



Power together

# AE T100 gas microturbines

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Small-scale distributed generation is growing in importance for power strategy in industrially advanced countries, where incentive policies are promoting its development and diffusion by offering highly interesting payback times on investments. Gas microturbines are used widely in small cogeneration (CHP) and trigeneration (CCHP) plants, because of their low maintenance requirements, silent operation and limited acoustic/atmospheric emissions. Ansaldo Energia provides an effective response to the distributed generation market with its AE-T100 Gas Microturbine, available in three different versions: natural gas: AE-T100NG, biogas: AE-T100B, external combustion AE-T100E (EFGT technology).

Producing 100 kW<sub>e</sub> of electrical power and about 200 kW<sub>th</sub> of thermal power, the AE-T100 can achieve very high overall efficiency levels, up to 90% in some cases. Modularity is another important feature of AE-T100 technology, allowing it to cover a broad power range by making it simple to install multiple units in the same plant. The main installation scenarios include both industrial and civil applications: the food industry, drying processes (ovens, the ceramic industry, painting plants, etc.), chemical and petrochemical plants, industrial laundries, joineries, wastewater treatment plants, retirement homes, hospitals, swimming pools, hotels, resorts, sports centers, luxury apartment buildings, etc.

Ansaldo Energia produces the AE-T100 Gas Microturbine at its Genoa factory.

The new AE-T100s and associated services are sold worldwide through dedicated Distributors/Partners and by direct sales.

## Rotor

The AE-T100 rotor system consists of the rotating parts of the generator, compressor and turbine and is the only moving part in the gas turbine. The simplicity of the system translates into high reliability and low maintenance

## Recuperator

The recuperator is an air/exhaust gas heat exchanger that increases the gas turbine's electrical efficiency by exploiting the high energy content of the exhaust gases leaving the turbine. It and the turbine generator set form the powertrain, which is sufficiently compact to be housed entirely inside the AE-T100 cabinet

## Power electronics

The advanced power electronics system is entirely contained in a special compartment connected seamlessly to the powertrain housing. The power electronics includes the transformer set and inverter sets, which manage the properties of the current incoming from the permanent magnet generator and give it characteristics

consistent with those defined by the grid operator. The power electronics and the AE-T100's intelligent PLC talk to each other continuously

## Combustion chamber

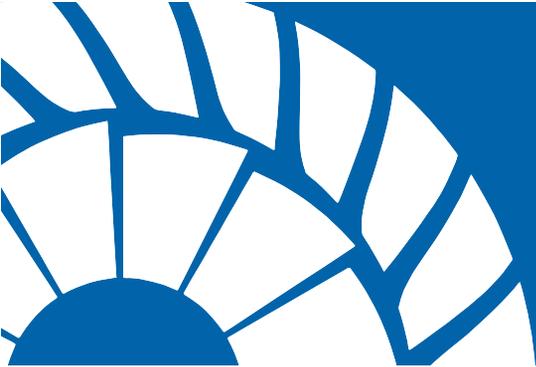
The continuous, high excess air combustion process taking place inside the AE-T100's combustion chamber results in a low concentration of pollutants in the exhaust gas leaving the turbine, eliminating the need for expensive and complicated pollution abatement systems (primarily CO and NO<sub>x</sub>).

## Exhaust gas heat exchanger

The exhaust gas/water heat exchanger transfers the thermal energy contained in the exhaust gas to a hot water flow used by the end user (heating in winter, hot water production, Li-Br absorption systems, etc.). The exhaust gas/water heat exchanger was designed specifically for the AE-T100, resulting in excellent heat exchange efficiency and a broad range of operating points available to the end customer.

The heat exchanger does not include other hot water system equipment such as, for example: circulators, safety valves, thermostats, etc.

Gas microturbine	Performance	Main Features
<b>AE-T100NG</b> 	100 kW 30%	<ul style="list-style-type: none"><li>- Installation layouts available: indoor and outdoor</li><li>- Applications: hot water and/or direct use of exhaust gas</li><li>- Includes natural gas compressor inside the cabinet; also available on request without the natural gas compressor</li><li>- Exhaust gas pollution abatement systems not needed</li></ul>
<b>AE-T100B</b> 	105 kW 30%	<ul style="list-style-type: none"><li>- Installation layouts available: indoor and outdoor</li><li>- Applications: hot water and/or direct use of flue gas</li><li>- Biogas compressor not included</li><li>- Wide range of biogas compositions accepted</li></ul>
<b>AE-T100E</b> 	50 ÷ 75 kW	<ul style="list-style-type: none"><li>- Installation layouts available: indoor and outdoor</li><li>- EFMGT technology</li><li>- Partly completed machine layout</li><li>- External heat exchanger and/or biomass boiler and/or solar concentrator not included</li><li>- The connection kit with the external source of thermal power is included in the scope of supply</li></ul>



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