical room while decreasing your costs for ventilation systems.

## Simple motor connection

The standard sine output filter allows easy connection of the drive with standard induction motors for your new or existing installations.

## Flexible control interface

We offer an open communication concept, enabling connection to higher-level process controllers. The ACS1000 can be fitted with all major fieldbus adapters for smooth integration, monitoring and controlling of different processes, according to your specific requirements.

## Commissioning

You can benefit from the ACS1000's standardized parameter sets and advanced commissioning wizard. Trained, certified professionals are there to support you to make the commissioning fast and professionally.



# More efficiency with drive packages

Packaged drive solutions provide you with ultimate efficiency and reliability to optimize your cost of ownership.

## All-in-one package

Committed to supporting you in your business, we offer packaged drive solutions for applications in various industries. Customer-specific drive packages including medium voltage converters, motors and transformers can be developed as turnkey solutions meeting your individual requirements.

## Matched performance

To ensure design integrity and an optimum match of equipment, ABB products have undergone combined tests ensuring performance predictability for your application.

## Single point of contact

The combined power of the ABB offering is geared to deliver on customer expectations. We deliver motor-drive solutions that support your technical and commercial needs, from quotation, through delivery and service, over the entire product life-cycle.

## Converter motors

With ABB's induction motors you will benefit from high versatility, reliability and simplicity.

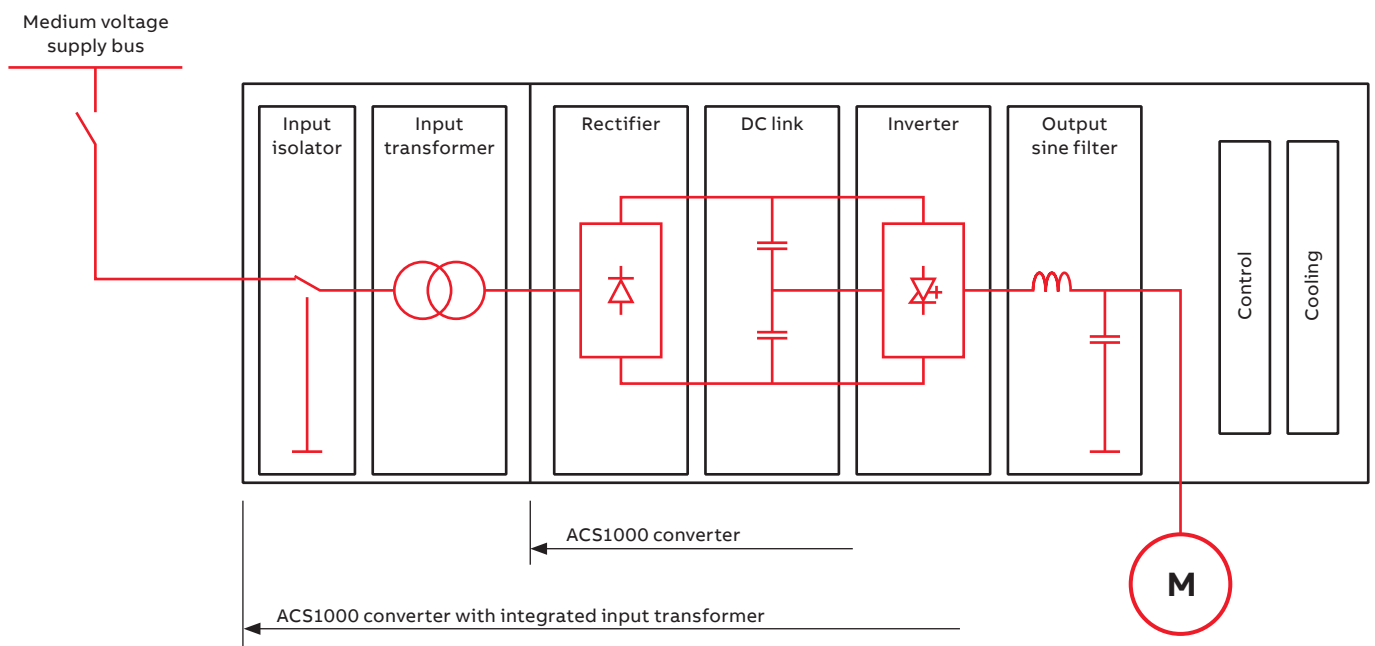
## Converter transformers

ABB offers converter transformers for all ratings, as well as for indoor or outdoor installation. Particularly designed for operation with variable speed drives, the transformer adapts the converter to the supply network and provides a galvanic isolation between drive and supply network.



# Standard solution with versatile features

The ACS1000 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.



## System design flexibility

The ACS1000 can be operated with an external or integrated input transformer, each configuration offering unique benefits.

### External transformer

An ACS1000 configuration with an external transformer offers a flexible design that enables the use of dry-type transformers as well as oil-filled transformers.

### Integrated transformer

Alternatively, the ACS1000 can be operated with an integrated dry-type transformer and, optionally, an input contactor for easy installation and commissioning.

### Cooling systems

The ACS1000 is available with air and liquid cooling, the latter increasing overall efficiency and minimizing the heat dissipation into the electrical room, eliminating your need for additional ventilation systems.

## Reliable, efficient components

The simple and well-proven design of the ACS1000 ensures high reliability for your operations.

### Efficient topology

The three-level inverter, without series or parallel connected power semiconductors, is one of the least complex and most robust drive topologies.

### IGCT semiconductors

The ACS1000 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 a low components count, providing a reliable drive.

### Fuseless design

The converter design does not require any medium voltage power fuses which are known to be unreliable, costly and subject to aging. The ACS1000 use dedicated IGCTs, instead, which provide faster and more reliable protection of the drive.

### Long-life capacitors

Electrolytic capacitors, which have a poor life expectancy, are not used in the ACS1000. Advanced, environmentally friendly, foil capacitors, designed for a long lifetime, are used instead.

### Network friendly

Depending on the network conditions, the ACS1000 drive can be equipped with a 12- or 24-pulse diode rectifier that meets the stringent requirements for current and voltage harmonic distortion as defined by IEC and IEEE. When applying a new drive, you do not have to conduct costly harmonic analysis or install any network filters.

### Motor-friendly output waveform

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 ACS1000, all these harmful effects are totally eliminated by its unique output sine filter, which is a standard feature of the drive. The result is an excellent sinusoidal voltage and current waveform, supplied to the motor.

### Retrofit-ready simplicity

The ACS1000 is optimized for retrofits to existing motors and is suitable for applications that require very long motor cables.

### Powerful performance with DTC

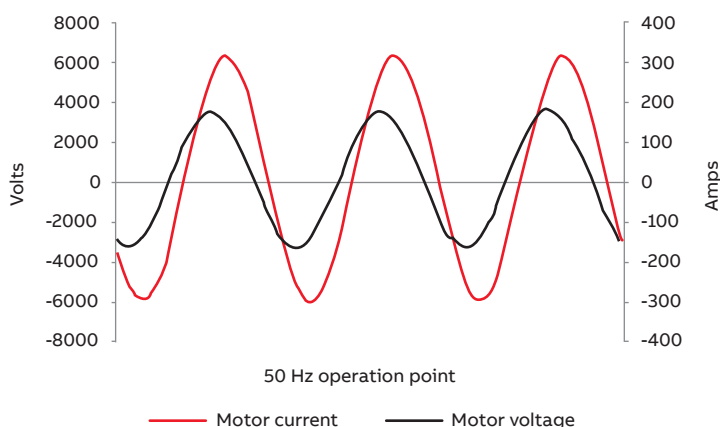
Precise and reliable process control, together with low energy consumption, result in top performance. The motor control platform of the ACS1000 drives is ABB's award-winning direct torque control (DTC). It provides rapid, accurate and stepless control from zero to full speed, and can deliver full torque with optimal speed accuracy over the whole speed range, even without encoder.

### High level of personnel safety

Electric arcs represent a hazard source for people and equipment. For systems where large and dangerous arc fault currents can occur, special attention is required.

The ACS1000 medium voltage drives fulfill the IAC requirements for arc containment, assuring personnel safety. For higher currents, the drive cabinet can be equipped with a pressure relief flap. Optionally, the ACS1000 is available with ABB's Arc Guard System™ for fast arc detection.

Motor current and voltage

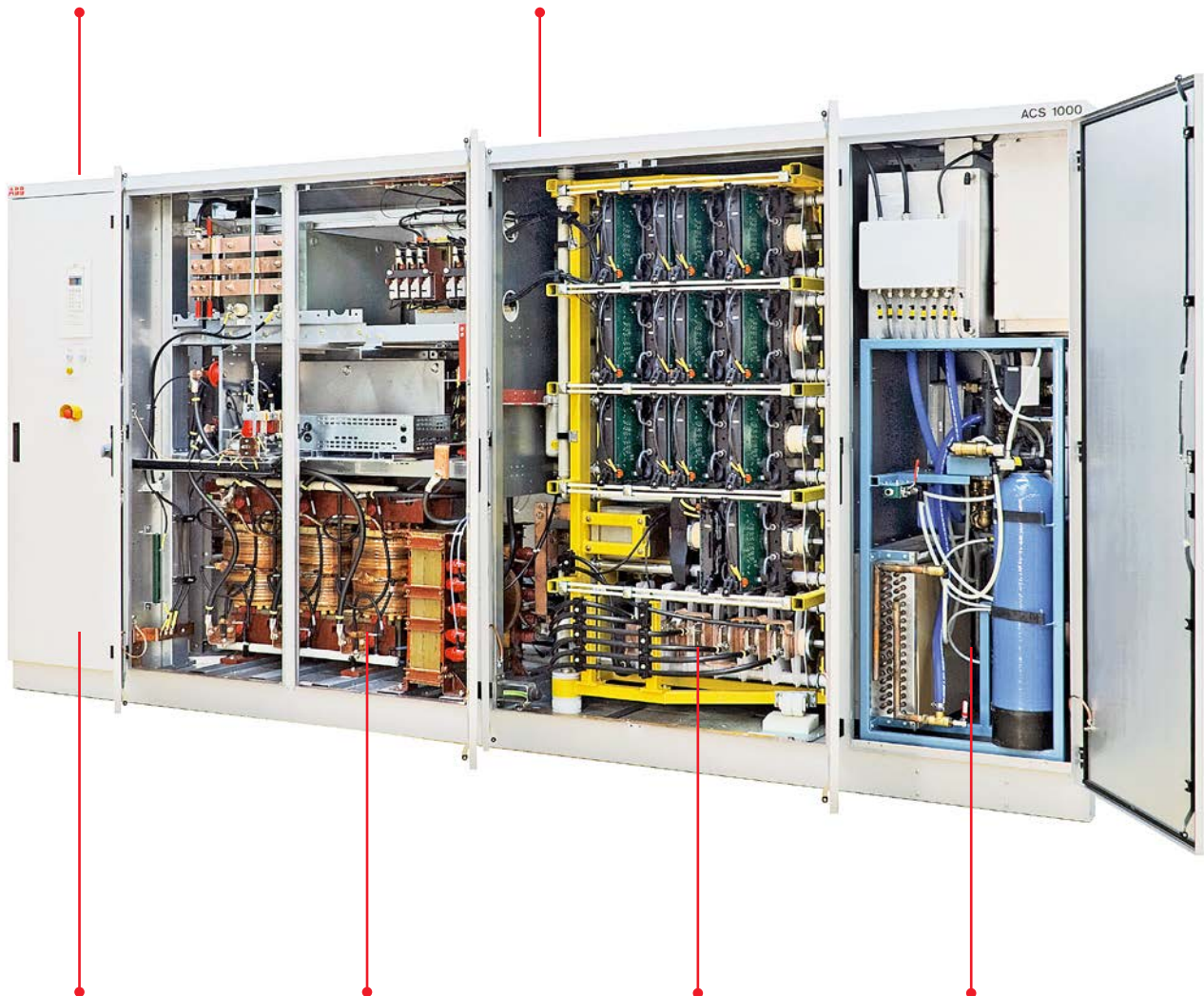


# ACS1000 liquid-cooled

Heat dissipation directly into the cooling liquid eliminates the need for additional ventilation systems which maximizes system efficiency.

Cable connection section for top and bottom entry/exit

3-level voltage source inverter using IGCT power semiconductors on swing frame for easy access



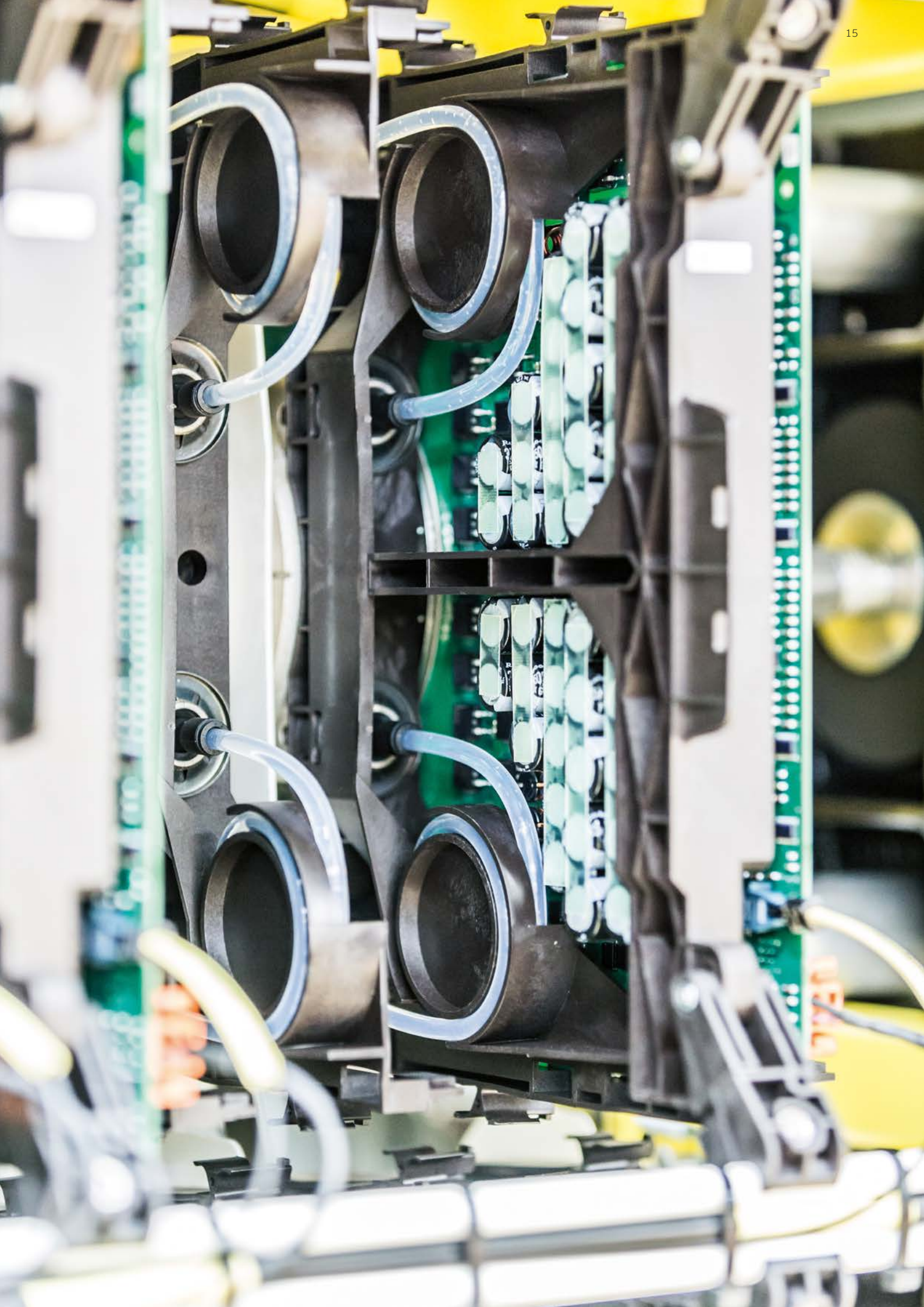
Control electronics mounted on swing frame

Output filter choke

12-pulse input bridge as standard

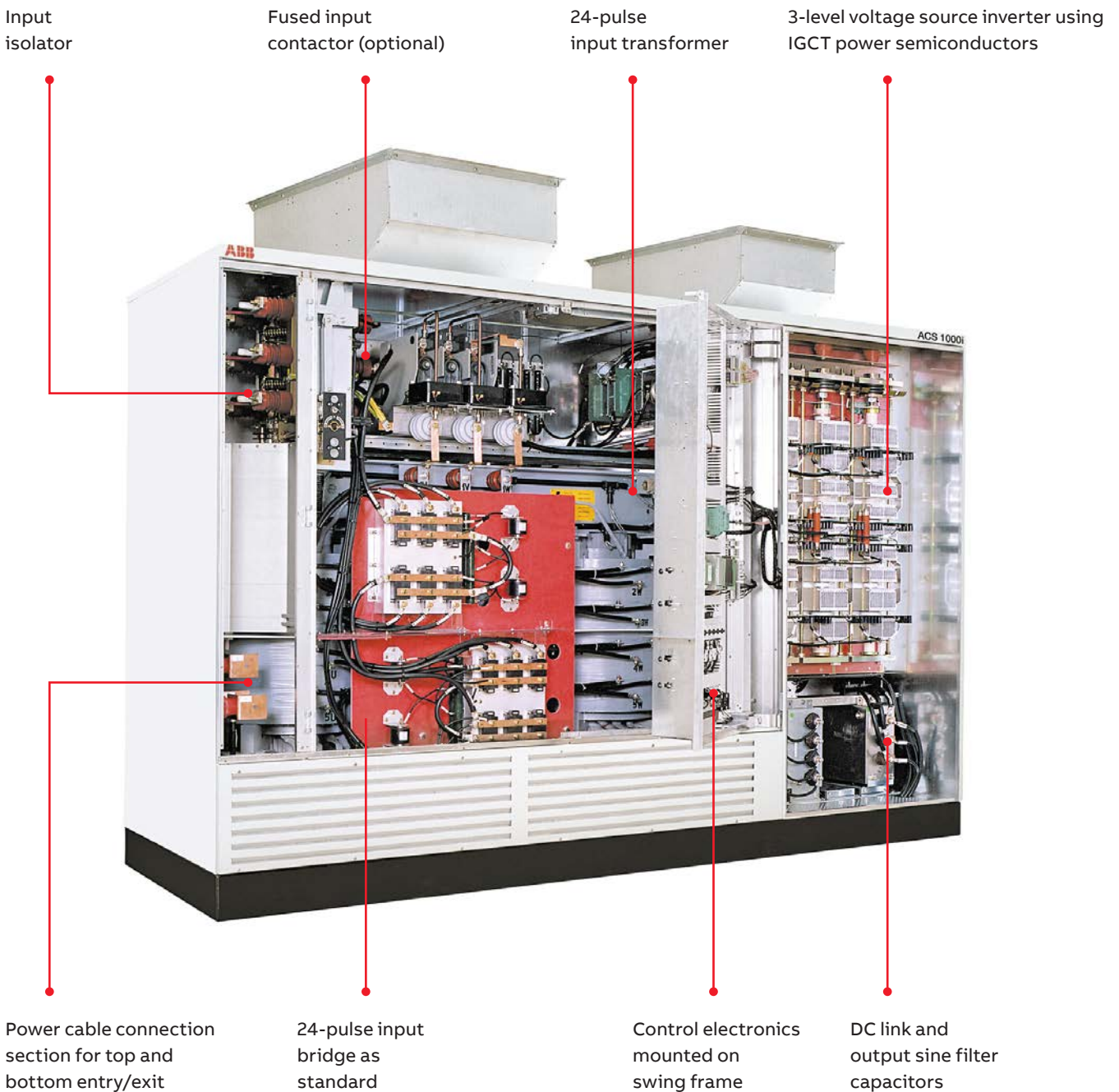
24-pulse input bridge as option

Liquid cooling cabinet with heat exchangers and deionization unit



# ACS1000 air-cooled with integrated transformer

Easy installation is possible with the ACS1000 with integrated transformer, simplifying the integration of the drive into your systems.





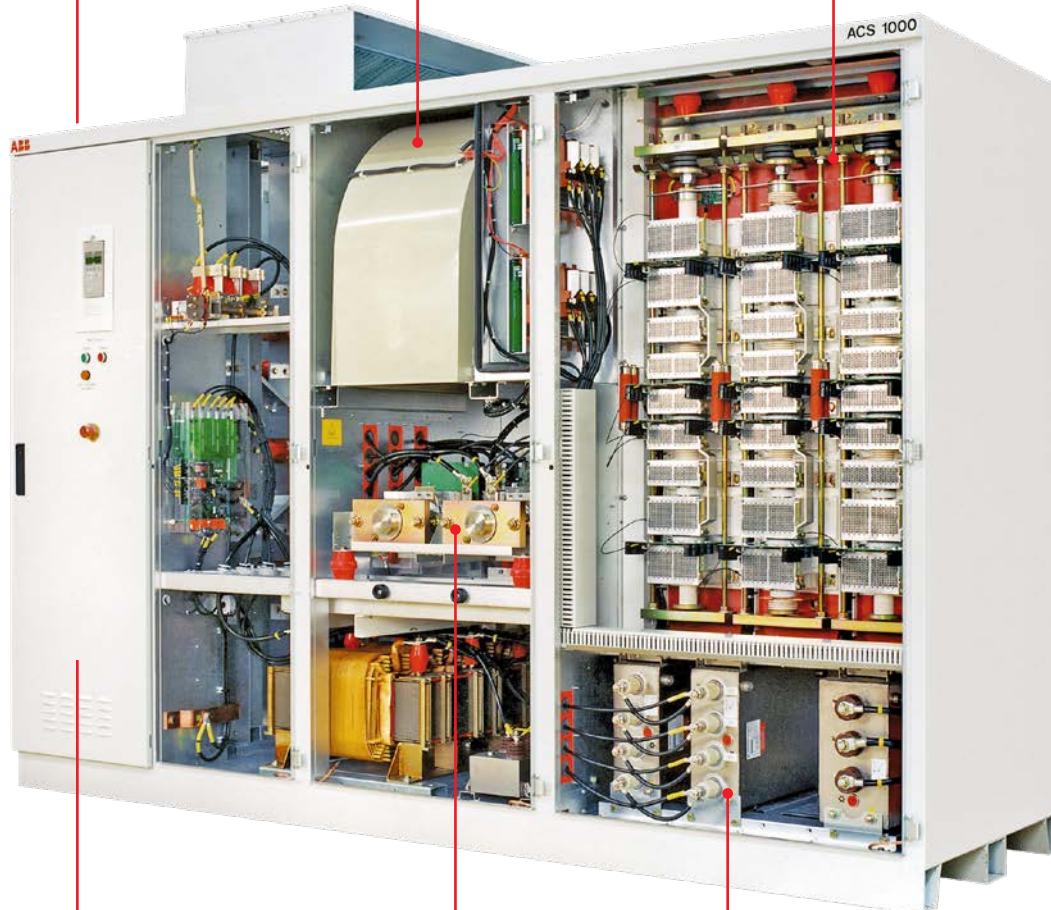
# ACS1000 air-cooled with external transformer

A small footprint and lower heat losses will reduce your space and ventilation requirements.

Cable connection section for top and bottom entry/exit

Integrated fan for low noise level

3-level voltage source inverter using IGCT power semiconductors



Control electronics mounted on swing frame

12-pulse input bridge as standard

DC link and output sine filter capacitors

24-pulse input bridge as option

# Technical data

| Input                               |   |
|-------------------------------------|---|
| Input configuration                 | 12- or 24-pulse diode rectifier   |
| Input voltage                       | External transformer: 1.3 kV, 1.9 kV and 2.3 kV (on drive input)<br>Integrated transformer: 2.3 kV, 3.3 kV, 4.16 kV, 6 to 6.9 kV, 10 to 11 kV and 13.8 kV <sup>*)</sup> |
| Input voltage variation             | ± 10%   |
| Input frequency                     | 50/60 Hz  |
| Input frequency variation           | < 5%  |
| Input power factor                  | > 0.95  |
| Input harmonics                     | Complies with IEC 61000-2-4 and IEEE 519  |
| Auxiliary voltage                   | 110 V DC, 220 V DC<br>110 to 240 V AC 50/60 Hz<br>380 to 690 V AC 50/60 Hz, 3-phase   |
| Output                              |   |
| Output power                        | 315 to 5000 kW  |
| Output voltage                      | 2.3 kV, 3.3 kV, 4.0 kV, 4.16 kV   |
| Output frequency                    | 0 to 82.5 Hz (higher on request)  |
| Motor type                          | Induction   |
| Efficiency of converter             | > 98%, external transformer<br>> 96%, integrated transformer  |
| Motor harmonics                     | < 2% THDi   |
| Mechanical                          |   |
| Enclosure                           | Air-cooled: Standard IP21, optional IP22, IP32 and IP42<br>Liquid-cooled: Standard IP31, optional IP42 and IP54   |
| Cable entry                         | Top/bottom  |
| Environmental                       |   |
| Altitude                            | 5500 m.a.s.l., air-cooled<br>4000 m.a.s.l., liquid-cooled   |
| Ambient air temperature             | 0 to +40 °C, air-cooled (lower and higher with derating)<br>+1 to +50 °C, liquid-cooled (lower and higher with derating)  |
| External cooling liquid temperature | +4 to +27 °C (lower and higher with derating)   |
| Noise                               | < 75 dB(A), air-cooled, external transformer<br>< 80 dB(A), air-cooled, integrated transformer<br>< 70 dB(A), liquid-cooled   |
| Cooling type                        | Air, liquid   |
| Standards                           | EN, IEC, CE, optional UL and all common marine standards  |

<sup>\*)</sup> Not all supply voltage and frequency combinations are available.

# Ratings, types and voltages

## With integrated transformer

| Motor data                        |      |     | Converter data          |                |                |                |
|-----------------------------------|------|-----|-------------------------|----------------|----------------|----------------|
| Nominal ratings                   |      |     | Type code               | Power<br>(kVA) | Length<br>(mm) | Weight<br>(kg) |
| (kW)                              | (hp) | (A) |                         |                |                |                |
| <b>3300 V air-cooled</b>          |      |     |                         |                |                |                |
| 315                               | 420  | 70  | ACS1000-033-A01A-J4-010 | 400            | 3300           | 3900           |
| 355                               | 480  | 79  | ACS1000-033-A01B-J4-010 | 450            | 3300           | 3900           |
| 400                               | 540  | 87  | ACS1000-033-A01C-J4-010 | 500            | 3300           | 3900           |
| 450                               | 600  | 96  | ACS1000-033-A01D-J4-010 | 550            | 3300           | 3900           |
| 500                               | 670  | 105 | ACS1000-033-A01E-J4-010 | 600            | 3300           | 3900           |
| 560                               | 750  | 122 | ACS1000-033-A01F-J4-010 | 700            | 3300           | 4300           |
| 630                               | 840  | 131 | ACS1000-033-A02A-J4-010 | 750            | 3300           | 4300           |
| 710                               | 950  | 149 | ACS1000-033-A02B-J4-010 | 850            | 3300           | 4300           |
| 800                               | 1070 | 166 | ACS1000-033-A02C-J4-010 | 950            | 3300           | 4300           |
| 900                               | 1210 | 192 | ACS1000-033-A02D-J4-010 | 1100           | 3300           | 4300           |
| 1000                              | 1340 | 210 | ACS1000-033-A02E-J4-010 | 1200           | 3300           | 5100           |
| 1120                              | 1500 | 236 | ACS1000-033-A03A-J4-010 | 1350           | 3300           | 5100           |
| 1250                              | 1680 | 262 | ACS1000-033-A03B-J4-010 | 1500           | 3300           | 5100           |
| 1400                              | 1880 | 297 | ACS1000-033-A03C-J4-010 | 1700           | 3300           | 5500           |
| 1500                              | 2010 | 332 | ACS1000-033-A03D-J4-010 | 1900           | 3300           | 5500           |
| <b>4000 V / 4160 V air-cooled</b> |      |     |                         |                |                |                |
| 300                               | 400  | 52  | ACS1000-040-A01A-J4-010 | 400            | 3300           | 4000           |
| 340                               | 450  | 58  | ACS1000-040-A01B-J4-010 | 400            | 3300           | 4000           |
| 370                               | 500  | 65  | ACS1000-040-A01C-J4-010 | 450            | 3300           | 4000           |
| 450                               | 600  | 79  | ACS1000-040-A01D-J4-010 | 550            | 3300           | 4000           |
| 520                               | 700  | 94  | ACS1000-040-A01E-J4-010 | 650            | 3300           | 4000           |
| 600                               | 800  | 108 | ACS1000-040-A01F-J4-010 | 750            | 3300           | 4000           |
| 670                               | 900  | 115 | ACS1000-040-A01G-J4-010 | 800            | 3300           | 4000           |
| 750                               | 1000 | 130 | ACS1000-040-A01H-J4-010 | 900            | 3300           | 4000           |
| 930                               | 1250 | 166 | ACS1000-040-A02A-J4-010 | 1150           | 3300           | 4900           |
| 1120                              | 1500 | 195 | ACS1000-040-A02B-J4-010 | 1350           | 3300           | 4900           |
| 1300                              | 1750 | 224 | ACS1000-040-A03A-J4-010 | 1550           | 3300           | 5600           |
| 1490                              | 2000 | 260 | ACS1000-040-A03B-J4-010 | 1800           | 3300           | 5600           |
| 1680                              | 2250 | 289 | ACS1000-040-A03C-J4-010 | 2000           | 3300           | 5600           |
| 2010                              | 2700 | 347 | ACS1000-040-A03D-J4-010 | 2330           | 3300           | 5600           |

Indicative information only

# Ratings, types and voltages

## With external transformer

| Motor data               |      |     | Converter data          |                |                |                |
|--------------------------|------|-----|-------------------------|----------------|----------------|----------------|
| Nominal ratings          |      | (A) | Type code <sup>1)</sup> | Power<br>(kVA) | Length<br>(mm) | Weight<br>(kg) |
| (kW)                     | (hp) |     |                         |                |                |                |
| <b>2300 V air-cooled</b> |      |     |                         |                |                |                |
| 300                      | 400  | 94  | ACS1000-023-A01A-Ex-010 | 400            | 3000           | 1600           |
| 340                      | 450  | 100 | ACS1000-023-A01B-Ex-010 | 400            | 3000           | 1600           |
| 370                      | 500  | 113 | ACS1000-023-A01C-Ex-010 | 450            | 3000           | 1600           |
| 450                      | 600  | 138 | ACS1000-023-A01D-Ex-010 | 550            | 3000           | 1600           |
| 520                      | 700  | 163 | ACS1000-023-A01E-Ex-010 | 650            | 3000           | 1600           |
| 600                      | 800  | 188 | ACS1000-023-A01F-Ex-010 | 750            | 3000           | 1600           |
| 670                      | 900  | 201 | ACS1000-023-A01G-Ex-010 | 800            | 3000           | 1600           |
| 750                      | 1000 | 226 | ACS1000-023-A01H-Ex-010 | 900            | 3000           | 1600           |
| 930                      | 1250 | 289 | ACS1000-023-A02A-Ex-010 | 1150           | 3000           | 1750           |
| 1120                     | 1500 | 339 | ACS1000-023-A02B-Ex-010 | 1350           | 3000           | 1750           |
| 1300                     | 1750 | 389 | ACS1000-023-A03A-Ex-010 | 1550           | 3000           | 2000           |
| 1490                     | 2000 | 452 | ACS1000-023-A03B-Ex-010 | 1800           | 3000           | 2000           |
| 1680                     | 2250 | 502 | ACS1000-023-A03C-Ex-010 | 2000           | 3000           | 2000           |
| <b>3300 V air-cooled</b> |      |     |                         |                |                |                |
| 315                      | 420  | 70  | ACS1000-033-A01A-Ex-010 | 400            | 3000           | 1600           |
| 355                      | 480  | 79  | ACS1000-033-A01B-Ex-010 | 450            | 3000           | 1600           |
| 400                      | 540  | 87  | ACS1000-033-A01C-Ex-010 | 500            | 3000           | 1600           |
| 450                      | 600  | 96  | ACS1000-033-A01D-Ex-010 | 550            | 3000           | 1600           |
| 500                      | 670  | 105 | ACS1000-033-A01E-Ex-010 | 600            | 3000           | 1600           |
| 560                      | 750  | 122 | ACS1000-033-A01F-Ex-010 | 700            | 3000           | 1600           |
| 630                      | 840  | 131 | ACS1000-033-A01G-Ex-010 | 750            | 3000           | 1600           |
| 710                      | 950  | 149 | ACS1000-033-A01H-Ex-010 | 850            | 3000           | 1600           |
| 800                      | 1070 | 166 | ACS1000-033-A02A-Ex-010 | 950            | 3000           | 1750           |
| 900                      | 1210 | 192 | ACS1000-033-A02B-Ex-010 | 1100           | 3000           | 1750           |
| 1000                     | 1340 | 210 | ACS1000-033-A02C-Ex-010 | 1200           | 3000           | 1750           |
| 1120                     | 1500 | 236 | ACS1000-033-A02D-Ex-010 | 1350           | 3000           | 1750           |
| 1250                     | 1680 | 262 | ACS1000-033-A02E-Ex-010 | 1500           | 3000           | 1750           |
| 1400                     | 1880 | 297 | ACS1000-033-A02F-Ex-010 | 1700           | 3000           | 1750           |
| 1600                     | 2150 | 332 | ACS1000-033-A03A-Ex-010 | 1900           | 3000           | 2000           |
| 1800                     | 2410 | 376 | ACS1000-033-A03B-Ex-010 | 2150           | 3000           | 2000           |
| 2000                     | 2680 | 420 | ACS1000-033-A03C-Ex-010 | 2400           | 3000           | 2000           |

Indicative information only

<sup>1)</sup> 'x' indicates the different pulse numbers

2- to 12-pulse diode front end

4- to 24-pulse diode front end

| Motor data                  |      |      | Converter data          |                |                |                |  |
|-----------------------------|------|------|-------------------------|----------------|----------------|----------------|--|
| Nominal ratings             |      |      | Type code <sup>1)</sup> | Power<br>(kVA) | Length<br>(mm) | Weight<br>(kg) |  |
| (kW)                        | (hp) | (A)  |                         |                |                |                |  |
| <b>4000 V air-cooled</b>    |      |      |                         |                |                |                |  |
| 300                         | 400  | 52   | ACS1000-040-A01A-Ex-010 | 400            | 3000           | 1600           |  |
| 340                         | 450  | 58   | ACS1000-040-A01B-Ex-010 | 400            | 3000           | 1600           |  |
| 370                         | 500  | 65   | ACS1000-040-A01C-Ex-010 | 450            | 3000           | 1600           |  |
| 450                         | 600  | 79   | ACS1000-040-A01D-Ex-010 | 550            | 3000           | 1600           |  |
| 520                         | 700  | 94   | ACS1000-040-A01E-Ex-010 | 650            | 3000           | 1600           |  |
| 600                         | 800  | 108  | ACS1000-040-A01F-Ex-010 | 750            | 3000           | 1600           |  |
| 670                         | 900  | 115  | ACS1000-040-A01G-Ex-010 | 800            | 3000           | 1600           |  |
| 750                         | 1000 | 130  | ACS1000-040-A01H-Ex-010 | 900            | 3000           | 1600           |  |
| 930                         | 1250 | 166  | ACS1000-040-A02A-Ex-010 | 1150           | 3000           | 1750           |  |
| 1120                        | 1500 | 195  | ACS1000-040-A02B-Ex-010 | 1350           | 3000           | 1750           |  |
| 1300                        | 1750 | 224  | ACS1000-040-A03A-Ex-010 | 1550           | 3000           | 2000           |  |
| 1490                        | 2000 | 260  | ACS1000-040-A03B-Ex-010 | 1800           | 3000           | 2000           |  |
| 1680                        | 2250 | 289  | ACS1000-040-A03C-Ex-010 | 2000           | 3000           | 2000           |  |
| 1860                        | 2500 | 330  | ACS1000-040-A03D-Ex-010 | 2300           | 3000           | 2000           |  |
| <b>3000 V liquid-cooled</b> |      |      |                         |                |                |                |  |
| 2000                        | 2680 | 420  | ACS1000-033-W01A-Ex-010 | 2400           | 4200           | 3300           |  |
| 2250                        | 3020 | 472  | ACS1000-033-W01B-Ex-010 | 2700           | 4200           | 3300           |  |
| 2500                        | 3350 | 525  | ACS1000-033-W01C-Ex-010 | 3000           | 4200           | 3300           |  |
| 2800                        | 3750 | 586  | ACS1000-033-W02A-Ex-010 | 3350           | 4700           | 3680           |  |
| 3150                        | 4220 | 656  | ACS1000-033-W02B-Ex-010 | 3750           | 4700           | 3680           |  |
| 3550                        | 4760 | 744  | ACS1000-033-W02C-Ex-010 | 4250           | 4700           | 3680           |  |
| 4000                        | 5360 | 831  | ACS1000-033-W03A-Ex-010 | 4750           | 4700           | 3680           |  |
| 4500                        | 6030 | 936  | ACS1000-033-W03B-Ex-010 | 5350           | 4700           | 3680           |  |
| 5000                        | 6710 | 1041 | ACS1000-033-W03C-Ex-010 | 5950           | 4700           | 3680           |  |
| <b>4000 V liquid-cooled</b> |      |      |                         |                |                |                |  |
| 1860                        | 2500 | 332  | ACS1000-040-W01A-Ex-010 | 2300           | 4200           | 3300           |  |
| 2240                        | 3000 | 390  | ACS1000-040-W01B-Ex-010 | 2700           | 4200           | 3300           |  |
| 2610                        | 3500 | 447  | ACS1000-040-W02A-Ex-010 | 3100           | 4700           | 3680           |  |
| 2980                        | 4000 | 520  | ACS1000-040-W02B-Ex-010 | 3600           | 4700           | 3680           |  |
| 3360                        | 4500 | 577  | ACS1000-040-W02C-Ex-010 | 4000           | 4700           | 3680           |  |
| 3730                        | 5000 | 650  | ACS1000-040-W02D-Ex-010 | 4500           | 4700           | 3680           |  |
| 4100                        | 5500 | 707  | ACS1000-040-W03A-Ex-010 | 4900           | 4700           | 3680           |  |
| 4470                        | 6000 | 765  | ACS1000-040-W03B-Ex-010 | 5300           | 4700           | 3680           |  |
| 5250                        | 7035 | 879  | ACS1000-040-W03C-Ex-010 | 6090           | 4700           | 3680           |  |

Indicative information only

<sup>1)</sup> 'x' indicates the different pulse numbers

2- to 12-pulse diode front end

4- to 24-pulse diode front end

# Services to match your needs

Your service needs depend on your operation, life cycle of your equipment and business priorities. We have identified our customers' four most common needs and defined service options to satisfy them. What is your choice to keep your drives at peak performance?

## Is uptime your priority?

Keep your drives running with precisely planned and executed maintenance.

**Example services include:**

- ABB Ability™ Life Cycle Assessment
- Installation and Commissioning
- Spare Parts
- Preventive Maintenance
- Reconditioning
- ABB Drive Care agreement
- Drive Exchange



## Operational efficiency

## Is rapid response a key consideration?

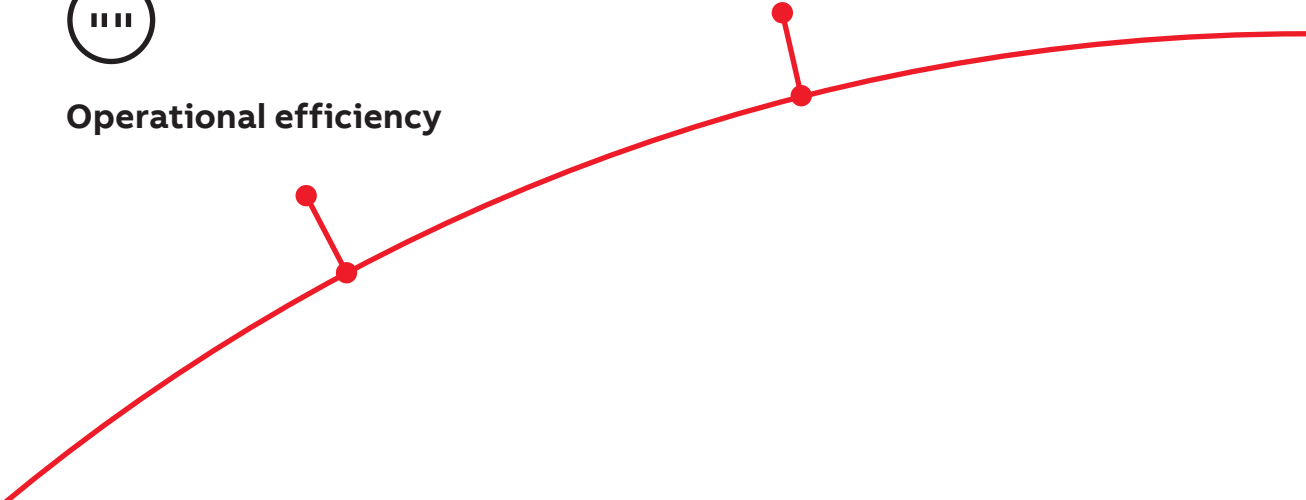
If your drives require immediate action, our global network is at your service.

**Example services include:**

- Technical Support
- On-site Repair
- ABB Ability™ Remote Assistance
- Response time agreements
- Training



## Rapid response



# Drives service

## Your choice, your future

### The future of your drives depends on the service you choose.

Whatever you choose, it should be a well-informed decision. No guesswork. We have the expertise and experience to help you find and implement the right service for your drive equipment. You can start by asking yourself these two critical questions:

- Why should my drive be serviced?
- What would my optimal service options be?

From here, you have our guidance and full support along the course you take, throughout the entire lifetime of your drives.

### Need to extend your assets' lifetime?

Maximize your drive's lifetime with our services.

#### Example services include:

- ABB Ability™ Life Cycle Assessment
- Upgrades, Retrofits and Modernization
- Replacement, Disposal and Recycling



### Life cycle management

### Your choice, your business efficiency

ABB Drive Care agreement lets you focus on your core business. A selection of predefined service options matching your needs provides optimal, more reliable performance, extended drive lifetime and improved cost control. So you can reduce the risk of unplanned downtime and find it easier to budget for maintenance.

### Is performance most critical to your operation?

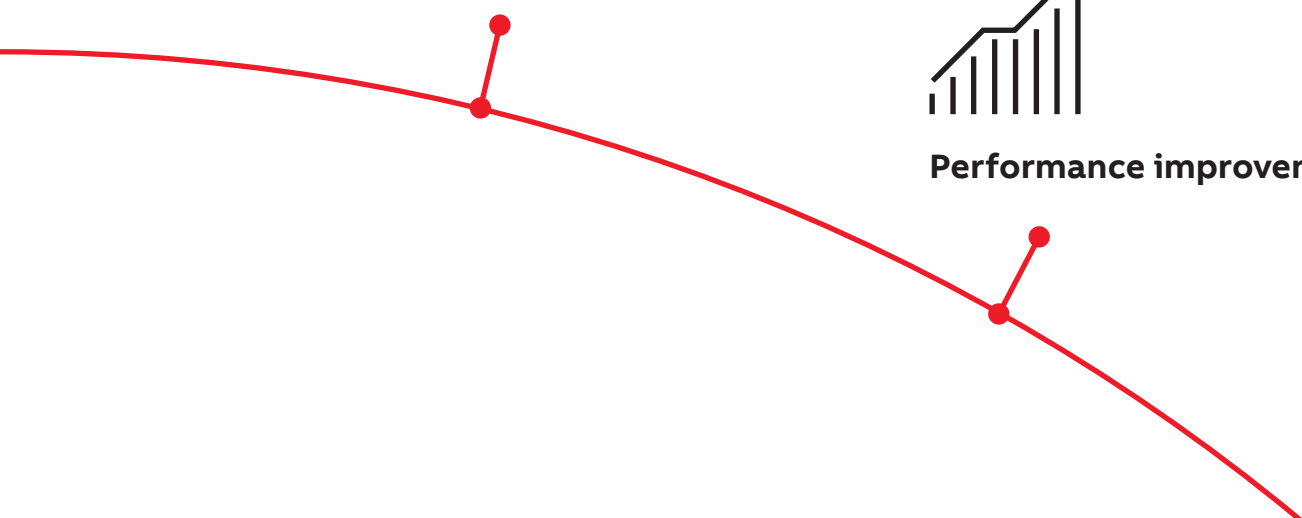
Get optimal performance out of your machinery and systems.

#### Example services include:

- ABB Ability™ Remote Services
- Engineering and Consulting
- Inspection and Diagnostics
- Upgrades, Retrofits and Modernization
- Workshop Repair
- Tailored services



### Performance improvement



# A lifetime of peak performance

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

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

**ABB drives life cycle phases explained:**



Full range of life cycle services and support

Limited range of life cycle services and support

Replacement and end-of-life services

|                |   |   |  |   |
|----------------|---|---|--|---|
| <b>Product</b> | Product is in active sales and manufacturing phase. | Serial production has ceased. Product may be available for plant extensions, as a spare part or for installed base renewal.   | Product is no longer available.  | Product is no longer available.                     |
|                | <b>Services</b>                                     | Full range of life cycle services is available. Product enhancements may be available through upgrade and retrofit solutions. | Limited range of life cycle services is available. Spare parts availability is limited to available stock. | Replacement and end-of-life services are available. |

**Keeping you informed**

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

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

**Step 1**

**Life Cycle Status Announcement**

Provides early information about the upcoming life cycle phase change and how it affects the availability of services.

**Step 2**

**Life Cycle Status Statement**

Provides information about the drive's current life cycle status, availability of product and services, life cycle plan and recommended actions.



# ABB Ability™ Condition Monitoring for drives



ABB Ability™ Condition Monitoring for Drives is a service that delivers you accurate, real-time information about drive events to ensure your equipment is available, reliable and maintainable. When you have the facts, you can make the right decisions.



## Make best decisions

You know your process, we know the drives. Our monitoring system provides you with data and information from the drives for your best decisions.



## Reduce the risks

You have the information when needed most. Our monitoring system is continuously collecting data for you to set warning limits and to trouble-shoot potential problems.



## Available on your need

You can combine Remote Assistance Service with Condition Monitoring. Our experts will always be on hand to consult with you.



Check the service availability for your drive types with your local ABB representative.

## Need help?

Contact ABB or third party channel company.

[abb.com/drives/services](http://abb.com/drives/services)

[abb.com/searchchannels](http://abb.com/searchchannels)







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

**[abb.com/drives](http://abb.com/drives)**

**[abb.com/drivespartners](http://abb.com/drivespartners)**

**[abb.com/motors&generators](http://abb.com/motors&generators)**