



Generators for steam and gas turbines

Efficient and reliable high-power generators and life-cycle support.



With an ABB turbine generator, you will enjoy lowest total cost of ownership through a combination of high efficiency, excellent reliability and cost-effective maintenance.

Supporting you throughout the life cycle of your generator

A turbine generator from ABB comes with a life-long commitment. While you can trust our generators to deliver excellent reliability and efficiency, you'll truly appreciate our long-term dedication to your business success – whether you're plant builder or operator.

One simple fact

Basically, it comes down to a simple fact: the best turbine generator is one that yields the highest energy output over its lifetime, while having the lowest life-cycle cost. An ABB turbine generator combines high conversion efficiency, excellent reliability in operation and favorable maintenance costs – all the characteristics you are looking for in a generator. It is easier said than done, but with 130 years of continual technology refinement, this is exactly what you can expect from an ABB turbine generator today.

Lifetime partnership

Your generator will run more or less non-stop for 25 years or more. As much as you can rely on an ABB machine, you will need the support of a

knowledgeable, dedicated and financially strong partner that will be around to assist you over the lifespan of your generator. We know how to keep your generator running optimally long term, for example using our digital ABB Ability™ solutions for effective life-cycle management, maximum uptime and highest productivity.

Global leadership

ABB has the widest product range in the market. We offer complete generator packages including cooling system, main terminal box, maintenance tools, control equipment, system monitoring and protection solutions. Our global footprint allows us to deliver efficient generators to power generating plant of all sizes – in every corner of the earth.

It works everywhere

ABB's pioneering work has resulted in generators that operate reliably, even in the most challenging conditions. Whether offshore or onshore, from extremely low temperatures in the Arctic to the heat of the desert, ABB has the right solutions for efficient power production.

Used in many applications

ABB has supplied thousands of turbine-driven synchronous generators to power utilities, paper mills, sugar plants, oil and gas installations and many other industries around the world. Our generators produce power reliably and efficiently in all sorts of conditions, both onshore and offshore. Our unrivalled experience in generator applications means you can trust we will provide the optimum solution for your turbine.

Ambient conditions

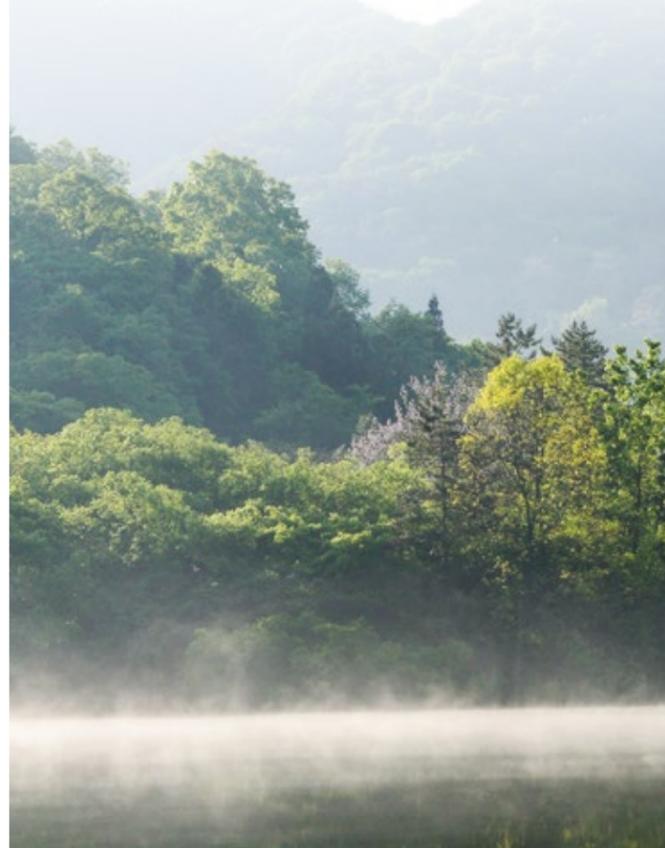
Operating a high-power turbine generator at high altitude, or in a hot climate zone, may have a negative impact on the generator's performance. In contrast, ABB's four-pole generators operate close to their maximum power level even in such

extreme conditions. Our generators also offer adequate protection for use in other challenging conditions such as corrosive atmospheres, humidity and dust.

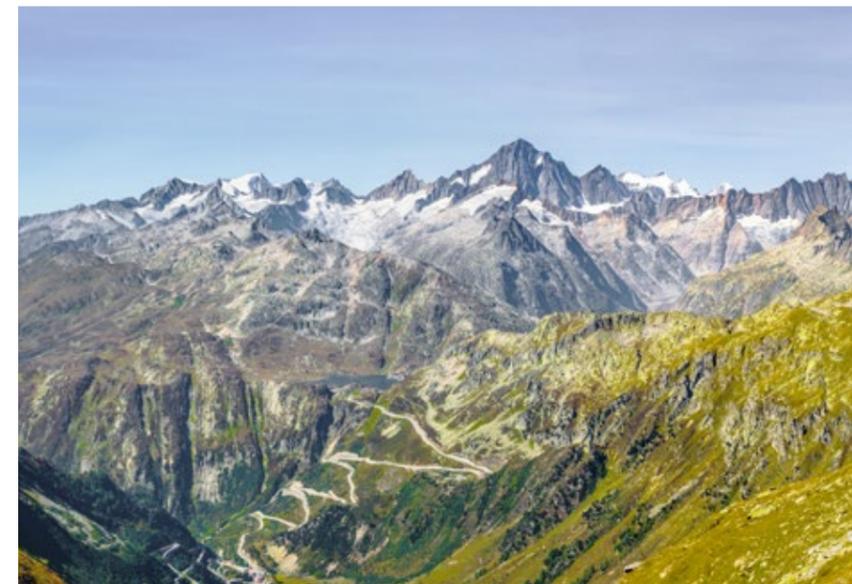
Grid code compliance

You need efficient power generation in order to achieve your desired return on investment – while meeting grid code requirements. However, grid codes are becoming increasingly stringent and may pose special challenges. You want to avoid costly retrofits to your turbine due to a grid code change. With a generator from ABB, you can be sure to meet the grid code demands of today and tomorrow.

— **01 Versatile application** ABB turbine generators are used offshore and onshore, in shipping, power plants, paper mills, sugar plants, etc.



— **02 Ambient conditions** Our generators maintain their high output even in hot or high-altitude installations.



— **03 Grid types** Extensive grid code compliance enables a truly global market reach.



Low cost of ownership

Together with our customers, ABB keeps pushing the generator frontline. Our technology investment over 130 years yields best-in-class turbine generators with high flexibility, efficiency and reliability, resulting in low cost of ownership and high customer satisfaction.

Leading industry expertise

ABB's technical experts have in-depth knowledge of power industry requirements, steam and gas turbine applications, and electric machines such as motors and generators. It is this extensive knowledge base that allows ABB to perfectly tailor each generator depending on our customers' applications and specific operating conditions – and ensure highest value for money for every customer.

The recipe for highest reliability

Reliability is embedded in every ABB turbine generator. It is the result of our strict quality standards and processes as well as our extensive domain expertise of design and manufacturing. Our salient four-pole rotor has a more simple design and is therefore more robust than a conventional two-pole rotor, which further contributes to our generators' high reliability. All ABB generators operate below critical speeds, reducing vibration and the associated risk of operating failure.

Optimum speed range

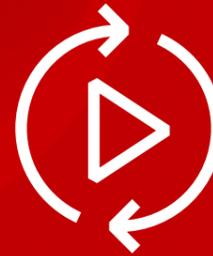
Our four-pole technology also allows the speed range to be optimized for each turbine. Steam and gas turbine manufacturers are seeking to increase speed to enable turbines to run optimally. Having an ABB generator together with a gearbox, OEMs can select the turbine speed freely and therefore maximize system efficiency, while minimizing running costs.

More four-pole benefits

The rotor's high inertia ensures great speed stability for the turbine drivetrain system. There is no need for damper windings, adding further to the generator's reliability and lifetime. Maximized rotor coil surfaces – together with a symmetrical air flow which eliminates hot spots – produce efficient and evenly distributed cooling. In addition, a four-pole solution is typically more compact than the corresponding two-pole solution, which translates into a smaller footprint and a lower foundation cost.

Small footprint

ABB's four-pole generators have a compact design, a small footprint and a low foundation cost.



Cost of running

Maximum efficiency and a favorable cost of running through high operating speeds.



Cost of not running

Minimum downtime through reliable operation and low maintenance demands.



Investment cost

Highest value through tailored, compact design, small footprint and low foundation cost.

Digital solutions to support your business goals

ABB offers advanced digital solutions for effective life-cycle management and higher uptime and productivity.

ABB Ability™ services for motors and generators offer a unique digital advantage by combining connectivity and data analytics with industrial expertise. The data collected from your generator can be analyzed, providing a deeper insight into the health of your equipment for effective life-cycle management and maintenance planning.

Benefits

- Higher uptime; prevention of unplanned downtime
- Minimized maintenance costs
- Longer lifetime of equipment

ABB Ability™ Predictive Maintenance

This service optimizes the maintenance of generators. Taking a condition-based approach, it combines customer input with advanced analytical techniques to create the optimal condition monitoring and maintenance program. It combines ABB's condition monitoring, in-situ visual inspection and life expectancy analysis program to create a detailed long-term maintenance plan.

ABB Ability™ LEAP – Life Expectancy Analysis Program

The Life Expectancy Analysis Program is an advanced solution for analyzing the condition and expected lifetime of the stator winding insulation – the most uptime-critical component in high voltage motors and generators.

ABB Ability™ Condition Assessment

A service that efficiently analyzes the condition of the stator winding insulation in motors and generators up to 5 kV. Potential problems can be detected at an early stage, ensuring high uptime.

ABB Ability™ Condition Monitoring for shaftlines

On-site condition monitoring service that addresses the reliability of the complete shaftline. It identifies any electric or mechanical issues related to the rotor, bearings, gearbox or other components.



Global support

ABB offers a complete portfolio of services to ensure trouble-free operation and long product lifetime. Our services cover the entire life cycle of your generator.

Throughout the life cycle

From installation and commissioning – through spares, repairs and upgrades – to remote monitoring solutions, ABB offers the most extensive service offering to fit your needs. Based on 130 years' experience of building and servicing motors and generators, ABB service units and authorized value providers offer services that maximize performance, uptime and efficiency throughout the life cycle of your generators.

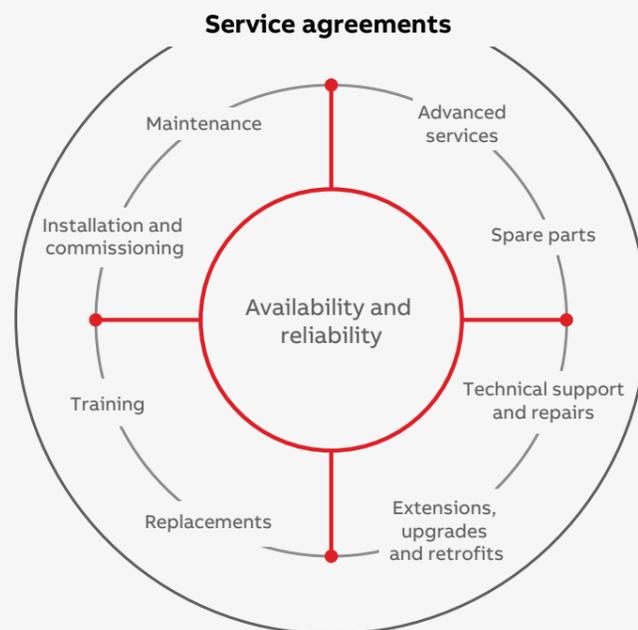
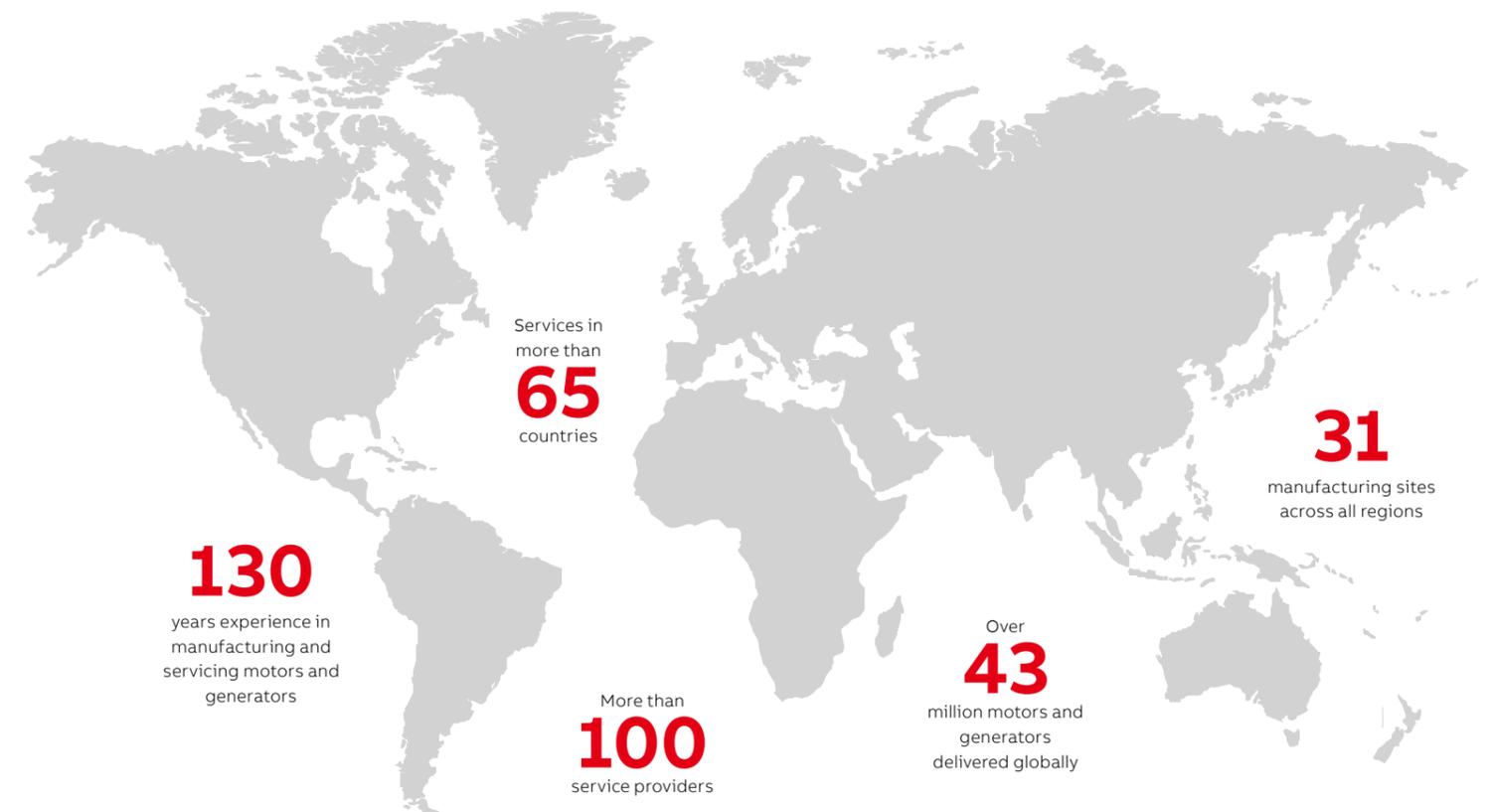
Service near you

Our network of service centers and certified partners spans the world. This enables us to

deliver local support no matter where you are located, and ensures that we always provide the optimum, most cost-effective solution.

Benefits of ABB support

- High uptime
- Maximum performance
- Extended useful equipment life



1. Installation and commissioning

Professional installation and commissioning by ABB's certified engineers represent an investment in maximum availability and reliability over the entire generator life cycle.

2. Preventive maintenance

ABB offers life-cycle management plans and preventive maintenance products to reduce the risk of unplanned downtime. The recommended four-level maintenance program covers the entire product lifetime.

3. Condition monitoring and diagnosis

Our digital services provide early warnings before a failure occurs. Data can be collected by an engineer on site or by remote monitoring. With the ABB Ability™ platform, data can be transmitted to the cloud and accessed and analyzed remotely, allowing even greater insight into the health of the equipment.

4. Spare parts

Spare parts and support are offered throughout the life cycle of your ABB turbine generator. In addition to individual spares, tailored spare part packages are also available.

5. Technical support and repairs

Support for all ABB generators and other brands is provided by ABB's global service organization. Specialist teams can also deliver emergency support.

6. Extensions, upgrades and retrofits

Life-cycle audits determine the optimum upgrades and migration paths. Upgrades range from individual components to direct replacement generators.

7. Replacements

Replacing existing equipment with a new ABB product is a sound investment: the new unit's superior efficiency and performance can ensure a short payback time. Whether you select a new product from our wide range of standard items or choose a tailor-made unit, we can optimize it to replace your existing equipment.

8. Training

Product and service training courses are practically oriented. The training ranges from standard courses to specially tailored programs to suit customer requirements.

9. Service agreements

Service agreements are tailored to the customer's needs. The contracts combine ABB's complete service portfolio and 130 years of experience to deploy the optimal service practices.



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For more information and contact details:

new.abb.com/motors-generators