

Cat® G3516H

50 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 Type	ADEM™ A4 w/IM

	Fuel Type	ekW (kVA)	Compression Ratio	Engine Speed – rpm
Humidity/Fuel Tolerant w/Pumps	Natural Gas	1990 (2488)	11.1	1500
Humidity/Fuel Tolerant w/o Pumps	Natural Gas	2000 (2500)	11.1	1500
High Efficiency w/Pumps	Natural Gas	1990 (2488)	12.1	1500
High Efficiency w/o Pumps	Natural Gas	2000 (2500)	12.1	1500

Note: Hydrogen Capable Retrofit Kit and Pricelist Option Available for Up to 25% H₂ blends by volume on certain configurations.

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
- Low 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
- 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
- Generator sets support up to 25% Hydrogen by volume capability, either direct from factory price list or retrofit kit.

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
- ☐ Natural Gas Supply
- ☐ Hydrogen Supply (Up to 25%) *

General

- ☐ Barring group

Lubrication

- ☐ Lubricating oil (NGEO)
- ☐ Oil level regulator
- ☐ Electric prelube
- ☐ Extended Life Oil Tank

Mufflers

- ☐ Industrial Grade (15 dB)
- ☐ Residential Grade (18 dB)
- ☐ Critical Grade (25 dB)
- ☐ Spark Arresting

Protection System

- ☐ Explosion Relief Valves

Starting/Charging

- ☐ Charging alternator - 60 A
- ☐ Battery charger - 20 A
- ☐ Oversized batteries
- ☐ Battery cables / racks
- ☐ Air starters
- ☐ Jacket water heater

Generators

Output voltage

- ☐ 380 V ☐ 6300 V
- ☐ 400 V ☐ 6600 V
- ☐ 415 V ☐ 6900 V
- ☐ 3300 V ☐ 10000 V
- ☐ 10500 V
- ☐ 11000 V

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

- ☐ 4000 A
- ☐ 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)
- ☐ Additional Grid Code Compliances Available

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. * Configured Hydrogen Capable Units may experience rating differences on both Natural Gas and H₂ blends based on site conditions - (Fuel blending Source Provided by Customer)

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

Performance		Continuous			
Frequency		50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – kW (kVA)		1990	(2488)	1990	(2488)
Engine Speed – rpm		1500		1500	
Compression ratio		11.1		11.1	
NOx Emission Level – mg/Nm³ (g/bhp-hr) NOx		250	(0.47)	500	(0.93)
Performance number		EM2353-00		EM2351-00	
Fuel Consumption					
100% load – MJ/kW-hr (Btu/kW-hr)		8.49	(8048)	8.24	(7817)
75% load – MJ/kW-hr (Btu/kW-hr)		8.68	(8227)	8.45	(8014)
50% load – MJ/kW-hr (Btu/kW-hr)		9.14	(8666)	8.94	(8480)
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) – Nm³/bkW-hr (ft³/min)		4.02	(5323)	3.84	(5088)
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)		407	(765)	407	(765)
Exhaust gas flow (0 °C, 101.3 kPa)/(77 °F, 14.7 psia) – Nm³/bkW-hr (ft³/min)		4.27	(13079)	4.09	(12514)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)		5.38	(24433)	5.15	(23368)
Heat Rejection					
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			
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/Nm³ (g/bhp-hr) NOx		250	(0.47)	500	(0.91)
Performance number		EM2213-00		EM2211-00	
Fuel Consumption					
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)
System					
Auxiliary Circuit temperature (maximum inlet) – °C (°F)		49	(120)	49	(120)
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) – Nm³/bkW-hr (ft³/min)		3.98	(5268)	3.77	(4991)
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) – Nm³/bkW-hr (ft³/min)		4.23	(12782)	4.01	(12199)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)		5.32	(24172)	5.05	(22923)
Heat Rejection					
Heat rejection to jacket water – kW (Btu/min)		472	(26819)	461	(26194)
Heat rejection to exhaust (LHV to 120 °C/248 °F) – kW (Btu/min)		926	(52679)	891	(50695)
Heat rejection to auxiliary circuit – kW (Btu/min)		229	(13000)	204	(11606)
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)		1058	(60111)	1013	(57550)

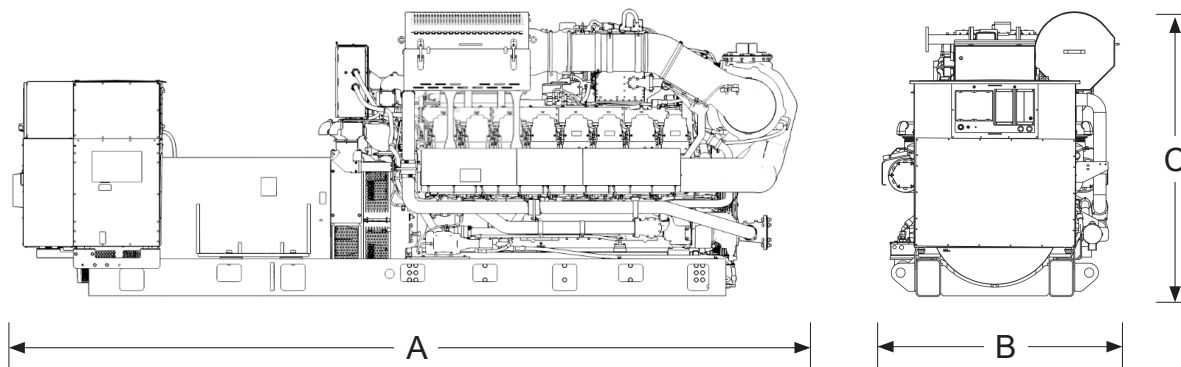
50 Hz Humidity/Fuel Tolerant Package Performance – No Pumps

Performance		Continuous			
Frequency		50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – kW (kVA)		2000	(2500)	2000	(2500)
Engine Speed – rpm		1500		1500	
Compression ratio		11.1		11.1	
NOx Emission Level – mg/Nm³ (g/bhp-hr) NOx		250	(0.47)	500	(0.98)
Performance number		EM2352-00		EM2350-00	
Fuel Consumption					
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)
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) – Nm³/bkW-hr (ft³/min)		3.99	(5323)	3.81	(5088)
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)		407	(765)	407	(765)
Exhaust gas flow (0 °C, 101.3 kPa)/(77 °F, 14.7 psia) – Nm³/bkW-hr (ft³/min)		4.24	(13079)	4.06	(12514)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)		5.34	(24433)	5.10	(23369)
Heat Rejection					
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			
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/Nm³ (g/bhp-hr) NOx		250	(0.46)	500	(0.90)
Performance number		EM2212-00		EM2210-00	
Fuel Consumption					
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)
System					
Auxiliary Circuit temperature (maximum inlet) – °C (°F)		49	(120)	49	(120)
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) – Nm³/bkW-hr (ft³/min)		3.95	(5268)	3.74	(4991)
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) – Nm³/bkW-hr (ft³/min)		4.19	(12782)	3.98	(12199)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)		5.28	(24172)	5.01	(22923)
Heat Rejection					
Heat rejection to jacket water – kW (Btu/min)		472	(26819)	461	(26194)
Heat rejection to exhaust (LHV to 120 °C/248 °F) – kW (Btu/min)		926	(52680)	891	(50696)
Heat rejection to auxiliary circuit – kW (Btu/min)		229	(13001)	204	(11606)
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)		1058	(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 1900 kW Continuous / Standard (w/Pumps)**
EM4962-02 Power Module (500 mg/Nm³ NOx) - Humidity/Fuel Tolerant
 - 50 Hz 1990 kW Continuous / Standard (w/Pumps)**
EM2211-00 w/o fan (500 mg/Nm³ NOx) - High Efficiency
EM2213-00 w/o fan (250 mg/Nm³ NOx) - High Efficiency
EM2215-00 w/o fan (500 mg/Nm³ NOx) - High Response
EM2217-00 w/o fan (250 mg/Nm³ NOx) - High Response
EM2327-00 w/o fan (500 mg/Nm³ NOx) - High Altitude/Ambient
EM2329-00 w/o fan (250 mg/Nm³ NOx) - High Altitude/Ambient
EM2351-00 w/o fan (500 mg/Nm³ NOx) - Humidity/Fuel Tolerant
EM2353-00 w/o fan (250 mg/Nm³ NOx) - Humidity/Fuel Tolerant
 - 50 Hz 2000 kW Continuous / Standard (w/o Pumps)**
EM2210-00 w/o fan (500 mg/Nm³ NOx) - High Efficiency
EM2212-00 w/o fan (250 mg/Nm³ NOx) - High Efficiency
EM2214-00 w/o fan (500 mg/Nm³ NOx) - High Response
EM2216-00 w/o fan (250 mg/Nm³ NOx) - High Response
EM2326-00 w/o fan (500 mg/Nm³ NOx) - High Altitude/Ambient
EM2328-00 w/o fan (250 mg/Nm³ NOx) - High Altitude/Ambient
EM2350-00 w/o fan (500 mg/Nm³ NOx) - Humidity/Fuel Tolerant
EM2352-00 w/o fan (250 mg/Nm³ NOx) - Humidity/Fuel Tolerant

Note: Hydrogen Capability Up to 25% H₂ blend by volume is available on certain configurations through price list and performance data available in GERP or upon request.

<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.