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MAN Diesel & Turbo – a member of the MAN Group

MGT6100

Gas Turbine Generator Package

Engineering the Future – since 1758.

MAN Diesel & Turbo

MGT6100

Gas Turbine Generator Package

General Specifications

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 1500 rpm (for 50 Hz) or 1800 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, consisting of two modules, Base & Top Module
- 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
- Supported by six spring elements
- 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 (double wall design)
- 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*
- Integrated in top module
- 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_2 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 type IPC-427-B with Win-CC-FLEXIBLE operation and visualization system providing:
- Gas turbine control
- Unit sequencing
- HMI
- Data collection system:
- for recording and storage of engine parameters
- for data access if required
- 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
- I&C documentation
- Site manual
- Quality documentation
- Inspection and test plan

Factory acceptance test of turbine

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

Complete unit test:*

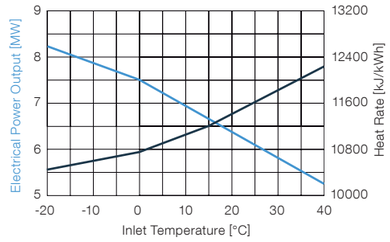
- Full-speed, full-load
- Full-speed, no-load

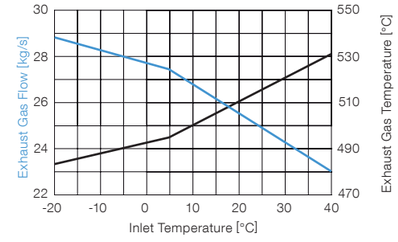
*can be offered as option

Performance at ISO Conditions**

		MGT6100
Power Output	kW_{el}	6,630
Heat Rate	kJ/kWh_{el}	11,190
Efficiency	$\%_{el}$	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
NOx Emissions	mg/Nm³	30
(ref. to 15% O_2, dry)	ppm	15
CO Emissions	mg/Nm³	< 15
(ref. to 15% O_2, dry)	ppm	< 12
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 1kPa) and exhaust pressure loss (0.9% per 1kPa)





Layout and maintenance area

Package dimensions

- 14.3 x 3 x 7.36 m

Package weight

- 85 t