



Air-cooled turbogenerators provide a modern, highly compact solution for base and peak load operation, daily startup and shutdown power plants with an easy low cost maintenance.

A range of models offering high efficiency, excellent quality and optimum reliability are available to meet turbine requirements. The reduced impact of auxiliary systems simplifies unit management and cuts the cost of spare parts.

Ansaldo Energia air cooled generator design has been proven to be robust, reliable and maintainable. It is flexible and can be used with gas turbines and steam turbines in single or multi-shaft configurations.

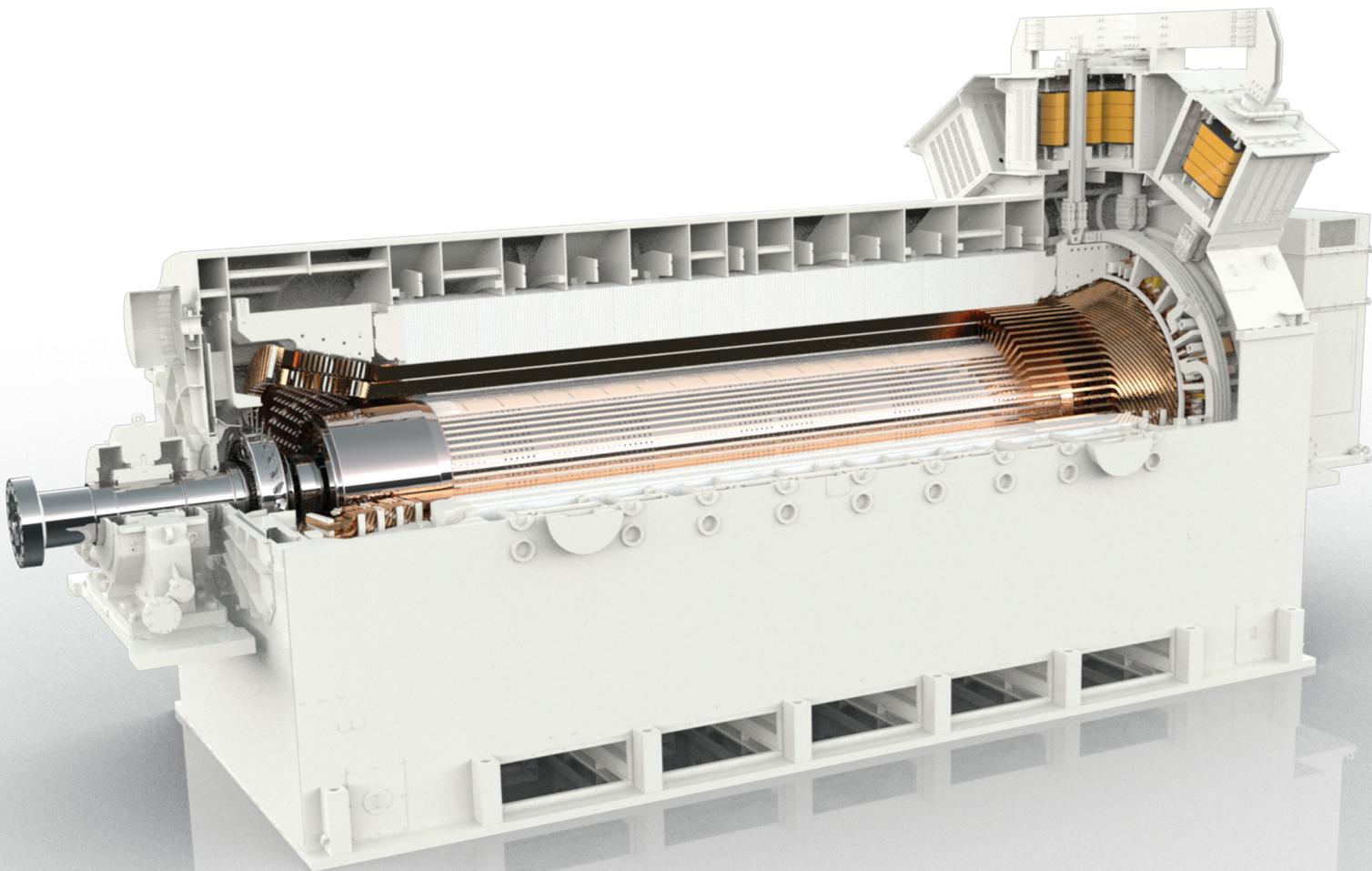
Air cooled turbogenerators are also an effective choice for geothermal application: Ansaldo Energia has great experience into selecting materials and manufacturing generators suitable for geothermal environmental conditions (humidity and hydrogen sulphide H<sub>2</sub>S). For every project, Ansaldo Energia works closely with each client to customize generator in order to meet their unique technical specifications and project needs.

## Continuous enhancement

Ansaldo Energia air cooled generator technology is continuously upgraded and enhanced by dedicated R&D activities and new design tools, including finite element 3D analysis of mechanical, electrical and ventilation behavior. Turbogenerators have indirectly cooled stator windings and directly cooled rotor windings and are self-ventilated in a closed circuit with air to water coolers. Special make-up or active-carbon filters can be provided if needed (e.g. air contamination).

## Well proven technology

Since 1950 Ansaldo Energia has awarded more than 550 units, with a total capacity which is superior than 62 GVA. More than 370 units has been awarded for gas turbine in open cycle and combined cycle applications.





## Air cooled turbogenerator performance

Frequency	Hz	50	60
Speed	rpm	3000	3600
Power Factor		0.8	0.85
Rated Voltage	kV	10.5-21	13.8-21
Power Range	MVA	20-450	30-320

- Mounting arrangement: IM7305, IM7315, IM7316
- Method of cooling: IC 9 A1 W7 - IC 8 A1 W7
- Protection degree: IP 54 (IEC 60034-5)
- Excitation: static (standard) or brushless as special application
- Thermal insulation class: F
- Installation: with silencing walls or enclosures for indoor or outdoor application

## Worldwide references: decades of experience

The fleet of air cooled turbogenerators has been sold worldwide and has an excellent track record of availability, operational flexibility and durability.



**Africa:** Algeria; Congo; Egypt; Ethiopia; Ghana; Ivory Coast; Libya; Morocco; Senegal; South Africa; Sudan.

**America:** Argentina; Bolivia; Chile; Jamaica; Mexico; Panama; Peru; Puerto Rico; USA; Venezuela.

**Asia:** Bangladesh; India; Indonesia; Malaysia; Pakistan; Taiwan.

**Europe:** Albania; Croatia; Finland; Greece; Hungary; Italy; Malta; Netherlands; Poland; Portugal; Romania; Russia; Serbia; Spain; Turkey; United Kingdom.

**Middle East:** Bahrain; Iran; Israel; Jordan; Lebanon; Oman; Qatar; Saudi Arabia; Syria; Yemen; UAE.

**554 Units**

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