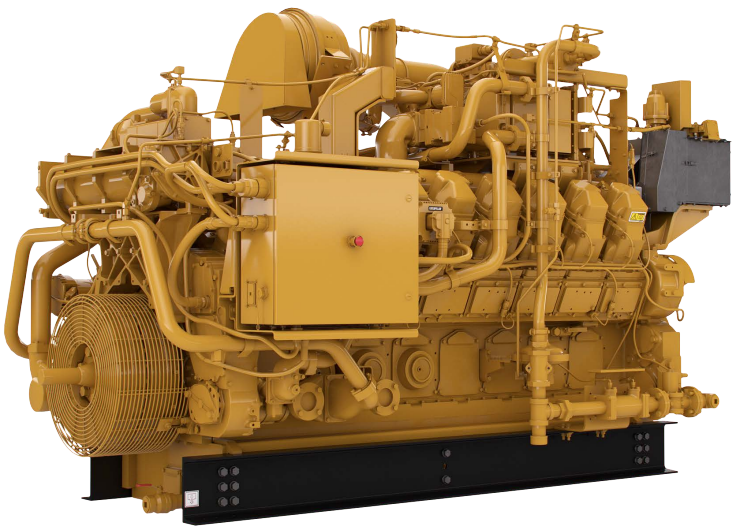
# G3516 TA Gas Engine

**1029 bkW (1380 bhp) 1400 rpm**

**0.4% $O_2$**



Shown with optional equipment

## Cat® Engine Specification

**V-16, 4-Stroke-Cycle**

**Bore**
170 mm (6.7 in)

**Stroke**
190 mm (7.5 in)

**Displacement**
69 L (4211 cu. in)

**Aspiration**
Turbocharged-2 stage aftercooled

**Digital Engine Management Govenor and Protection**
Electronic (ADEM™ A4)

**Combustion**
Rich Burn

**Cooling System Capacity**
Total ..... 224.8 L (59.2 gal)
JW ..... 205 L (54 gal)
SCAC ..... 19.8 L (5.2 gal)

**Lube Oil System (refill)**
423 L (112 gal)

**Oil Change Interval**
1500 hrs

**Rotation (from flywheel end)**
Counterclockwise

**Flywheel Teeth**
183

# FEATURES AND BENEFITS

### Engine Design

- Engine design built on G3500 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 at lower site air densities (high altitude/hot ambient temperatures)
- Higher power density improves fleet management
- Quality engine diagnostics
- Detonation-sensitive timing control for individual cylinders

### Emissions

When configured with customer-supplied three-way catalyst, the engine is capable of meeting NSPS and non-attainment area emissions levels.

### Advanced Digital Engine Management

ADEM A4 engine management system integrates speed control, air/fuel ratio control, and ignition/detonation controls into a complete engine management system. ADEM A4 has improved: user interface, display system, shutdown controls, and system diagnostics.

### 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℠ program matches your oil and coolant samples against Caterpillar set standards to determine:
  - Internal engine component condition
  - Presence of unwanted fluid
  - 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, & flywheel housings
- Machine critical components
- Assemble complete engine

### Web Site

For all your Oil & Gas power requirements, visit www.cat.com/oilandgas

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## STANDARD EQUIPMENT

**Air Inlet System**
Intermediate duty air cleaner with service indicator
Rain shield

**Cooling System**
Two-stage charge air cooling:
First stage — JW + 1st stage AC
Second stage — OC + 2nd stage AC
Engine cooling and charge air cooling thermostats
Jacket water pump, gear driven, centrifugal, non-self-priming
Atercooler water pump, gear driven, centrifugal, non-self-priming
Aftercooler with corrosion-resistent stainless steel core

**Exhaust System**
Water-cooled exhaust manifolds
Dry turbocharger housing
Dry exhaust elbow

**Flywheels and Housings**
Flywheel, SAE No. 21
Flywheel housing, SAE No. 00
SAE standard rotation

**Fuel System**
32 - 35 psig gas supply to engine
Electronic fuel metering valve
Gas pressure regulator
Gas shutoff valve

**Mounting**
Rails

**Instrumentation**
Product Link cellular radio

**Lubrication System**
Crankcase breathers - top mounted Oil cooler
Simplex oil filter - RH
Shallow oil pan
Oil sampling valve
Turbo oil accumulator

**Power Take-Offs**
Double damper and guard
Front housing, two sided
Front lower LH accessory drive

**General**
Paint — Cat yellow
Crankshaft vibration damper and guard

## OPTIONAL EQUIPMENT

**Air Inlet System**
Remote air inlet adapter

**Charging Alternator**
CSA alternator 24V, 60A

**Cooling System**
Jacket water heater
Mechanical joint assembly connections

**Exhaust System**
Flexible fittings
Elbows
Flanges

**Fuel System**
Fuel filter
Gas shutoff valve

**Instrumentation**
LAN adapter
Operator interface panel
Operator interface panel enclosure
3',15',40',90',140' Product Link extension harness
50' and 100' interconnect harness

**Lubrication System**
Lubricating oil
Oil pan drain
Air prelube pump

**Power Take-Offs**
Single damper and guard
Front stub shaft

**Starting System**
90 psi starter
150 psi starter

**General**
Special paint
Barring Device LH or RH
Explosion relief valves
Crankshaft pulley

**Torsional Vibration Analysis**

# G3516 TA Gas Engine

| Performance Number | | EM1440-00 |
|---|---|---|
| **Rating** | % $O_2$ | 0.4 |
| **Engine Power** | bkW (bhp) | 1029 (1380) |
| **Engine Speed** | rpm | 1400 |
| Max Altitude @ Rated Torque and 38°C (100°F) | m (ft) | 1524 (5000) |
| Speed Turndown @ Max Altitude, Rated Torque, and 38°C (100°F) | % | 25 |
| **Aftercooler Temperature** | | |
| Stage 1 (JW) | °C (°F) | 91 (196) |
| Stage 2 (SCAC) | °C (°F) | 54 (130) |
| **Emissions (NTE)*** | | |
| NOx | g/bkW-hr (g/bhp-hr) | 16.76 (12.50) |
| CO | g/bkW-hr (g/bhp-hr) | 16.76 (12.50) |
| $CO_2$ | g/bkW-hr (g/bhp-hr) | 614 (458) |
| VOC** | g/bkW-hr (g/bhp-hr) | 0.23 (0.18) |
| **Fuel Consumption @ 100 % Load***** | MJ/bkW-hr (Btu/bhp-hr) | 10.32 (7300) |
| **Heat Balance @ 100 % Load** | | |
| Heat Rejection to Jacket Water | bkW (Btu/min) | 865 (49196) |
| Heat Rejection to Oil Cooler | bkW (Btu/min) | 218 (12393) |
| Heat Rejection to Aftercooler | | |
| Stage 1 (JW) | bkW (Btu/min) | 59 (3348) |
| Stage 2 (SCAC) | bkW (Btu/min) | 45 (2586) |
| Heat Rejection to Exhaust LHV To 25°C (77°F) | bkW (Btu/min) | 628 (35695) |
| Heat Rejection to Atmosphere | bkW (Btu/min) | 93 (5313) |
| **Exhaust System** | | |
| Exhaust Gas Flow Rate | $m^3$/min ($ft^3$/min) | 149.31 (5273) |
| Exhaust Stack Temperature | °C (°F) | 493 (919) |
| **Intake System** | | |
| Air Inlet Flow Rate | $m^3$/min ($ft^3$/min) | 51.73 (1827) |
| **Gas Pressure** (Customer Supply to Fuel Inlet) | kPag (psig) | 221-241 (32-35) |

* at 100% load and speed, listed as not to exceed
** Volatile organic compounds as defined in U.S. EPA 40 CFR 60, subpart JJJJ *** ISO 3046/1

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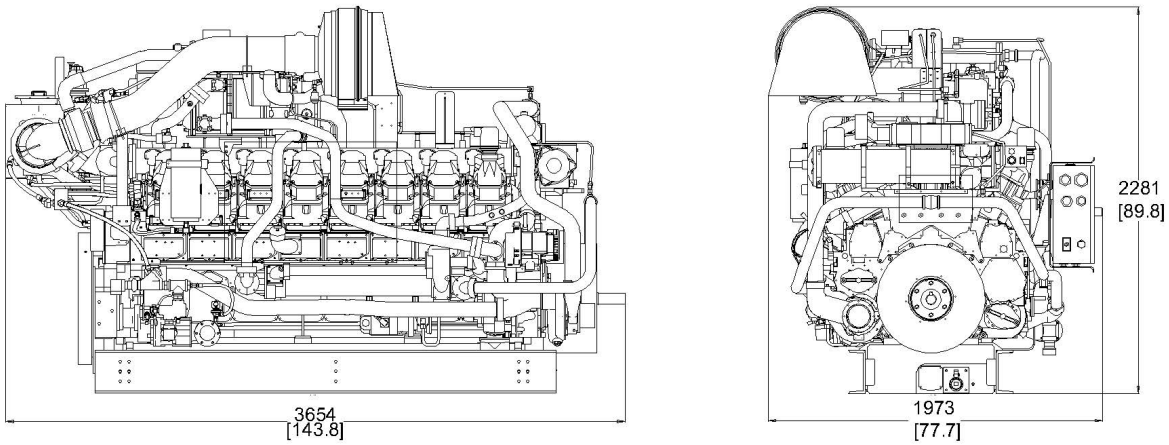


Note: General configuration not to be used for installation

| Dimensions | | |
|---|---|---|
| **Length** | 3654 mm | 143.8 in |
| **Width** | 1973 mm | 77.7 in |
| **Height** | 2281 mm | 89.8 in |
| **Weight (wet)** | 9,232 kg | 20,352 lb |

**Rating Definitions and Conditions**

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

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.

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Subject to change without notice.
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