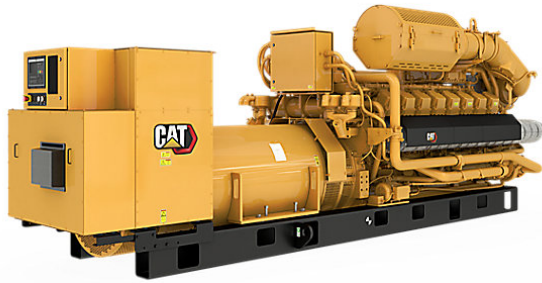


# Cat® G3516H

## 50 Hz Continuous Gas Generator Sets



Bore – mm (in)	170 (6.7)
Stroke – mm (in)	215 (8.5)
Displacement – L (in <sup>3</sup> )	78 (4765)
Aspiration	Turbocharged
Fuel System	Electronic Fuel Control Valve
Governor	ADEM™ A4 W/ IM

Image shown may not reflect actual configuration

	Fuel Type	ekW (kVA)	Compression Ratio	Engine Speed – rpm
Humidity/Fuel Tolerant W/ Pumps	Natural Gas	1990 (2487)	11.1	1500
Humidity/Fuel Tolerant W/O Pumps	Natural Gas	2000 (2500)	11.1	1500
High Efficiency W/ Pumps	Natural Gas	1990 (2487)	12.1	1500
High Efficiency W/O Pumps	Natural Gas	2000 (2500)	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

- 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
- 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
- Jacket water heater

### Generators

#### Output voltage

- 380V  6300V
- 400V  6600V
- 415V  6900V
- 3300V  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

### Power Termination

#### Type

- IEC 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

### Certifications

- 2006/42/EC & 2006/95/EC Declaration of Incorporation
- Germany, VDE 4110 Grid Code Compliance
- United Kingdom, G99 Grid Code Compliance
- Belgium, C10/11 MV-1 Grid Code Compliance
- Turkish Ministry Compliance
- Eurasian Conformity (EAC)

### 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

**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 Humidity/Fuel Tolerant Package Performance – AC and JW Pumps**

Performance	Continuous			
	50 Hz		50 Hz	
Frequency	50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1990	(2488)	1990	(2488)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	250	(0.47)	500	(0.93)
Performance number	EM4634-00		EM4632-00	
<b>Fuel Consumption</b>				
100% load – MJ/ekW-hr (Btu/ekW-hr)	8.49	(8048)	8.24	(7817)
75% load – MJ/ekW-hr (Btu/ekW-hr)	8.68	(8227)	8.45	(8014)
50% load – MJ/ekW-hr (Btu/ekW-hr)	9.14	(8666)	8.94	(8480)
<b>System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	52	(126)	52	(126)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
<b>Inlet Air</b>				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bKW-hr (ft <sup>3</sup> /min)	4.02	(5323)	3.84	(5088)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1500	(4921)	1750	(5741)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	407	(765)	407	(765)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bKW-hr (ft <sup>3</sup> /min)	4.27	(13079)	4.09	(12514)
Exhaust gas mass flow – kg/bKW-hr (lb/hr)	5.38	(24433)	5.15	(23368)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	491	(27927)	482	(27409)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	985	(56035)	943	(53646)
Heat rejection to auxiliary circuit – stage 2 (AC2) – kW (Btu/min)	227	(12909)	194	(11047)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	141	(8002)	140	(7969)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1104	(62767)	1070	(60803)

**50 Hz High Efficiency Package Performance – AC and JW Pumps**

Performance	Continuous			
	50 Hz		50 Hz	
Frequency	50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1990	(2488)	1990	(2488)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	250	(0.47)	500	(0.91)
Performance number	EM1133-02		EM1131-02	
<b>Fuel Consumption</b>				
100% load – MJ/ekW-hr (Btu/ekW-hr)	8.33	(7896)	8.09	(7668)
75% load – MJ/ekW-hr (Btu/ekW-hr)	8.49	(8054)	8.28	(7850)
50% load – MJ/ekW-hr (Btu/ekW-hr)	8.94	(8481)	8.76	(8302)
<b>System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	48	(118)	48	(118)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
<b>Inlet Air</b>				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	3.98	(5268)	3.77	(4991)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1250	(4101)	1200	(3937)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	399	(751)	403	(758)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.23	(12782)	4.01	(12199)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.32	(24172)	5.05	(22923)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	472	(26824)	461	(26199)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	919	(52262)	885	(50336)
Heat rejection to auxiliary circuit – kW (Btu/min)	236	(13413)	210	(11961)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	143	(8145)	145	(8248)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1057	(60110)	1013	(57551)

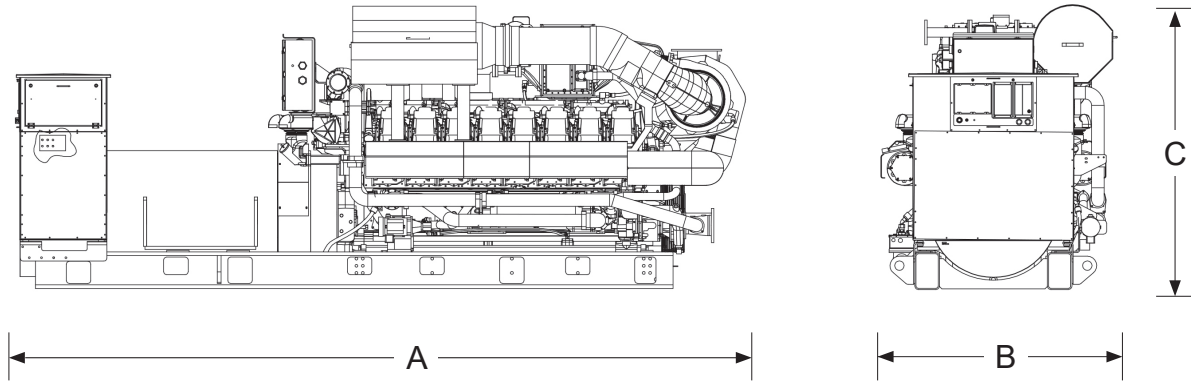
**50 Hz Humidity/Fuel Tolerant Package Performance – No Pumps**

Performance	Continuous			
	50 Hz		50 Hz	
Frequency	50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	2000	(2500)	2000	(2500)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	250	(0.47)	500	(0.98)
Performance number	EM4633-00		EM4631-00	
<b>Fuel Consumption</b>				
100% load – MJ/ekW-hr (Btu/ekW-hr)	8.45	(8008)	8.20	(7779)
75% load – MJ/ekW-hr (Btu/ekW-hr)	8.59	(8142)	8.37	(7932)
50% load – MJ/ekW-hr (Btu/ekW-hr)	9.00	(8534)	8.81	(8353)
<b>System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	52	(126)	52	(126)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
<b>Inlet Air</b>				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	3.99	(5323)	3.81	(5088)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1500	(4921)	1750	(5741)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	407	(765)	407	(765)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.24	(13079)	4.06	(12514)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.34	(24433)	5.10	(23369)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	491	(27927)	482	(27409)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	985	(56035)	943	(53647)
Heat rejection to auxiliary circuit – kW (Btu/min)	227	(12909)	194	(11047)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	148	(8401)	147	(8368)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1104	(62767)	1070	(60803)

**50 Hz High Efficiency Package Performance – No Pumps**

Performance	Continuous			
	50 Hz		50 Hz	
Frequency	50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	2000	(2500)	2000	(2500)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	250	(0.46)	500	(0.90)
Performance number	EM1332-02		EM1330-02	
<b>Fuel Consumption</b>				
100% load – MJ/ekW-hr (Btu/ekW-hr)	8.29	(7857)	8.05	(7630)
75% load – MJ/ekW-hr (Btu/ekW-hr)	8.41	(7971)	8.19	(7770)
50% load – MJ/ekW-hr (Btu/ekW-hr)	8.81	(8352)	8.62	(8177)
<b>System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	48	(118)	48	(118)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
<b>Inlet Air</b>				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	3.95	(5268)	3.74	(4991)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1250	(4101)	1200	(3937)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	399	(751)	403	(758)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.19	(12782)	3.98	(12199)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.28	(24172)	5.01	(22923)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	472	(26824)	461	(26199)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	919	(52262)	885	(50336)
Heat rejection to auxiliary circuit – kW (Btu/min)	236	(13413)	210	(11961)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	150	(8544)	152	(8647)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1057	(60111)	1013	(57551)

## Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
6401 (252)	1921 (75.6)	2306 (90.8)	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
  - 50 Hz 1900ekW Continuous / Standard (W/ Pumps)**  
EM4541-00 Power Module (500 mg/Nm<sup>3</sup> NOx) - Humidity/Fuel Tolerant  
EM4542-00 Power Module (250 mg/Nm<sup>3</sup> NOx) - Humidity/Fuel Tolerant
  - 50 Hz 1990ekW Continuous / Standard (W/ Pumps)**  
EM1331-02 w/o fan (500 mg/Nm<sup>3</sup> NOx) - High Efficiency  
EM1333-02 w/o fan (250 mg/Nm<sup>3</sup> NOx) - High Efficiency  
EM1335-02 w/o fan (500 mg/Nm<sup>3</sup> NOx) - High Response  
EM1337-02 w/o fan (250 mg/Nm<sup>3</sup> NOx) - High Response  
EM2308-01 w/o fan (500 mg/Nm<sup>3</sup> NOx) - High Altitude/Ambient  
EM2310-01 w/o fan (250 mg/Nm<sup>3</sup> NOx) - High Altitude/Ambient  
EM4632-00 w/o fan (500 mg/Nm<sup>3</sup> NOx) - Humidity/Fuel Tolerant  
EM4634-00 w/o fan (250 mg/Nm<sup>3</sup> NOx) - Humidity/Fuel Tolerant
  - 50 Hz 2000ekW Continuous / Standard (W/O Pumps)**  
EM1330-02 w/o fan (500 mg/Nm<sup>3</sup> NOx) - High Efficiency  
EM1332-02 w/o fan (250 mg/Nm<sup>3</sup> NOx) - High Efficiency  
EM1334-02 w/o fan (500 mg/Nm<sup>3</sup> NOx) - High Response  
EM1336-02 w/o fan (500 mg/Nm<sup>3</sup> NOx) - High Response  
EM2307-01 w/o fan (250 mg/Nm<sup>3</sup> NOx) - High Altitude/Ambient  
EM2309-01 w/o fan (250 mg/Nm<sup>3</sup> NOx) - High Altitude/Ambient  
EM4631-00 w/o fan (500 mg/Nm<sup>3</sup> NOx) - Humidity/Fuel Tolerant  
EM4633-00 w/o fan (250 mg/Nm<sup>3</sup> 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.