



MT250 Series Microturbine

250 kW Continuous Onsite Electrical Power with Integrated Heat Recovery

Ultra-clean electricity and useful thermal energy from a rugged and efficient generating system

Key Features

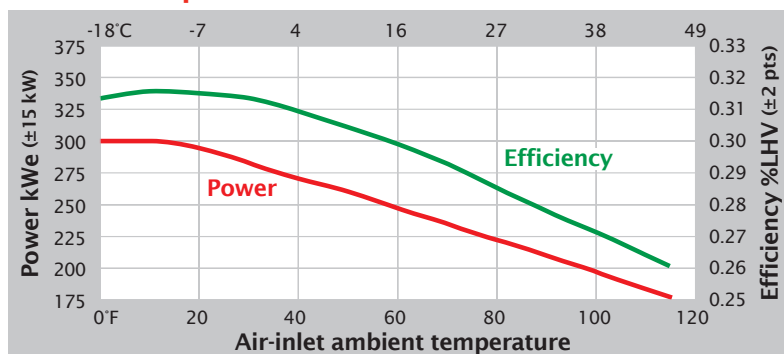
- High system efficiency
- Grid-parallel, dual-mode, or grid-isolated electrical generation
- Closed transition to grid-isolated mode during grid outage
- Low emissions exceed stringent environmental standards
- Product design life of 80,000 hours with overhauls
- Integrated, variable-output, waste-heat recovery unit available
- Process-industry qualified, internal fuel gas-booster available

Electrical Performance*

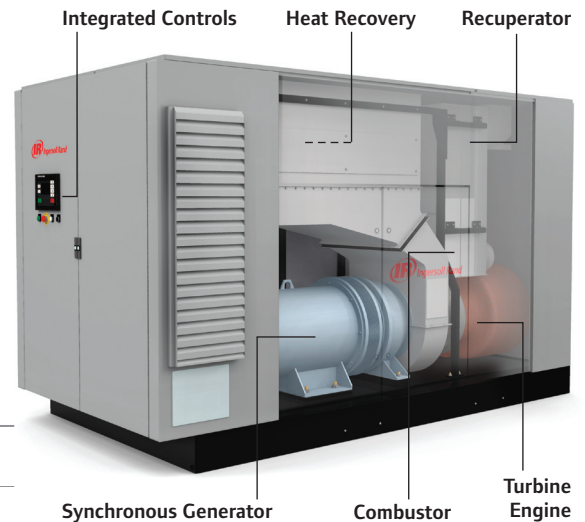
Characteristic	Specification
Electrical efficiency (± 2)	30% LHV without gas booster 29% LHV with gas booster
Nominal heat rate (HHV)	12,645 Btu/kWh without gas booster 13,080 Btu/kWh with gas booster
Nominal heat rate (LHV)	11,380 Btu/kWh without gas booster 11,770 Btu/kWh with gas booster
Electrical power** (± 15)	250 kW nominal @ 59°F without gas booster 242 kW nominal @ 59°F with gas booster 300 kW @ 0°F
Voltage	480 VAC/400 VAC
Frequency	60 Hz/50 Hz
Type of service	3 phase, wye, 4 wire
Grid-isolated regulation (steady state)	$\pm 0.50\%$ nominal voltage $\pm 0.50\%$ nominal frequency
Transient handling (linear loads) (recovery within 5 seconds)	$\pm 10\%$ nominal voltage max ± 5 Hz frequency max

* at ISO Conditions (59°F [15°C] @ sea level, 60% RH) unless otherwise noted, pipeline natural gas only
** altitude derate of approximately 8.80 kW per 1000 ft (305 m)

Electrical Output



Note - kWe is electrical output at terminals corrected for parasitics, but not including gas-booster power.



CARB 2007 Certification

- Ingersoll Rand's MT250 is the first microturbine to be certified by the California Air Resource Board's 2007 emissions standards for distributed generation technologies

Rugged Turbine Engine

- Back-to-back rotating components
- Proven oil-lubricated bearings
- All bearings at cold end
- Based on KG2 engine design

Integrated Heat Recovery

- Controllable output level
- Reduces overall footprint
- No ducting
- Suitable for potable applications

Patented Recuperator

- Critical to high efficiency
- Considered best in industry

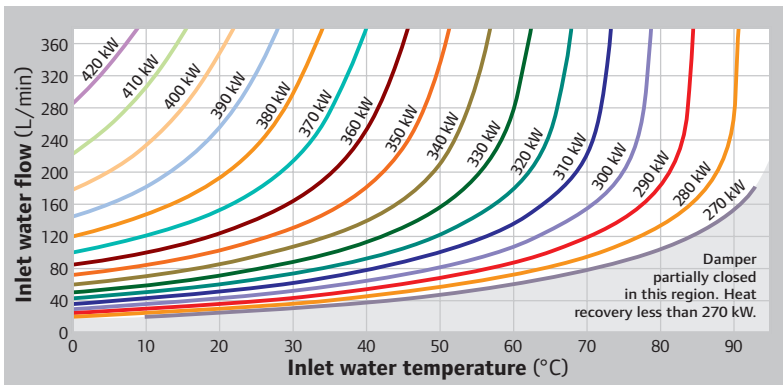
Patented Combustor

- Dry low NOx
- Easily meets stringent environmental regulations

Synchronous Generator

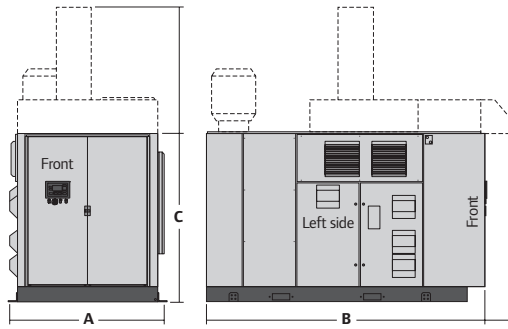
- Same technology utilities use to power the grid
- Running backup capability available

Heat Output Recoverable to Water*



* kW from Heat Recovery Unit (HRU) at ISO conditions, damper fully open, ±15%

Physical Specifications



Weatherproof Outdoor Enclosure

Minimum Clearance Requirements

Characteristic	Specification
Vertical clearance	
Indoor unit	102 in (259 cm)
Outdoor unit	no overhead obstruction
Horizontal front, rear and left side	48 in (122 cm)
Horizontal right side	72 in (183 cm)

Ancillary Equipment

Characteristic	Dimensions (LxWxH)	Weight, est.
Generator	37 x 39 x 30 in	240 lb
braking resistor	94 x 99 x 76 cm	109 kg

Sound Levels

Characteristic	Specification
Standard	83 dB(A) @ 1m
Low sound option	77 dB(A) @ 1m



Generator Braking Resistor

Certain Ingersoll Rand Energy Systems products were developed with the assistance of the Gas Technology Institute (formerly Gas Research Institute), Southern California Gas Company and New York Gas Group. Ingersoll Rand Energy Systems reserves the right to change or modify product design and specifications without notice.

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Heat Recovery*

Characteristic	Specification
Recuperator exhaust temp. w/o HRU**	468°F (242°C)
Engine gas flow**	4.7 lbm/s (2.13 kg/s)
Max water flow	100 gpm (22.7 m ³ /hr)
Max inlet water pressure	125 psig (862 kPa)
Max inlet water temp.	180°F (82°C)

* at ISO Conditions (59°F [15°C] @ sea level, 60% RH) unless otherwise noted
** predicted

Fuel Requirements

Characteristic	Specification
Inlet pressure	
with gas booster	4" (100mm) WC to 1 psig (6.9 kPa)
without gas booster	80 to 140 psig (551 to 965 kPa)
Min temperature	33°F (1°C)
Max temp. with gas booster	115°F (46°C)
without gas booster	175°F (79°C)
250SV model*	245 to 350 WI Btu/scf 9,130 to 13,040 WI kJ/m ³
250SW model*	325 to 600 WI Btu/scf 12,100 to 22,340 WI kJ/m ³
250SB model*	325 to 600 WI Btu/scf 12,100 to 22,340 WI kJ/m ³
250ST model*	500 to 970 WI Btu/scf 18,600 to 36,100 WI kJ/m ³
250SM model*	800 to 1440 WI Btu/scf 29,800 to 53,600 WI kJ/m ³
250SH model*	1380 to 1900 WI Btu/scf 51,400 to 70,700 WI kJ/m ³

* Wobbe Index. Lower heating value (LHV), dry basis, at 14.7 psi (101 kPa) and 59°F (15°C)

Emissions at 100% load*

Characteristic	Specification
NO _x	<5 ppmv @ 15% O ₂
CO	<5 ppmv @ 15% O ₂
VOC	<5 ppmv @ 15% O ₂

* pipeline natural gas only

Ambient Temperature Limits

Characteristic	Specification
Outdoor and indoor*	-10° to 115°F (-23° to 46°C)

* some configurations may require additional cold-weather options

The Microturbine Engine Cycle

