TITAN 250
Gas Turbine Generator Set

General Specifications

Titan™ 250 Gas Turbine

- Industrial, Two- Shaft
- 16 Stage Axial Compressor
  - Variable Inlet Guide Vanes
  - Pressure Ratio: 24:1
  - Inlet Airflow: 73.2 kg/sec (155.2 lb/sec)
  - Vertically Split Case
- Combustion Chamber Annular-Type
  - 14 Lean-Premixed, Dry Low Emissions Injectors
  - Torch Ignitor System
- Gas Generator Turbine
  - 2-Stage Reaction
  - Max. Speed: 10,690 rpm
- Power Turbine
  - 3-Stage Reaction
  - Max. Speed: 6500 rpm
- Bearings
  - 5 Radial Journal, Tilt-Pad
  - 2 Active Thrust, Tilt-Pad
  - 2 Inactive Thrust, Fixed Tapered Land
- Coatings
  - Compressor: Inorganic Aluminum
  - Turbine and Nozzle Blades: Precious Metal Diffusion Aluminide
  - Vibration Transducer Type
  - Proximity Probes, 2 per Radial Bearing/2 per Thrust Bearing

Main Reduction Drive

- Epicyclic Type
  - 1500 rpm (50 Hz) or 1800 rpm (60 Hz)
  - Accessory Power Take-Off

Generator

- Salient Pole, 3 Phase, 6 Wire, Wye Connected, Synchronous, with Permanent Magnet Generator Exciter

- Available Construction Types:
  - Duct In/Duct Out
  - Totally Enclosed Air-to-Air Cooled
  - Totally Enclosed Water-to-Air Cooled
- Sleeve Bearings
- Oil Jacking System
- NEMA Class F Insulation
- Class B Temperature Rise
- Voltages: 1100 to 13,800 VAC
- Frequency: 50 or 60 Hz

Package

- Mechanical Construction
  - Steel Base Frame with Drip Pans
  - 316L Stainless Steel Piping ≤8" dia.
  - Compression-Type Tube Fittings
- Electrical System
  - NEC, Class 1, Group D, Div 2
  - CENELEC/ATEX Zone 2
  - Cable Tray Wiring
  - 120 VDC Battery/Charger System
  - Direct-Drive AC Start System
- Fuel System
  - Dry Low Emission (SoLoNOx™)
  - Conventional
- Fuel Types
  - Natural Gas or Dual (Gas/ Distillate)
- Integrated Lube Oil System
  - Turbine-Driven Main Pump
  - AC Motor-Driven Pre/Post Pump
  - DC (120 V) Motor-Driven
  - Backup Pump
  - Oil Cooler and Oil Heater*
  - Tank Vent Separator and Flame Trap
  - Lube Oil Filter
  - Turbine Compressor Cleaning System
    - On-Crank/On-Line
    - Portable Cleaning Tank*
- Air Inlet and Exhaust System
  - Carbon Steel
  - Stainless Steel
  - Coastal Type Filters
- Enclosure
  - Driver Only
  - Fire Detection and Suppression
- Turbotronic™ Control System
  - Onskid Control System
    - Digital Onskid Display Panel
    - 24 VDC Control Power
      (120 VDC Input)
    - Serial Link Supervisory Interface
  - Field Programmable
  - Vibration Monitoring
  - Temperature Monitoring
  - Generator Control
    - Selectable Control Modes
    - Solid-State Voltage Regulation
    - Automatic Synchronization
    - Metering Panel with Manual Synchronization*
    - KW Control*
    - Heat Recovery Application Interface
    - Multiple Operator Display Screens
    - Data Collection and Playback
    - Turbine Performance Map*
    - InSight Platform™ Equipment Health Management*
    - Printer/Logger*
- Documentation
  - Electrical Drawings
  - Mechanical Drawings
  - Quality Control Data Book
  - Inspection and Test Plan
  - Test Reports
  - O&M Manuals
- Factory Testing of Turbine
- Factory Testing of Package
  - Non-Dynamic
  - Dynamic

* Option
**Performance**

- **Output Power**: 23 100 kWe
- **Heat Rate**: 9150 kJ/kWe-hr (2470 Btu/kWe-hr)
- **Exhaust Flow**: 253 440 kg/hr (558,740 lb/hr)
- **Exhaust Temp.**: 460°C (865°F)

**Application Performance**

- **Steam (Unfired)**: 35.2 tonnes/hr (77,600 lb/hr)
- **Steam (Fired)**: 190.5 tonnes/hr (420,000 lb/hr)
- **Chilling (Absorp.)**: 30 340 kW (8620 refrigeration tons)

Nominal rating – per ISO

- At 15°C (59°F), sea level
- No inlet/exhaust losses
- Relative humidity 60%
- Natural gas fuel with
  - LHV = 31.5 to 43.3 MJ/Nm³ (940 Btu/scf)
- No accessory losses
- Engine efficiency: 38.6% (measured at generator terminals)

**Enclosure Access and Maintenance Space**

- **Package Height**: 3.9 m (12' 9")
- **Package Weight**: 141 150 kg (311,100 lb)

*Dry weight, unenclosed height*