Standby 60 Hz Natural Gas

Standard Features

**Cat® Engine**
- Robust high speed block design provides prolonged life and lower owning and operating costs
- Designed for maximum performance on low pressure gaseous fuel supply
- High compression ratio coupled with high efficiency, power density and durability
- Island-Mode capability

**Generator Set Package**
- Top tier electrical efficiency
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

**Generators**
- Low Loss Steel LV Generator provides high electrical output and efficiency
- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat engines

**Applications**
- Caterpillar generator sets are capable of maximizing power production opportunities in an extensive range of industries

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**EMCP 4 Control Panels**
- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements

**Warranty**
- 12 months/unlimited hour warranty for continuous ratings
- Extended service protection is available to provide extended coverage options

**Worldwide Product Support**
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

**Financing**
- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

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**Cat® G3520E**
50 Hz Continuous Natural Gas Generator Sets

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**Specifications**

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>ekW (kVA)</th>
<th>Compression</th>
<th>Engine Speed – rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Altitude/Ambient - W/ Pumps</td>
<td>Natural Gas</td>
<td>1995 (2494)</td>
<td>11.9</td>
</tr>
<tr>
<td>High Altitude/Ambient - W/O Pumps</td>
<td>Natural Gas</td>
<td>2022 (2528)</td>
<td>11.9</td>
</tr>
</tbody>
</table>

**Table**

| Bore − mm (in) | 170 (6.7) |
| Stroke − mm (in) | 190 (7.5) |
| Displacement − L (in³) | 69.0 (4210) |
| Aspiration | Turbocharged |
| Fuel System | Electronic Fuel Control Valve |
| Governor | ADEM™ A3 W/ IM |

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Image shown may not reflect actual configuration
Optional Equipment

### Engine
- **Air Cleaner**
  - Regular duty - shipped loose
  - Heavy duty - shipped loose
- **Cooling System**
  - JW & SCAC engine driven pumps
  - RH JW outlet flange
  - ANSI/ DIN flanges
- **Exhaust System**
  - Elbows
  - Expanders
  - Flanges
  - Flexible fittings
- **Fuel System**
  - Gas train pressure sensors
  - Gas knockdown regulator
- **General**
  - Barring group
- **Lubrication**
  - Lubricating oil (NGEO)
  - Oil level regulator
  - Positive crankcase ventilation
  - Electric prelude
- **Mufflers**
  - Industrial Grade (15dB)
  - Residential Grade (18dB)
  - Critical Grade (25dB)
  - Spark Arresting
- **Protection System**
  - Explosion relief valves
- **Starting/Charging**
  - Charging alternator - 60A
  - Battery charger - 20A
  - Oversized batteries
  - Battery cables / racks
  - Air starters
  - Jacket water heater

### Generators
- **Output voltage**
  - 380V
  - 400V
  - 415V
  - 3300V
  - 4000A
  - 6300V
  - 6600V
  - 6900V
  - 10000V
  - 10500V
  - 11000V
- **Temperature Rise**
  - (over 40°C ambient)
  - 105°C
  - 80°C
- **Attachments**
  - Anti-condensation heater
  - Generator RTD module
  - Neutral Ground - LV
  - Cross-Current CT - HV
  - Differential CTS - HV
  - Diode fault detector - HV
  - Air cleaner - HV
  - Auto/manual control - HV

### Control System
- **Controller**
  - EMCP 4.3
  - EMCP 4.4
- **Attachments**
  - Discrete I/O module
  - Load share module
  - Local annunciator module
  - Remote annunciator module
  - Remote monitoring software

### Vibration Isolators
- Rubber
- Spring
- Seismic rated

### Certifications
- 2006/42/EC & 2006/95/EC
- Declaration of Incorporation
- Grid Code Compliance (Germany)
- Eurasian Conformity (EAC)
- Turkish Ministry Compliance

### Enclosure
- Weather protective
- Sound attenuated

### Attachments
- Cold weather bundle
- DC lighting package
- AC lighting package
- Motorized louvers

### Ancillary Equipment
- Automatic transfer switch (ATS)
- Uninterruptible power supply (UPS)
- Paralleling switchgear
- Paralleling controls

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**Note:** Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.
### 50 Hz High Altitude/Ambient Package Performance – AC and JW Pumps

<table>
<thead>
<tr>
<th>Performance</th>
<th>Continuous</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td>50 Hz</td>
<td>50 Hz</td>
</tr>
<tr>
<td>Genset power rating @ 0.8 power factor – ekW (kVA)</td>
<td>1995 (2494)</td>
<td>1995 (2494)</td>
</tr>
<tr>
<td>Engine speed – rpm</td>
<td>1500</td>
<td>1500</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>11.9</td>
<td>11.9</td>
</tr>
<tr>
<td>Emissions –mg/Nm³ (g/bhp-hr) NOx</td>
<td>250 (0.50)</td>
<td>500 (1.00)</td>
</tr>
<tr>
<td>Performance number</td>
<td>DM8927-02</td>
<td>DM8925-02</td>
</tr>
</tbody>
</table>

### Fuel Consumption (ISO 3046/1)

<table>
<thead>
<tr>
<th>Load Type</th>
<th>MJ/ekW-hr (Btu/ekW-hr)</th>
<th>MJ/ekW-hr (Btu/ekW-hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% load</td>
<td>9.13 (6654)</td>
<td>8.87 (6411)</td>
</tr>
<tr>
<td>75% load</td>
<td>9.29 (8805)</td>
<td>9.08 (8614)</td>
</tr>
<tr>
<td>50% load</td>
<td>9.83 (9320)</td>
<td>9.64 (9136)</td>
</tr>
</tbody>
</table>

### Cooling System

- **Auxiliary circuit temperature (maximum inlet)** – °C (°F): 54 (130) 54 (130)
- **Jacket water temperature (maximum outlet)** – °C (°F): 99 (210) 99 (210)

### Inlet Air

- **Combustion air inlet flow rate**: 4.24 (5637) 4.04 (5383)

### Altitude Capability

At 25°C (77°F) ambient, above sea level – m (ft): 1500 (4921) 2000 (6562)

### Exhaust System

- **Exhaust temperature – engine outlet** – °C (°F): 429 (805) 430 (805)
- **Exhaust gas flow**: 4.50 (14283) 4.30 (13658)
- **Exhaust gas mass flow**: 5.67 (25886) 5.42 (24739)

### Heat Rejection

- **Heat rejection to jacket water – kW (Btu/min)**: 634 (36060) 655 (37227)
- **Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)**: 1055 (60007) 988 (56206)
- **Heat rejection to auxiliary circuit – kW (Btu/min)**: 165 (9362) 157 (8925)
- **Heat rejection to atmosphere from engine and generator – kW (Btu/min)**: 215 (12215) 215 (12215)
- **Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)**: 1205 (68539) 1181 (67193)
### 50 Hz High Altitude/Ambient Package Performance – No Pumps

<table>
<thead>
<tr>
<th>Performance</th>
<th>Continuous</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>50 Hz</td>
<td>50 Hz</td>
</tr>
<tr>
<td>Genset power rating @ 0.8 power factor – ekW (kVA)</td>
<td>2022 (2528)</td>
<td>2022 (2528)</td>
</tr>
<tr>
<td>Engine speed – rpm</td>
<td>1500</td>
<td>1500</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>11.9</td>
<td>11.9</td>
</tr>
<tr>
<td>Emissions –mg/Nm³ (g/bhp-hr) NOx</td>
<td>250 (0.50)</td>
<td>500 (1.00)</td>
</tr>
<tr>
<td>Performance number</td>
<td>DM8926-02</td>
<td>DM8924-02</td>
</tr>
</tbody>
</table>

#### Fuel Consumption (ISO 3046/1)

<table>
<thead>
<tr>
<th></th>
<th>Continuous</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% load – MJ/ekW-hr (Btu/ekW-hr)</td>
<td>9.00 (8538)</td>
<td>8.75 (8299)</td>
</tr>
<tr>
<td>75% load – MJ/ekW-hr (Btu/ekW-hr)</td>
<td>9.13 (8653)</td>
<td>8.93 (8466)</td>
</tr>
<tr>
<td>50% load – MJ/ekW-hr (Btu/ekW-hr)</td>
<td>9.58 (9082)</td>
<td>9.39 (8902)</td>
</tr>
</tbody>
</table>

#### Cooling System

<table>
<thead>
<tr>
<th></th>
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<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auxiliary circuit temperature (maximum inlet) – °C (°F)</td>
<td>54 (130)</td>
<td>54 (130)</td>
</tr>
<tr>
<td>Jacket water temperature (maximum outlet) – °C (°F)</td>
<td>99 (210)</td>
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#### Inlet Air

<table>
<thead>
<tr>
<th></th>
<th>Continuous</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm³/bkW-hr (ft³/min)</td>
<td>4.18 (5637)</td>
<td>3.99 (5383)</td>
</tr>
</tbody>
</table>

#### Altitude Capability

<table>
<thead>
<tr>
<th></th>
<th>Continuous</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 25°C (77°F) ambient, above sea level – m (ft)</td>
<td>1500 (4921)</td>
<td>2000 (6562)</td>
</tr>
</tbody>
</table>

#### Exhaust System

<table>
<thead>
<tr>
<th></th>
<th>Continuous</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust temperature – engine outlet – °C (°F)</td>
<td>429 (805)</td>
<td>430 (805)</td>
</tr>
<tr>
<td>Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm³/bkW-hr (ft³/min)</td>
<td>4.44 (14283)</td>
<td>4.24 (13658)</td>
</tr>
<tr>
<td>Exhaust gas mass flow – kg/bkW-hr (lb/hr)</td>
<td>5.59 (25886)</td>
<td>5.34 (24739)</td>
</tr>
</tbody>
</table>

#### Heat Rejection

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Heat rejection to jacket water – kW (Btu/min)</td>
<td>634 (36060)</td>
<td>655 (37227)</td>
</tr>
<tr>
<td>Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)</td>
<td>1055 (60007)</td>
<td>988 (56206)</td>
</tr>
<tr>
<td>Heat rejection to auxiliary circuit – kW (Btu/min)</td>
<td>165 (9362)</td>
<td>157 (8925)</td>
</tr>
<tr>
<td>Heat rejection to atmosphere from engine and generator – kW (Btu/min)</td>
<td>216 (12274)</td>
<td>216 (12274)</td>
</tr>
<tr>
<td>Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)</td>
<td>1205 (68539)</td>
<td>1181 (67193)</td>
</tr>
</tbody>
</table>
Weights and Dimensions

<table>
<thead>
<tr>
<th>Dim “A” (mm/in)</th>
<th>Dim “B” (mm/in)</th>
<th>Dim “C” (mm/in)</th>
<th>Dry Weight (kg/lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6940.2 (273.4)</td>
<td>1827.5 (71.95)</td>
<td>2449.8 (96.45)</td>
<td>17826 (39306)</td>
</tr>
</tbody>
</table>

Note: For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.

Ratings Definitions

Continuous Power Rating
Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous power rating. Typical peak demand is 100% of continuous rated e kW for 100% of operating hours.

Applicable Codes and Standards

Fuel Rates
1. For transient response, ambient, and altitude capabilities consult your local Cat dealer.
2. Fuel pressure range specified is to the engine fuel control valve. Additional fuel train components may be required and should be considered in pressure and flow calculations.
3. For a complete reference of definitions and conditions see the following data sheets
   a. 50 Hz 1995e kW Continuous / Standard (W/ Pumps)
      DM8925-02 (500mg/Nm³ NOx) - SCAC IN: 54°C
      DM8927-02 (250mg/Nm³ NOx) - SCAC IN: 54°C
      DM8929-02 (500mg/Nm³ NOx) - SCAC IN: 43°C
      DM8931-02 (250mg/Nm³ NOx) - SCAC IN: 43°C
   b. 50 Hz 2022e kW Continuous / Standard (WO Pumps)
      DM8924-02 (500mg/Nm³ NOx) - SCAC IN: 54°C
      DM8926-02 (250mg/Nm³ NOx) - SCAC IN: 54°C
      DM8928-02 (500mg/Nm³ NOx) - SCAC IN: 43°C
      DM8930-02 (250mg/Nm³ NOx) - SCAC IN: 43°C