

Application note

Generators for geothermal power plants

ABB is a global leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact. ABB operates in more than 100 countries and has offices in 87 of those countries to give its global and local customers the support they need to develop and conduct their business successfully.



10MW Geothermal Power Plant in El Salvador

ABB synchronous generators

ABB designs and manufactures motors and generators that are engineered to meet the highest demands for efficiency, performance and availability in the power generation industry. Over 100 years of experience in producing motors and generators gives ABB unrivalled expertise in the requirements for special applications. As a result ABB is well-placed to help customers with the optimal generator design and increase productivity while enhancing production safety.

ABB generator offering

ABB can deliver a complete generator package including the generator, cooling options, maintenance tools, main terminal box with metering and protective transformers as well as the generator control panel. Depending on the site requirements, the generator will be optimized to suit the specific needs. ABB has long experience and a global service network to support you during the complete generator life cycle.

Geothermal applications

Every site has its own special demands. Depending on the technology used at the site, through individual design and calculations, ABB can optimize the generator to fit the specific requirements. The generator is based on standard modules to reduce the lead time, but the possibilities to customize is very large.

We have delivered motors and generators all over the world, in all different type of applications and environments. An environment with a high content of corrosive gases, as at many geothermal power production sites, create unique demands on the equipment. ABB has different solutions to manage this such as special coatings and pressurized machines.

From the beginning of a project we can offer expert generator support, and after installation, our worldwide after market organization will be there to help you.

The generator is a significant aspect of the system and an energy efficient and reliable product is essential for a profitable installation.

Technical information

ABB offers module based generators where the active parts are adopted to each specific site in order to achieve high efficiency and reliable operation. Some of the design flexibility includes pressurized design which helps achieve a long life in aggressive environments. ABB can also offer dual shaft end design that allows to couple two smaller turbines to the same generator.

Main features

Power	2-80MVA
Voltage	3-15kV
Frequency	50 & 60 Hz
Standards	IEC, NEMA, BS, VDE, CSA
Ambient temp.	-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



More than just the generator

The generator control is part of a system and must fit smoothly with the driver and all ancillary equipment. ABB can offer a wide, flexible range of systems for collecting and transmitting information from the generator for protection and for supervision. A design can easily be fitted to the needs and requirements of your installation.

Customer values

- Optimizing plant output.
Each generator will be designed to optimize the output from the turbine at each specific site.
- Reliable generators for tough environments ABB has a long proven experience of installations in corrosive as well as in hazardous areas.
- Different cooling options.
Many geothermal sites do not have cooling water available, and ABB can provide air cooled machines as well as water cooled solutions.
- Long reliable operation.
The generator are built for long operating time and minimum down time to be a reliable and robust part of the power generation system.
- Global support and service.
Long-term profitable operation requires reliable performance from every component. To achieve this, ABB can offer services that extend well beyond the warranty period.
- Low environmental impact.
Besides high efficiency, ABB has environmental product declarations allowing for a total emission calculation during manufacturing and de-commissioning of the generator.

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