

MEDIUM VOLTAGE AC DRIVES

# **ABB industrial drives**

ACS1000 drives

315 to 5000 kW



—

**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

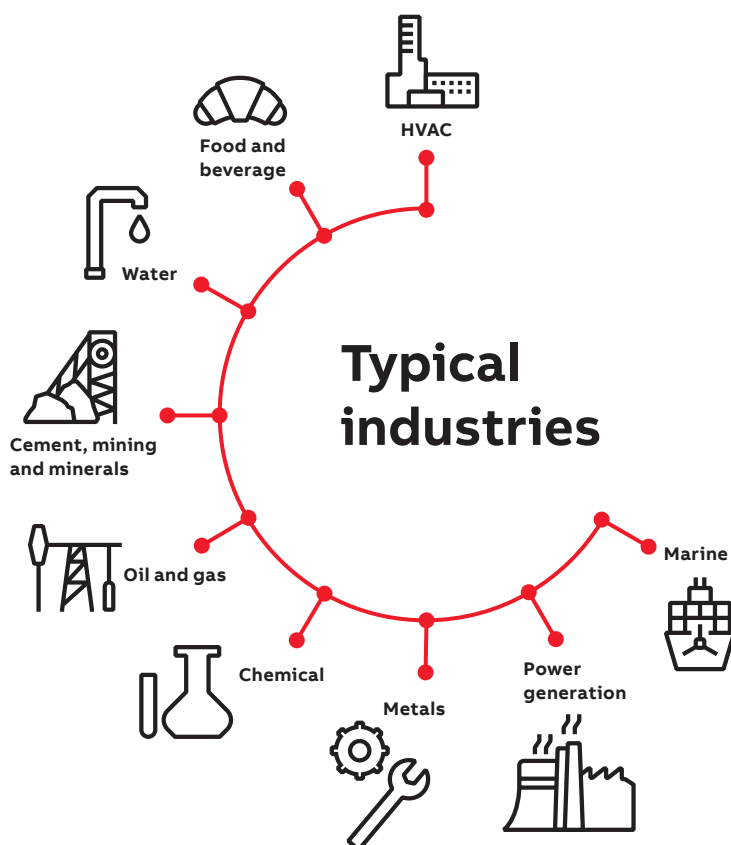
#### Flexible and reliable

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.







# 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.

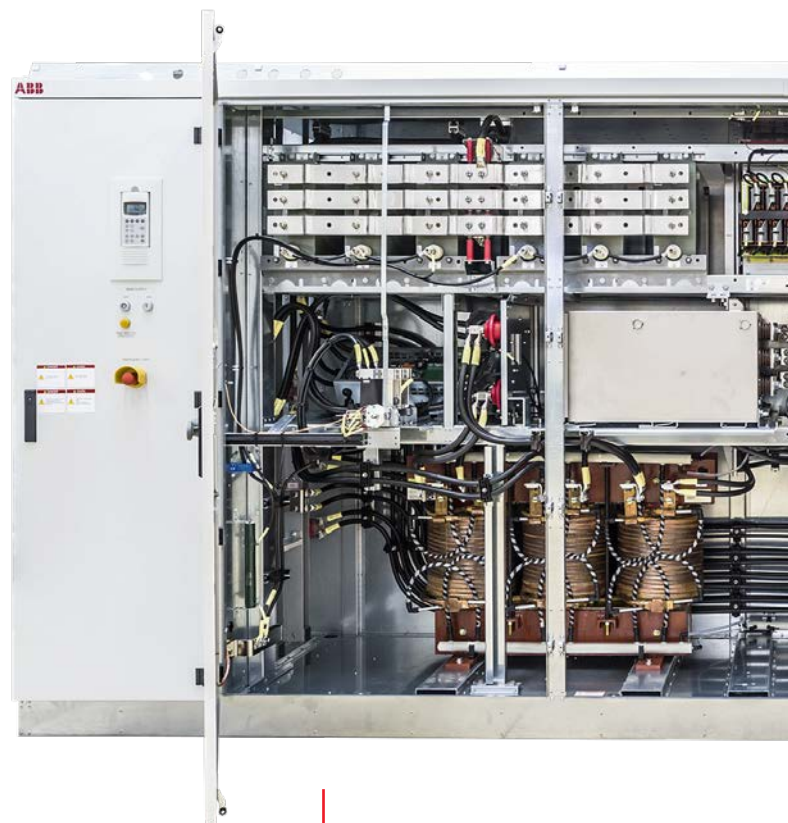
## Design flexibility

### 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.



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## 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

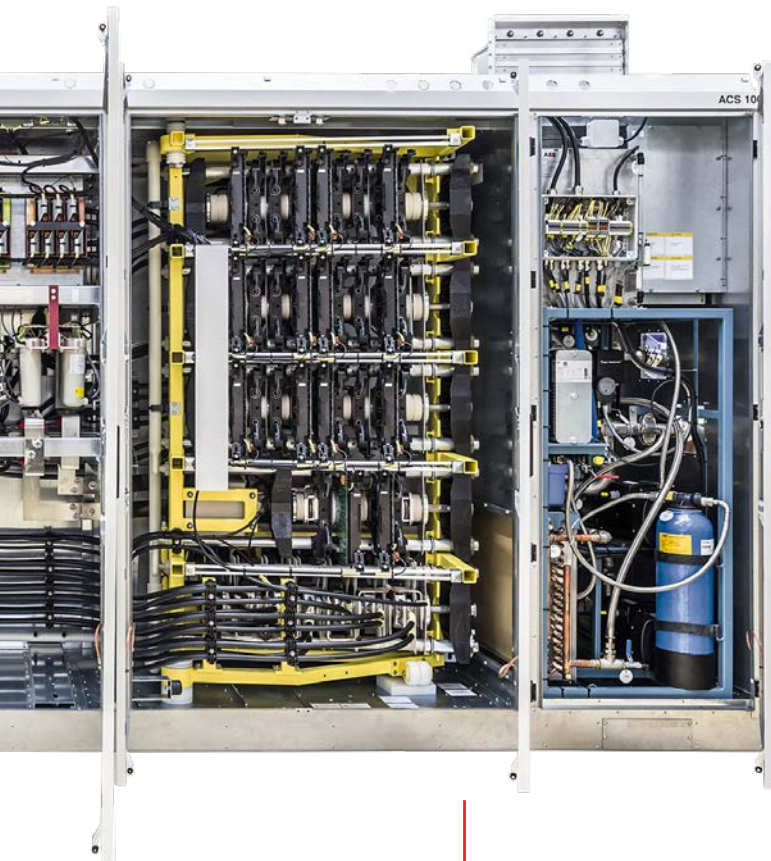
You can greatly benefit from ABB's Ability™ Remote Condition Monitoring (RCM) service that ensures you are always one step ahead with accurate, real-time information on the condition of your drive, even when it is installed in remote locations.

### 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

### Food and beverage

Fans, pumps, sugar mills

### HVAC

Compressors, pumps and fans

### Marine

Fans, pumps, compressors, propulsion and thrusters

### Metals

Fans and pumps

### Power generation

Fans, pumps, conveyors and coal mills

### Water

Pumps

### 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

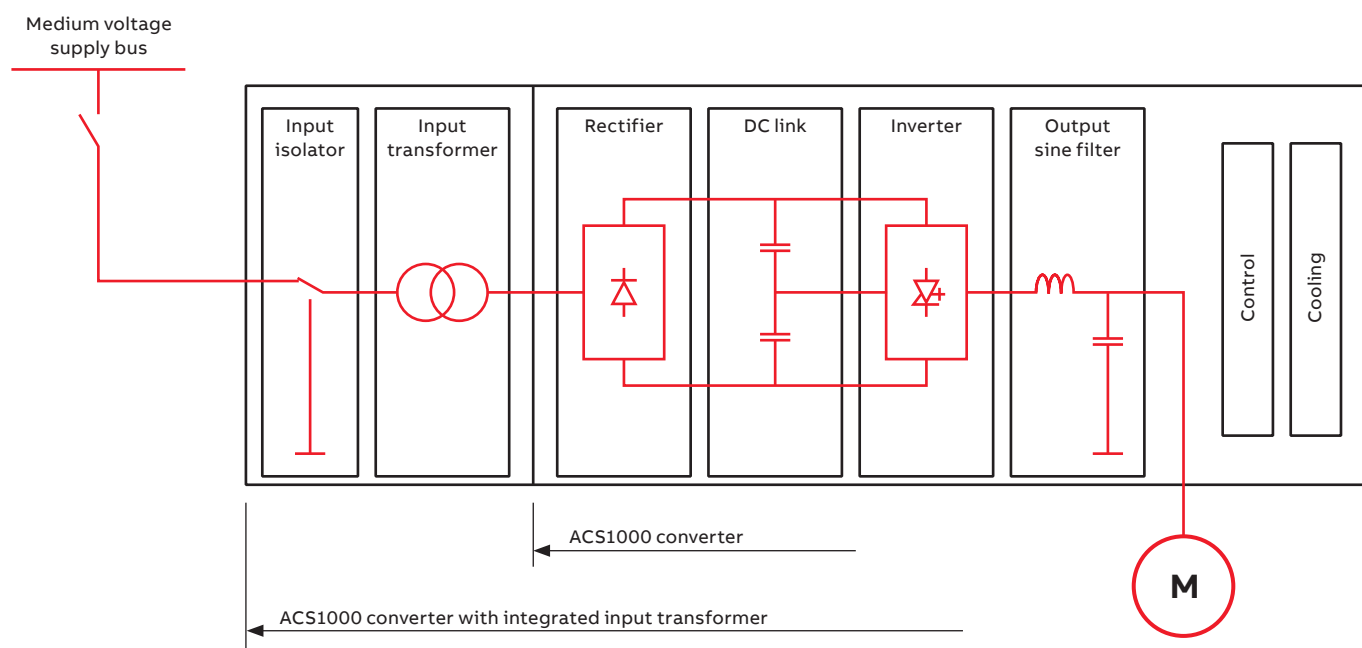
ABB offers converter transformers for all ratings, as well as for indoor or outdoor installation. Particularly designed for operation with variable speed drives, the transformer adapts the converter to the supply network and provides a galvanic isolation between drive and supply network.





# 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

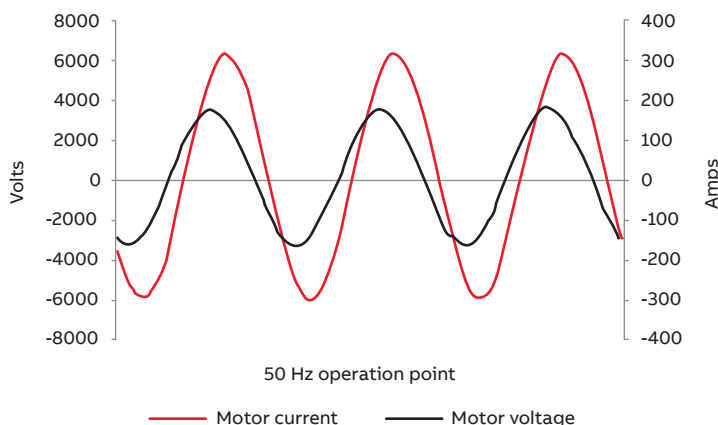
Precise and reliable process control, together with low energy consumption, result in top performance. The motor control platform of the ACS1000 drives is ABB's award-winning direct torque control (DTC). It provides rapid, accurate and stepless control from zero to full speed, and can deliver full torque 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

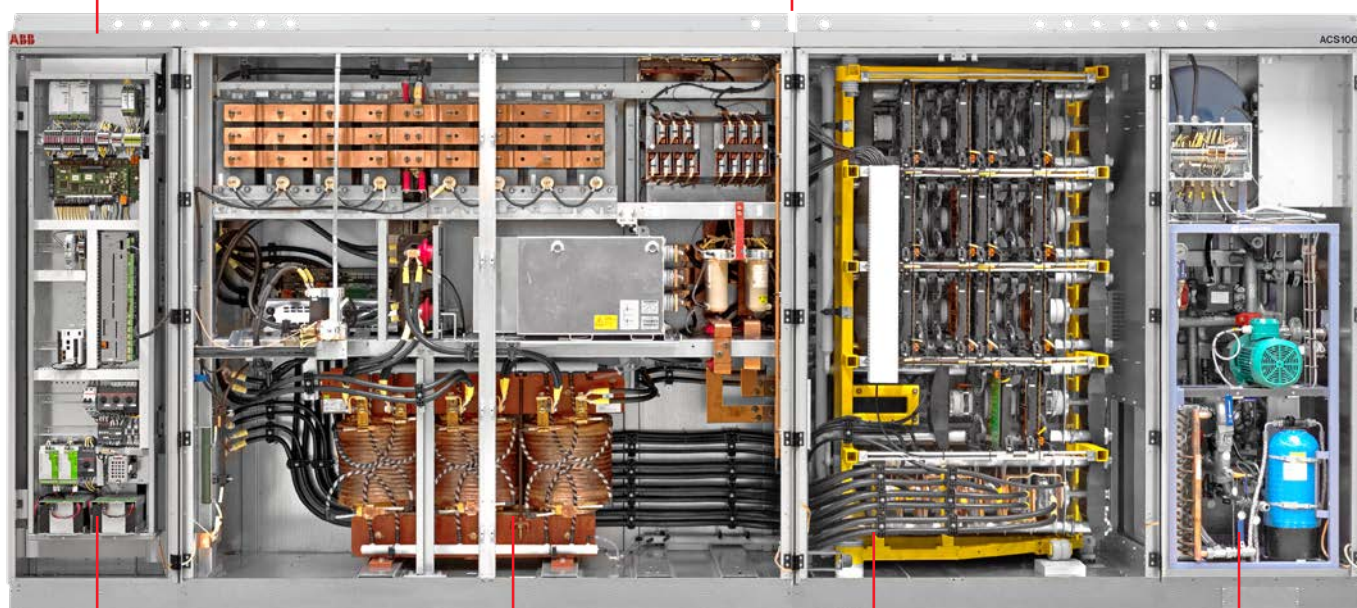


# ACS1000 liquid-cooled

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 IGBT power  
semiconductors on swing frame for easy access



Control electronics mounted  
on swing frame

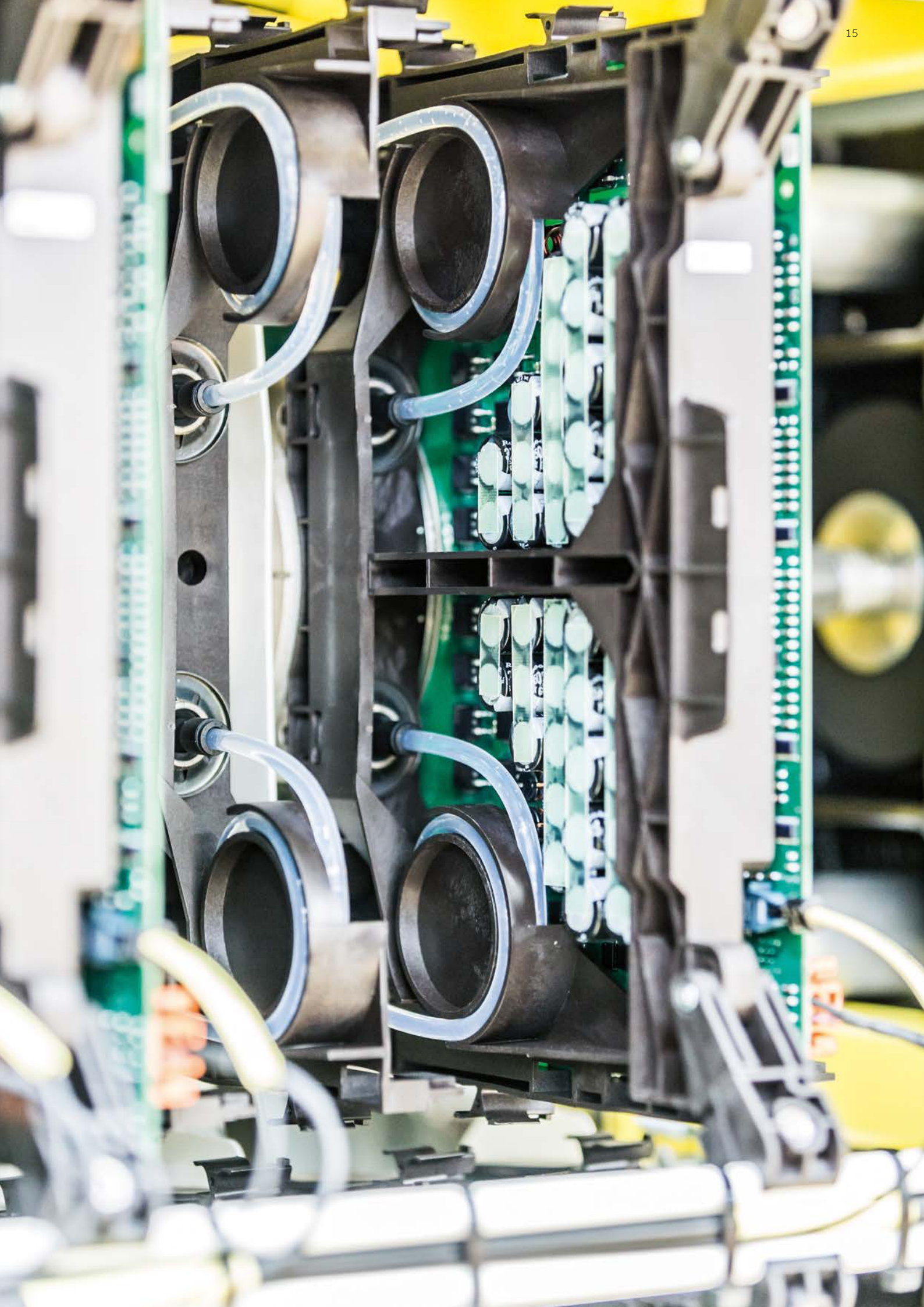
Output filter  
choke

12-pulse input  
bridge as standard

24-pulse input bridge  
as option

Liquid cooling  
cabinet with heat  
exchangers and  
deionization unit

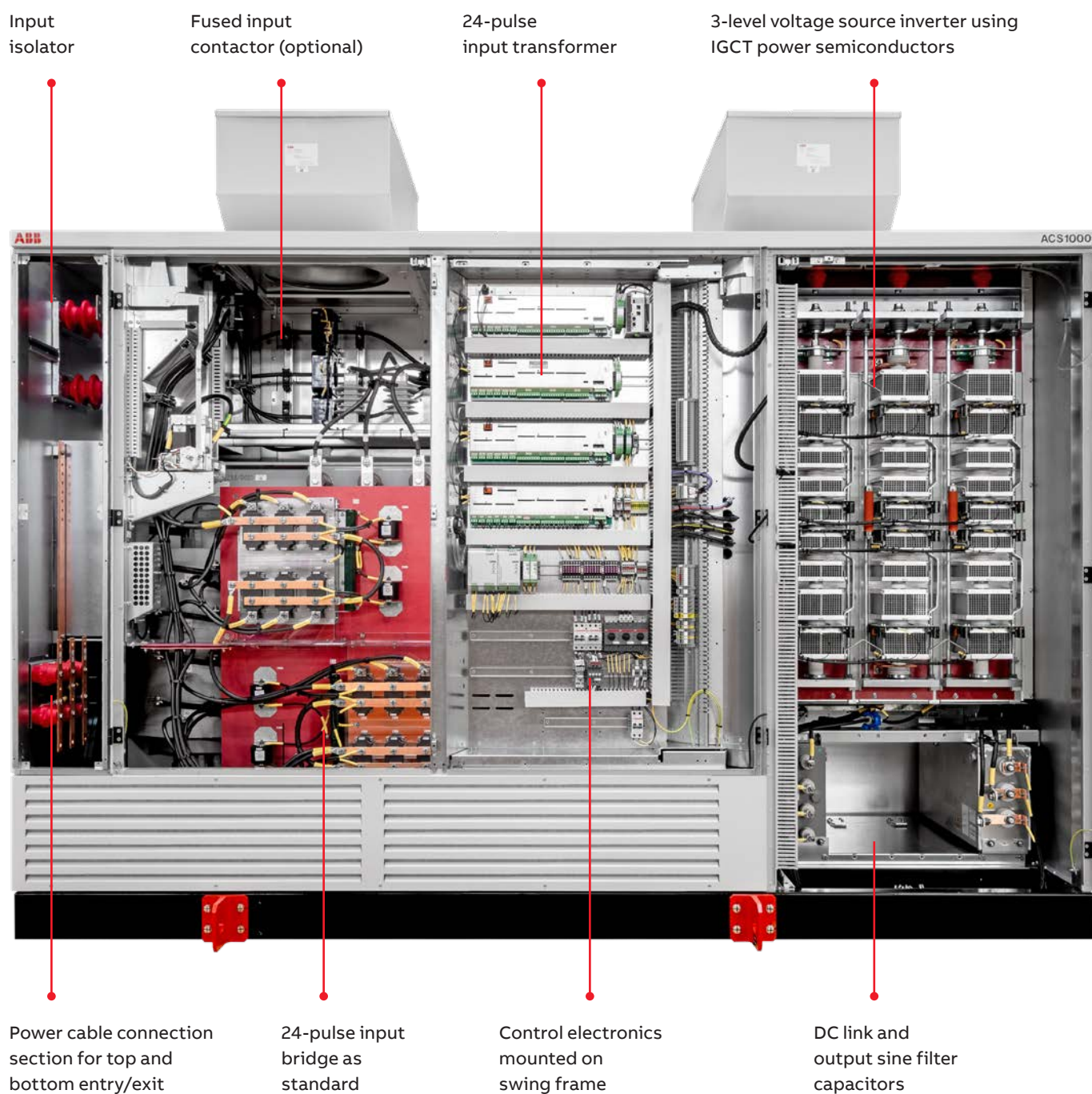






# ACS1000 air-cooled with integrated transformer

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



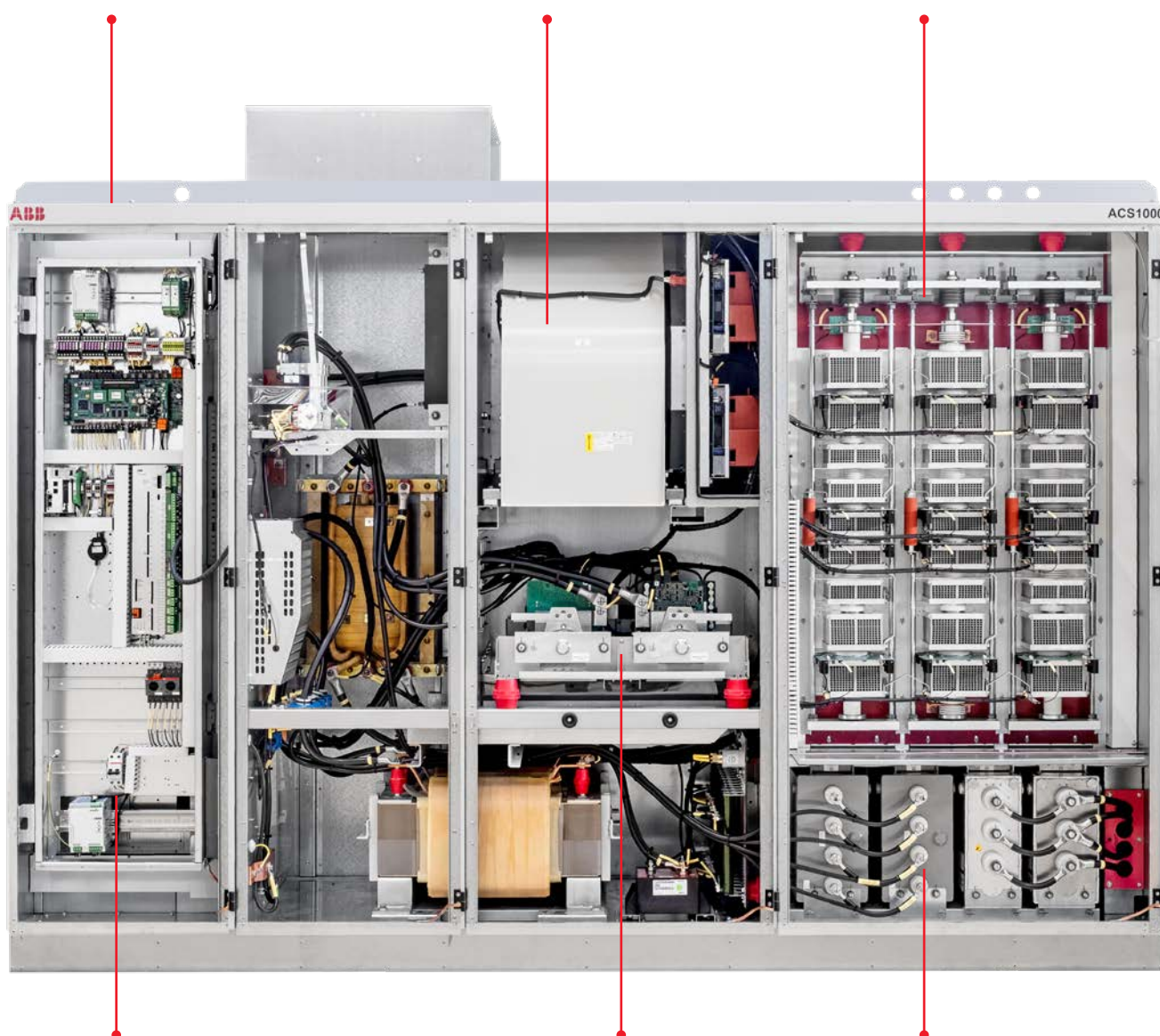
# ACS1000 air-cooled with external transformer

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

24-pulse input  
bridge as option

DC link and output  
sine filter capacitors



# Technical data

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

\*) 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 | Length | Weight |
| (kW)                              | (hp) | (A) |                         | (kVA) | (mm)   | (kg)   |
| <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   |

The relation between nominal motor rating to resulting converter type code is typical value and indicative only.  
Please get in touch with ABB representative for validation.

# Ratings, types and voltages

## With external transformer

| Motor data        |      |     | Converter data          |       |        |        |
|-------------------|------|-----|-------------------------|-------|--------|--------|
| Nominal ratings   |      |     | Type code <sup>1)</sup> | Power | Length | Weight |
| (kW)              | (hp) | (A) |                         |       |        |        |
| 2300 V air-cooled |      |     |                         |       |        |        |
| 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   |
| 3300 V air-cooled |      |     |                         |       |        |        |
| 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   |

The relation between nominal motor rating to resulting converter type code is typical value and indicative only.

Please get in touch with ABB representative for validation.

<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 | Length | Weight |
| (kW)                        | (hp) | (A)  |                         | (kVA) | (mm)   | (kg)   |
| <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   |

The relation between nominal motor rating to resulting converter type code is typical value and indicative only.

Please get in touch with ABB representative for validation.

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

2- to 12-pulse diode front end

4- to 24-pulse diode front end

# ABB Ability™ Digital Powertrain

## Condition monitoring for drives



Accurate, real-time information about powertrain events. When you have the facts, you can make the right decisions.

Condition Monitoring gives you fact-based insight into your powertrain assets, such as drives and motors, via KPIs and signal data, to identify irregularities before they become problems. This helps you make proactive decisions, built on real-time information – and saves you money!

### The service can be tailored to fit your needs

Our standard package gives you industry leading monitoring capabilities – whether you want to view the drive status through ABB's Internet portal or integrate this data with your existing monitoring systems.

### The standard package includes the following services:

- Condition Monitoring
- Alarm Management
- Asset Health
- Team Support
- Backup Management

### The standard package can be supplemented with optional services:

- Offline Data Collection
- Expert Reports
- Remote Assistance
- Condition monitoring of your entire powertrain



### Solid fact-based decision making

Get the facts, and the history, to help run your operations better and more safely.



### Always stay one step ahead of problems

Recognize early signs of possible failures and assess the risks, before they turn into serious operational issues.



### Find the root cause of process issues

Remotely access data from ABB drives built-in sensors to track the cause of problems. Get back to smooth operation quickly with data back-ups.




### Remotely analyze and optimize drives

Get critical drive information anywhere anytime – even in difficult to access sites, or when a site visit is impossible.

## NETA-21

NETA-21 connects the drive to the cloud via the Internet or local Ethernet network.

- The module comes with a built-in web server and requires no Flash/Java plugins
- In the absence of a customer local area network, it can be connected via a mobile network router (either Ethernet or USB network adapter)
- One module can be connected to several drives at the same time

| NETA-21                                                                            | Ordering code  | Description             |
|------------------------------------------------------------------------------------|----------------|-------------------------|
|  | 3AUA0000094517 | 2 x panel bus interface |
|                                                                                    |                | max. 9 drives           |
|                                                                                    |                | 2 x Ethernet interface  |
|                                                                                    |                | SD memory card          |

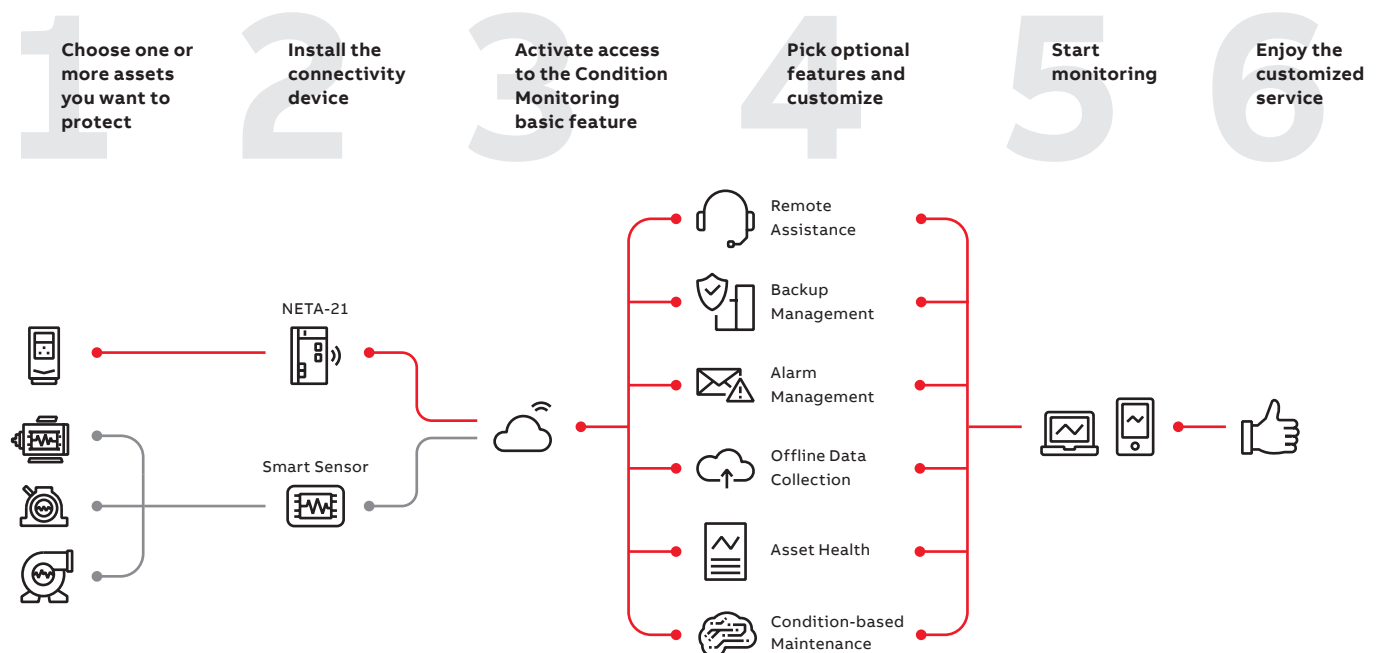
## RMDE reliability monitoring device



The RMDE reliability monitoring device facilitates the installation of the connectivity device (NETA-21) on drives that are already installed.

- The RMDE device can contain two or four NETA modules and can connect up to 18 or even 36 drives
- The cabinet consists of the NETA-21 connectivity devices, a modem and environmental sensors that enable the collection of measured ambient temperature and humidity values
- The cabinet includes a compact IP54 enclosure, making it suitable even for harsh environments

## Customers can configure powertrains and customize the digital service plan



# We keep your world turning

Whatever your needs are, we offer the most extensive service offering for drives, motors and generators from spare parts and technical support to cloud-based condition monitoring solutions to keep your equipment running.

The global ABB service units complemented by external Value Providers form a service network on your doorstep. Maximize performance, uptime and efficiency throughout the life cycle of your assets.

## With you every step of the way

Even before you buy a generator, drive, motor, bearing or softstarter, ABB's experts are on hand to offer technical advice from dimensioning through to potential energy saving.

When you've decided on the right product, ABB and its global network of Value Providers can help with installation and commissioning. They are also on hand to support you throughout the operation and maintenance phases of the products life cycle, providing maintenance programs tailored to your facility's needs.

ABB will ensure you are aware of any service opportunities. If you've registered your drives and motors with ABB, then its engineers will proactively contact you advising on your most effective service options. All of which helps maximize performance, uptime and efficiency throughout the lifetime of your powertrain.



### Replacements

Fast and efficient replacement services to minimize production downtime.



### End-of-life services

Responsible dismantling, recycling and reusing of products, according to local laws and industrial standards.

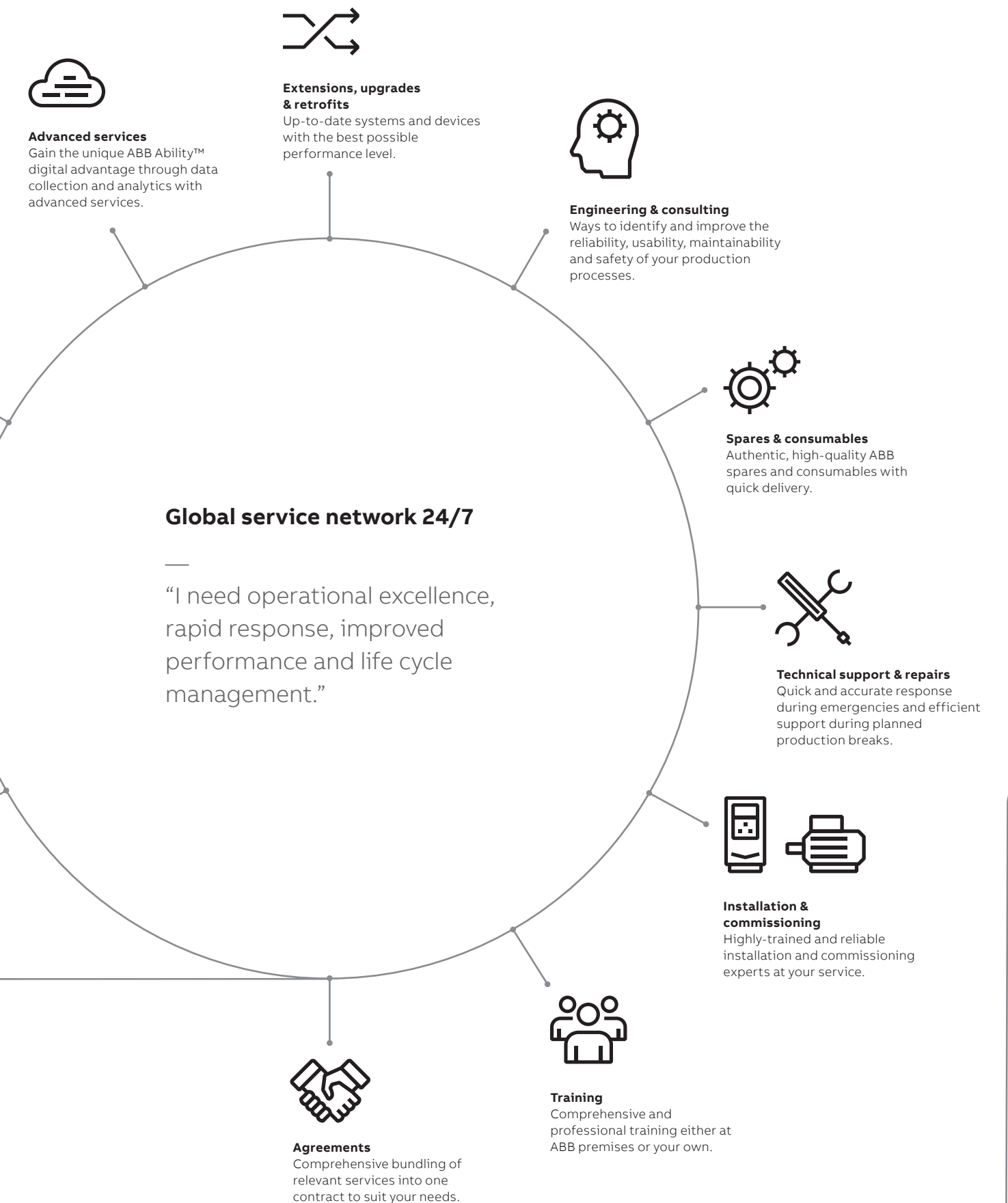


### Maintenance

Systematic and organized maintenance and support over the life cycle of your assets.





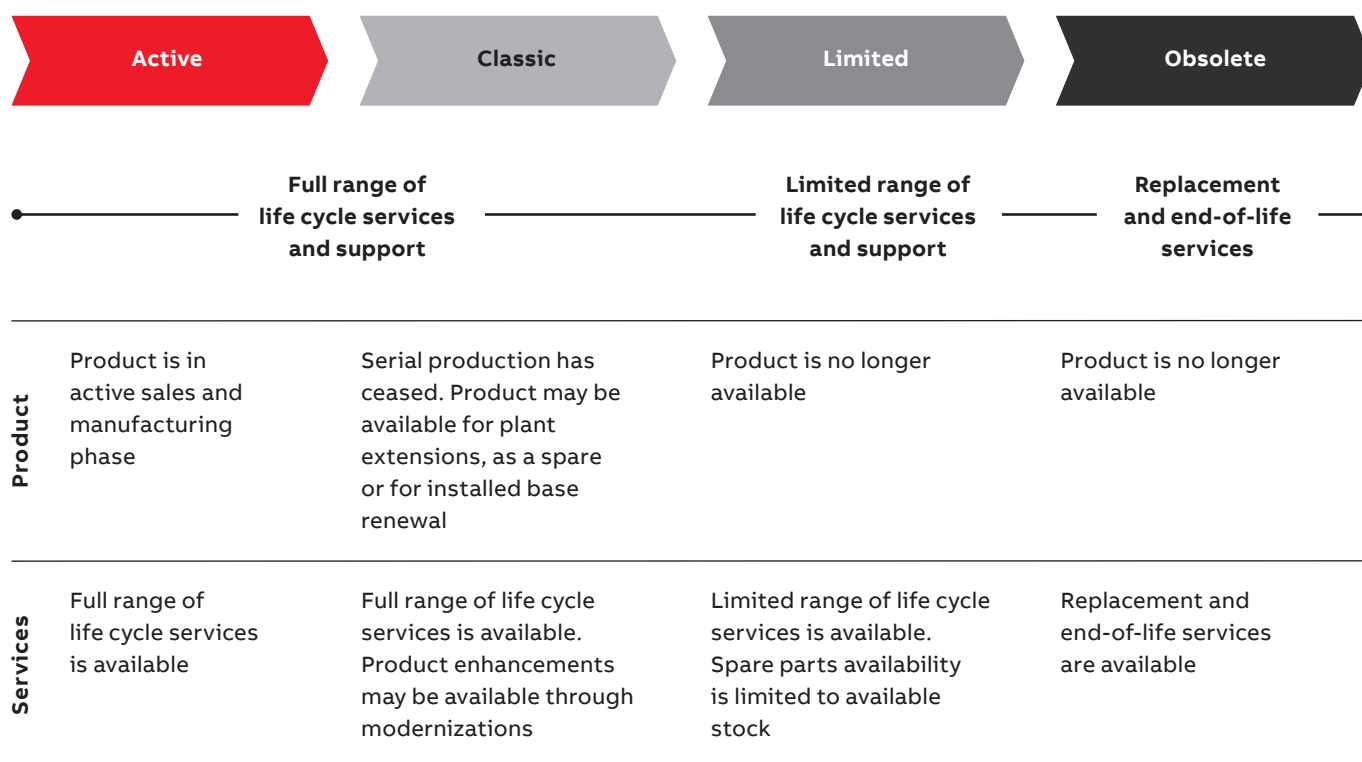


# ABB Drives Life Cycle Management

## A life time 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.

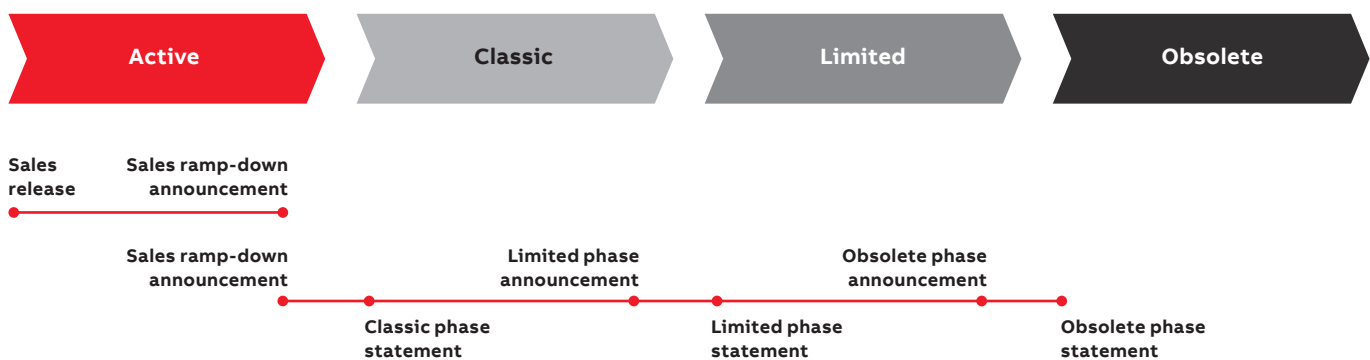
Now it's easy for you to see the exact service and maintenance available for your drives.



## Keeping you informed throughout the life cycle

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.



### Sales release

Details about product portfolio and release schedule.

### Sales ramp down announcement

Last time buy and last deliveries dates, informed well in advance.

### Life cycle phase change announcement

Early information about the upcoming life cycle phase change and affects on the service availability. Informed well in advance, minimum six months prior to the change.

### Life cycle phase statement

Information about the current life cycle status, product and services availability and recommended actions. Plan for the next life cycle phase transition.





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

**[new.abb.com/drives](https://new.abb.com/drives)**

**[new.abb.com/drives/drivespartners](https://new.abb.com/drives/drivespartners)**

**[new.abb.com/motors-generators](https://new.abb.com/motors-generators)**



#### **Additional information**

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