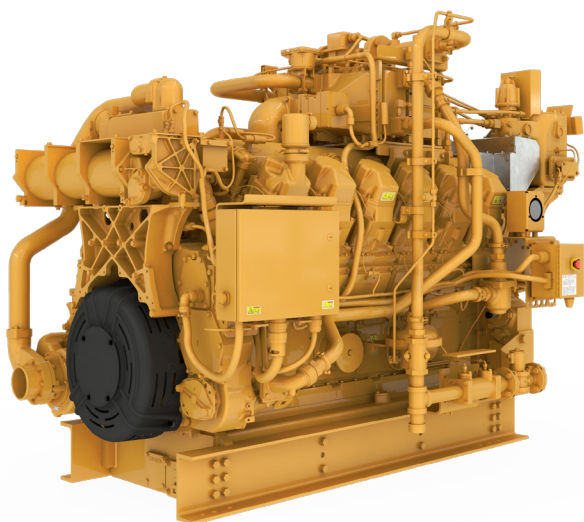


# Cat® G3512J Gas Engine

772 bkW (1035 bhp) 1400 rpm

0.5 g/bhp-hr NO<sub>x</sub> (NTE)



## Cat® Engine Specifications

### V12, 4-Stroke-Cycle-Gas

#### Bore

170 mm (6.7 in)

#### Stroke

190 mm (7.5 in)

#### Displacement

51.8 L ( 3173 cu. in)

#### Aspiration

Turbocharged - Aftercooled

#### Digital Engine Management Governor and Protection

Electronic (ADEM™ A3)

#### Combustion

Lean Burn

#### Cooling System:

Total.....198 L ( 52.5 Gal)

JW.....148 L (39.1 Gal)

SCAC.....15 L (4 Gal)

#### Lube Oil System (refill)

336.9 L (89 gal)

#### Oil Change Interval:

1000 hours

#### Rotation (from flywheel end)

Counterclockwise

#### Flywheel

SAE No. 21

#### Flywheel Housing

SAE No. 00

#### Flywheel Teeth

183

## FEATURES AND BENEFITS

### Engine Design

- Built on G3500 LE 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 density (high altitude/ hot ambient temperatures)
- Higher power density improves fleet management
- Quality engine diagnostics
- Detonation-sensitive timing control for individual

### Ultra Lean Burn Technology (ULB)

- ULB technology uses an advanced control system, a better turbo match, improved air and fuel mixing, and a more sophisticated combustion recipe to provide:
  - Lowest engine-out emissions
  - Highest fuel efficiency
  - Improved altitude and speed turndown
  - Stable load acceptance and load rejection

### Emissions

- Meets U.S. EPA Spark Ignited Stationary NSPS emissions for 2010 and some non-attainment areas
- Lean air/fuel mixture provides best available emissions and fuel efficiency for engines of this bore size

### Advanced Digital Engine Management

ADEM™ A3 engine management systems integrate speed control, air/fuel ratio control, and ignition/detonation controls into a complete engine management system.

### Full Range of Attachments

A variety of factory-installed attachments which help reduce packaging time.

### Testing

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

### Gas Engine Rating Pro (GERP)

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 Oil & Gas 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 fluids
  - Presence of combustion by-products
  - Site-specific oil change interval

### Web Site

For all your oil & gas power requirements, visit: [www.cat.com/oilandgas](http://www.cat.com/oilandgas)



## **Air Inlet System**

Air cleaner – single element with service indicator  
Optional air inlet adapter and rain cap  
– recommended for weather protection

## **Cooling System**

Two-stage charge air cooling  
Thermostats and housing  
Gear-driven jacket and aftercooler water pump  
Stainless steel aftercooler cores  
Ni-resist wye pipe

## **Exhaust System**

Water-cooled exhaust manifolds  
Dry turbocharger housings  
Water-cooled exhaust elbow

## **Flywheel and Flywheel Housings**

SAE No. 21 flywheel  
SAE No. 00 flywheel housing  
SAE standard rotation

## **Fuel System**

7-40 psig gas supply  
Electronic fuel metering valve  
Gas pressure regulator  
Gas shutoff valve  
Fuel System

## **Lubrication System**

Crankcase breather - top mounted  
Oil cooler  
Oil filter - RH  
Shallow oil pan  
Oil sampling valve  
Turbo oil accumulator

## **Power Take-Offs**

Front housing, two sided  
Front lower LH accessory drive

## **General**

Paint – Caterpillar yellow  
Crankshaft vibration damper and drive pulleys

# OPTIONAL EQUIPMENT

## **Air Inlet System**

Round air inlet adapters

## **Charging System**

CSA alternator  
(24V, 65A)

## **Cooling System**

Mechanical joint assembly connections

## **Exhaust System**

Flexible fittings  
Elbows  
Flanges  
Mufflers

## **Fuel System**

Gas filter

## **Lubrication System**

Lubricating oil  
Oil bypass filter  
Oil pan drain  
Deep sump oil pan  
Air prelube pump

## **Power Take-offs**

Front stub shaft

## **General**

Specific Paint

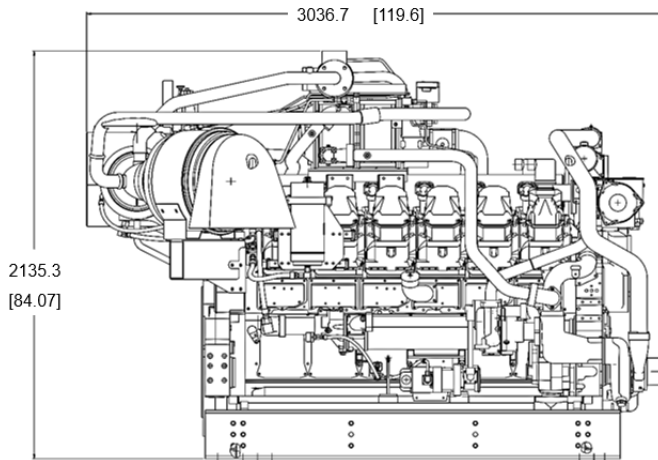
## **EU Certification**

EEC DOI certification

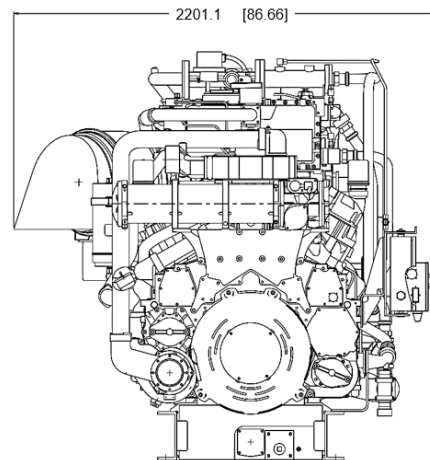
## **Torsional Vibration Analysis**

Performance Number		EM4557
<b>Rating</b>		0.5 % O <sub>2</sub>
<b>Engine Power</b>	bkW (bhp)	1035 (771.8)
<b>Engine Speed</b>	rpm	1400
Max Altitude @ Rated Torque and 38 °C (100 °F)	ft	5217
Speed Turndown @ Max Altitude, Rated Torque, and 38°C (100°F)	2%	25
<b>Temperature</b>		
JW	°C (°F)	95.0 (203)
SCAC - Stage 1	°C (°F)	93.9 (201)
SCAC - Stage 2	°C (°F)	54.4 (130)
<b>Emissions (NTE)*</b>		
NO <sub>x</sub>	g/bkW-hr (g/bhp-hr)	0.5 (0.4)
CO	g/bkW-hr (g/bhp-hr)	1.91 (1.4)
CO <sub>2</sub>	g/bkW-hr (g/bhp-hr)	463 (345.3)
VOC**	g/bkW-hr (g/bhp-hr)	0.44 (0.3)
<b>Fuel Consumption @ 100 Load***</b>	MJ/bkW-hr (Btu/bhp-hr)	10.2 (7237)
<b>Heat Balance @ 100 Load***</b>		
Heat Rejection to Jacket Water	bkW (Btu/min)	476.5 (27104)
Heat Rejection to Oil Cooler	bkW (Btu/min)	69.7 (3963)
Heat Rejection to Aftercooler - Stage 1	bkW (Btu/min)	96.3 (5475)
Heat Rejection to Aftercooler - Stage 2	bkW (Btu/min)	70.5 (4010)
Heat Rejection to Exhaust LHV to 25°C (77°F)	bkW (Btu/min)	656.6 (37349)
Heat Rejection to Atmosphere	bkW (Btu/min)	82.1 (4668)
<b>Exhaust System</b>		
Exhaust Gas Flow Rate	m <sup>3</sup> /min (ft <sup>3</sup> /min)	168.1 (5937)
Exhaust Stack Temperature	C (°F)	436.7 (818)
<b>Intake System</b>		
Air Inlet Flow Rate	m <sup>3</sup> /min (ft <sup>3</sup> /min)	65.4 (2309)
<b>Gas Pressure</b>	kPag (psig)	48.3-275.8 (7-40)

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



**Right Side View**



**Front Side View**

Package Dimensions and Weight		
Length	3037 mm	120 in
Width	2201 mm	86.7 in
Height	2135 mm	84.1 in
Weight	7081 kg	15611 lb

## 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.