General Specifications

Saturn® 20 Gas Turbine
- Industrial, Two-Shaft
- Axial Compressor
  - 8-Stage
  - Pressure Ratio: 6.7:1
  - Inlet Airflow: 6.4 kg/sec (14.2 lb/sec)
- Combustion Chamber
  - Annular-Type
  - 12 Fuel Injectors
  - Torch Ignitor System
- Gas Producer Turbine
  - 2-Stage, Reaction
  - Max. Speed: 15,000 rpm
- Power Turbine
  - 1-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

Key Package Features

- Driver Skid with Drip Pans
- 316L Stainless Steel Piping 34" dia
- Compression-Type Tube Fittings
- Gauge Panel
  - Fluid Gauges
- Electrical System Options
  - NEC, Class I, Group D, Div 1
  - CENELEC, Zone 1
- Turbotronic™ Microprocessor Control System
  - Freestanding Control Console
  - Color Video Display
- Control Options
  - 24-VDC Control Battery/Charger System
  - Vibration Monitoring
  - Turbine and Package Temperature Monitoring
  - Serial Link Supervisory Interface
  - Turbine Performance Map
  - Compressor Performance Map
  - Historical Displays
  - Printer/Logger
  - Predictive Emissions Monitoring
  - Process Controls
  - Compressor Anti-Surge Control
  - 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
- Gearbox (if applicable)
  - Speed Increaser
  - Speed Decreaser
- 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

Oil & Gas Applications

SATURN 20 Gas Turbine Mechanical Drive Package
**Performance**

- **Output Power**: 1185 kW (1590 hp)
- **Heat Rate**: 14 670 kJ/kW-hr (10,370 Btu/hp-hr)
- **Exhaust Flow**: 23 410 kg/hr (51,615 lb/hr)
- **Exhaust Temp.**: 520°C (970°F)

**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/nm³ (940 Btu/scf)
- Optimum power turbine speed
- AC-driven accessories
- Engine efficiency: 24.5%

**Package Dimensions**

- **Length**: 4.7 m (15' 4")
- **Width**: 1.9 m (6' 1")
- **Height**: 2.0 m (6' 8")
- **Typical Weight**: 6805 kg (15,000 lb)

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**Available Power**

![Graph showing available power and heat rate](DS20CS-002M)

**Output Power**
- 1500 kW (2012 hp)
- 1350 kW (1810 hp)
- 1200 kW (1609 hp)
- 1050 kW (1408 hp)
- 900 kW (1207 hp)

**Heat Rate**
- 16.0 MJ/kW-hr (11,309 Btu/hp-hr)
- 15.5 MJ/kW-hr (10,956 Btu/hp-hr)
- 15.0 MJ/kW-hr (10,803 Btu/hp-hr)
- 14.5 MJ/kW-hr (10,249 Btu/hp-hr)
- 14.0 MJ/kW-hr (9896 Btu/hp-hr)

**Output Power vs. Heat Rate**

**Inlet Air Temperature, °C (°F)**

- 45.0 (103°F)
- 30.0 (86°F)
- 15.0 (59°F)
- 0.0 (32°F)
- -15.0 (5°F)
- -30.0 (-22°F)

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**Turbine Package Dimensions**

- **Turbine Gauge Panel**
- **Turbine Air Inlet**
- **Turbine Exhaust**

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