

Shown with  
Optional Equipment

### CAT® ENGINE SPECIFICATIONS

#### V-12, 4-Stroke-Cycle

Bore .....	137 mm (5.4 in.)
Stroke .....	152 mm (6 in.)
Displacement .....	27 L (1649 cu. in.)
Aspiration .....	Turbocharged for ATAAC
Governor and Protection .....	Woodward PSG
Combustion .....	Rich Burn
Engine Weight, net dry (approx) .....	2141 kg (4720 lb)
Power Density .....	4.79 kg/kW (7.86 lb/bhp)
Power per Displacement .....	22.20 bhp/L
Engine Only Cooling System Capacity ...	75.7 L (20 gal)
Lube Oil System (refill) .....	170.3 L (45 gal)
Oil Change Interval .....	750 hours
Rotation (from flywheel end) .....	Counterclockwise
Flywheel and Flywheel Housing .....	SAE No. 0
Flywheel Teeth .....	136

### FEATURES

#### Engine Design

- Improved 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

#### 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.

- Casts engine blocks, heads, cylinder liners, and flywheel housings
- Machines critical components
- Assembles 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 — single element with service indicator

**Control System**Governor — Woodward PSG mechanical  
Governor control — positive locking**Cooling System**Thermostats and housing  
Jacket water pump  
Aftercooler water pump  
Aftercooler core**Exhaust System**Watercooled exhaust manifolds  
Dry exhaust elbow**Flywheel & Flywheel Housing**SAE No. 0 flywheel  
SAE No. 0 flywheel housing  
SAE standard rotation**Fuel System**Gas pressure regulator  
Natural gas carburetor**Ignition System**

Digital ignition system

**Instrumentation**

Service meter

**Lube System**Crankcase breather — top mounted  
Oil cooler  
Oil filter — RH  
Auxiliary oil reservoir  
Rear sump oil pan  
Oil filler in valve cover and dipstick — RH**Mounting System**

Engine supports

**Protection System**

Shutoff

**General**Paint — Cat yellow  
Crankshaft vibration damper and drive pulleys  
Lifting eyes**OPTIONAL EQUIPMENT**

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**Air Inlet System**Air cleaner  
Air inlet adapter  
Precleaner  
Air cleaner rain cap**Charging System**Battery chargers  
Charging alternators  
Ammeter gauge  
Ammeter gauge and wiring  
Control mounting**Control System**EG3P/2301A speed control governor  
PSG electric governor  
PSG pneumatic governor**Cooling System**Radiators  
Blower fan and fan drives for customer supplied radiators  
ATAAC conversion  
Aftercooler  
Expansion tank  
Heat exchanger**Exhaust System**Flexible fittings  
Elbows  
Flanges  
Rain caps  
Mufflers**Fuel System**Dual gas regulator  
Low energy fuel carburetor  
Low pressure gas conversion  
Propane and natural gas valve and jet kits  
Fuel filter**Ignition System**CSA ignition  
Ignition ground wiring harness  
Power supply — digital ignition system**Instrumentation**Alarm module  
Gauges and instrument panels**Lube System**Auxiliary oil reservoir removal  
Lubricating oil**Mounting System**

Vibration isolators

**Power Take-Offs**Auxiliary drive pulleys  
Enclosed clutch  
Clutch support  
Front stub shaft  
Flywheel stub shaft  
Pulley removal**Protection System**Gas valves  
Status control box interconnect wiring harness**Starting System**Air starting motor  
Electric air start control  
Air pressure regulator  
Air silencer  
Electric starting motors — single 24-volt  
Starting aids  
Battery sets (24-volt dry), cables, and rack**General**Tool set  
Digital diagnostic tool

**TECHNICAL DATA**
**G3412 Gas Petroleum Engine — 1500 & 1800 rpm**

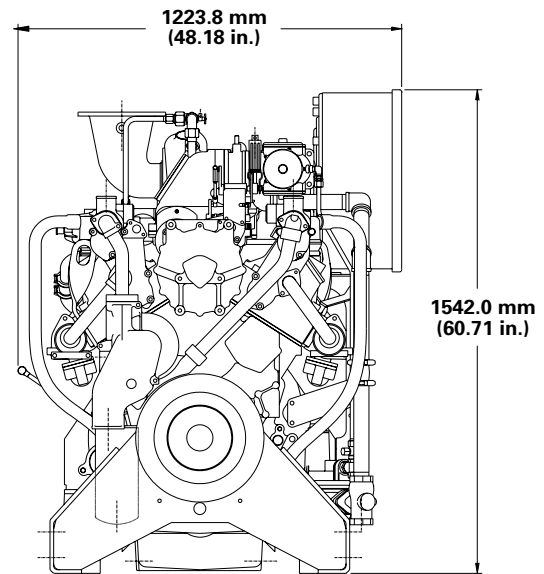
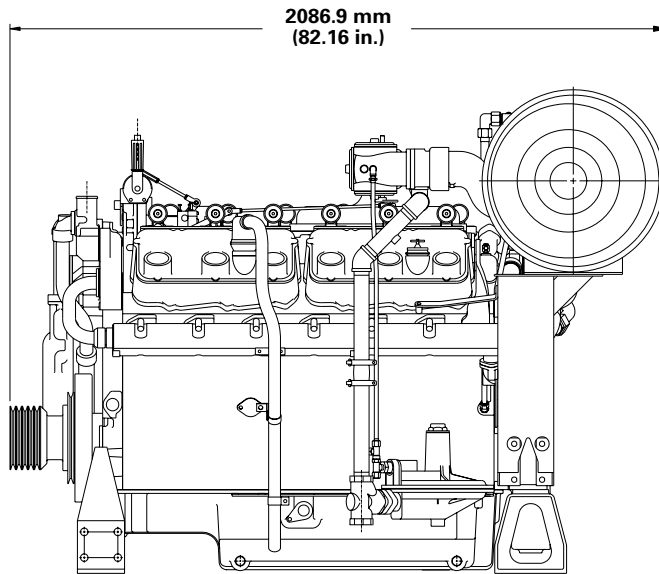
		<b>DM8646-00</b>	<b>DM5206-04</b>	<b>DM5101-01</b>
<b>Engine Power</b>				
@ 100% Load	bkW (bhp)	373 (500)	447 (600)	272 (365)
@ 75% Load	bkW (bhp)	280 (375)	336 (450)	204 (274)
<b>Engine Speed</b>				
	rpm	<b>1500</b>	<b>1800</b>	<b>1800</b>
Max Altitude @ Rated Torque and 38°C (100°F)	m (ft)	304.8 (1000)	609.6 (2000)	0
Speed Turndown @ Max Altitude, Rated Torque, and 38°C (100°F)	%	13.5	22	0
<b>SCAC Temperature</b>				
	°C (°F)	54 (130)	54 (130)	N/A
<b>Emissions*</b>				
NOx	g/bkW-hr (g/bhp-hr)	19.07 (14.22)	31.2 (23.27)	17.9 (13.35)
CO	g/bkW-hr (g/bhp-hr)	19.04 (14.2)	2.14 (1.6)	17.9 (13.35)
CO <sub>2</sub>	g/bkW-hr (g/bhp-hr)	609 (454)	635 (437)	—
VOC**	g/bkW-hr (g/bhp-hr)	0.35 (0.26)	0.15 (0.11)	—
<b>Fuel Consumption***</b>				
@ 100% Load	MJ/bkW-hr (Btu/bhp-hr)	11.04 (7800)	10.2 (7210)	11.10 (7847)
@ 75% Load	MJ/bkW-hr (Btu/bhp-hr)	11.27 (7964)	11.05 (7813)	12.15 (8589)
<b>Heat Balance</b>				
Heat Rejection to Jacket Water				
@ 100% Load	bkW (Btu/min)	399.05 (22,714)	393 (22,333)	270.6 (15,390)
@ 75% Load	bkW (Btu/min)	319.7 (18,197)	368 (20,935)	245.3 (13,946)
Heat Rejection to Aftercooler				
@ 100% Load	bkW (Btu/min)	7.92 (451)	41.2 (2343)	N/A
@ 75% Load	bkW (Btu/min)	3.04 (173)	208 (1639)	N/A
Heat Rejection to Exhaust				
@ 100% Load	bkW (Btu/min)	254.01 (14,458)	285 (16,234)	219.9 (12,506)
@ 75% Load	bkW (Btu/min)	187.09 (10,649)	208 (11,835)	173.1 (9,843)
<b>Exhaust System</b>				
Exhaust Gas Flow Rate				
@ 100% Load	m <sup>3</sup> /min (cfm)	59.55 (2103)	69.97 (2471)	49.16 (1736)
@ 75% Load	m <sup>3</sup> /min (cfm)	44.77 (1581)	51.71 (1826)	39.4 (1391)
Exhaust Stack Temperature				
@ 100% Load	°C (°F)	523.33 (974)	510 (950)	622.2 (1152)
@ 75% Load	°C (°F)	496.11 (925)	480 (896)	598.3 (1109)
<b>Intake System</b>				
Air Inlet Flow Rate				
@ 100% Load	m <sup>3</sup> /min (scfm)	19.85 (701)	23.87 (843)	14.6 (515)
@ 75% Load	m <sup>3</sup> /min (scfm)	15.46 (546)	18.24 (644)	12.01 (424)
<b>Gas Pressure</b>				
	kPag (psig)	137.9-172.4 (20-25)	137.9-172.4 (20-25)	10-35 (1.5-5)

\*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



PACKAGE DIMENSIONS		
Length	mm (in.)	2086.9 (82.16)
Width	mm (in.)	1223.8 (48.18)
Height	mm (in.)	1542.0 (60.71)
Shipping Weight	kg (lb)	2141 (4720)

**Note:** General configuration not to be used for installation. See general dimension drawings for detail.

### 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.

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