General Specifications

Saturn® 20 Gas Turbine
- Industrial, Single-Shaft
- Axial Compressor
  - 8-Stage
  - Pressure Ratio: 6.7:1
  - Inlet Airflow: 5.8 kg/sec (12.8 lb/sec)
- Combustion Chamber
  - Annular-Type
  - 12 Fuel Injectors
  - Torch Ignitor System
- Turbine
  - 3-Stage, Reaction
  - Max. Speed: 22,300 rpm
- Bearings
  - Journal: Multi-Ramp Sleeve
  - Thrust: Fixed Tapered Land
- Coatings
  - Compressor: Inorganic Aluminum
  - Turbine and Nozzle Blades: Precious Metal Diffusion Aluminide
- Velocity Vibration Transducer

Main Reduction Drive
- Epicyclic Type
- 1500 or 1800 rpm

Generator
- Type: Salient Pole, 3 Phase, 6 Wire, Wye Connected, Synchronous, with Brushless Exciter
- Construction Options
  - Open Drip Proof

Package
- Base Frame with Drip Pans
- 316L Stainless Steel Piping ≤4" dia
- Compression-Type Tube Fittings
- Electrical System Options
  - NEC, Class I, Group D, Div. 2
  - CENELEC, Zone 2
- Turbotronic™ Microprocessor Control System
  - Freestanding Control Console
  - Color Video Display
  - Vibration Monitoring
- Control Options
  - 24-VDC Control Battery/Charger
  - Gas Turbine and Package Temperature Monitoring
  - Serial Link Supervisory Interface
  - Turbine Performance Map
  - Historical Displays
  - Printer/Logger
  - Field Programming

- Start Systems
  - Pneumatic
  - Direct-Drive AC
- Fuel Systems
  - Natural Gas
  - Liquid
  - Dual (Gas/Liquid)
  - Alternate Fuels
- Integrated Lube Oil System
  - Turbine-Driven Accessories
- Oil System Options
  - Oil Cooler
  - Oil Heater
  - Tank Vent Separator
  - Flame Trap
- Axial Compressor Cleaning Systems
  - On-Crank
  - On-Crank/On-Line
  - Cleaning Tank
- Air Inlet and Exhaust System Options
- 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
**Performance**

Output Power: 1210 kWhe

- Heat Rate: 14,795 kJ/kW-hr (14,025 Btu/kW-hr)
- Exhaust Flow: 2340 kg/hr (51,890 lb/hr)
- Exhaust Temp.: 505°C (940°F)

**Application Performance**

Steam (Unfired): 4.0 tonnes/hr (8715 lb/hr)

Steam (Fired): 17.7 tonnes/hr (39,130 lb/hr)

Chilling (Absorp.): 3410 kW (970 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: 24.3%
  (measured at generator terminals)

**Enclosure Access and Maintenance Space**

- Package Height: 2.7 m (8’ 11“)
- Package Weight: 10,205 kg (22,500 lb)
- Dry weight, enclosed height

**Available Power**

- **Output Power**
  - 16.0 kWhe (15,170 kW)
  - 15.5 kWhe (14,700 kW)
  - 15.0 kWhe (14,220 kW)
  - 14.5 kWhe (13,750 kW)
  - 14.0 kWhe (13,270 kW)

- **Heat Rate**
  - 45.0 MJ/kW-hr (113 Btu/kW-hr)
  - 40.0 MJ/kW-hr (104 Btu/kW-hr)
  - 35.0 MJ/kW-hr (94 Btu/kW-hr)

**FOR MORE INFORMATION**

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