

# Cat® G3516C

## Natural Gas Generator Sets



Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.7)
Stroke – mm (in)	190 (7.5)
Displacement – L (in <sup>3</sup> )	69.0 (4210)
Aspiration	Turbocharged
Fuel System	Electronic Fuel Control Valve
Governor	ADEM™ A3

	Fuel Type	ekW (kVA)	Compression	Engine Speed – rpm
Continuous 50 Hz	Natural Gas	1590 (1987)	11.3	1500
Continuous 60 Hz	Natural Gas	1660 (2075)	11.3	1800
Standby (DTO) 60 Hz	Natural Gas	1561 (1951)	11.3	1800

### 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 percentage of component commonality with diesel engines
- 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

- High-efficiency design
- 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

#### 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

- 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

- Fuel filter
- Gas regulator

#### General

- Barring group

#### Lubrication

- Lubricating oil (NGEO)
- Oil level regulator
- Positive crankcase ventilation
- Electric prelube

#### 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     6900V     600V
- 400V     10000V     2400V
- 415V     10500V     4160V
- 3300V     11000V     12470V
- 6300V     440V     13200V
- 6600V     480V     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)
- Diode fault detector (HV)
- Air cleaner (HV)
- Auto/manual control (HV)

### Power Termination

#### Type

- IEC Bus bar (LV)
- Circuit breaker (LV)

#### Circuit Breaker Options

- 3000A
- UL     IEC
- 3-pole     4-pole
- Manually operated
- Electrically operated

#### Trip Unit Options

- LSI     LSI-G
- LSIG-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
- 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

**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 Standard Package Performance – No Pumps**

<b>Performance</b>	<b>Continuous</b>		<b>Continuous</b>	
Frequency	50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1590	(1987)	1590	(1987)
Engine speed – rpm	1500		1500	
Compression ratio	11.3		11.3	
Emissions –mg/Nm <sup>3</sup> (g/bhp-hr) NOx	250	(0.49)	0.99	(1.14)
Performance number	DM8679-05		DM8678-05	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.30	(8819)	9.07	(8600)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.48	(8984)	9.24	(8760)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.94	(9428)	9.70	(9193)
<b>Cooling System</b>				
Auxiliary circuit temperature (maximum inlet) – °C (°F)	54	(130)	54	(130)
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)	4.38	(4662)	4.20	(4476)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	400	(1312)	500	(1640)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	475	(888)	477	(891)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.64	(12570)	4.46	(12114)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.85	(21396)	5.63	(20556)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	472	(26832)	462	(26292)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1073	(61040)	1038	(59048)
Heat rejection to auxiliary circuit – kW (Btu/min)	134	(7629)	128	(7291)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	183	(10411)	183	(10411)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	829	(47108)	790	(44965)

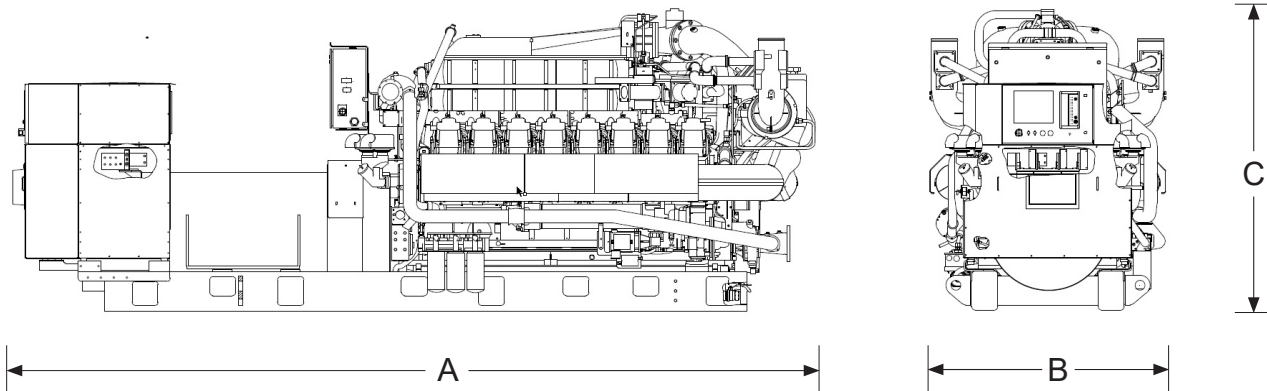
**60 Hz Standard Package Performance – AC and JW Pumps**

<b>Performance</b>	<b>Continuous</b>		<b>Continuous</b>	
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1660	(2075)	1660	(2075)
Engine speed – rpm	1800		1800	
Compression ratio	11.3		11.3	
Emissions – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	215	(0.50)	442	(1.00)
Performance number	DM5785-04		DM5784-04	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	10.00	(9480)	9.64	(9140)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	10.41	(9871)	10.04	(9517)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	11.04	(10466)	10.64	(10090)
<b>Cooling System</b>				
Auxiliary circuit temperature (maximum inlet) – °C (°F)	54	(130)	54	(130)
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)	4.56	(5091)	4.35	(4853)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	365	(1198)	670	(2198)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	496	(924)	497	(927)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.85	(14130)	4.62	(13502)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	6.11	(23386)	5.83	(22300)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	516	(29323)	508	(28886)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1289	(73276)	1218	(69724)
Heat rejection to auxiliary circuit – kW (Btu/min)	129	(7328)	121	(6874)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	215	(12200)	215	(12200)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	976	(55489)	921	(52360)

**60 Hz Standard Package Performance – AC and JW Pumps**

Performance	Continuous		Continuous	
	60 Hz		60 Hz	
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – kW (kVA)	1561	(1951)	1561	(1951)
Engine speed – rpm	1800		1800	
Compression ratio	11.3		11.3	
Emissions – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	239	(0.50)	488	(1.00)
Performance number	EM0753-03		EM0752-03	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.92	(9404)	9.62	(9120)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	10.20	(9670)	9.94	(9422)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	11.14	(10565)	10.81	(10246)
<b>Cooling System</b>				
Auxiliary circuit temperature (maximum inlet) – °C (°F)	54	(130)	54	(130)
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)	4.43	(4620)	4.24	(4414)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1829	(6000)	2195	(7200)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	464	(867)	459	(858)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.72	(12320)	4.51	(11703)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.94	(21242)	5.68	(20308)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	629	(35766)	613	(34857)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1034	(58823)	975	(55437)
Heat rejection to auxiliary circuit – kW (Btu/min)	123	(7011)	122	(6964)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	199	(11314)	199	(11314)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1071	(60903)	1030	(58592)

## Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
6195.0 (243.90)	1831.4 (72.10)	2328.1 (91.66)	14161 (31226)

**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.

### Standby Power Rating

Output available with varying load for the duration of an emergency outage. Average power output is 100% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

### Applicable Codes and Standards

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/ EC.

**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 1590kW Continuous / Standard (W/O Pumps)**  
DM8678-05 (500mg/Nm<sup>3</sup> NOx)  
DM8679-05 (250mg/Nm<sup>3</sup> NOx)
  - 50 Hz 1555kW Continuous / Standard (W/ Pumps)**  
DM8682-05 (500mg/Nm<sup>3</sup> NOx)  
DM8683-05 (250mg/Nm<sup>3</sup> NOx)  
DM8670-06 (500mg/Nm<sup>3</sup> NOx)  
DM8671-06 (500mg/Nm<sup>3</sup> NOx)
  - 60 Hz 1660kW LV Continuous / Standard (W/ Pumps)**  
DM5784-04 (1.0g/bhp-hr NOx)  
DM5785-04 (0.5g/bhp-hr NOx)
  - 60 Hz 1650kW HV Continuous / Standard (W/ Pumps)**  
DM5787-04 (1.0g/bhp-hr NOx)  
DM5788-04 (0.5g/bhp-hr NOx)
  - 60 Hz 1550kW Continuous / Standard (W/ Pumps)**  
EM0952-01 (1.0g/bhp-hr NOx)  
EM0953-01 (0.5g/bhp-hr NOx)
  - 60 Hz 1500kW Standby / Standard (W/ Pumps)**  
EM0752-04 (1.0g/bhp-hr NOx)  
EM0753-04 (0.5g/bhp-hr NOx)

<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.