

Decades of industrial gas turbine experience and profound application knowledge have led to a new evolution in small industrial gas turbines – the MGT6000 family.

The single shaft turbine MGT6100 is developed purely for power generation applications – high efficiency combined with a compact package design.

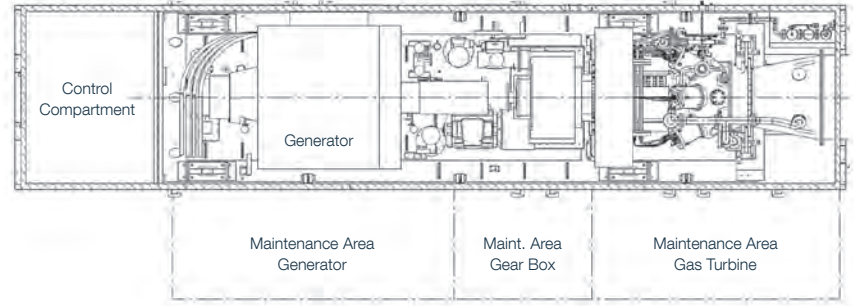
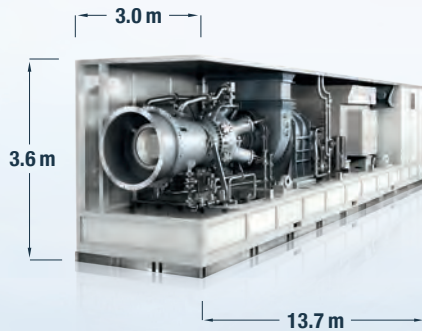
### **Benefits at a glance**

- High efficiency
- Low emissions
- Low operating costs
- Low life cycle costs

# MGT6100

## Layout and Maintenance Area

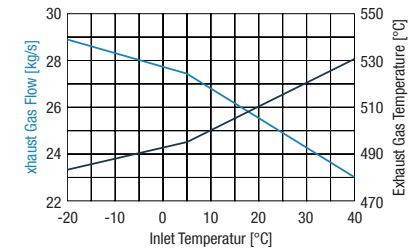
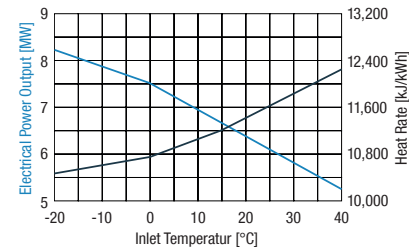
(Data including control compartment, rendering shown without filter module)



## Performance at ISO Conditions\*

MGT6100		
Typical Package Weight	t	63
Power Output	kW <sub>el</sub>	6,630
Heat Rate	kJ/kWh <sub>el</sub>	11,190
Efficiency	% <sub>el</sub>	32.2
Exhaust Gas Flow	kg/s	26.2
Exhaust Gas Temperature	°C	505
Generator Speed (50 Hz / 60 Hz)	rpm	1,500/1,800
NO <sub>x</sub> Emissions (ref. to 15% O <sub>2</sub> , dry)	mg/Nm <sup>3</sup> ppm	30 15
CO Emissions (ref. to 15% O <sub>2</sub> , dry)	mg/Nm <sup>3</sup> ppm	< 30 < 24
Saturated Steam (unfired) 10 bar	t/h	15.6
Saturated Steam (fired) 10 bar	t/h	74.0

\*all data valid for sea level, 15°C, no inlet and exhaust pressure losses, 60% rel. humidity, natural gas. Power output will decrease with increase of site altitude (1.1% per 100 m), inlet pressure loss (1.9% per 1 kPa) and exhaust pressure loss (0.9% per 1 kPa)



## Gas turbine

- Heavy duty, single shaft
- 11 stage air compressor
  - Variable inlet guide vanes and stators
  - Horizontally split casing
- 6 combustion chambers
  - Multi-can, DLE combustors
  - High energy torch at each can
- 3 stage power turbine

## Integrated load-gear

- Transferring the torque of the electric starter motor for gas turbine start
- Speed reduction to 1,500 rpm (for 50 Hz) or 1,800 rpm (for 60 Hz)
- Driving main lube oil pump
- Planetary type

## Generator

- 4 pole, 3 phase, synchronous generator with built-in exciter, rotating rectifier and permanent magnet pilot generator (PMG)
- Direct air cooled
- Insulation class F / temperature rise class B
- According IEC 60034-1/3
- Water-cooled\*\*

## Package

- Full-integrated
- Noise emission
  - All equipment is designed for Lp 85 dB(A) measured in 1 m distance and 1.5 m height
  - Lp = 80\*\*, 75\*\*, 70\*\* dB(A)
- Single-lift base frame:
  - Integrated lube oil tank
- Starting system
  - Variable speed drive for gas turbine starter motor
- Integrated lube oil system
  - Main lube oil pump driven via load gear
  - Standby lube oil pump (AC motor driven)
  - Emergency lube oil pump (DC motor driven)
  - Water to oil cooler
  - Air to oil cooler\*\*

- Integral lube oil tank
- Lube oil tank heater
- Lube oil filter
- Control valves
- Oil mist separator
- Air inlet system
  - Static depth loading cartridges system
  - Filtration class: Pre-filter: F6, Fine-filter: F9
  - Static filter including anti-icing\*\*
- Exhaust system
  - Transition duct
  - Free-standing stack with internal insulation\*\*
  - Free-standing stack with double shell design\*\*
  - Exhaust gas duct for connection to waste-heat-recovery boiler\*\*
  - Expansion joint\*\*
- Enclosure
  - Complete package for outdoor installation
  - Fire detection and CO<sub>2</sub> fire-fighting system
  - Water-mist fire-fighting system\*\*
  - Gas leakage detection
  - Maintenance cranes
- Turbine compressor cleaning system
  - Offline and online washing
  - Mobile wash trolley\*\*

## Controls

- Installed in control compartment in base module
- SIMATIC control unit with operation and visualization system providing:
  - Gas turbine control
  - Unit sequencing
  - HMI
- Data collection system:
  - For recording and storage of engine parameters
  - For data access
- Control and protection for generator including voltage regulator (AVR)
- Variable frequency converter panel for starter motor
- Low voltage switchgear (MCC for power supply of 400/230 VAC consumers)
- Battery system / UPS
  - For emergency lube oil pump
  - For unit control system emergency power supply

## Documentation

- Engineering documents
- Installation manual
- Operating instructions
- Site manual
- Quality documentation
- Inspection and test plan

## Factory acceptance test of turbine

- Core engine:
  - Full-speed, full-load

## Complete unit test\*\*

- Full-speed, full-load
- Full-speed, no-load

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