

Brochure

Synchronous generators for diesel and gas engines

Proven generators – reliable power



We provide motors, generators and mechanical power transmission products, services and expertise to save energy and improve customers' processes over the total life cycle of our products, and beyond.

The world's leading supplier of generators

ABB is the world's leading supplier of electric motors and generators. We have been manufacturing industrial motors and generators for more than a century, and today our product portfolio covers the power range from 15 kVA to 70 MVA.

Over the years we have supplied more GWh of power in diesel and gas engine applications than anyone else in the industry. These generators are operating reliably and efficiently in all kinds of conditions around the world. The vast experience we have gained in generator applications means our customers can be confident that the products we propose are the best match for their needs.

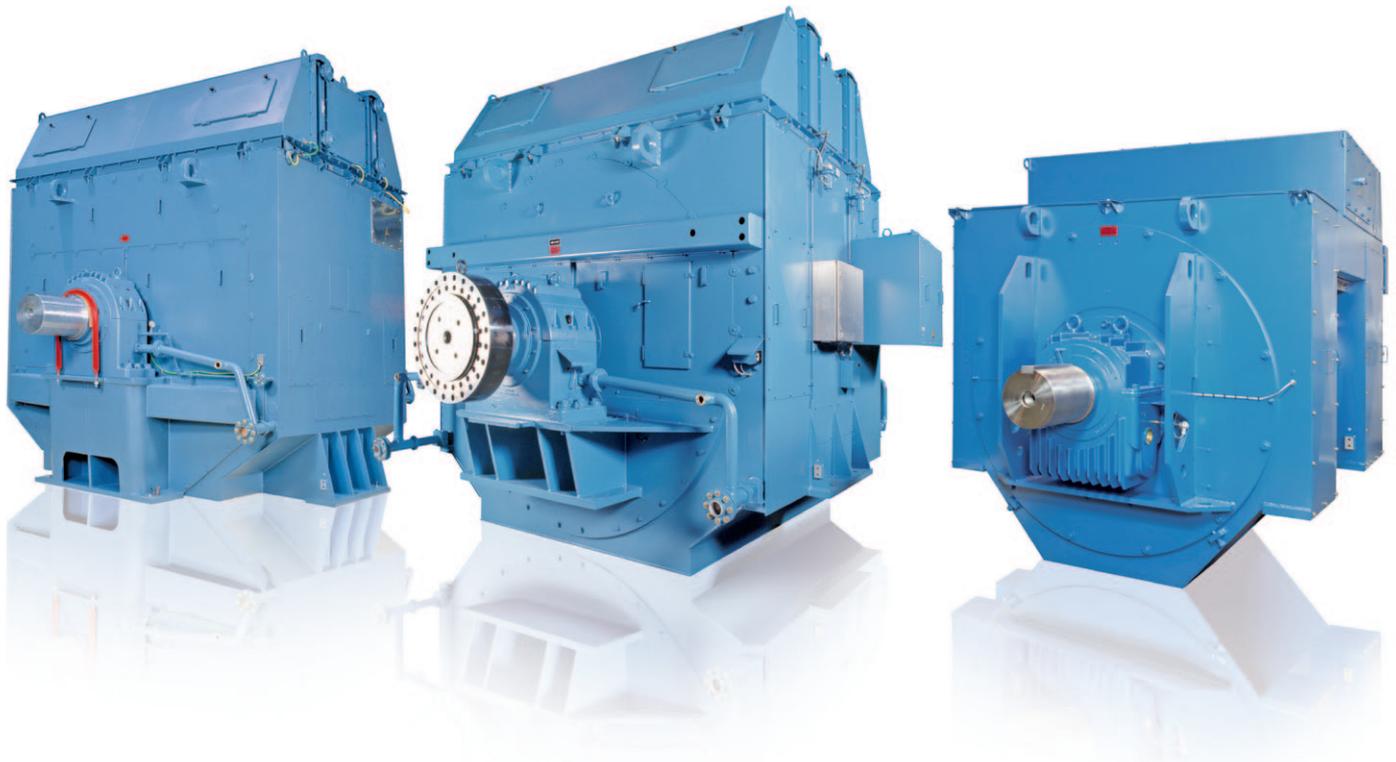
We understand that our customers expect support to be available locally and quickly. Our global organization and

network of local service centers enables us to provide fast response and competent support wherever our generators are installed. This allows our customers to minimize downtime and maximize power production.

Quality is central to everything we do

ABB is renowned for the quality of its products. Wherever we build our generators, you can always be sure that you will get the same high quality.

Our rigorous quality program is fundamental to all the decisions we make and actions we undertake, whether in R&D, sourcing, manufacturing, sales, or any other area. In addition to our own quality program, we follow the requirements of the ISO 9001 and ISO 14001 quality and environmental standards.



Broadest range covers all applications

Our range of synchronous generators is one of the widest in the market, covering all land-based and marine applications, so customers can be sure that we can supply the right product for their needs. Our comprehensive range also gives them the option of doing business with a single vendor, enabling them to save time and cut costs by streamlining their purchasing processes.

ABB low voltage (LV) generators for industrial applications combine the cost efficiency of a standard design with a full selection of options, enabling deployment in a wide range of situations. They are used to supply continuous or standby power for facilities like schools, hospitals, offices and factories, and for demanding applications like mines, telecommunications, cogeneration, and transportation.

We supply low voltage (LV) marine generators for use in main, auxiliary or emergency power generation. These products can be incorporated into diesel generating sets, or operated as shaft generators. They are found in many

different vessel types, including cruisers, ferries, ice-breakers, multi-purpose tankers, LNG tankers, ice-going vessels, supply vessels and drilling rigs.

ABB high voltage (HV) generators are in use all over the world, producing power in electric utilities and district heating plants, industrial plants, the marine and offshore sectors, and similar applications. They are typically used in decentralized power plants where the prime mover is a medium or high speed four-stroke reciprocating engine. Our generators have been proven reliable in many years of operation with most currently available diesel and gas engines.

ABB synchronous generators comply with all major standards: the electrical designs are based on the relevant IEC standard (NEMA compliance optionally available), and the mechanical designs on ISO standards. Generators for marine or offshore applications also follow the additional design criteria of the applicable classification society, including ABS, BV, CCS, CR, DNV, GL, KR, LR, NK, RINA, and RS.



Standard low voltage (LV) generators

Frame sizes	180-630
Number of poles	4
Power ranges	15-3125 kVA @ 400 V / 50 Hz / 1500 rpm 19-3750 kVA @ 480 V / 60 Hz / 1800 rpm
Voltage	50 Hz: 380-440 V (Y). 220-254 (Δ) 60 Hz: 415-480 V (Y). 240-277 (Δ) For frame sizes 180-355, YY and ΔΔ (with 12 leads) and single phase operation with single phase rating are available.

Modular low voltage (LV) generators

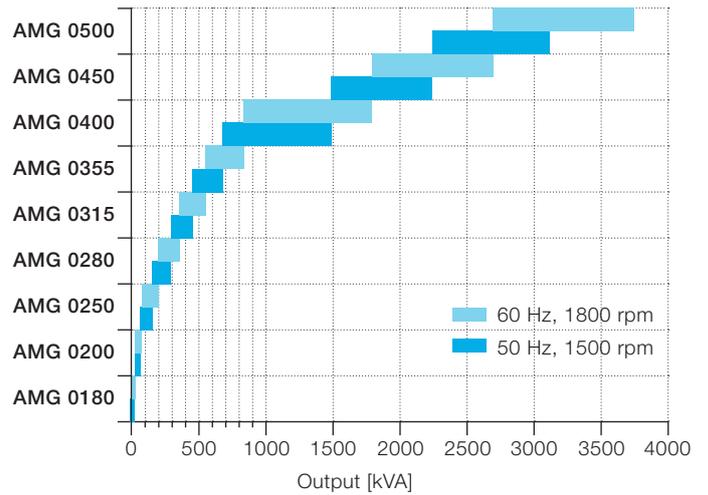
Frame sizes	400-630
Number of poles	4, 6, 8 or 10
Power range	400-5000 kVA
Voltage	Typically 400 V at 50 Hz and 450 V or 690 V at 60 Hz. Other voltages also available.

Modular high voltage (HV) generators

Frame sizes	710-2500
Number of poles	4-30
Power range	1-60 MVA at 50/60 Hz
Voltage	1-15 kV

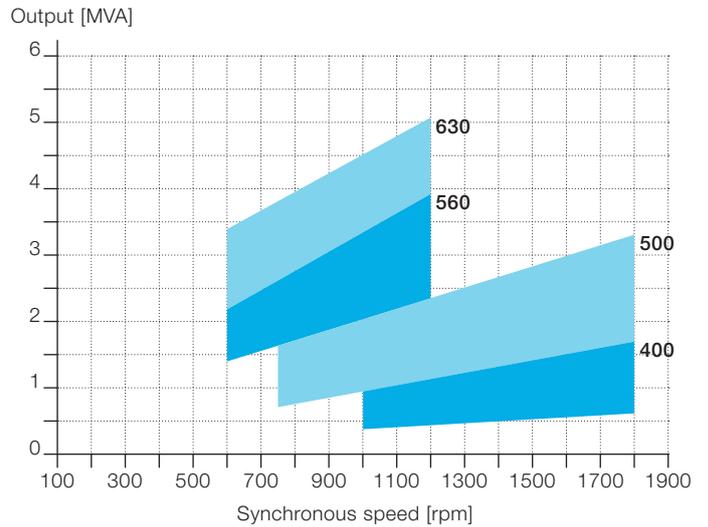
Maximum outputs at different speeds, standard LV generators

For outputs at 400 or 480 V depending on the frequency, temperature rise class H, inlet cooling air 40°C, power factor 0.80



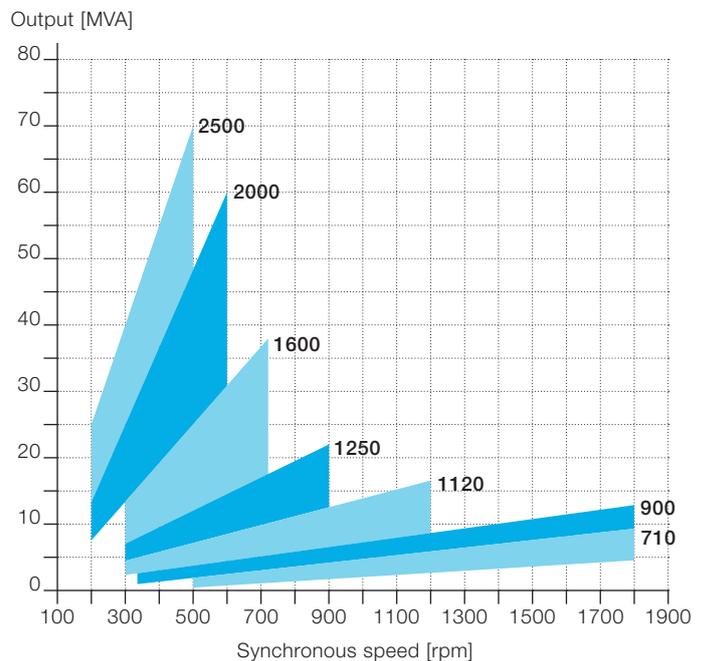
Maximum outputs at different speeds, modular LV generators

For outputs at 400, 450 or 690 V depending on the current and frequency, temperature rise class F, inlet cooling air 50°C, power factor 0.80



Maximum outputs at different speeds, modular HV generators

For outputs at 6 kV, temperature rise class F, inlet cooling air 50°C, power factor 0.80



Partner with a market leader

ABB has become a market leader by listening carefully to our customers, helping them to determine exactly what kind of generators they require, and then supplying products that not only meet their needs but also help them to cut costs through better reliability and efficiency.

We strongly believe that the best results are achieved by going beyond the traditional idea of sales. We seek to engage with our customers, understand their business and help them to achieve their goals. In many cases, deep and long-standing relationships with customers have led to the development of innovative solutions.



Advanced technology through extensive R&D

Major investments in R&D over many years have made ABB a technology leader, enabling us to supply advanced solutions that can help our customers to further improve their performance. Our R&D effort is common to our low, medium and high voltage products, so all customers can benefit from the work we do.

Two main focuses of ABB's R&D are aligned with the two main concerns of our customers: efficiency and reliability. High efficiency helps generator users to cut operating costs and provides more power for the same investment. Improved reliability translates into excellent availability and a very long

service life. Key components in our generators – rotors, stators and frames – have a design lifetime expectation of no less than 25 years, and many generators are still working reliably after several decades of operation.

Another core area of ABB's R&D is concerned with vibration tolerance. Generators coupled to reciprocating engines are always subjected to engine induced vibration, especially when the generator and engine are built on a common base frame. Using our experience and sophisticated tools, we work with genset manufacturers and analyze the impacts of external torsional and linear vibrations to ensure our generators will deliver the trouble-free operation that our customers rely on.



Life cycle services and support

From pre-purchase to migration and upgrades

ABB offers a complete portfolio of services to ensure trouble-free operation and long product lifetimes. These services cover the entire life cycle, from pre purchase advice, through installation, maintenance and spare parts, to migration and upgrades. Local support is provided through a global network of ABB service centers and certified partners.

The service organization uses its broad experience in generators applications to support customers' efforts to maximize availability and reliability, and optimize process performance.

Pre-purchase

ABB's front-end sales organization is equipped with advanced tools to help customers quickly and efficiently select, configure and optimize the right motor and generator for their application with full support from the experts in the manufacturing units.

Installation and Commissioning

ABB generators are designed for easy installation and commissioning. ABB can provide certified engineers with extensive experience in commissioning. Their know-how ensures faster start-up times and trouble-free operation. Professional installation and commissioning represent an investment in availability and reliability over the entire life cycle.

Engineering and Consulting

ABB's experts can provide a broad range of technical support. Available services include energy efficiency and reliability appraisals, advanced condition and performance assessments and technical studies. Engineering and consulting primarily aims at optimizing on-site life cycle maintenance practices concerning generators for reduced costs.

Condition Monitoring and Diagnosis

ABB's unique services deliver early warnings of developing problems before failures occur. The required data can be collected by an engineer during a site visit or by means of remote monitoring solutions. The services focus on critical areas like the bearings, rotor winding, stator winding insulation and overall mechanical condition.

Maintenance and Field Services

ABB offers life cycle management plans and standardized preventive maintenance products tailored for each life cycle

phase. The recommended maintenance program consists of four levels spaced over the lifetime. Site surveys can be performed to determine repair, maintenance and spare parts needs if there is insufficient information on the current status of the equipment.

Spare Parts

Although ABB's generators range from small standard products to large tailor made units, we are able to offer spare parts and support for all generators throughout the product life cycle. Spare parts are available either as separate components or in packages tailored to the generator design.

Repair and Refurbishment

ABB provides worldwide manufacturer support for all ABB generators as well as other brands. Specialist teams are standing by to deliver a full range of local support in case of emergency. ABB's global service organization includes local sales and service contacts, the site service specialist network and certified workshops worldwide.

Migration and Upgrades

ABB offers life cycle audits to recommend the most appropriate migration paths and upgrades. Component upgrades are available on a turnkey basis to deliver improved efficiency, reliability and safety. Older generators can be upgraded with completely new designs. ABB can supply a direct replacement motor or generator for the original unit.

Training

ABB's product and service training courses take a practical approach. The training ranges from standard courses to specially tailored programs to suit customer requirements.

Specialized Support

ABB generators are designed for fast repairs and maintenance, in many cases on site. Specialized support for customers is offered through a global services organization. Local units worldwide provide major and minor repairs as well as overhauls and reconditioning.

Service contracts

ABB offers tailor made service contracts to fit every customer's service needs. The service contract combines whole service product portfolio and ABB's 120 years of experience to deploy the optimal service practices.

Total offer of motors, generators and mechanical power transmission products with a complete portfolio of services

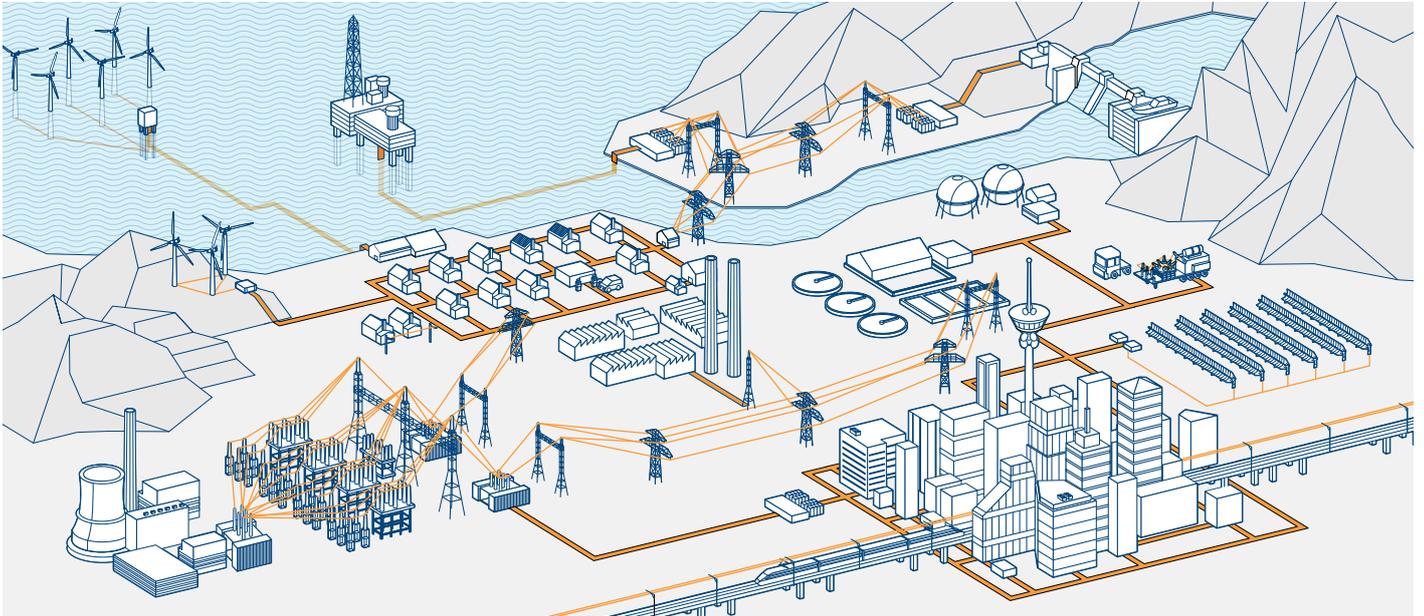


ABB is the leading manufacturer of low, medium and high voltage motors and generators, mechanical power transmission products with an offering of a complete portfolio of services. Our in-depth knowledge of virtually every type of industrial processing ensures we always specify the best solution for your needs.

Low and high voltage IEC induction motors

- Process performance motors
- General performance motors
- High voltage cast iron motors
- Induction modular motors
- Slip-ring modular motors
- Synchronous reluctance motors

Low and medium voltage NEMA motors

- Steel frame open drip proof (ODP) motors
- Weather protected, water cooled, fan ventilated motors

- Cast iron frame (TEFC) motors
- Air to air cooled (TEAAC) motors

Motors and generators for explosive atmospheres

- IEC and NEMA motors and generators, for all protection types

Synchronous motors

Synchronous generators

- Synchronous generators for diesel and gas engines
- Synchronous generators for steam and gas turbines

Wind power generators

Generators for small hydro

Other motors and generators

- Brake motors
- DC motors and generators
- Gear motors
- Marine motors and generators
- Single phase motors
- Motors for high ambient temperatures

- Permanent magnet motors and generators
- High speed motors
- Smoke extraction motors
- Wash down motors
- Water cooled motors
- Generator sets
- Roller table motors
- Servo motors
- Traction motors

Life cycle services

- Installation and commissioning
- Service contracts
- Preventive maintenance
- Spare parts
- Diagnosis
- Repair and refurbishment
- Site survey and overhaul
- Replacement motors and generators
- Technical support and consulting
- Trainings

Mechanical power transmission components, bearings, gears

Contact us

www.abb.com/motors&generators

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