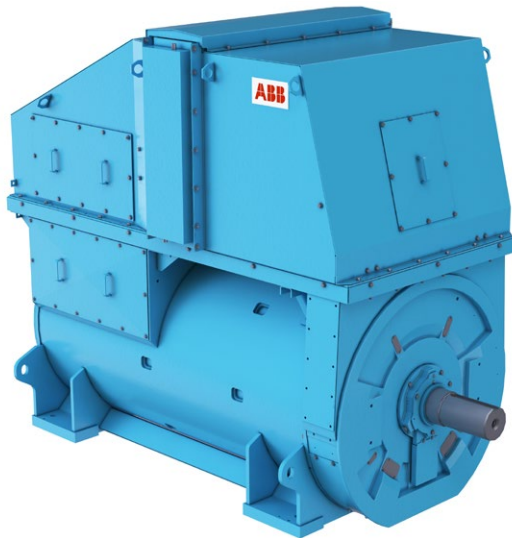


# Medium and high voltage generators for steam and gas turbines

Reliable distributed power from 1 to 8 MVA



ABB's offering covers standard mid-range generators for turbine OEMs. Ideal for heavy duty applications; the compact, high performance generators offer short delivery times and easy installation. ABB's globally identical production processes ensure high quality, easy sourcing and efficient logistics.

## Standard industrial product family

As the global technology leader in motors and generators, ABB has expertise in different types of applications to help OEMs and end-users achieve even better performance. We build generators to the strictest manufacturing standards. Our products are used even in the biggest gensets with common base frames, and in demanding marine and offshore applications.

The 500 – 630 frame size generators extend our broad offering into the 1 – 8 MVA power range at voltages of 3.3 – 13.8 kV. They are ideal for renewable applications and cogeneration in offshore platforms. These open air, TEWAC or TEAAC cooled, 4-, 6-, 8- and 10-pole synchronous generators feature H-class insulation. High performance PMG excitation is standard, complemented by an analog or digital AVR. Optional accessories enable easy customer interface adaptation.

The generators are built for continuous operation over a 30-year lifetime. ABB can provide marine classifications for offshore application if needed, e.g. waste heat recovery units (WHRUs), in which turbine expanders exploit the exhaust heat from the ship's diesel engines.

## Future-proof design means significant savings

The standard platform design needs only few frame lengths to cover the whole power range, providing

scope for complete designs in the future. No additional length is required when adding filters for the IP44 option, and the same foot design is suitable for all protection classes. The large terminal space has room for optional bus bars, PTs and CTs.

## Professional features in a standard generator series

The innovative built-in exciter and PMG unit, as well as the integrated main and auxiliary terminals and AVR, make the generators compact and easy to install – factors that are important in the turbine package design.

For grid operation, ABB's cutting-edge digital AVR option completes the high performance generator package. ABB is the technology leader in grid code compliant LVRT (low voltage ride through) systems, and the digital AVR not only offers power factor regulation, voltage matching and limiters but also built-in diode monitoring and auto-synchronization. Its fast voltage dip detection keeps the genset connected to the network during fault situations.

As a generator manufacturer, ABB can work together with customers to interpret the grid code and determine which requirements apply to generators. ABB can then assist in selecting the correct generator to comply with the requirements and therefore to achieve certification.

## Reliable ABB generators with global manufacturing and technical support

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01 ABB's rigid salient pole rotor construction enables reliable operation under the most demanding load conditions.

### High reliability and performance

ABB applies advanced design methods like FEM simulation and CFD, enabling OEMs to produce rigid, turbine package designs with low vibration and a long operational lifetime. 3D models can be supplied to help OEMs to rapidly prepare documentation for their complete system offering.

ABB generators have quality built in to their design, materials and manufacturing processes. Purchases are sourced from reliable vendors only and thorough testing is performed at all stages of manufacturing.

Both the stator and rotor use reliable ABB form wound windings and vacuum pressure impregnation – which has proven itself for more than 30 years in tens of thousands of large motors and generators that are operating successfully all over the world. Our advanced insulation system gives the windings superior strength to withstand vibration, and mechanical and electrical stresses. ABB uses many different ways to minimize harmonics, such as  $5/6^*$  winding pitch which reduces all significant harmonics to minimum levels. A  $2/3$  pitch winding, which eliminates only the 3<sup>rd</sup> harmonic, can be provided on request.

\*Exact pitch may vary slightly case by case.

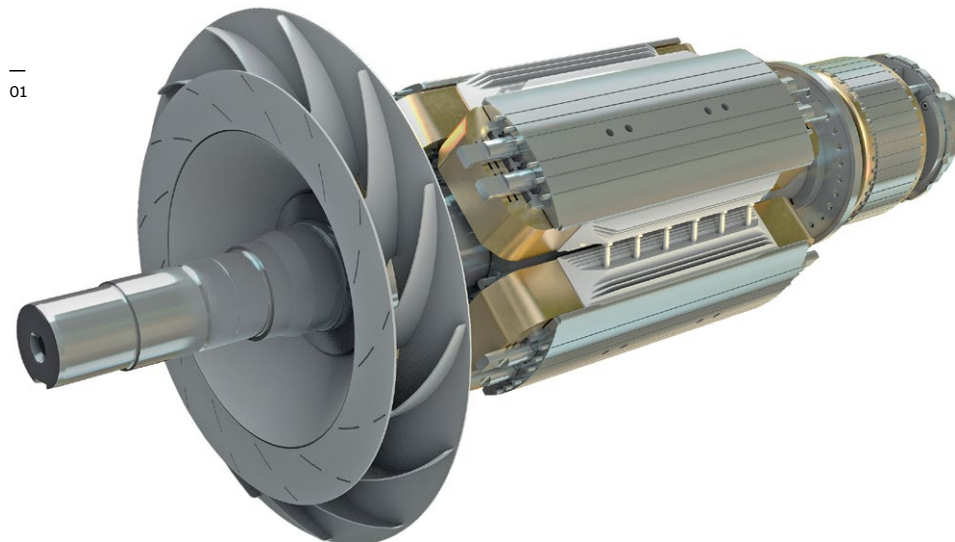
Together with our expertise in a wide range of bearing constructions, this results in high availability and troublefree operation.

The new standard product family offers the same high reliability and low cost of ownership as our proven high power generators. It provides a cost-efficient solution with the fastest delivery times, backed by ABB's global engineering, manufacturing and service network, and local presence around the world.

### Optimized sourcing and logistics

ABB is a truly global company that offers its customers a complete portfolio of products – so OEMs can get all the products they need on time, wherever they are located.

This generator is designed, manufactured and supported globally. It is produced in globally identical high quality manufacturing processes, and is backed by local engineering support. As a result our customers can benefit from short delivery times with optimized sourcing and logistics.



## Professional features in standard generator series



**Compact in size and easy to install.**

- Built-in exciter and PMG
- Large terminal unit with built-in AVR



**Adaptability with short delivery times.**

- Standard platform for serial manufacturing with optional accessories
- ETO range with pre-engineered configurations



**Reliable operation under changing and non-linear loads.**

- Good short-circuit, overload and motor starting capabilities



**Optimized sourcing and efficient logistics.**

- Globally identical ABB manufacturing processes



**Local support.**

- Backed by ABB's global service network



**Complete portfolio of products from single, reliable partner.**

- Independent supplier, technology and market leader with unrivalled experience

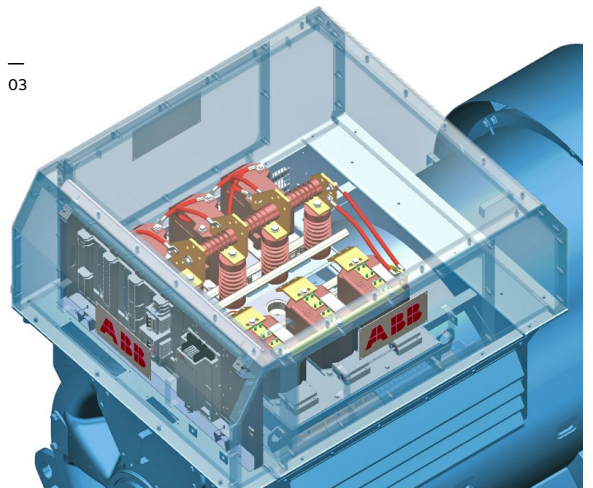
02



02 ABB's cutting-edge digital AVR option makes for a reliable generator package without needing external synchronization or diode monitoring units.

03 Large, integrated terminal space in top of frame for easy installation of cables, transformers and AVR, with a clever cooling function.

03



## Technical specifications

Technical data		Design features	
Frame size	500, 560 to 630	Insulation class/ Temp. rise	H / H, F or B
Power range	1 – 8 MVA	Excitation method	PMG as standard
Voltage range	3.3 – 13.8 kV	AVR type	Digital or analog
Frequency	50 or 60 Hz	Winding pitch	5/6 (approx.), 2/3 on request
Pole number	4-, 6-, 8- and 10-pole 720 – 1800 rpm	Connections	Top integrated terminals and AVR, 4 bus bars – 6 leads
Cooling and protection	IC 0A1/ IP23, open air cooled IC8 A1W7 and IC616/ IP54	<b>Main options</b>	
Mounting	IM 1101, double bearings, raised feet	Cutting-edge digital AVR (advanced ABB Unitrol 1010 or similar)	
Main dimensions IM1101 (LWH)	500: 2463 x 1310 x 1789 mm 560: 2693 x 1400 x 1909 mm 630: 3363 x 1650 x 2049 mm	SAE 0 and SAE 00 flanges	
		6 bus bars, CTs and PTs for differential protection	
		Inlet air filters (with no power derating or extra width, IP 23)	
		Adaptable cable output, all directions with 45° angle cable tube	
		Customer specific IP, IC and IM options	

## Proven ABB generators enable reliable power production with the lowest life time cost

ABB is the technology and market leader in motors and generators for all industrial and marine applications. We have supplied tens of thousands of large motors and generators to customers all over the world, based on more than 130 years of experience in the widest range of solutions.

ABB's global engineering, manufacturing and service network enables our customers to offer reliable and efficient power generation wherever they operate.

## ABB Motion Service

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 our customers'

motors and drives, increasing operational uptime, and improving efficiency. We make the difference for our customers and partners every day by keeping their operations running profitably, safely and reliably.