

Cat® G3516H

60 Hz Continuous Gas Generator Sets

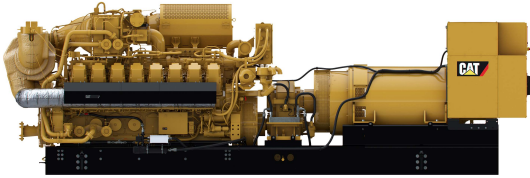


Image shown may not reflect actual configuration

| | |
|-------------------------------------|-------------------------------|
| Bore – mm (in) | 170 (6.7) |
| Stroke – mm (in) | 215 (8.5) |
| Displacement – L (in ³) | 78 (4765) |
| Aspiration | Turbocharged |
| Fuel System | Electronic Fuel Control Valve |
| Governor | ADEM™ A4 |

| | Fuel Type | ekW (kVA) | Compression Ratio | Engine Speed – rpm |
|----------------------------------|-------------|-------------|-------------------|--------------------|
| Humidity/Fuel Tolerant W/ Pumps | Natural Gas | 1966 (2457) | 11.1 | 1500 |
| Humidity/Fuel Tolerant W/O Pumps | Natural Gas | 1982 (2477) | 11.1 | 1500 |
| High Efficiency W/ Pumps | Natural Gas | 1966 (2457) | 12.1 | 1500 |
| High Efficiency W/O Pumps | Natural Gas | 1982 (2477) | 12.1 | 1500 |

Standard Features

Cat® Engine

- Robust high speed block design provides prolonged life and lower owning and operating costs
- High power density and efficiency

Generator Set Package

- Top tier electrical efficiency
- Lowest maintenance and overhaul costs driven by low oil consumption, extended service intervals, and reduced downtime
- Capable of ISO 8528-5 Class G1 transient performance with specified load steps
- Complete genset reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Generators

- High-efficiency design
- 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

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

Optional Equipment

Engine

Air Cleaner (Single Element)

- Installed
- Shipped loose

Cooling System

- JW & SCAC engine driven pumps
- RH JW outlet flange

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 prelube
- Extended Life Oil Tank

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

Generators

Output voltage

- 440V
- 480V
- 600V
- 2400V
- 4160V
- 6300V
- 6600V
- 6900V
- 12470V
- 13200V
- 13800V

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
- Shipped loose CT - HV

Power Termination

Type

- NEMA Bus bar - LV
- Circuit breaker - LV

Circuit Breaker Options

- 4000A
- UL
- IEC
- 3-pole
- 4-pole
- Manually operated
- Electrically operated

Trip Unit Options

- LSI
- LSI-G
- LSI-G-P

Cat Connect

Connectivity

- Ethernet
- Satellite
- Cell

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

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

60 Hz Humidity/Fuel Tolerant Package Performance – AC and JW Pumps

| Performance | Continuous | | | |
|--|------------|---------|-----------|---------|
| | 60 Hz | | 60 Hz | |
| Frequency | 60 Hz | | 60 Hz | |
| Genset power rating @ 0.8 power factor – ekW (kVA) | 1966 | (2457) | 1966 | (2457) |
| Engine Speed – rpm | 1500 | | 1500 | |
| Compression ratio | 11.1 | | 11.1 | |
| NOx Emission Level – mg/Nm ³ (g/bhp-hr) NOx | 266 | (0.50) | 539 | (1.00) |
| Performance number | EM4638-00 | | EM4636-00 | |
| Fuel Consumption | | | | |
| 100% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 8.56 | (8115) | 8.33 | (7895) |
| 75% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 8.77 | (8316) | 8.54 | (8102) |
| 50% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 9.26 | (8784) | 9.05 | (8578) |
| Cooling System | | | | |
| Auxiliary Circuit temperature (maximum inlet) – °C (°F) | 52 | (126) | 52 | (126) |
| Jacket water temperature (maximum outlet) – °C (°F) | 99 | (210) | 99 | (210) |
| Inlet Air | | | | |
| Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm ³ /bKW-hr (ft ³ /min) | 4.00 | (5295) | 3.83 | (5068) |
| Altitude Capability | | | | |
| At 25°C (77°F) ambient, above sea level – m (ft) | 1500 | (4921) | 1750 | (5741) |
| Exhaust System | | | | |
| Exhaust temperature – engine outlet – °C (°F) | 408 | (766) | 408 | (766) |
| Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm ³ /bKW-hr (ft ³ /min) | 4.25 | (13016) | 4.07 | (12468) |
| Exhaust gas mass flow – kg/bKW-hr (lb/hr) | 5.35 | (24306) | 5.12 | (23275) |
| Heat Rejection | | | | |
| Heat rejection to jacket water – kW (Btu/min) | 496 | (28203) | 485 | (27599) |
| Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min) | 981 | (55796) | 940 | (53475) |
| Heat rejection to auxiliary circuit – kW (Btu/min) | 225 | (12815) | 193 | (10989) |
| Heat rejection to atmosphere from engine and generator – kW (Btu/min) | 137 | (7426) | 140 | (7624) |
| Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min) | 1104 | (62767) | 1069 | (60803) |

60 Hz High Efficiency Package Performance – AC and JW Pumps

| Performance | Continuous | | | |
|--|-------------|---------|-------------|---------|
| | 60 Hz | | 60 Hz | |
| Frequency | 60 Hz | | 60 Hz | |
| Genset power rating @ 0.8 power factor – kW (kVA) | 1966 | (2457) | 1966 | (2457) |
| Engine Speed – rpm | 1500 | | 1500 | |
| Compression ratio | 12.1 | | 12.1 | |
| NOx Emission Level – mg/Nm ³ (g/bhp-hr) NOx | 270 | (0.50) | 554 | (1.00) |
| Performance number | EM1341-02 | | EM1339-02 | |
| Fuel Consumption | | | | |
| 100% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 8.39 | (7954) | 8.16 | (7738) |
| 75% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 8.57 | (8125) | 8.36 | (7923) |
| 50% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 9.05 | (8580) | 8.84 | (8385) |
| Cooling System | | | | |
| Auxiliary Circuit temperature (maximum inlet) – °C (°F) | 48 | (118) | 48 | (118) |
| Jacket water temperature (maximum outlet) – °C (°F) | 99 | (210) | 99 | (210) |
| Inlet Air | | | | |
| Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm ³ /bkW-hr (ft ³ /min) | 3.95 | (5233) | 3.75 | (4965) |
| Altitude Capability | | | | |
| At 25°C (77°F) ambient, above sea level – m (ft) | 1250 | (4101) | 1200 | (3937) |
| Exhaust System | | | | |
| Exhaust temperature – engine outlet – °C (°F) | 399 | (751) | 403 | (758) |
| Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm ³ /bkW-hr (ft ³ /min) | 4.20 | (12705) | 3.99 | (12139) |
| Exhaust gas mass flow – kg/bkW-hr (lb/hr) | 5.29 | (24014) | 5.02 | (22801) |
| Heat Rejection | | | | |
| Heat rejection to jacket water – kW (Btu/min) | 478 | (27157) | 465 | (26433) |
| Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min) | 903 | (51343) | 875 | (49748) |
| Heat rejection to auxiliary circuit – kW (Btu/min) | 234 | (13294) | 209 | (11881) |
| Heat rejection to atmosphere from engine and generator – kW (Btu/min) | 149 | (8094) | 151 | (8197) |
| Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min) | 1058 | (60111) | 1013 | (57551) |

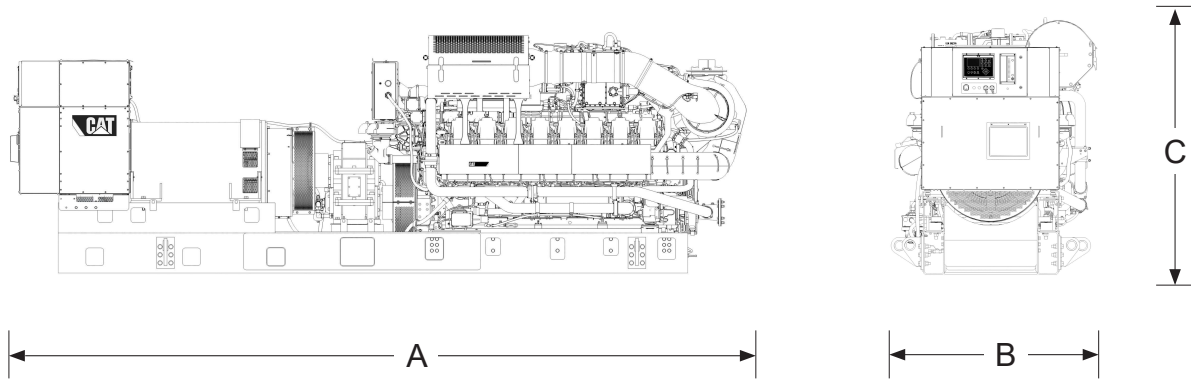
60 Hz Humidity/Fuel Tolerant Package Performance – No Pumps

| Performance | Continuous | | | |
|--|------------|---------|-----------|---------|
| | 60 Hz | | 60 Hz | |
| Frequency | 60 Hz | | 60 Hz | |
| Genset power rating @ 0.8 power factor – ekW (kVA) | 1982 | (2477) | 1982 | (2477) |
| Engine Speed – rpm | 1500 | | 1500 | |
| Compression ratio | 11.1 | | 11.1 | |
| NOx Emission Level – mg/Nm ³ (g/bhp-hr) NOx | 268 | (0.50) | 543 | (1.00) |
| Performance number | EM4637-00 | | EM4635-00 | |
| Fuel Consumption | | | | |
| 100% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 8.49 | (8047) | 8.26 | (7829) |
| 75% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 8.67 | (8224) | 8.45 | (8013) |
| 50% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 9.11 | (8642) | 8.90 | (8443) |
| Cooling System | | | | |
| Auxiliary Circuit temperature (maximum inlet) – °C (°F) | 52 | (126) | 52 | (126) |
| Jacket water temperature (maximum outlet) – °C (°F) | 99 | (210) | 99 | (210) |
| Inlet Air | | | | |
| Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm ³ /bkW-hr (ft ³ /min) | 3.97 | (5293) | 3.80 | (5066) |
| Altitude Capability | | | | |
| At 25°C (77°F) ambient, above sea level – m (ft) | 1500 | (4921) | 1750 | (5741) |
| Exhaust System | | | | |
| Exhaust temperature – engine outlet – °C (°F) | 408 | (766) | 408 | (766) |
| Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm ³ /bkW-hr (ft ³ /min) | 4.21 | (13009) | 4.04 | (12463) |
| Exhaust gas mass flow – kg/bkW-hr (lb/hr) | 5.31 | (24294) | 5.08 | (23266) |
| Heat Rejection | | | | |
| Heat rejection to jacket water – kW (Btu/min) | 496 | (28229) | 486 | (27618) |
| Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min) | 981 | (55769) | 940 | (53457) |
| Heat rejection to auxiliary circuit – kW (Btu/min) | 225 | (12806) | 193 | (10984) |
| Heat rejection to atmosphere from engine and generator – kW (Btu/min) | 137 | (7425) | 141 | (7641) |
| Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min) | 1104 | (62767) | 1070 | (60804) |

60 Hz High Efficiency Package Performance – No Pumps

| Performance | Continuous | | | |
|--|------------|---------|-----------|---------|
| | 60 Hz | | 60 Hz | |
| Frequency | 60 Hz | | 60 Hz | |
| Genset power rating @ 0.8 power factor – ekW (kVA) | 1982 | (2477) | 1982 | (2477) |
| Engine Speed – rpm | 1500 | | 1500 | |
| Compression ratio | 12.1 | | 12.1 | |
| NOx Emission Level – mg/Nm ³ (g/bhp-hr) NOx | 272 | (0.50) | 559 | (1.00) |
| Performance number | EM1340-02 | | EM1338-02 | |
| Fuel Consumption | | | | |
| 100% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 8.32 | (7887) | 8.09 | (7674) |
| 75% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 8.47 | (8034) | 8.27 | (7837) |
| 50% load with fan – MJ/ekW-hr (Btu/ekW-hr) | 8.90 | (8442) | 8.70 | (8252) |
| Cooling System | | | | |
| Auxiliary Circuit temperature (maximum inlet) – °C (°F) | 48 | (118) | 48 | (118) |
| Jacket water temperature (maximum outlet) – °C (°F) | 99 | (210) | 99 | (210) |
| Inlet Air | | | | |
| Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm ³ /bkW-hr (ft ³ /min) | 3.92 | (5230) | 3.72 | (4963) |
| Altitude Capability | | | | |
| At 25°C (77°F) ambient, above sea level – m (ft) | 1250 | (4101) | 1200 | (3937) |
| Exhaust System | | | | |
| Exhaust temperature – engine outlet – °C (°F) | 399 | (751) | 403 | (758) |
| Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm ³ /bkW-hr (ft ³ /min) | 4.16 | (12698) | 3.96 | (12135) |
| Exhaust gas mass flow – kg/bkW-hr (lb/hr) | 5.24 | (24002) | 4.98 | (22792) |
| Heat Rejection | | | | |
| Heat rejection to jacket water – kW (Btu/min) | 478 | (27182) | 465 | (26450) |
| Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min) | 902 | (51273) | 874 | (49706) |
| Heat rejection to auxiliary circuit – kW (Btu/min) | 234 | (13285) | 209 | (11875) |
| Heat rejection to atmosphere from engine and generator – kW (Btu/min) | 150 | (8138) | 151 | (8241) |
| Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min) | 1057 | (60111) | 1012 | (57551) |

Weights and Dimensions



| Dim "A" mm (in) | Dim "B" mm (in) | Dim "C" mm (in) | Dry Weight kg (lb) |
|--------------------|--------------------|--------------------|-----------------------|
| 7003 (276) | 1955 (77) | 2408 (95) | 18 315 (40,384) |

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 kW for 100% of operating hours.

Applicable Codes and Standards

AS 1359, CSA C22.2 No. 100-04, UL 142, UL 489, UL 869, UL 2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

Fuel Rates

- For transient response, ambient, and altitude capabilities consult your local Cat dealer.
- 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.
- For a complete reference of definitions and conditions see the following data sheets
 - 60 Hz 1966kW Continuous / Standard (W/ Pumps)**
 - EM1339-02 w/o fan (1.0 g/bhp-hr NOx) - High Efficiency
 - EM1341-02 w/o fan (0.5 g/bhp-hr NOx) - High Efficiency
 - EM1343-02 w/o fan (1.0 g/bhp-hr NOx) - High Response
 - EM1345-02 w/o fan (0.5 g/bhp-hr NOx) - High Response
 - EM2312-01 w/o fan (1.0 g/bhp-hr NOx) - High Altitude/Ambient
 - EM2314-01 w/o fan (0.5 g/bhp-hr NOx) - High Altitude/Ambient
 - EM4636-00 w/o fan (1.0 g/bhp-hr NOx) - Humidity/Fuel Tolerant
 - EM4638-00 w/o fan (0.5 g/bhp-hr NOx) - Humidity/Fuel Tolerant
 - 60 Hz 1982kW Continuous / Standard (W/O Pumps)**
 - EM1338-02 w/o fan (1.0 g/bhp-hr NOx) - High Efficiency
 - EM1340-02 w/o fan (0.5 g/bhp-hr NOx) - High Efficiency
 - EM1342-02 w/o fan (1.0 g/bhp-hr NOx) - High Response
 - EM1344-02 w/o fan (0.5 g/bhp-hr NOx) - High Response
 - EM2311-01 w/o fan (1.0 g/bhp-hr NOx) - High Altitude/Ambient
 - EM2313-01 w/o fan (0.5 g/bhp-hr NOx) - High Altitude/Ambient
 - EM4635-00 w/o fan (1.0 g/bhp-hr NOx) - Humidity/Fuel Tolerant
 - EM4637-00 w/o fan (0.5 g/bhp-hr NOx) - Humidity/Fuel Tolerant

<http://www.cat.com/powergeneration>

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Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.