**General Specifications**

**Mars® 100 Gas Turbine**
- Industrial, Two-Shaft
- Axial Compressor
  - 15-Stage
  - Variable Inlet Guide Vanes and Stators
  - Pressure Ratio: 17:1
  - Inlet Airflow: 41.6 kg/sec (91.8 lb/sec)
  - Vertically Split Case
- Combustion Chamber
  - Annular-Type
  - Conventional or Lean-Premixed, Dry, Low Emission (SoLoNOx™)
  - 21 Fuel Injectors (Conventional)
  - 14 Fuel Injectors (SoLoNOx)
  - Torch Ignitor System
- Gas Producer Turbine
  - 2-Stage, Reaction
  - Max. Speed: 11,170 rpm
  - Thrust Bearing, Active: Tilting-Pad
  - Thrust Bearing, Inactive: Fixed Tapered Land
- Power Turbine
  - 2-Stage, Axial
  - Max. Speed: 9500 rpm
  - Full Tilting-Pad Thrust Bearing
- Journal Bearings
  - Tilting-Pad
- Coatings
  - Compressor: Inorganic Aluminum
  - Turbine and Nozzle Blades: Platinum Aluminide
- Vibration Transducer Type
  - Proximity Probes
  - Velocity Pick-up

**Key Package Features**
- Driver Skid with Drip Pans
- 316L Stainless Steel Piping 4"
- Compression-Type Tube Fittings
- Digital Display Panel
- Electrical System Options
  - NEC, Class I, Group D, Div 1
  - ATEX, Zone 2
  - CENELEC, Zone 1
- Turbotronic™ Microprocessor Control System
  - Onskid Control System
    (Div 2 or ATEX, Zone 2)
  - Freestanding Control Console
  - Color Video Display
  - Vibration Monitoring
- Control Options
  - 120-Vdc Battery Charger System
  - Gas Turbine and Package Temperature Monitoring
  - Serial Link Supervisory Interface
  - Turbine Performance Map
  - Compressor Performance Map
  - Historical Displays
  - Remote Monitoring and Diagnostic Option
  - Printer/Logger
  - Process Controls
  - Compressor Anti-Surge Control
  - Field Programming
- Start Systems
  - Pneumatic
  - Direct Drive AC
- Fuel System
  - Natural Gas
- Integrated Lube Oil System
  - Turbine-Driven Accessories
  - AC Motor-Driven Accessories
- Oil System Options
  - Oil Cooler
  - Oil Heater
  - Tank Vent Separator
  - Flame Trap
- Package Skid Design
  - Accommodates Mars and Titan™ Gas Turbines
  - Optional Modifications for Floating Production Applications
  - Drop-In Lube Oil Tan
  - Modularized System Design
- Axial Compressor Cleaning Systems
  - On-Crank
  - On-Crank/On-Line
  - Portable Cleaning Tank
- Gearbox (if applicable)
  - Speed Increaser
  - Speed Decreasers
- Air Inlet and Exhaust System Options
  (Carbon or Stainless Steel)
- Enclosure and Associated Options
- Factory Testing of Turbine and Package
- Documentation
  - Drawings
  - Quality Control Data Book
  - Inspection and Test Plan
  - Test Reports
  - Operation and Maintenance Manuals
**Solar Turbines**
*A Caterpillar Company*

**MARS 100**
Gas Turbine Mechanical-Drive Package

**Performance**

<table>
<thead>
<tr>
<th>Performance Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Power</td>
<td>11,860 kW (15,900 hp)</td>
</tr>
<tr>
<td>Heat Rate</td>
<td>10,465 kJ/kW-hr (7395 Btu/hp-hr)</td>
</tr>
<tr>
<td>Exhaust Flow</td>
<td>153,245 kg/hr (337,850 lb/hr)</td>
</tr>
<tr>
<td>Exhaust Temp.</td>
<td>485°C (905°F)</td>
</tr>
</tbody>
</table>

Nominal Rating – ISO
At 15°C (59°F), sea level
No inlet/exhaust losses
Relative humidity 60%
Natural gas fuel with LHV = 35 MJ/nm³ (940 Btu/scf)
Optimum power turbine speed
AC-driven accessories
Engine efficiency: 34.4%

**Available Power**

<table>
<thead>
<tr>
<th>INLET AIR TEMPERATURE, °C (°F)</th>
<th>OUTPUT POWER, kW (hp)</th>
<th>HEAT RATE, MJ/kW-hr (Btu/hp-hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-30.0 (-22)</td>
<td>14,000 (18,774)</td>
<td>11.5 (8129)</td>
</tr>
<tr>
<td>-15.0 (5)</td>
<td>13,000 (17,433)</td>
<td>11.0 (7775)</td>
</tr>
<tr>
<td>0.0 (32)</td>
<td>12,000 (16,092)</td>
<td>10.5 (7422)</td>
</tr>
<tr>
<td>15.0 (59)</td>
<td>11,000 (14,757)</td>
<td>10.0 (7068)</td>
</tr>
<tr>
<td>30.0 (86)</td>
<td>10,000 (13,410)</td>
<td>9.5 (6715)</td>
</tr>
<tr>
<td>45.0 (113)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Package Dimensions**

Length: 9.1 m (29' 11")
Width: 2.8 m (9' 2")
Height: 3.4 m (11' 0")
Typical Weight: 33,565 kg (74,000 lb)

*Driver package only, dry weight, unenclosed height

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