TITAN 130
Gas Turbine Generator Set

Package Features
- Offshore Marine Duty or Onshore Duty in High-Specification Applications
- NEC Class 1, Division 2 or CENELEC/ATEX Zone 2 Area Classification
- Axial or Space Saving Radial Exhaust Configuration
- Standard Onshore Configuration Available (Axial Exhaust Only)

General Specifications
**Titan™ 130 Gas Turbine**
- Industrial, Single-Shaft, Simple-Cycle
- Compressor:
  - 14-Stage, Axial
  - Variable Inlet Guide Vanes, 5 Stators
  - Pressure Ratio: 19.1:1
  - Inlet Airflow: 55.4 kg/sec (122 lb/sec)
  - Vertically Split Case
- Combustion Chamber:
  - Single, Annular-Type
  - Conventional: 21 Fuel Injectors or
    SoLoNOx™ Lean-Premixed, Dry, Low Emission: 14 Fuel Injectors
  - Torch Igniter System
- Power Turbine:
  - 3-Stage, Axial-Flow
  - Max. Speed: 11,220 rpm
- Bearings:
  - 3 Tilt-Pad Radial Bearings
  - 1 Tilt-Pad Thrust Bearing
- Coatings:
  - Compressor: Inorganic Aluminum
  - Turbine Blades and Nozzles: Precious Metal Diffusion Aluminide

**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:
  - Open Drip Proof
  - Totally Enclosed Air-to-Air Cooled *
  - Totally Enclosed Water-to-Air Cooled *
  - Sleeve Bearings
- NEMA Class F Insulation
- Class B Temperature Rise
- Voltages: 6600 to 13,800 VAC
- Frequency: 50 or 60 Hz

**Package**
- Mechanical Construction
  - Steel Base Frame with Drip Pans
  - 316L Stainless Steel Piping ≤4" dia.
  - Compression-Type Tube Fittings
  - Suitable for 3-Point Mounting *
  - FPSO Modifications (Option) *
- Electrical System
  - NEC, Class 1, Group D, Div 2
  - CENELEC/ATEX Zone 2 *
  - Cable Tray Wiring
  - 120VDC Battery/Charger System
  - Direct-Drive AC Start System
  - Fuel Systems
    - Conventional Combustion or Dry Low Emission (SoLoNOx)
  - Fuel Types
    - Natural Gas or Dual (Gas/Distillate)
  - Integrated Lube Oil System
    - Turbine-Driven Main Pump
    - AC Motor-Driven Pre/Post Pump
    - DC (120V) Motor-Driven Backup Pump
    - Oil Cooler and Oil Heater (Options)
    - Tank Vent Separator and Flame Trap
    - Lube Oil Filter
  - On-Crank or On-Crank/On-Line Turbine Compressor Cleaning System (Options) *
    - Portable Cleaning Tank (Option)
  - Air Inlet and Exhaust System
    - Carbon Steel
    - Stainless Steel *
    - Marine-Type Filters *
  - Enclosure (Driver Only or Complete)
    - Fire Detection and Suppression
  - Factory Testing of Turbine and Package
  - Documentation
    - Electrical Drawings
    - Mechanical Drawings
    - Quality Control Data Book
    - Inspection and Test Plan
    - Test Reports
    - Operation and Maintenance Manuals
  - Digital Onskid Display Panel

**Turbotronic™ Control System**
- Onskid Control System
  (Optional Offskid System)
  - 24 VDC Control Power
  - Serial Link Supervisory Interface
  - Field Programmable
- Vibration Monitoring
  - Turbine Bearings and Shaft
  - Gearbox
  - Generator Bearings
- Temperature Monitoring
  - Turbine Combustion Process
  - Turbine Bearings and Lube Oil
  - Generator Bearings and Windings
- Generator Control
  - Selectable Control Modes
  - Solid-State Voltage Regulation
  - Automatic Synchronization
  - Metering Panel with Manual Synchronization (Option)
  - KW Control (Option)
- TT4000 Display and Monitoring System
  - Multiple Operator Display Screens
  - Data Collection and Playback
  - Turbine Performance Map (Option)
  - Printer/Logger (Option)

* Not available on Standard Onshore Configuration
**Performance**

Output Power | 16 530 kWe
---|---
Heat Rate | 10 160 kJ/kWe-hr (9630 Btu/kWe-hr)
Exhaust Flow | 202 510 kg/hr (446,460 lb/hr)
Exhaust Temp. | 490°C (910°F)

**Available Power**

- Output Power
- Heat Rate

<table>
<thead>
<tr>
<th>INLET AIR TEMPERATURE, °C (°F)</th>
<th>OUTPUT POWER, kW</th>
<th>HEAT RATE, MJ/kW-hr (Btu/kWe-hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-30 (-22)</td>
<td>18,500</td>
<td>11.0 (10,430)</td>
</tr>
<tr>
<td>-20 (-4)</td>
<td>17,125</td>
<td>10.7 (10,140)</td>
</tr>
<tr>
<td>-10 (14)</td>
<td>15,750</td>
<td>10.4 (9880)</td>
</tr>
<tr>
<td>0 (32)</td>
<td>14,375</td>
<td>10.1 (9570)</td>
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<tr>
<td>10 (50)</td>
<td>13,000</td>
<td>9.8 (9290)</td>
</tr>
</tbody>
</table>

Nominal rating – per ISO
At 15°C (59°F), at sea level
No inlet/exhaust losses
Relative humidity 60%
Natural gas fuel with
LHV = 35 MJ/m³ (940 Btu/scf)
No accessory losses
Engine efficiency: 35.4%
(measured at generator terminals)

**Package Dimensions**

- Length: 14.2 m (46' 6")
- Width: 3 m (10')
- Height: 3.9 m (12' 9'')
- Typical Weight: 87 510 kg (192,925 lb)

*Dry weight, unenclosed height