General Specifications

Centaur® 40 Gas Turbine

- Industrial, Single-Shaft
- 11 Stage Axial Compressor
  - Variable Inlet Guide Vanes and Stators
  - Pressure Ratio: 10:1
  - Inlet Airflow: 18.7 kg/sec (41.3 lb/sec)
  - Vertically Split Case
- Combustion Chamber, Annular-Type
  - 10 Conventional Fuel Injectors or
    12 Lean-Premixed, Dry Low Emissions SoLoNOx™ Injectors
- Single Torch Ignitor System

Power Turbine

- 3-Stage Reaction
- Clockwise Rotation

Bearings

- 3 Radial Journal: Tilt-Pad
- Thrust, Active: Tilt-Pad
- Thrust, Inactive: Fixed Tapered Land

Coatings

- Compressor: Inorganic Aluminum
- Turbine and Nozzle Blades: Precious Metal Diffusion Aluminide

Vibration Monitoring

- Velocity Transducers

Main Reduction Drive

- Epicyclic Type
  - 1500 or 1800 rpm (50 or 60 Hz)
- Vibration monitoring: Acceleration Transducer

Generator

- 4 Pole, 3 Phase, 6 Wire, Wye Connected, Synchronous with Permanent Magnet Generator Exciter
- Available Construction Types:
  - Open Drip-Proof Construction
  - CACA/TEAAC (Closed Air, Cooling Air/Totally Enclosed, Air to Air Cooling)*
  - CACW/TEWAC (Closed Air, Cooling Water/Totally Enclosed, Water to Air Cooling)*
- Sleeve Bearings
- Vibration Monitoring; Velocity Transducers

Fuel System

- Natural Gas
- Diesel*
  - Dual (Natural Gas and Diesel)*
  - Low BTU Gas*

Integrated Lube Oil System

- Turbine-Driven Lube Pump
- AC Motor Driven Pre/Post Lube Pump
- DC Motor Driven Backup Lube Pump
- Air to Oil Cooler
- Water to Oil Cooler*
- Integral Lube Oil Tank
- Lube Oil Tank Heater
- Lube Oil Filter
- Duplex Lube Oil Filter*
- Oil Tank Vent Separator with Flame Arrestor

Air Inlet and Exhaust Systems

- Carbon Steel
- Stainless Steel*
- Barrier Type Filters
- Self-Cleaning Filters
- Inlet and Exhaust Silencers
- Inlet Evaporative Cooler*
- Inlet Chiller Coils*

Enclosure

- Complete Package
- Driver Only*
- Fire Detection and CO2 Suppression System

NEMA Class F Insulation

Class F Temperature Rise

Class B Temperature Rise*

Continuous Duty Rating Voltages:
- 3300, 6600, 11 000 (50Hz)
- 4160, 6900, 12 470, 13 200, 13 800 (60Hz)

Package

- Mechanical Construction
  - Steel Base Frame with Drip Pans
  - 316L Stainless Steel Piping
  - Compression Type Tube Fittings
- Start System
  - Direct Drive AC Motor with VFD Control
- Package Electrical Certification
  - NEC, CSA Class 1, Group D, Div.2

Fuel System

- Natural Gas
- Diesel*
- Dual (Natural Gas and Diesel)*
- Low BTU Gas*

Power Generation

- 120VDC Battery/Charger System*
- Turbotronic™ On-Skid Gas Turbine and Generator Control System

Combination Generator Control Module with Load Share, Auto Synchronization, Voltage Control
- Standard Display with Discrete Event Log, Strip Chart, Historical Trend, Maintenance Screen
- Vibration and Temperature Monitoring
- English Display Text and Labels
- Spanish, Portuguese, German, French or Simplified Chinese Display Text and Labels*
- Auxiliary and Remote Display/Control Terminals*
- Turbine Performance Map*
- KW Import Control*
- KVAR/Power Factor Control*
- ControlNet Redundant Media, Ethernet, Data Highway Plus or Modbus RS232C/422/485 Supervisory Interface*
- Heat Recovery Application Interface*
- Multi-Unit Applications: Load Shed Control, Import/Export or kW/KVAR Control Panels*
- InSight Platform™ Equipment Health Management*
- Printer/Logger*

Neutral Grounding Resistor or Transformer*
- Switchgear and Generator Protective Relay*
- Motor Control Center with Automatic Transfer Switch*

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Documentation

- Drawings
- Quality Control Data Book
- Inspection and Test Plan
- Test Reports
- O&M Manuals

Factory Testing of Turbine

- Factory Testing of Package Systems
  - Non-Dynamic
  - Dynamic

- NEMA Class F Insulation
- Class F Temperature Rise
- Class B Temperature Rise*
- Continuous Duty Rating Voltages:
  - 3300, 6600, 11 000 (50Hz)
  - 4160, 6900, 12 470, 13 200, 13 800 (60Hz)
Performance

Output Power 3515 kWe
Heat Rate 12,910 kJ/kWe-hr (12,240 Btu/kWe-hr)
Exhaust Flow 68,365 kg/hr (150,715 lb/hr)
Exhaust Temp. 445°C (830°F)

Application Performance

Steam (Unfired) 8.9 tonnes/hr (19,600 lb/hr)
Steam (Fired) 50.9 tonnes/hr (112,190 lb/hr)
Chilling (Absorp.) 7670 kW (2180 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 = 35 MJ/Nm³ (940 Btu/scf)
No accessory losses
Engine efficiency: 27.9% (measured at generator terminals)

Available Power

![Graph showing Output Power and Heat Rate vs. Inlet Air Temperature]

Enclosure Access and Maintenance Space

<table>
<thead>
<tr>
<th>MINIMUM CLEARANCE REQUIRED</th>
<th>GENERATOR MAINTENANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0 m (9' 10&quot;)</td>
<td>9.8 m (32' 3&quot;)</td>
</tr>
<tr>
<td>2.6 m (8' 6&quot;)</td>
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MINIMUM CLEARANCE REQUIRED FOR ENGINE REMOVAL

MINIMUM SPACE CLEARANCE REQUIRED FOR ENCLOSURE ACCESS DOORS AND ROUTINE OPERATION AND MAINTENANCE

Package Height: 3.2 m (10' 5")
Package Weight: 30,460 kg (67,150 lb)  
Dry weight, enclosed height