

High-pressure Natural Gas - Microturbine

Efficient & Ultra-low emissions

CHARACTERISTIC

- Grid connect operation until 4 MW
- High availability – past load redundancy
- Upgrade from 600 kW to 800 kW or 1 MW with field installed Capstone 200 kW power modules
- One moving part: Minimal maintenance and downtime (no lubricating oil, no dangerous fluid or material)
- Ultra-low emissions, economic use for direct drying
- Small, modular design allows for easy, low-cost installation
- Digital control of performance
- Built-in display and user-friendly software
- RS232 interface
- Stand alone operations available
- Integrated utility synchronization and protection with a modular design
- Control for concurrent operation for 20 microturbines
- Further component of the CHP plant: compressor station and combination of control cabinet for the CHP plant
- Optional equipment: Heat Exchanger, Remote monitoring and control



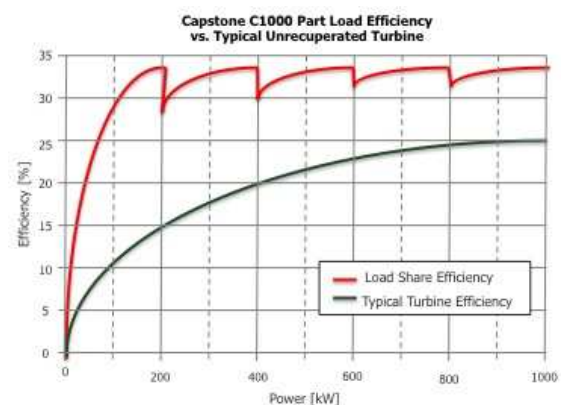
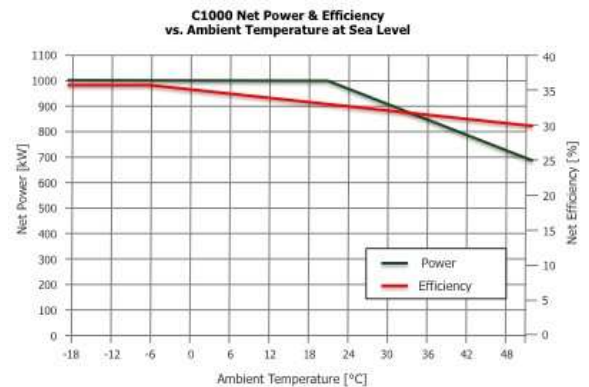
C1000 Capstone Microturbine

YOUR BENEFIT

- Low cost of operations: patented air bearing
- Long maintenance intervals with low cost (about every 4,000 operating hours)
- Minimal exhaust emission levels that are significantly below the current legal requirements
- Low vibration
- Can be installed both indoor and outdoor installation
- Long service life (up to 80,000 operating hours)
- Very good partial load behavior
- Remote monitoring and control via Internet

FOR YOUR APPLICATIONS

- Process heat with temperatures about 100°C
- Industrial drying process
- High temperature water



TECHNICAL SPECIFICATIONS

The key component of the Combined Heat and Power (CHP) plant for burning biogas and converting into electrical and thermal energy are the Capstone microturbine. The electrical power output is infinitely variable.

	GVM 600 N	GVM 800 N	GVM 1000 N
Power Output			
Electrical Power Output	600 kW	800 kW	1,000 kW
Electrical Efficiency	33 (± 2)%		
Thermal Power Output (90°C/70°C)	855 kW	1,140 kW	1,425 kW
Thermal Power Output (130°C/110°C)	Interpretation follows	842 kW	1,006 kW
Fuel			
Natural Gas	Typ H or L		
Net Heat Rate (LHV)	1,818 kW	2,424 kW	3,030 kW
H ₂ S content	≤ 2,500 ppmv		
Air			
Entire intake air	8.77 m ³ /s	11.67 m ³ /s	14.62 m ³ /s
Max. Working Temperature	-20°C till +50°C		
Exhaust Characteristics			
Exhaust Gas Temperature	280 °C (536 °F)		
Exhaust Gas Mass Flow	3.99 kg/s (8,79 lbs/s)	5.32 kg/s (11,73 lbs/s)	6.65 kg/s (14,66 lbs/s)
Exhaust Gas Flow (under normal conditions)	3.08 m ³ /s	4.11 m ³ /s	5.14 m ³ /s
Exhaust Energy	1,182 kW	1,576 kW	1,971 kW
Nitrogen oxide (NOx) @15% O ₂	< 10 mg/m ³		
Formaldehyde (CH ₂ O) @15% O ₂	< 5 mg/m ³		
Electrical Performance			
Voltage	400 to 480 VAC		
Frequency	50/60 Hz		
Max. Output Current @ 400V	870 A RMS	1,160 A RMS	1,450 A RMS
Electrical Service	3 Phase, 4 wire		
Basic Data			
Height	2,900 mm (114.17 in)		
Width	2,400 mm (94.49 in)		
Length	9,100 mm (358.27 in)		
Weight	11,475 kg (25,298 lbs)	12,791 kg (28,199 lbs)	14,106 kg (31,098 lbs)
Minimum Clearance Requirements			
- Vertical Clearance	610 mm (24.02 in)		
- Left & Right	1,500 mm (59.05 in)		
- Front	1,500 mm (59.05 in)		
- Rear	1,800 mm (70.86 in)		
Sound Level (nominal at 10 m)	70 db(A)	71 db(A)	72 db(A)
Maximum Rotation	60,000 U/min		
Primary Pressure (high pressure)	5.2 bar		
Primary Pressure (low pressure)	100 mbar		
Isolated Operation	available		