

AE-T100E Micro Turbine

Externally Fired



DATA SHEET

General

Installation	Indoor / Outdoor
Size (WxHxL)	900 x 1810 x 2770mm (P) - 900 x 1810 x 3900mm (CHP)
Weight	2450/2950 kg* (P) - 2970/3300 kg* (CHP)
Fuel	-

(*) indoor / outdoor layout

Microturbine

Compressor type	Centrifugal, single stage
Turbine type	Radial, single stage
Turbine Inlet Pressure (max)	4.5 bar(a)
Max. Turbine Inlet Temperature (TIT)	850 °C
Number of shafts	1 (single shaft)
Nominal rotational speed	70000 RPM
Lubrication oil consumption	< 3 l/6000 EOH

Electrical data

Frequency output	50 Hz (60 Hz on request)
Voltage output	400 V (AC), three phases

Performances

Max Electrical output (nom. Value)	85 kWel
Thermal output (hot water)	depending on the external heat source
Electrical Efficiency	depending on the external heat source
Total cogeneration efficiency	depending on the external heat source
Nominal air flow	<0.80 kg/s
Max. Pressure drop loss Ext.Heat Exch.	200 mbar
Exhaust gas temperature	depending on the external heat source

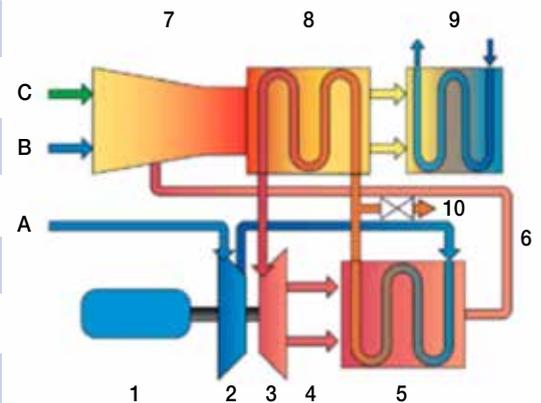
Versions

	Power only (P)
	Co-generation (CHP)
	Tri-generation (CCHP)

The EFGT (Externally Fired Gas Turbine) version of the AE-T100, also called “AE-T100E” is a system that derives from a partly completed standard AE-T100 by replacing the combustion chamber with a special piping assembly that enables the connection with a high temperature heat exchanger, installed inside the external boiler(*).

The system has been designed to combine all the advantages of a micro gas turbine with the opportunity to exploit different energy sources as, for instance, biomass: in fact the use of an external boiler allows to obtain the thermal energy required to operate the gas turbine from the combustion of different sources of biomass (wood, forest waste, animal manure, sewage sludge, etc.)

1 Electric Generator	8 External Heat Exchanger (*)
2 Compressor	9 Cogeneration Exchanger
3 Turbine	10 Bleed device
4 Air to recuperator	A Inlet air
5 Recuperator	B Boiler combustion air
6 Exhaust gases	C Fuel inlet
7 External Boiler (*)	



The final system is therefore essentially composed by an external boiler(*) that uses a high-temperature heat exchanger(*) to transfer the thermal energy to a micro gas turbine, that operates in an open “Brayton” cycle.

Due to the split-up between combustion and evolving fluid (air), this system allows the use of solid fuels/waste fuels otherwise not usable in small size plants based on gas turbines.

The low maintenance requirements of the AE-T100E, with service intervals of 6000 equivalent operating hours, makes this power generation system extremely attractive and competitive when compared to more conventional solutions.

Each AE-T100E configuration can be delivered in specific layouts for indoor or outdoor installation. Both layouts meet current regulations limits for noise and emissions.

All AE-T100 can be remotely monitored, controlled and operated.

(*): Not supplied by Ansaldo Energia