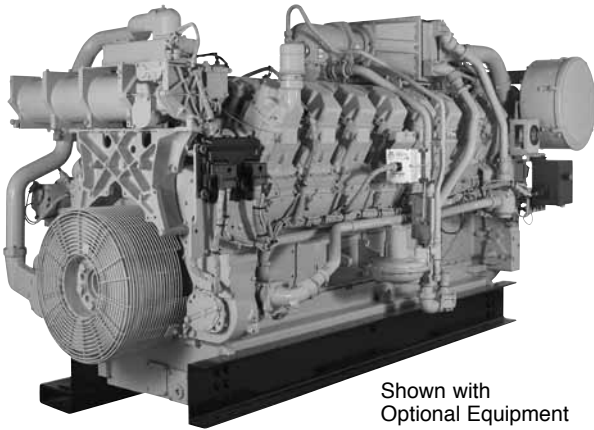


# CATERPILLAR®

## G3516 LE Gas Petroleum Engine

858-999 kW  
1150-1340 bhp  
1200-1400 rpm

2.0 g/bhp-hr NOx (NTE)



Shown with  
Optional Equipment

### CAT® ENGINE SPECIFICATIONS

#### V-16, 4-Stroke-Cycle

Bore .....	170 mm (6.7 in.)
Stroke .....	190 mm (7.5 in.)
Displacement .....	69 L (4210 cu. in.)
Aspiration .....	Turbocharged-Aftercooled
Digital Engine Management	
Governor and Protection .....	Electronic (ADEM™ A3)
Combustion .....	Low Emission (Lean Burn)
Engine Weight, net dry (approx) .....	8015 kg (17,670 lb)
Power Density .....	8 kg/kW (13.2 lb/bhp)
Power per Displacement .....	19.3 bhp/L
Total Cooling System Capacity .....	217.7 L (57.5 gal)
Jacket Water .....	200.6 L (53 gal)
Aftercooler Circuit .....	17 L (4.5 gal)
Lube Oil System (refill) .....	424 L (112 gal)
Oil Change Interval .....	1000 hours
Rotation (from flywheel end) .....	Counterclockwise
Flywheel and Flywheel Housing .....	SAE No. 00
Flywheel Teeth .....	183

### FEATURES

#### Engine Design

- Proven reliability and durability
- Ability to burn a wide spectrum of gaseous fuels
- Robust diesel strength design prolongs life and lowers owning and operating costs
- Broad operating speed range

#### Emissions

Meets U.S. EPA Spark Ignited Stationary NSPS Emissions for 2007/8

#### Lean Burn Engine Technology

Lean-burn engines operate with large amounts of excess air. The excess air absorbs heat during combustion reducing the combustion temperature and pressure, greatly reducing levels of NOx. Lean-burn design also provides longer component life and excellent fuel consumption.

#### Advanced Digital Engine Management

ADEM A3 control system providing integrated ignition, speed governing, protection, and controls, including detonation-sensitive variable ignition timing. ADEM A3 has improved: user interface, display system, shutdown controls, and system diagnostics.

#### Ease of Operation

Side covers on block allow for inspection of internal components

#### Full Range of Attachments

Large variety of factory-installed engine attachments reduces packaging time

#### Testing

Every engine is full-load tested to ensure proper engine performance.

#### Gas Engine Rating Pro

GERP is a PC-based program designed to provide site performance capabilities for Cat® natural gas engines for the gas compression industry. GERP provides engine data for your site's altitude, ambient temperature, fuel, engine coolant heat rejection, performance data, installation drawings, spec sheets, and pump curves.

#### Product Support Offered Through Global Cat Dealer Network

More than 2,200 dealer outlets

Cat factory-trained dealer technicians service every aspect of your petroleum engine

Cat parts and labor warranty

Preventive maintenance agreements available for repair-before-failure options

S•O•S<sup>SM</sup> program matches your oil and coolant samples against Caterpillar set standards to determine:

- Internal engine component condition
- Presence of unwanted fluids
- Presence of combustion by-products
- Site-specific oil change interval

#### Over 80 Years of Engine Manufacturing Experience

Over 60 years of natural gas engine production

Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable products.

- Cast engine blocks, heads, cylinder liners, and flywheel housings
- Machine critical components
- Assemble complete engine

#### Web Site

For all your petroleum power requirements, visit [www.catoilandgas.cat.com](http://www.catoilandgas.cat.com).

**STANDARD EQUIPMENT**

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**Air Inlet System**

Air cleaner — intermediate-duty with service indicator

**Control System**

A3 ECU

Air-fuel ratio control

**Cooling System**

Thermostats and housing

Jacket water pump

Aftercooler water pump

Aftercooler core for sea-air atmosphere

Aftercooler thermostats and housing

**Exhaust System**

Watercooled exhaust manifolds

**Flywheels & Flywheel Housings**

SAE No. 00 flywheel

SAE No. 00 flywheel housing

SAE standard rotation

**Fuel System**

Gas pressure regulator

Natural gas carburetor

**Ignition System**

A3 ECU

**Instrumentation**

PL1000 Advisor panel

**Lubrication System**

Crankcase breather — top mounted

Oil cooler

Oil filter — RH

Oil bypass filter

Oil pan — shallow

Oil sampling valve

Turbo oil accumulator

**Mounting System**

Rails, engine mounting — 254 mm (10 in)

**Protection System**

Electronic shutoff system

Gas shutoff valve

**General**

Paint — Cat yellow

Vibration damper and guard — dual 484 mm (23 in)

**OPTIONAL EQUIPMENT**

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**Air Inlet System**

Remote air inlet adapters

Precleaner

**Charging System**

Battery chargers

Charging alternators

**Cooling System**

Aftercooler core

Thermostatic valve

Temperature switch

Connections

Expansion and overflow tank

Water level switch gauge

**Exhaust System**

Flexible fittings

Elbows

Flange

Flange and exhaust expanders

Rain cap

Mufflers

**Fuel System**

Low pressure gas conversions

Propane gas valve and jet kits

Fuel filter

**Instrumentation**

PL1000 communications modules

**Lubrication System**

Oil bypass filter removal and oil pan accessories

Sump pump

Air prelube pump

Manual prelube pump

Lubricating oil

**Mounting System**

Rails

Vibration isolators

**Power Take-Offs**

Front accessory drives

Auxiliary drive shafts and pulleys

Front stub shaft

Pulleys

**Protection System**

Explosion relief valves, status control box interconnect wiring harness

**Starting System**

Air starting motor

Air pressure regulator

Air silencer

Electric air start controls

Electric starting motors — dual 24-volt

Starting aids

Battery sets (24-volt dry), cables, and rack

**General**

Flywheel inertia weight

Guard removal

Engine barring group

Premium 8:1 pistons

Premium cylinder heads

**TECHNICAL DATA**
**G3516 LE Gas Petroleum Engine**

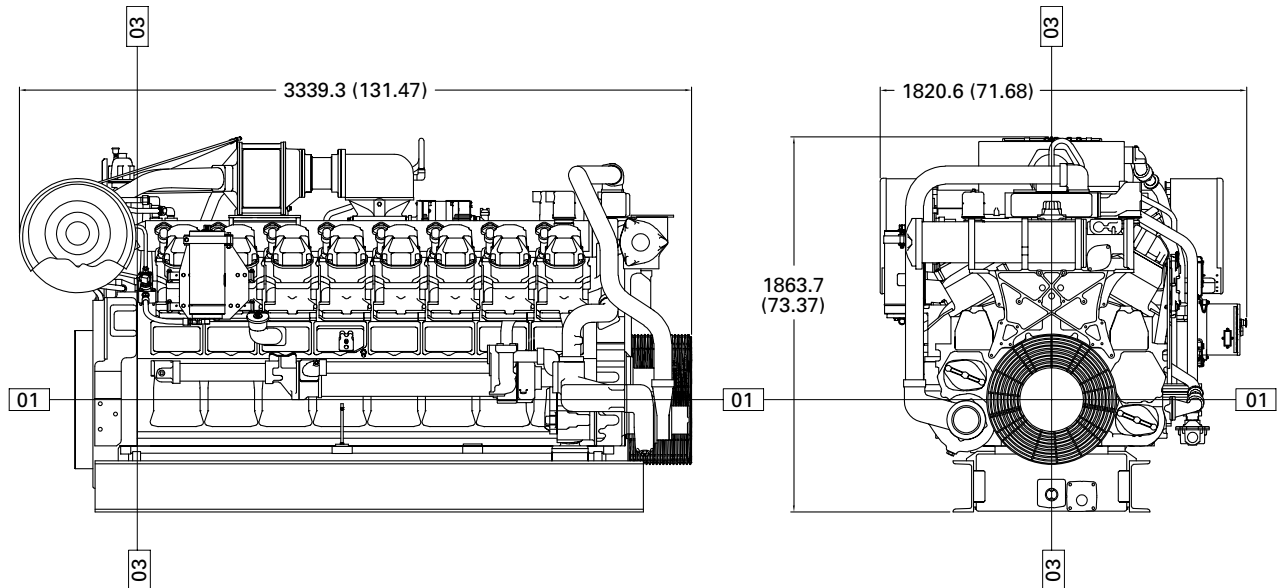
Fuel System		2 g NOx NTE Rating DM8618-01	2 g NOx NTE Rating DM8620-01
<b>Engine Power</b>			
@ 100% Load	bkW (bhp)	999 (1340)	858 (1150)
@ 75% Load	bkW (bhp)	749 (1004)	643 (862)
<b>Engine Speed</b>		<b>1400</b>	<b>1200</b>
Max Altitude @ Rated Torque and 38°C (100°F)	rpm m (ft)	304.8 (1000)	1219.2 (4000)
Speed Turndown @ Max Altitude, Rated Torque, and 38°C (100°F)	%	25	9.2
<b>SCAC Temperature</b>		54 (130)	54 (130)
<b>Emissions*</b>			
NOx	g/bkW-hr (g/bhp-hr)	2.68 (2)	2.68 (2)
CO	g/bkW-hr (g/bhp-hr)	2.49 (1.86)	2.35 (1.75)
CO <sub>2</sub>	g/bkW-hr (g/bhp-hr)	632 (471)	624 (466)
VOC**	g/bkW-hr (g/bhp-hr)	0.35 (0.26)	0.4 (0.3)
<b>Fuel Consumption***</b>			
@ 100% Load	MJ/bkW-hr (Btu/bhp-hr)	10.48 (7405)	10.36 (7324)
@ 75% Load	MJ/bkW-hr (Btu/bhp-hr)	10.79 (7628)	10.76 (7605)
<b>Heat Balance</b>			
Heat Rejection to Jacket Water			
@ 100% Load	bkW (Btu/mn)	741 (42,123)	639 (36,343)
@ 75% Load	bkW (Btu/mn)	616.7 (35,075)	554 (31,480)
Heat Rejection to Aftercooler			
@ 100% Load	bkW (Btu/mn)	167.8 (9546)	131.9 (7509)
@ 75% Load	bkW (Btu/mn)	108.6 (6179)	72.2 (4108)
Heat Rejection to Exhaust			
@ 100% Load	bkW (Btu/mn)	837.8 (47,643)	694.6 (39,536)
LHV to 25° C (77° F)			
@ 75% Load	bkW (Btu/mn)	630.4 (35,848)	524.1 (29,806)
LHV to 25° C (77° F)			
<b>Exhaust System</b>			
Exhaust Gas Flow Rate			
@ 100% Load	m <sup>3</sup> /min (cfm)	217.0 (7663)	182.9 (6460)
@ 75% Load	m <sup>3</sup> /min (cfm)	163.8 (5785)	138.9 (4905)
Exhaust Stack Temperature			
@ 100% Load	°C (°F)	467.22 (873)	452.2 (846)
@ 75% Load	°C (°F)	467.22 (873)	450.5 (843)
<b>Intake System</b>			
Air Inlet Flow Rate			
@ 100% Load	m <sup>3</sup> /min (scfm)	80.6 (2847)	69.5 (2453)
@ 75% Load	m <sup>3</sup> /min (scfm)	60.8 (2147)	52.8 (1864)
<b>Gas Pressure</b>		241.5-275.8 (35-40)	241.5-275.8 (35-40)

\*at 100% load and speed, all values are listed as not to exceed

\*\*Volatile organic compounds as defined in U.S. EPA 40 CFR 60, subpart JJJJ

\*\*\*ISO 3046/1

### GAS PETROLEUM ENGINE



DIMENSIONS		
Length	mm (in.)	3339.3 (131.47)
Width	mm (in.)	1820.6 (71.68)
Height	mm (in.)	1863.7 (73.37)
Shipping Weight	kg (lb)	8015 (17,670)

**Note:** General configuration not to be used for installation. See general dimension drawings for detail (drawing #289-2971).

Dimensions are in mm (inches).

### RATING DEFINITIONS AND CONDITIONS

Engine performance is obtained in accordance with SAE J1995, ISO3046/1, BS5514/1, and DIN6271/1 standards.

Transient response data is acquired from an engine/generator combination at normal operating temperature and in accordance with ISO3046/1 standard ambient conditions. Also in accordance with SAE J1995, BS5514/1, and DIN6271/1 standard reference conditions.

**Conditions:** Power for gas engines is based on fuel having an LHV of 33.74 kJ/L (905 Btu/cu ft) at 101 kPa (29.91 in. Hg) and 15° C (59° F). Fuel rate is based on a cubic meter at 100 kPa (29.61 in. Hg) and 15.6° C (60.1° F). Air flow is based on a cubic foot at 100 kPa (29.61 in. Hg) and 25° C (77° F). Exhaust flow is based on a cubic foot at 100 kPa (29.61 in. Hg) and stack temperature.

Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication. CAT, CATERPILLAR, their respective logos, ADEM, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.