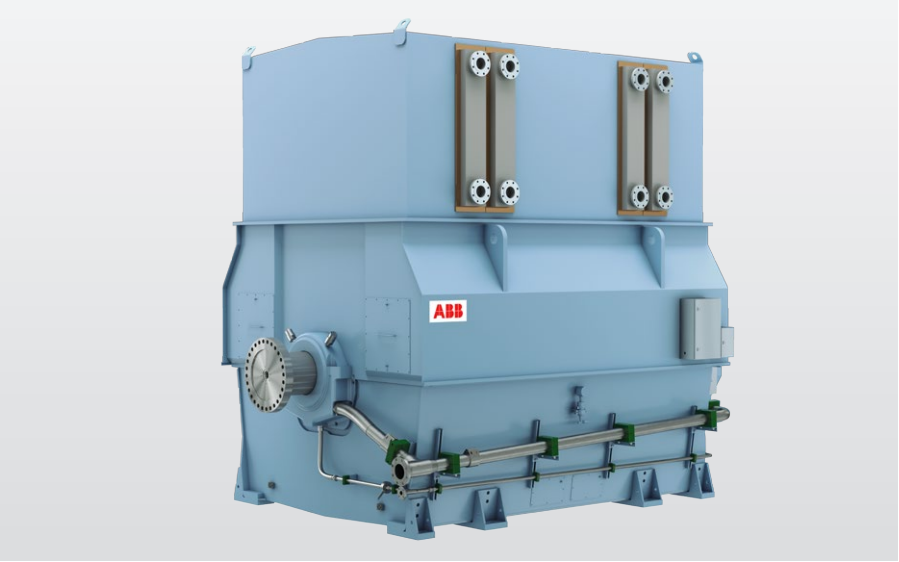
PRODUCT NOTE

High power 4-pole synchronous motors up to 75 MW



ABB's proven 4-pole synchronous motor platform is ideal for high power applications. With its solid salient pole rotor it provides high efficiency, low noise and vibration, and excellent thermal and mechanical stability.

In heavy industry, the size and power requirements for motors are continuously rising. ABB is meeting these needs by extending the available power of its 4-pole synchronous range up to 75 MW.

Advantages of high power
The trend towards higher power that can be seen in many industrial processes is driven by several different factors. Higher powers mean fewer units, which saves engineering time, space and capital costs. In most cases the system efficiency also increases with the power.

High available power is also important in de-rating situations, such as applications in hot regions using air-to-air cooling and applications where frequency converters are used. The output power can be significantly reduced, especially when these two scenarios are combined. In situations like these it is important to have large motors with high initial power available. With ABB's well proven 4-pole technology it is now feasible to increase not only the actual maximum power levels, but also the power available in de-rating situations.

ABB 4-pole solution offers clear benefits
Compared to a 2-pole configuration, the main benefits of a 4-pole solution are compact size, lower weight, lower cost, shorter delivery time, better efficiency, as well as lower vibration and noise. Additionally, 4-pole motors are reliable and have low maintenance requirements.

For compressor OEMs, a 4-pole motor with gearbox solution enables the speed range to be optimized in order to increase the system efficiency. This results in a compact compressor package, with lower running and maintenance costs. ABB synchronous motors are prepared for base-frame and gearbox and ABB can support with assembly of base frame and gearbox.

Some motor applications are increasingly being run in a frequent start and stop mode, posing higher stresses on the mechanical system. ABB's 4-pole synchronous motors always run subcritical – without passing the first critical speed. This means less mechanical stress with high reliability and low maintenance needs.

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01 Rigid solid salient rotor type.

Easy configurability for different applications
Synchronous motors from ABB are based on a modular design and offer easy configurability for different applications. They are built to the strictest manufacturing standards for the highest efficiency, performance and reliability. Purchases are sourced from reliable suppliers only, and thorough testing is done in all phases of manufacturing.

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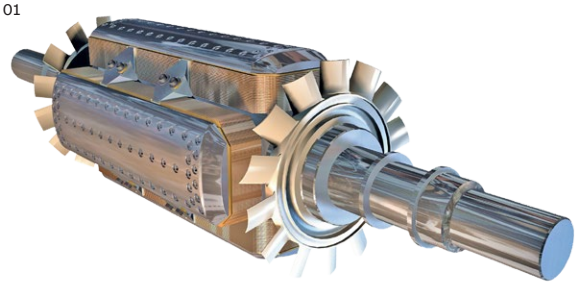

The design is based on experience from thousands of synchronous motors and generators supplied to customers all over the world. Features include symmetrical cooling of the rotor and stator, class H rotor coils, use of a stator bar bus instead of cables, large rotor winding cooling surfaces, and an outboard exciter for easy inspection. ABB's insulation system exceeds IEC and IEEE requirements. It has been used for more than 30 years in thousands of motors with no primary insulation failures due to thermal aging. In addition, only high quality electrical sheet with thick insulating varnish on both sides is used. The vacuum pressure impregnation system ensures long-term durability.

Low total cost of ownership
By keeping total investment and running costs down, and reducing the risk and cost of not running, ABB motors offer a low total cost of ownership. Payback times can be short, helping operators to maximize profits.

Cost of investment (CAPEX). Offering more power per kilogram in a compact and flexible configuration, these motors minimize space requirements. ABB can offer the complete motor delivery with fully matching control units for easy installation and commissioning.

Cost of running. Smooth running minimizes the stress on the drivetrain, extending the maintenance interval and lifetime. High efficiency together with low cooling power and lubrication requirements help to keep the cost of running low.

Cost of not running. Proven technology means high availability and reliability. The motors are designed for a long lifetime, even in the most challenging conditions. Easy servicing, local support around the world and short lead times for spares make for a low cost of not running

Main specifications	
Power	Up to 75 MW
Voltage	3 to 15 kV
Ambient temperature	-50°C to +60°C (-58°F to +140°F)
Hazardous area	Ex(n), Ex(p), Class I Div 2 /Zone 2
Protection	IP20 to IP56
Cooling forms	IC01, IC21, IC31, IC616, IC81W, IC86W
Standards	IEC, NEMA, BS, VDE, CSA, API, GOST

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For more information please visit:
www.abb.com/motors&generators

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