MEDIUM VOLTAGE AC DRIVES

# ABB industrial drives

## ACS2000 drives
## 250 to 3680 kW

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

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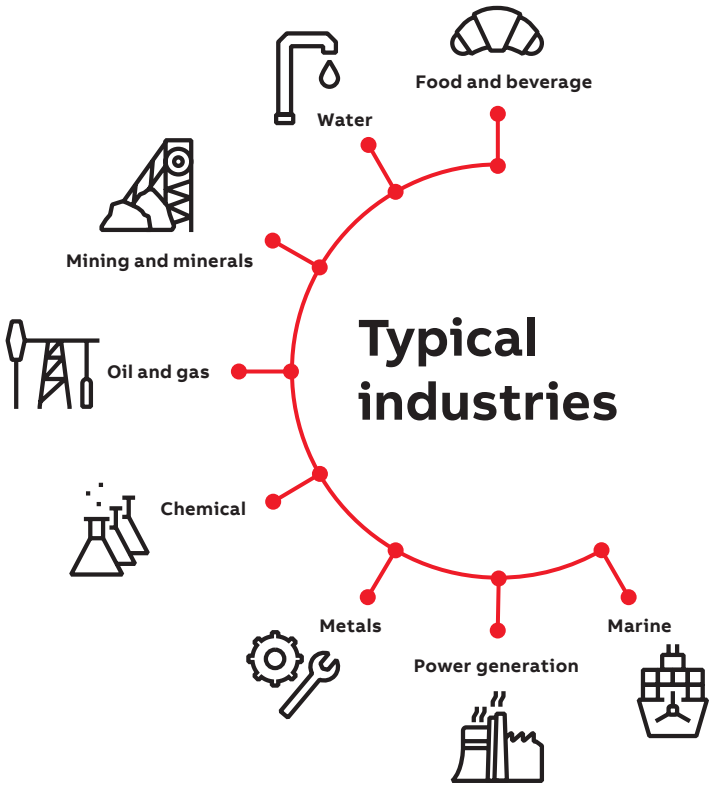
# The ACS2000 industrial drive
## The solution for everyday process control

The industrial all-rounder for a wide variety of applications provides high flexibility to configure the drive to your specific needs.




As part of ABB's industrial drives family ACS2000 medium voltage drives meet the needs of various industrial applications, such as those found in mining, cement, power, chemical, oil and gas, water and wastewater, marine, food and beverage.

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

**Flexible and reliable**
With its compact footprint, constant power factor and configuration options, the ACS2000 can be easily integrated into your systems. Different line supply connections provide perfect voltage matching and low harmonic distortion. The drive can be operated direct-to-line or with an integrated or external transformer to allow for flexibility of connection to your supply network.

The ACS2000 is available as a low harmonic drive for optimal performance or as a regenerative drive increasing your energy savings even further. Market-specific product variants make the drive compatible with common IEC and NEMA motor voltages so that you can use the drive in all your global operations.

Wide-ranging versatility makes the ACS2000 fit perfectly into different conditions and environments all over the world. Benefit from the drive's state-of-the-art design and robust control platform that ensures reliable operations every day, everywhere.


MAIN SUPPLY
OFF
ON
GND SWITCH
UNLOCKED
EMERGENCY OFF
DANGER
DANGER
ABB

# 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.

**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 $CO_2$ emissions.

**Best fit for your application**
For your standard applications in all industries, the ACS2000 is a perfect fit. With a range of pre-engineered options, you can drive pumps, fans, conveyors, extruders and compressors, even in harsh environments. Thanks to its IEC- and NEMA-specific designs you can use the drive for your operations all over the world.

**Design flexibility for smooth integration**
You can easily connect the ACS2000 to the grid using an integrated or external transformer, or a direct-to-line connection. The drive is suitable for applications with regeneration capability, further reducing energy consumption. The design concept eliminates the need for costly harmonic analyses or the installation of network filters.

## Adapts to different requirements

**Maximum motor compatibility**
You have total compatibility with common IEC and NEMA motor voltages due to our patented multilevel topology. With an optional output sine filter you can retrofit older motors or drive special applications and use long motor cables.

They support you in improving your processes by integrating your variable speed process control needs into a flexible and comprehensive drive solution.


**High reliability through state-of-the-art design**
Availability is ensured with the latest high voltage IGBT (Insulated Gate Bipolar Transistor) technology and a fuseless design using the minimum number of power components. 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 by using ABB's direct torque control (DTC) method. The drive control is immediate and smooth under all conditions ensuring optimum output and productivity.

## Maximum reliability

**High personnel safety**
Your workforce and goods are protected from dangerous electric arcs with the ACS2000's arc resistant design. Certified functional safety features and an integrated DC grounding switch make your systems safe and reliable.

**Serviceability**
Service and maintenance for the ACS2000 is simple and smooth as you have easy front access to all components. In addition to various diagnostic tools, you will profit from convenient remote monitoring.

# Reliability across all applications

The ACS2000 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.

## Flexible connectivity

**Easier than you think**
Along with its flexible line supply connection options and advanced software tools, the ACS2000 allows smooth and simple drive system integration into any industrial environment.

**Flexible connection to grid**
The ACS2000 is available with two line side connection configurations, the diode front end (DFE) and the active front end (AFE). The latter allows the operation of applications with regeneration capabilities. Both configurations are available with external transformer, whereas the diode front end is also available in integrated transformer option. In addition, the direct-to-line (DTL) variant can be connected to the grid without a transformer.

The NEMA variant is only available in the AFE-DTL configuration.

**Flexible control interface**
An open communication concept enables the connection to higher-level process controllers. The ACS2000 can be fitted with all major fieldbus adapters for smooth integration, monitoring and controlling of different processes.

**DriveStartup**
The commissioning wizard DriveStartup is an advanced tool which simplifies and speeds-up commissioning, and ensures that the correct settings are defined.

**Configurable disconnect for NEMA version**
We offer you a configurable disconnect option package. Flexible, self-contained switchgear solution does not require upstream control coordination. It provides a visible blade switch disconnect and integral input contactor with options such as a motor protection relay, control power transformer and other c ustomer controls.

# 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 mounting. 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

**Design flexibility**
The ACS2000 provides different line supply connections, which are available with a diode front end (DFE) or for regenerative applications with an active front end (AFE).

**Direct-to-line**
The ACS2000 direct-to-line features an active front end (AFE), which enables operation without a transformer. This can lower investment costs substantially. Due to its compact size and lighter weight compared to a drive requiring a transformer, you will save on transportation costs and need less space in the electrical room.

**External transformer**
For applications where a voltage-matching input transformer is needed or galvanic isolation from the power supply is required, the ACS2000 can be connected to a conventional oil or dry-type converter transformer. This solution minimizes your cooling demand in the e-house (electrical house).

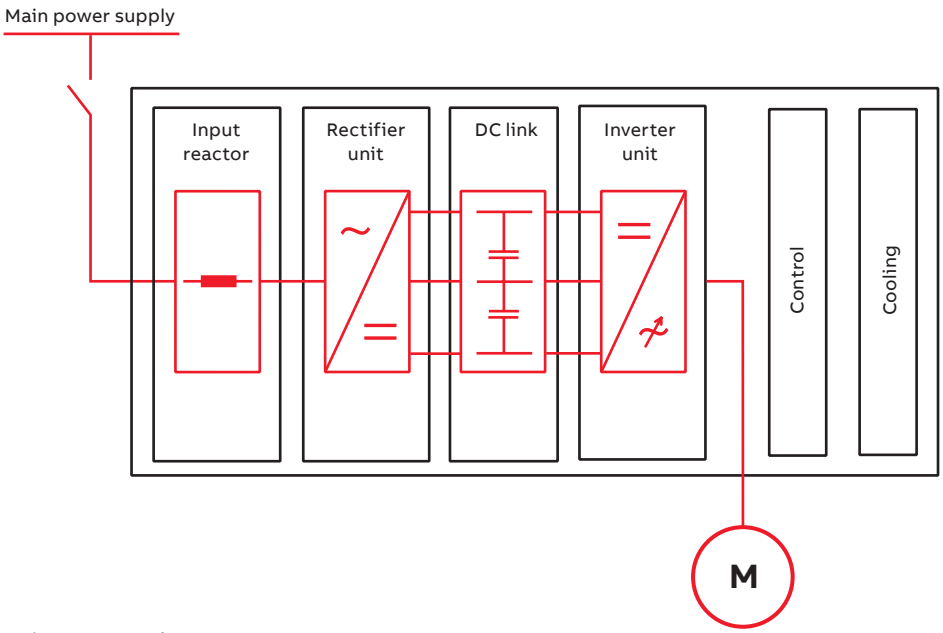
**Integrated transformer**
Alternatively, the ACS2000 is also available with an integrated input transformer allowing quick and easy installation and commissioning.

**Market-specific designs**
IEC- and NEMA-specific variants are available, covering local market requirements and making the drive suitable for use in all your operations worldwide.

**Low harmonic signature**
The ACS2000 meets the most stringent requirements for harmonic distortion as defined by relevant standards for all supply connections. This avoids the need for harmonic analysis or the installation of network filters.

**Regeneration**
The ACS2000 regenerative drive features an active front end (AFE) for applications with high braking energy which allows full power flow both in motoring and generating mode. Regeneration offers significant energy savings compared to other braking methods as energy is fed back to the supply network.

Regeneration is especially suitable for applications with frequent starts and stops. It allows energy efficient continuous braking of applications such as downhill conveyors or expanders in gas pipelines.

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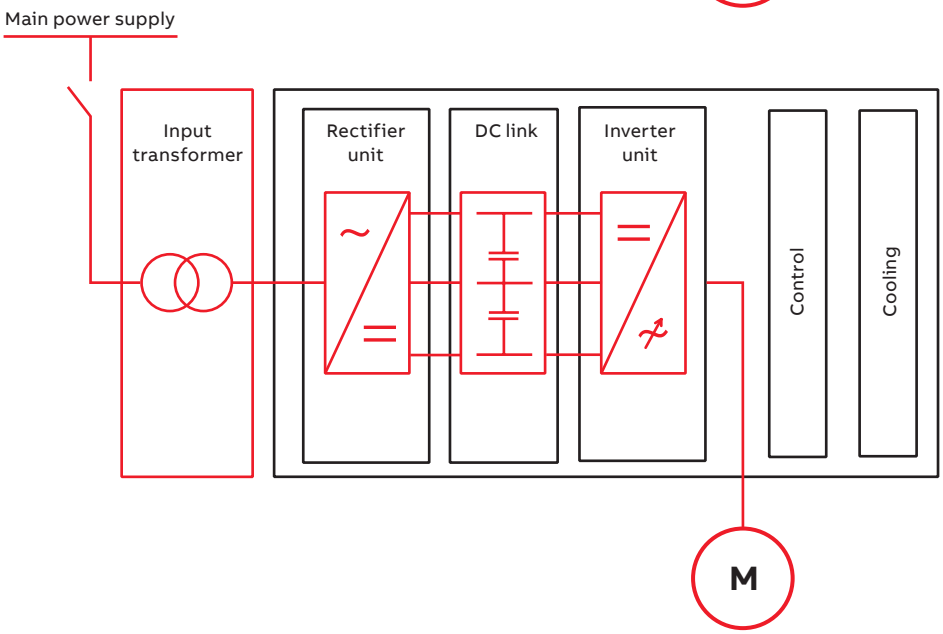
Topology of the ACS2000 for direct-to-line connection

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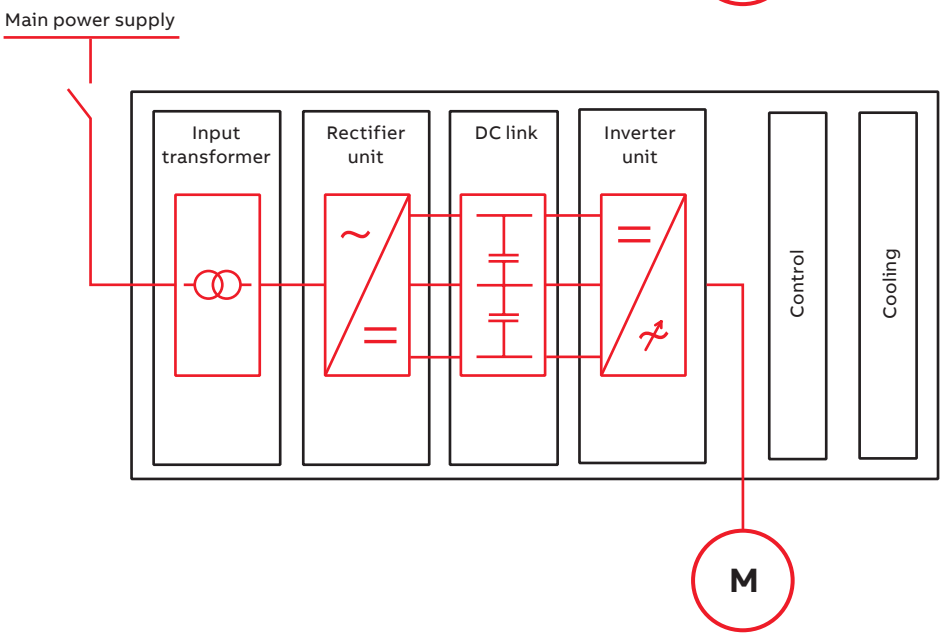
Topology of the ACS2000 for operation with an external transformer

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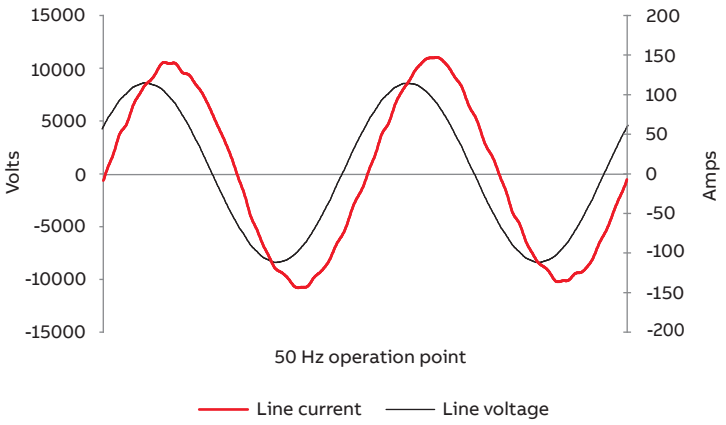
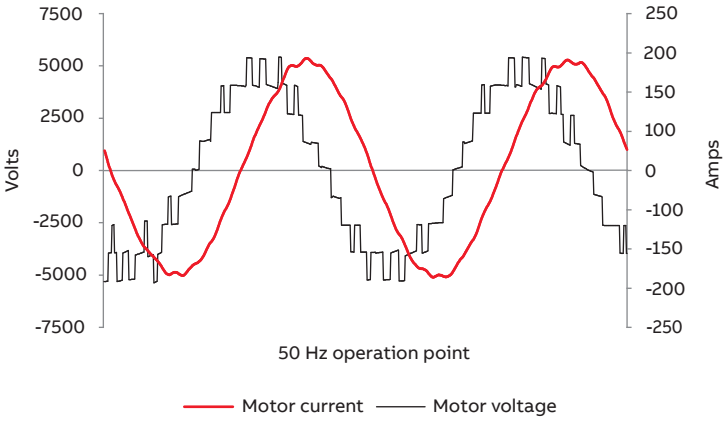
Topology of the ACS2000 with an integrated input transformer

**Power factor correction**
For applications where other loads connected to the same line supply cause leading or lagging power factor, the ACS2000 is available with a static VAR compensation option. With static VAR compensation, a smooth line supply voltage profile can be maintained and reactive power penalties can be avoided.

**Line current and voltage**




**Motor current and voltage**




**Powerful performance with DTC**
Precise and reliable process control, together with low energy consumption, result in top performance. The ACS2000 drive control platform uses ABB's award-winning direct torque control (DTC), resulting in the highest torque and speed performance as well as the lowest losses ever achieved in medium voltage AC drives. Control of the drive is immediate and smooth under all conditions.

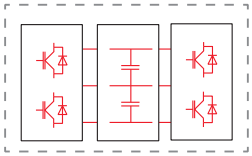
**Motor friendly output waveform for use with new or existing motors**
The ACS2000 provides near sinusoidal current and voltage waveforms making it compatible for use with standard motors and cable insulation. This is achieved with ABB's patented multilevel topology which utilizes one DC link enabling a multi-level output waveform with a minimum number of power components.

**Output sine filter – perfect output power quality for special applications**
An output sine filter is optionally available in IEC variant. Side effects of an inverter such as voltage reflections and common mode voltages will be totally eliminated, resulting in an excellent waveform of voltage and current supplied to the motor. The output sine filter is used for very long motor cables, for retrofitting of old motors with an aged insulation system and for special applications such as electric submersible pumps (ESP) and conveyors in underground mines.

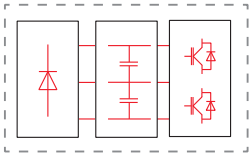
# ACS2000 configurations

Different configurations of the ACS2000 adapt the drive to meet the requirements of your application and fit into your industrial environment.

—
Five different configurations are possible by combining either an active front end or diode front end with an external, integrated or no transformer.

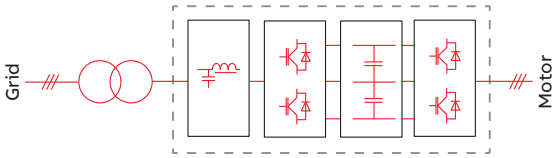


Active front end (AFE)

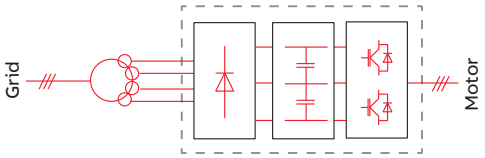


Diode front end (DFE)

**External transformer**

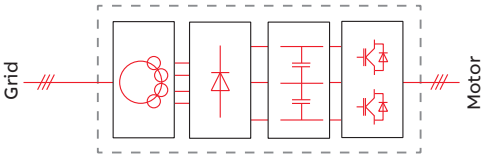



Active front end, external transformer (AFE)



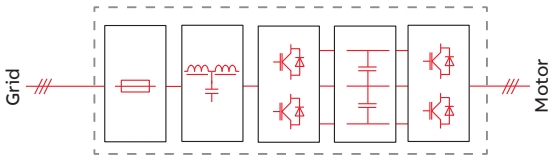

Diode front end, external transformer (DFE)

**Integrated transformer**




Diode front end, integrated transformer (DFEi)

**Transformerless**




Direct-to-line (DTL)

# ACS2000 direct-to-line configuration

Smallest footprint and light weight is possible with the direct-to-line version.

—
ACS2000 direct-to-line, 800 kW, 4.0 to 4.16 kV, NEMA enclosure

# ACS2000 configuration with external transformer

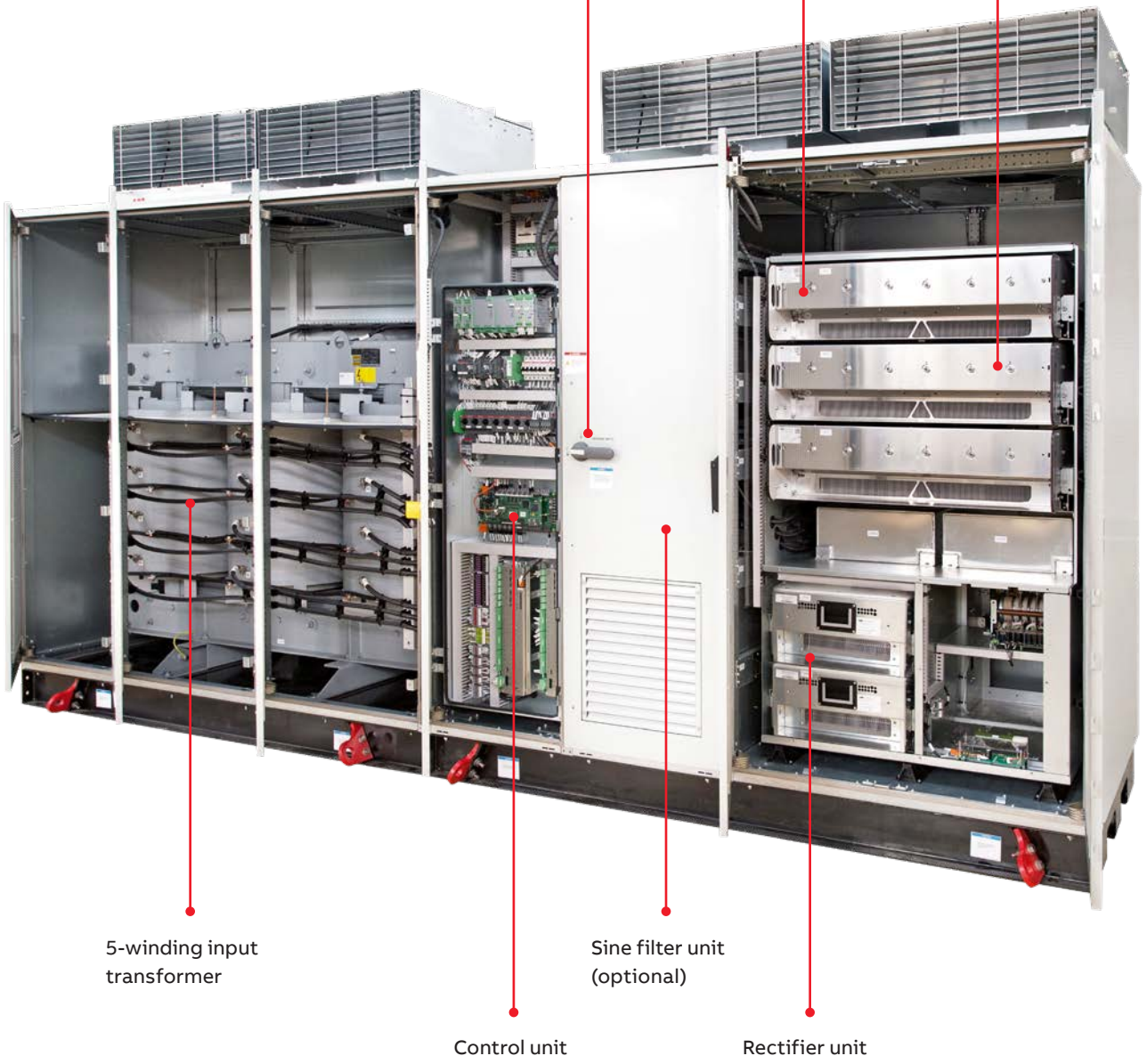
Minimized heat losses into the electrical room eliminate the need for additional ventilation systems when using an external transformer.

—
ACS2000, 800 kW, 6.6 kV, for operation with an external transformer

# ACS2000 configuration with integrated transformer

Easy installation is possible with the ACS2000 with integrated transformer, simplifying the integration of the drive into your systems.

—
ACS2000, 1200 kW, 6.6 kV, with an integrated transformer



# Technical data

| | |
|---|---|
| **Input** | |
| **Input configuration** | 24-pulse diode rectifier or active front end |
| **Input voltage** | AFE direct-to-line: 6.0 kV - 6.9 kV (IEC), 4.16 kV (NEMA)<br>AFE external transformer: 6.0 kV - 6.9 kV (IEC)<br>DFE external transformer: 1850 V, 1930 V (IEC)<br>DFE integrated transformer: 6.0 kV - 6.9 kV (IEC) (higher on request) |
| **Input voltage variation** | ±10%, 4.16 kV, 6.0 kV, 6.6 kV<br>-10% to +5%, 6.9 kV |
| **Input frequency** | 50/60 Hz |
| **Input frequency variation** | <5% |
| **Input power factor** | Diode rectifier: >0.95<br>Active rectifier: 1 |
| **Input harmonics** | Complies with IEC 61000, IEEE 519, GB/T 14549 |
| **Auxiliary voltage** | 110 V, 120 V, 230 V, 50/60 Hz<br>380 V, 400 V, 415 V, 440 V, 460 V, 480 V, 50/60 Hz, 3-phase<br>575 V, 600 V on request for NEMA |
| **Output** | |
| **Output power** | 250 to 3680 kW |
| **Output voltage** | 4.16 to 6.9 kV |
| **Output frequency** | 0 to 90 Hz, <75 Hz with sine filter |
| **Motor type** | Induction and permanent magnet |
| **Efficiency of converter** | 97.5% |
| **Motor harmonics** | <5% THDi, compatible to standard DOL motors |
| **Mechanical** | |
| **Enclosure** | Standard: IP21, NEMA 1<br>Optional: IP42 |
| **Cable entry** | Top/bottom |
| **Environmental** | |
| **Altitude** | 2000 m.a.s.l. (higher on request) |
| **Ambient air temperature** | +1 to +40 °C (higher on request) |
| **Noise** | <85 dB(A) |
| **Cooling type** | Air |
| **Standards** | EN, IEC, CE, NEMA, IEEE, UL |

# Ratings, types and voltages
## 4 kV, low harmonic drive

| Motor data [1] | | | Converter data | | | | | |
|---|---|---|---|---|---|---|---|---|
| Nominal ratings [2] | | | Type code | Power | Direct-to-line | | With external transformer | |
| (kW) | (hp) | (A) | | (kVA) | Length (mm) | Weight (kg) | Length (mm) | Weight (kg) |
| **4000 V - 4160 V** | | | | | | | | |
| 225 | 300 | 40 | ACS2000-040-A01A-L1-010 | 310 | 1970 | 2100 | 1970 | 2100 |
| 260 | 350 | 47 | ACS2000-040-A01B-L1-010 | 360 | 1970 | 2100 | 1970 | 2100 |
| 300 | 400 | 54 | ACS2000-040-A01C-L1-010 | 410 | 1970 | 2100 | 1970 | 2100 |
| 335 | 450 | 61 | ACS2000-040-A01D-L1-010 | 460 | 1970 | 2100 | 1970 | 2100 |
| 375 | 500 | 67 | ACS2000-040-A01E-L1-010 | 515 | 1970 | 2100 | 1970 | 2100 |
| 450 | 600 | 81 | ACS2000-040-A01F-L1-010 | 615 | 1970 | 2100 | 1970 | 2100 |
| 520 | 700 | 94 | ACS2000-040-A01G-L1-010 | 720 | 1970 | 2100 | 1970 | 2100 |
| 595 | 800 | 108 | ACS2000-040-A01H-L1-010 | 820 | 1970 | 2100 | 1970 | 2100 |
| 670 | 900 | 121 | ACS2000-040-A01J-L1-010 | 880 | 1970 | 2100 | 1970 | 2100 |
| 745 | 1000 | 135 | ACS2000-040-A01K-L1-010 | 935 | 2915 | 2100 | 2915 | 2100 |
| 935 | 1250 | 168 | ACS2000-040-A02A-L1-010 | 1285 | 2915 | 3100 | 2915 | 3100 |
| 1120 | 1500 | 202 | ACS2000-040-A02B-L1-010 | 1540 | 2915 | 3100 | 2915 | 3100 |
| 1305 | 1750 | 236 | ACS2000-040-A02C-L1-010 | 1715 | 2915 | 3100 | 2915 | 3100 |
| 1490 | 2000 | 269 | ACS2000-040-A02D-L1-010 | 1865 | 2915 | 3100 | 2915 | 3100 |
| 1680 | 2250 | 303 | ACS2000-040-A03A-L1-010 | 2310 | 3485 | 4100 | 3485 | 4100 |
| 1865 | 2500 | 337 | ACS2000-040-A03B-L1-010 | 2565 | 3485 | 4100 | 3485 | 4100 |
| 2050 | 2750 | 370 | ACS2000-040-A03C-L1-010 | 2695 | 3485 | 4100 | 3485 | 4100 |
| 2240 | 3000 | 404 | ACS2000-040-A03D-L1-010 | 2800 | 3485 | 4100 | 3485 | 4100 |

[1] Indicative information: Induction motor efficiency 93%, power factor 0.86
[2] Nominal rating for no-overload operation

**Dimensions**
- Height: 2500 mm including cooling fans
- Depth: 1180 mm

# Ratings, types and voltages
## 4 kV, regenerative drive

| Motor data [1] | | | Converter data | | | | | |
|---|---|---|---|---|---|---|---|---|
| Nominal ratings [2] | | | Type code [3] | Power | Direct-to-line | | With external transformer | |
| (kW) | (hp) | (A) | | (kVA) | Length (mm) | Weight (kg) | Length (mm) | Weight (kg) |
| **4000 V - 4160 V** | | | | | | | | |
| 225 | 300 | 40 | ACS2000-040-A01A-T1-010 | 310 | 1970 | 2100 | 1970 | 2100 |
| 260 | 350 | 47 | ACS2000-040-A01B-T1-010 | 360 | 1970 | 2100 | 1970 | 2100 |
| 300 | 400 | 54 | ACS2000-040-A01C-T1-010 | 410 | 1970 | 2100 | 1970 | 2100 |
| 335 | 450 | 61 | ACS2000-040-A01D-T1-010 | 460 | 1970 | 2100 | 1970 | 2100 |
| 375 | 500 | 67 | ACS2000-040-A01E-T1-010 | 515 | 1970 | 2100 | 1970 | 2100 |
| 450 | 600 | 81 | ACS2000-040-A01F-T1-010 | 615 | 1970 | 2100 | 1970 | 2100 |
| 520 | 700 | 94 | ACS2000-040-A01G-T1-010 | 720 | 1970 | 2100 | 1970 | 2100 |
| 595 | 800 | 108 | ACS2000-040-A01H-T1-010 | 820 | 1970 | 2100 | 1970 | 2100 |
| 670 | 900 | 121 | ACS2000-040-A01J-T1-010 | 880 | 1970 | 2100 | 1970 | 2100 |
| 745 | 1000 | 135 | ACS2000-040-A01K-T1-010 | 935 | 2915 | 2100 | 2915 | 2100 |
| 935 | 1250 | 168 | ACS2000-040-A02A-T1-010 | 1285 | 2915 | 3100 | 2915 | 3100 |
| 1120 | 1500 | 202 | ACS2000-040-A02B-T1-010 | 1540 | 2915 | 3100 | 2915 | 3100 |
| 1305 | 1750 | 236 | ACS2000-040-A02C-T1-010 | 1715 | 2915 | 3100 | 2915 | 3100 |
| 1490 | 2000 | 269 | ACS2000-040-A02D-T1-010 | 1865 | 2915 | 3100 | 2915 | 3100 |
| 1680 | 2250 | 303 | ACS2000-040-A03A-T1-010 | 2310 | 3485 | 4100 | 3485 | 4100 |
| 1865 | 2500 | 337 | ACS2000-040-A03B-T1-010 | 2565 | 3485 | 4100 | 3485 | 4100 |
| 2050 | 2750 | 370 | ACS2000-040-A03C-T1-010 | 2695 | 3485 | 4100 | 3485 | 4100 |
| 2240 | 3000 | 404 | ACS2000-040-A03D-T1-010 | 2800 | 3485 | 4100 | 3485 | 4100 |

[1] Indicative information: Induction motor efficiency 93%, power factor 0.86
[2] Nominal rating for no-overload operation

**Dimensions**
- Height: 2500 mm incl. cooling fans
- Depth: 1180 mm

# Ratings, types and voltages
## 6 kV, low harmonic drive

| Motor data [1] | | | Converter data | | | | | |
|---|---|---|---|---|---|---|---|---|
| Nominal ratings [2] | | | Type code [3] | Power | With external transformer | | With integrated transformer | |
| (kW) | (hp) | (A) | | (kVA) | Length (mm) | Weight (kg) | Length (mm) | Weight (kg) |
| **6000 V** | | | | | | | | |
| 250 | 335 | 30 | ACS2000-060-A01A-xy-010 | 315 | 1700 | 1595 | 3300 | 3515 |
| 315 | 420 | 38 | ACS2000-060-A01B-xy-010 | 395 | 1700 | 1595 | 3300 | 3515 |
| 355 | 475 | 43 | ACS2000-060-A01C-xy-010 | 445 | 1700 | 1595 | 3300 | 3570 |
| 400 | 535 | 48 | ACS2000-060-A01D-xy-010 | 500 | 1700 | 1595 | 3600 | 3615 |
| 450 | 605 | 54 | ACS2000-060-A01E-xy-010 | 565 | 1700 | 1595 | 3600 | 3835 |
| 500 | 670 | 60 | ACS2000-060-A01F-xy-010 | 625 | 1700 | 1595 | 3600 | 4065 |
| 560 | 750 | 67 | ACS2000-060-A01G-xy-010 | 700 | 1700 | 1595 | 3600 | 4120 |
| 630 | 845 | 76 | ACS2000-060-A01H-xy-010 | 790 | 1700 | 1595 | 3600 | 4345 |
| 710 | 950 | 85 | ACS2000-060-A01J-xy-010 | 890 | 1700 | 1595 | 3600 | 4285 |
| 800 | 1 070 | 96 | ACS2000-060-A01K-xy-010 | 1000 | 1700 | 1595 | 3600 | 4285 |
| 900 | 1 205 | 108 | ACS2000-060-A02A-xy-010 | 1125 | 2150 | 1920 | 4050 | 4665 |
| 1000 | 1 340 | 120 | ACS2000-060-A02B-xy-010 | 1250 | 2150 | 1920 | 4050 | 5100 |
| 1120 | 1 500 | 135 | ACS2000-060-A02C-xy-010 | 1400 | 2150 | 1920 | 4050 | 5200 |
| 1260 | 1 690 | 152 | ACS2000-060-A02D-xy-010 | 1575 | 2150 | 1920 | 4350 | 5470 |
| 1420 | 1 905 | 171 | ACS2000-060-A02E-xy-010 | 1775 | 2150 | 1920 | 4350 | 5920 |
| 1600 | 2 145 | 192 | ACS2000-060-A02F-xy-010 | 2000 | 2150 | 1920 | 4350 | 6075 |
| 1800 | 2 415 | 217 | ACS2000-060-A03A-x4-010 | 2250 | 2500 | 2340 | 4900 | 6100 |
| 2000 | 2 680 | 241 | ACS2000-060-A03B-x4-010 | 2500 | 2500 | 2340 | 4900 | 6480 |
| 2200 | 2 950 | 265 | ACS2000-060-A03C-x4-010 | 2750 | 2500 | 2340 | 4900 | 6790 |
| 2400 | 3 215 | 289 | ACS2000-060-A03D-x4-010 | 3000 | 2500 | 2340 | 4900 | 6940 |
| 2500 | 3 350 | 301 | ACS2000-060-A04A-x4-010 | 3125 | 2500 | 2340 | 5100 | 8240 |
| 2800 | 3 755 | 337 | ACS2000-060-A04B-x4-010 | 3500 | 2500 | 2340 | 5100 | 8570 |
| 3200 | 4 290 | 385 | ACS2000-060-A04C-x4-010 | 4000 | 2500 | 2340 | 5100 | 8800 |
| **6600 V** | | | | | | | | |
| 275 | 370 | 30 | ACS2000-066-A01A-xy-010 | 345 | 1700 | 1595 | 3300 | 3515 |
| 345 | 465 | 38 | ACS2000-066-A01B-xy-010 | 435 | 1700 | 1595 | 3300 | 3515 |
| 390 | 525 | 43 | ACS2000-066-A01C-xy-010 | 490 | 1700 | 1595 | 3300 | 3570 |
| 440 | 590 | 48 | ACS2000-066-A01D-xy-010 | 550 | 1700 | 1595 | 3600 | 3615 |
| 495 | 665 | 54 | ACS2000-066-A01E-xy-010 | 620 | 1700 | 1595 | 3600 | 3835 |
| 550 | 735 | 60 | ACS2000-066-A01F-xy-010 | 690 | 1700 | 1595 | 3600 | 4065 |
| 615 | 825 | 67 | ACS2000-066-A01G-xy-010 | 770 | 1700 | 1595 | 3600 | 4120 |
| 695 | 930 | 76 | ACS2000-066-A01H-xy-010 | 865 | 1700 | 1595 | 3600 | 4345 |
| 780 | 1 045 | 85 | ACS2000-066-A01J-xy-010 | 975 | 1700 | 1595 | 3600 | 4285 |
| 880 | 1 180 | 96 | ACS2000-066-A01K-xy-010 | 1100 | 1700 | 1595 | 3600 | 4285 |
| 990 | 1 325 | 108 | ACS2000-066-A02A-xy-010 | 1240 | 2150 | 1920 | 4050 | 4665 |
| 1 100 | 1 475 | 120 | ACS2000-066-A02B-xy-010 | 1375 | 2150 | 1920 | 4050 | 5100 |
| 1 230 | 1 650 | 135 | ACS2000-066-A02C-xy-010 | 1540 | 2150 | 1920 | 4050 | 5200 |
| 1 385 | 1 860 | 152 | ACS2000-066-A02D-xy-010 | 1735 | 2150 | 1920 | 4350 | 5470 |
| 1 560 | 2 095 | 171 | ACS2000-066-A02E-xy-010 | 1955 | 2150 | 1920 | 4350 | 5920 |
| 1 760 | 2 360 | 192 | ACS2000-066-A02F-xy-010 | 2200 | 2150 | 1920 | 4350 | 6075 |
| 1 980 | 2 655 | 217 | ACS2000-066-A03A-x4-010 | 2475 | 2500 | 2340 | 4900 | 6100 |
| 2 200 | 2 950 | 241 | ACS2000-066-A03B-x4-010 | 2750 | 2500 | 2340 | 4900 | 6480 |
| 2 420 | 3 245 | 265 | ACS2000-066-A03C-x4-010 | 3025 | 2500 | 2340 | 4900 | 6790 |
| 2 640 | 3 540 | 289 | ACS2000-066-A03D-x4-010 | 3300 | 2500 | 2340 | 4900 | 6940 |
| 2 750 | 3 685 | 301 | ACS2000-066-A04A-x4-010 | 3440 | 2500 | 2340 | 5100 | 8240 |
| 3 080 | 4 130 | 337 | ACS2000-066-A04B-x4-010 | 3850 | 2500 | 2340 | 5100 | 8570 |
| 3 520 | 4 720 | 385 | ACS2000-066-A04C-x4-010 | 4400 | 2500 | 2340 | 5100 | 8800 |

# Ratings, types and voltages
## 6 kV, low harmonic drive

| Motor data [1] | | | Converter data | | | | | |
|---|---|---|---|---|---|---|---|---|
| Nominal ratings [2] | | | Type code [3] | Power | With external transformer | | With integrated transformer | |
| (kW) | (hp) | (A) | | (kVA) | Length (mm) | Weight (kg) | Length (mm) | Weight (kg) |
| **6900 V** | | | | | | | | |
| 290 | 385 | 30 | ACS2000-069-A01A-xy-010 | 360 | 1700 | 1595 | 3300 | 3515 |
| 360 | 485 | 38 | ACS2000-069-A01B-xy-010 | 455 | 1700 | 1595 | 3300 | 3515 |
| 410 | 545 | 43 | ACS2000-069-A01C-xy-010 | 510 | 1700 | 1595 | 3300 | 3570 |
| 460 | 615 | 48 | ACS2000-069-A01D-xy-010 | 575 | 1700 | 1595 | 3600 | 3615 |
| 520 | 695 | 54 | ACS2000-069-A01E-xy-010 | 645 | 1700 | 1595 | 3600 | 3835 |
| 575 | 770 | 60 | ACS2000-069-A01F-xy-010 | 720 | 1700 | 1595 | 3600 | 4065 |
| 645 | 865 | 67 | ACS2000-069-A01G-xy-010 | 805 | 1700 | 1595 | 3600 | 4120 |
| 725 | 970 | 76 | ACS2000-069-A01H-xy-010 | 905 | 1700 | 1595 | 3600 | 4345 |
| 815 | 1 095 | 85 | ACS2000-069-A01J-xy-010 | 1020 | 1700 | 1595 | 3600 | 4285 |
| 920 | 1 235 | 96 | ACS2000-069-A01K-xy-010 | 1150 | 1700 | 1595 | 3600 | 4285 |
| 1 035 | 1 385 | 108 | ACS2000-069-A02A-xy-010 | 1295 | 2150 | 1920 | 4050 | 4665 |
| 1 150 | 1 540 | 120 | ACS2000-069-A02B-xy-010 | 1440 | 2150 | 1920 | 4050 | 5100 |
| 1 290 | 1 725 | 135 | ACS2000-069-A02C-xy-010 | 1610 | 2150 | 1920 | 4050 | 5200 |
| 1 450 | 1 940 | 152 | ACS2000-069-A02D-xy-010 | 1810 | 2150 | 1920 | 4350 | 5470 |
| 1 635 | 2 190 | 171 | ACS2000-069-A02E-xy-010 | 2040 | 2150 | 1920 | 4350 | 5920 |
| 1 840 | 2 465 | 192 | ACS2000-069-A02F-xy-010 | 2300 | 2150 | 1920 | 4350 | 6075 |
| 2 070 | 2 775 | 217 | ACS2000-069-A03A-x4-010 | 2590 | 2500 | 2340 | 4900 | 6100 |
| 2 300 | 3 085 | 241 | ACS2000-069-A03B-x4-010 | 2875 | 2500 | 2340 | 4900 | 6480 |
| 2 530 | 3 390 | 265 | ACS2000-069-A03C-x4-010 | 3165 | 2500 | 2340 | 4900 | 6790 |
| 2 760 | 3 700 | 289 | ACS2000-069-A03D-x4-010 | 3450 | 2500 | 2340 | 4900 | 6940 |
| 2 875 | 3 855 | 301 | ACS2000-069-A04A-x4-010 | 3595 | 2500 | 2340 | 5100 | 8240 |
| 3 220 | 4 315 | 337 | ACS2000-069-A04B-x4-010 | 4025 | 2500 | 2340 | 5100 | 8570 |
| 3 680 | 4 935 | 385 | ACS2000-069-A04C-x4-010 | 4600 | 2500 | 2340 | 5100 | 8800 |

[1] Indicative information: Induction motor efficiency 93%, power factor 0.86
[2] Nominal rating for no-overload operation
[3] ‚x' indicates the different converter types
L - for direct-to-line operation
E - for operation with external transformer
J - for operation with integrated transformer
‚y' indicates the pulse number
1- to 6-pulse active front end
4- to 24-pulse diode front end

# Ratings, types and voltages
## 6 kV, regenerative drive

| Motor data [1] | | | | Converter data | | | | |
|---|---|---|---|---|---|---|---|---|
| Nominal ratings [2] | | | Type code [3] | Power | Direct-to-line | | With external transformer | |
| (kW) | (hp) | (A) | | (kVA) | Length (mm) | Weight (kg) | Length (mm) | Weight (kg) |
| **6000 V** | | | | | | | | |
| 250 | 335 | 30 | ACS2000-060-A01A-x1-010 | 315 | 2205 | 2305 | 1705 | 1580 |
| 315 | 420 | 38 | ACS2000-060-A01B-x1-010 | 395 | 2205 | 2305 | 1705 | 1580 |
| 355 | 475 | 43 | ACS2000-060-A01C-x1-010 | 445 | 2205 | 2305 | 1705 | 1580 |
| 400 | 535 | 48 | ACS2000-060-A01D-x1-010 | 500 | 2205 | 2305 | 1705 | 1580 |
| 450 | 605 | 54 | ACS2000-060-A01E-x1-010 | 565 | 2205 | 2305 | 1705 | 1580 |
| 500 | 670 | 60 | ACS2000-060-A01F-x1-010 | 625 | 2205 | 2305 | 1705 | 1580 |
| 560 | 750 | 67 | ACS2000-060-A01G-x1-010 | 700 | 2205 | 2305 | 1705 | 1580 |
| 630 | 845 | 76 | ACS2000-060-A01H-x1-010 | 790 | 2205 | 2305 | 1705 | 1580 |
| 710 | 950 | 85 | ACS2000-060-A01J-x1-010 | 890 | 2205 | 2305 | 1705 | 1580 |
| 800 | 1 070 | 96 | ACS2000-060-A01K-x1-010 | 1000 | 2205 | 2305 | 1705 | 1580 |
| 900 | 1 205 | 108 | ACS2000-060-A02A-x1-010 | 1125 | 3800 | 4310 | 3000 | 2590 |
| 1000 | 1 340 | 120 | ACS2000-060-A02B-x1-010 | 1250 | 3800 | 4310 | 3000 | 2590 |
| 1120 | 1 500 | 135 | ACS2000-060-A02C-x1-010 | 1400 | 3800 | 4310 | 3000 | 2590 |
| 1260 | 1 690 | 152 | ACS2000-060-A02D-x1-010 | 1575 | 3800 | 4310 | 3000 | 2590 |
| 1420 | 1 905 | 171 | ACS2000-060-A02E-x1-010 | 1775 | 3800 | 4310 | 3000 | 2590 |
| 1600 | 2 145 | 192 | ACS2000-060-A02F-x1-010 | 2000 | 3800 | 4310 | 3000 | 2590 |
| **6600 V** | | | | | | | | |
| 275 | 370 | 30 | ACS2000-066-A01A-x1-010 | 345 | 2205 | 2305 | 1705 | 1580 |
| 345 | 465 | 38 | ACS2000-066-A01B-x1-010 | 435 | 2205 | 2305 | 1705 | 1580 |
| 390 | 525 | 43 | ACS2000-066-A01C-x1-010 | 490 | 2205 | 2305 | 1705 | 1580 |
| 440 | 590 | 48 | ACS2000-066-A01D-x1-010 | 550 | 2205 | 2305 | 1705 | 1580 |
| 495 | 665 | 54 | ACS2000-066-A01E-x1-010 | 620 | 2205 | 2305 | 1705 | 1580 |
| 550 | 735 | 60 | ACS2000-066-A01F-x1-010 | 690 | 2205 | 2305 | 1705 | 1580 |
| 615 | 825 | 67 | ACS2000-066-A01G-x1-010 | 770 | 2205 | 2305 | 1705 | 1580 |
| 695 | 930 | 76 | ACS2000-066-A01H-x1-010 | 865 | 2205 | 2305 | 1705 | 1580 |
| 780 | 1 045 | 85 | ACS2000-066-A01J-x1-010 | 975 | 2205 | 2305 | 1705 | 1580 |
| 880 | 1 180 | 96 | ACS2000-066-A01K-x1-010 | 1100 | 2205 | 2305 | 1705 | 1580 |
| 990 | 1 325 | 108 | ACS2000-066-A02A-x1-010 | 1240 | 3800 | 4310 | 3000 | 2590 |
| 1 100 | 1 475 | 120 | ACS2000-066-A02B-x1-010 | 1375 | 3800 | 4430 | 3000 | 2590 |
| 1 230 | 1 650 | 135 | ACS2000-066-A02C-x1-010 | 1540 | 3800 | 4310 | 3000 | 2590 |
| 1 385 | 1 860 | 152 | ACS2000-066-A02D-x1-010 | 1735 | 3800 | 4310 | 3000 | 2590 |
| 1 560 | 2 095 | 171 | ACS2000-066-A02E-x1-010 | 1955 | 3800 | 4310 | 3000 | 2590 |
| 1 760 | 2 360 | 192 | ACS2000-066-A02F-x1-010 | 2200 | 3800 | 4310 | 3000 | 2590 |

# Ratings, types and voltages
## 6 kV, regenerative drive

| Motor data [1] | | | Converter data | | | | | |
|---|---|---|---|---|---|---|---|---|
| Nominal ratings [2] | | | Type code [3] | Power | Direct-to-line | | With external transformer | |
| (kW) | (hp) | (A) | | (kVA) | Length (mm) | Weight (kg) | Length (mm) | Weight (kg) |
| **6900 V** | | | | | | | | |
| 290 | 385 | 30 | ACS2000-069-A01A-x1-010 | 360 | 2205 | 2305 | 1705 | 1580 |
| 360 | 485 | 38 | ACS2000-069-A01B-x1-010 | 455 | 2205 | 2305 | 1705 | 1580 |
| 410 | 545 | 43 | ACS2000-069-A01C-x1-010 | 510 | 2205 | 2305 | 1705 | 1580 |
| 460 | 615 | 48 | ACS2000-069-A01D-x1-010 | 575 | 2205 | 2305 | 1705 | 1580 |
| 520 | 695 | 54 | ACS2000-069-A01E-x1-010 | 645 | 2205 | 2305 | 1705 | 1580 |
| 575 | 770 | 60 | ACS2000-069-A01F-x1-010 | 720 | 2205 | 2305 | 1705 | 1580 |
| 645 | 865 | 67 | ACS2000-069-A01G-x1-010 | 805 | 2205 | 2305 | 1705 | 1580 |
| 725 | 970 | 76 | ACS2000-069-A01H-x1-010 | 905 | 2205 | 2305 | 1705 | 1580 |
| 815 | 1 095 | 85 | ACS2000-069-A01J-x1-010 | 1020 | 2205 | 2305 | 1705 | 1580 |
| 920 | 1 235 | 96 | ACS2000-069-A01K-x1-010 | 1150 | 2205 | 2305 | 1705 | 1580 |
| 1 035 | 1 385 | 108 | ACS2000-069-A02A-x1-010 | 1295 | 3800 | 4310 | 3000 | 2590 |
| 1 150 | 1 540 | 120 | ACS2000-069-A02B-x1-010 | 1440 | 3800 | 4310 | 3000 | 2590 |
| 1 290 | 1 725 | 135 | ACS2000-069-A02C-x1-010 | 1610 | 3800 | 4310 | 3000 | 2590 |
| 1 450 | 1 940 | 152 | ACS2000-069-A02D-x1-010 | 1810 | 3800 | 4310 | 3000 | 2590 |
| 1 635 | 2 190 | 171 | ACS2000-069-A02E-x1-010 | 2040 | 3800 | 4310 | 3000 | 2590 |
| 1 840 | 2 465 | 192 | ACS2000-069-A02F-x1-010 | 2300 | 3800 | 4310 | 3000 | 2590 |

[1] Indicative information: Induction motor efficiency 93%, power factor 0.86
[2] Nominal rating for no-overload operation
[3] ‚x' indicates the different converter types
T - for direct-to-line operation
R - for operation with external transformer
N - for operation with integrated transformer

**Dimensions**
- Height: 2550 mm including cooling fans
  2780 mm including redundant cooling fans
- Depth: 1200 mm

# 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:**
- Condition-Based Maintenance
- 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 |

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

1 **Choose one or more assets you want to protect**

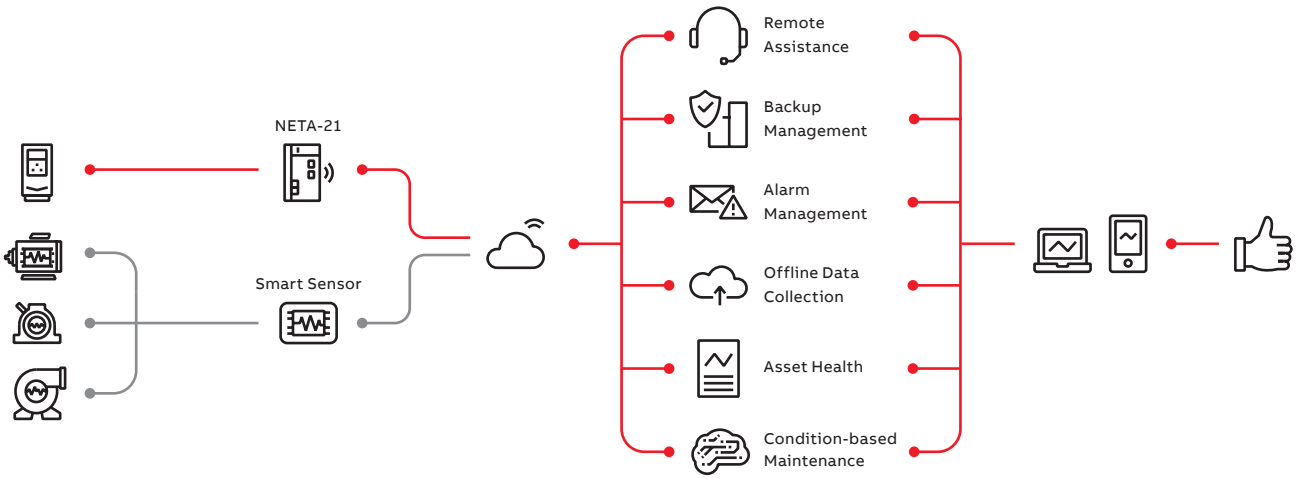
2 **Install the connectivity device**

3 **Activate access to the Condition Monitoring basic feature**

4 **Pick optional features and customize**

5 **Start monitoring**

6 **Enjoy the customized service**



# Our service expertise, your advantage

ABB Motion Services helps customers around the globe by maximizing uptime, extending product life cycle, and enhancing the performance and energy efficiency of electrical motion solutions. We enable innovation and success through digitalization by securely connecting and monitoring your motors and drives, increasing reliability and improving efficiency.

Even before you consider buying a drive or motor, ABB's experts are on hand to provide technical solutions ranging from advisory to modernization and performance improvement services, giving you peace of mind and transparency into your cost of ownership throughout the asset's economical lifetime.

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 operations and maintenance phases of the products life cycle, providing planned services programs customized to your operations.

With a service offering tailored to your needs, service experts can maximize the uptime and extend the life cycle of your powertrain, while optimizing its performance and maximizing your energy efficiency gains across the entire lifetime of your applications. Service helps keep your applications turning profitably, safely, and reliably.

**ABB Motion OneCare**
The modular service agreement tailored to your needs

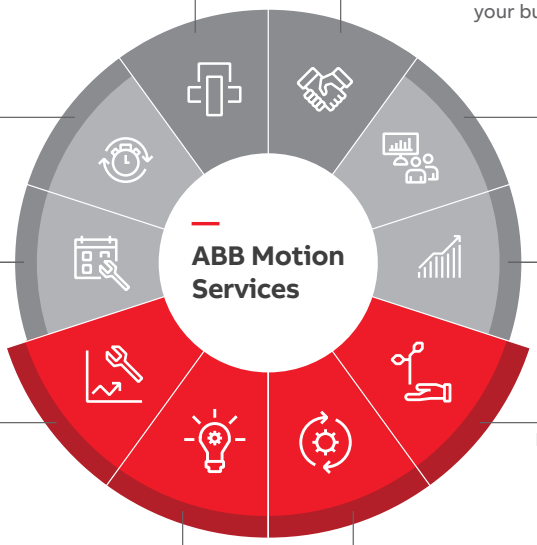
**Partnered solutions**
Bringing expertise and capabilities together to enhance your business performance

**Recovery services**
Fast intervention when something goes wrong

**Data and Advisory services**
Better decision making

**Planned services**
Protect your investment and avoid costly downtime

**Modernization and Performance improvement services**
Optimal performance and lifetime extensions




**Reliability**
Maximizing uptime
Delivering service excellence

**Energy efficiency and Circularity**
Reducing carbon emissions and waste
Driving the tomorrow

**Digital and Innovation**
Delivering digital for success
Smart. Secure. Connected.

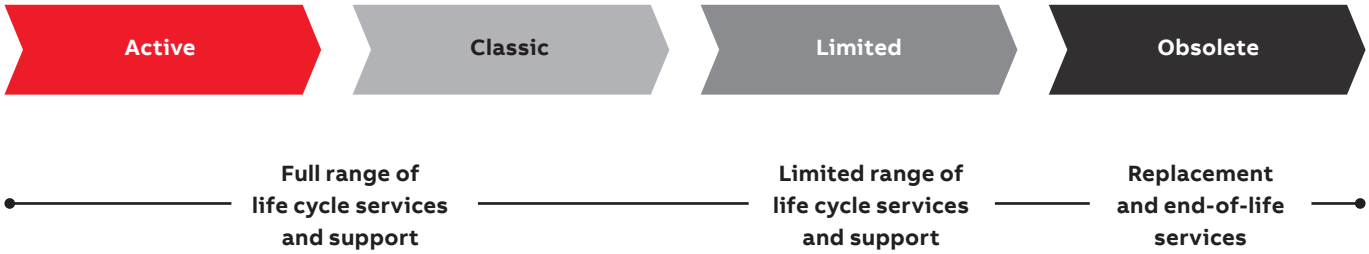
**Life cycle management**
Extending life cycle
Enhancing performance

# OUR EXPERTISE
# YOUR ADVANTAGE

# 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.

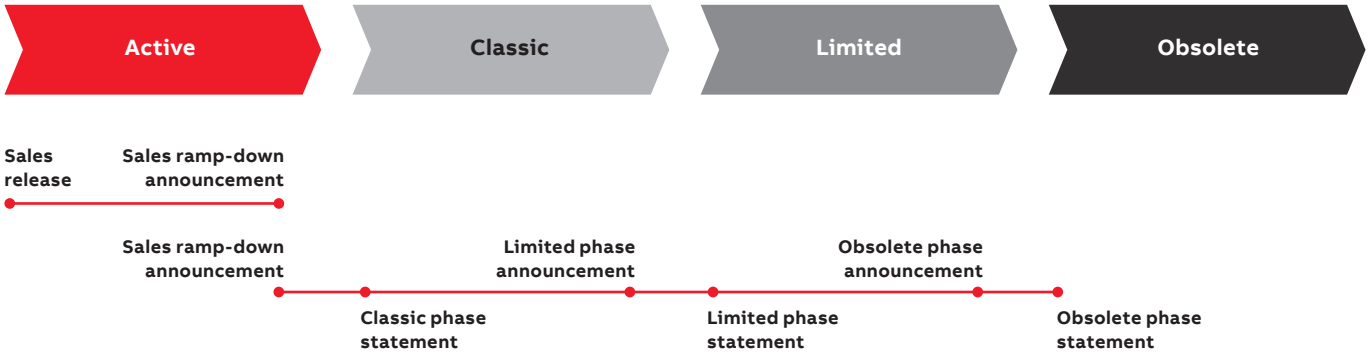



| | Active | Classic | Limited | Obsolete |
|---|---|---|---|---|
| **Product** | Product is in active sales and manufacturing phase | Serial production has ceased. Product may be available for plant extensions, as a spare or for installed base renewal | Product is no longer available | Product is no longer available |
| **Services** | Full range of life cycle services is available | Full range of life cycle services is available. Product enhancements may be available through modernizations | 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 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 annoucement**
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.

—

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

**new.abb.com/drives**
**new.abb.com/drives/drivespartners**
**new.abb.com/motors-generators**

**Additional information**
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