

AE-T100B Micro Turbine Biogas

DATA SHEET

General

Installation	Indoor / Outdoor
Size (WxHxL)	1200 x 1810 / 2410* x 2770 mm (P) - 1200 x 1810 / 2410* x 3900 mm (CHP)
Weight	2250 / 2750* kg (P) - 2770 / 3100* kg (CHP)
Fuel	Biogas

(*) indoor / outdoor layout

Microturbine

Compressor type	Centrifugal, single stage
Turbine type	Radial, single stage
Type /Number of combustion chambers	Lean premix / 1 chamber CAN type
Pressure in combustion chamber	4.5 bar(a)
Turbine Inlet Temperature (TIT)	950 °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

Fuel requirements (*) (**)

Required pressure	(6 ÷ 8) bar(g)
Required temperature	(0 ÷ 40) °C
Lower Heating Value (LHV)	> 16 MJ/kg ≈ 14.5 MJ/Nm ³ ***
H ₂ Smax (hydrogen sulfide)	< 1500 ppm(v) ≈ 2280 mg/Nm ³
Siloxanes max	< 150 mg/Nm ³
CH ₄ ,min	> 40 %
Fuel consumption	333 kWth

(*): With an appropriate biogas treatment system, it's possible to operate in all cases.

(**): The biogas analysis have to be sent to AEN for approval

(***): depending on fuel LHV

Performances

Electrical output	(100 ± 3) kWel
Fuel consumption	333 kWth ≈ 68.5 Nm ³ /h*
Exhaust gas flow	≈ 0.80 kg/s
Exhaust gas temperature	270 °C

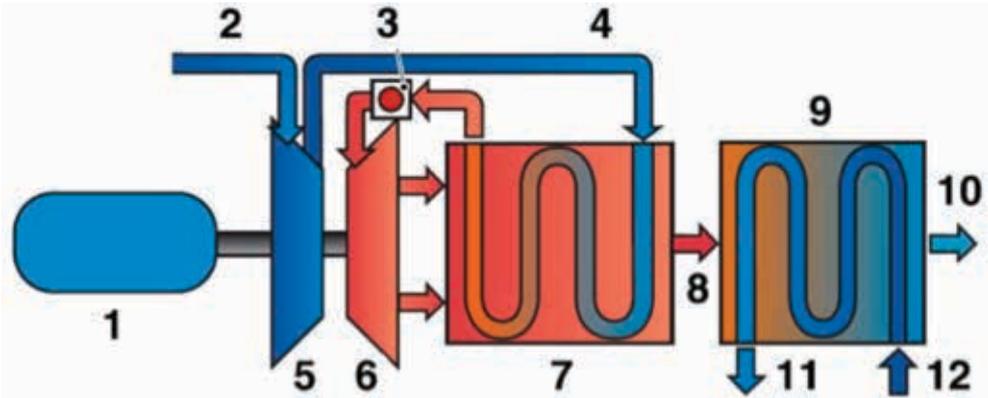
(*): depending on fuel LHV

Emissions (@ Full load and 15% O₂)

NO _x	< 15 ppm(v) = 32 mg /MJth(fuel)
CO	< 15 ppm(v) = 18 mg/MJth(fuel)

Versions

Power only (P), Co-generation (CHP), Trigeneration (CCHP)



- | | | | |
|---|--------------------|----|--|
| 1 | Generator | 7 | Recuperator |
| 2 | Inlet air | 8 | Exhaust gases outlet / connection |
| 3 | Combustor chamber | 9 | Exhaust gas - hot water heat exchanger (CHP) |
| 4 | Air to recuperator | 10 | Exhaust gas outlet |
| 5 | Compressor | 11 | Hot water outlet (CHP) |
| 6 | Turbine | 12 | Hot water inlet (CHP) |

Biogas is today a proven and valuable energy source for the combined production of heat and electricity at attractive conditions.

One of the most efficient and reliable technologies for the combined production of heat and electricity is represented by micro turbines, that show a very flexible behaviour towards variations of biogas composition, and they also bear significant heating value variations over time.

Main application field is represented by wastewater treatment plant (e.g.: sewage, industrial wastewater, agricultural wastewater, leachate, etc.). Other application fields are: anaerobic digestion in general and landfills.

Based on a consistent experience from several applications in various fields, such as

- sewage biogas,
- anaerobic digestion biogas,
- landfill gas.

Ansaldo Energia is able to offer custom applications adapting the AE-T100 and related fuel system to specific biogas characteristics.

The low maintenance requirements of the AE-T100B, 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-T100B 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.