



# Gas Petroleum Engine **G16CM34**

7670-8180 bhp/  
5720-6100 kW  
750 rpm

## PRELIMINARY

### CATERPILLAR® ENGINE SPECIFICATIONS

#### Configuration

V-16, 4-Stroke-Cycle

Bore — in (mm) ..... 13.4 (340.0)

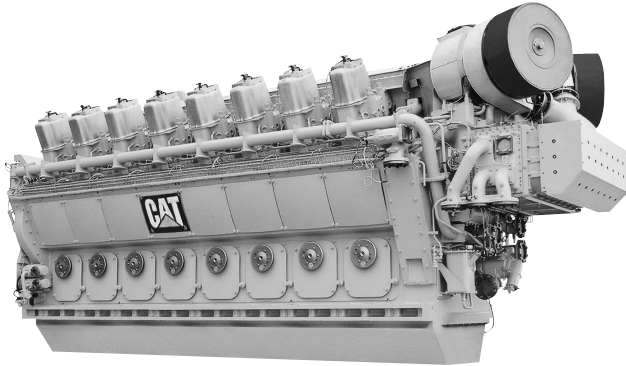
Stroke — in (mm) ..... 16.5 (419.9)

Displacement — cu in (L) ..... 37,222 (610.0)

Aspiration ..... Turbocharged and Aftercooled

Compression Ratio..... 11.4:1

Shipping Weight (Dry) with Flywheel —  
lb (kg) ..... 179,080 (81 229)



## FEATURES

### ■ FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested

### ■ UNMATCHED PRODUCT SUPPORT OFFERED THROUGH WORLDWIDE CATERPILLAR DEALER NETWORK

- More than 1,500 dealer outlets
- Caterpillar factory-trained dealer technicians service every aspect of your petroleum engine
- 99.7% of parts orders filled within 24 hours — worldwide
- Caterpillar parts and labor warranty
- Preventive maintenance agreements available for “repair before failure” options
- Scheduled Oil Sampling (S•O•S<sup>SM</sup>) program matches your oil sample against Caterpillar set standards to determine:
  - internal engine component condition
  - presence of unwanted fluids
  - presence of combustion by-products

### ■ SINGLE-SOURCE SUPPLIER

- Caterpillar:
  - casts engine blocks, heads, cylinder liners, and flywheel housings
  - machines critical components
  - assembles complete engine
 Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable product.
- Factory-designed systems built at Caterpillar ISO certified facilities

### ■ G16CM34

- Low emissions
- Ability to burn a wide spectrum of gaseous fuels
- Caterpillar Advanced Digital Engine Management (ADEM III) control system with detonation-sensitive variable timing
- Robust diesel strength design provides prolonged life and lower owning and operating costs.

### ■ TESTING

- Prototype testing on every model:
  - proves computer design
  - verifies system torsional stability
  - functionality tests every model
- Every Caterpillar engine is dynamometer tested under full load to ensure proper engine performance.



**FEATURES (Continued)**

- **HIGH EFFICIENCY**
  - Prechamber
  - Precise fuel system
  - Long stroke/750 rpm
- **LOW EMISSIONS**
  - 0.5 gm/bhp-hr NO<sub>x</sub> level
  - Calibrating ring
  - Proven A/F control
- **HIGH RELIABILITY**
  - Cooling in critical areas
  - Robust Heavy Fuel Oil (HFO) platform
  - Proven electronic engine control
- **LOW MAINTENANCE COST**
  - Long maintenance intervals
  - Easy access to maintenance parts
- **ROBUST BASIC COMPONENTS**
  - Same cylinder block and running gear as CM32 diesel engine
  - Designed for high peak pressures
- **COOLING FOR KEY COMPONENTS**
  - Prechamber
  - Exhaust valves and seats
  - Valve guides
  - Spark plugs
- **SPLIT CONNECTING ROD**
  - Compression ratio change with same piston
  - Ease of service
- **ENGINE BLOCK**
  - One piece, dry, nodular cast iron with underslung crankshaft
- **PRECISE, PER-CYLINDER FUEL CONTROL**
  - Solenoid Operated Gas Admission Valve (SOGAV)
- **PRECHAMBER**
  - Optimized tip geometry
  - High temperature material
  - Maximum cooling
  - Fuel controlled independent from main chamber
    - Optimum performance
    - Better starting
- **AMBIENT RATED BHP**
- **ADEM III CONTROL SYSTEM**
  - A/F control
    - Precise combustion sensor feedback
    - Precise engine response to variations in load
  - Cat Electronic Ignition System
  - Electronic gas admission valve (SOGAV)
- **DETONATION CONTROL**
  - Active, per cylinder control
  - Advanced signal processing
  - G3600 family experience
- **WEB SITE**
  - For additional information on all your petroleum power requirements, visit [www.cat-oilandgas.com](http://www.cat-oilandgas.com).

**STANDARD EQUIPMENT**

Flywheel and ring gear  
 High efficiency turbochargers  
 Turbocharger aftercooler  
 Pneumatic engine barring device  
 Gear-driven lube oil pump  
 Electric motor-driven cooling pumps (off-engine-mounted)  
 Electric motor-driven pre/post-lube oil pump (off-engine-mounted)  
 Oil-filled drive coupling with oil-feed through hole in crankshaft  
 Crankcase explosion doors  
 Caterpillar ADEM III control system  
 Dual air/gas turbine motor starters

## TECHNICAL DATA

### G16CM34 Gas Petroleum Engine — 750 rpm

#### Performance

Engine Speed — rpm ..... 750  
 Power — bhp (bkW) .... 8,180/7,670(6100/5720)  
 Ambient Rating — °F (°C)..... 77/104 (25/40)  
 BSFC — Btu/bhp-hr  
 (MJ/bkW-hr) ..... 5,778/5,912 (8.175/8.365)

#### Fuel

Fuel Type..... Natural Gas  
 Min. Gas Pressure at Engine Inlet —  
 psi (kPa) ..... 50 (345)  
 Methane Number ..... >70  
 Heat Value — Btu/ft<sup>3</sup> (kWh/Nm<sup>3</sup>) min... 800 (8.8)

#### Emissions

NO<sub>x</sub> @ 5% O<sub>2</sub> — gm/bhp-hr ..... 0.50  
 CO — gm/bhp-hr ..... 2.0  
 BSOC — lb/bhp-hr ..... 0.0005

#### Exhaust

Exhaust Gas Temp Turbine Outlet —  
 °F (°C) ..... 662/698 (350/370)  
 Non-Attenuated Exhaust Gas  
 Noise — dB(A) ..... 123  
 Non-Attenuated Combustion Air  
 Noise — dB(A) ..... 110

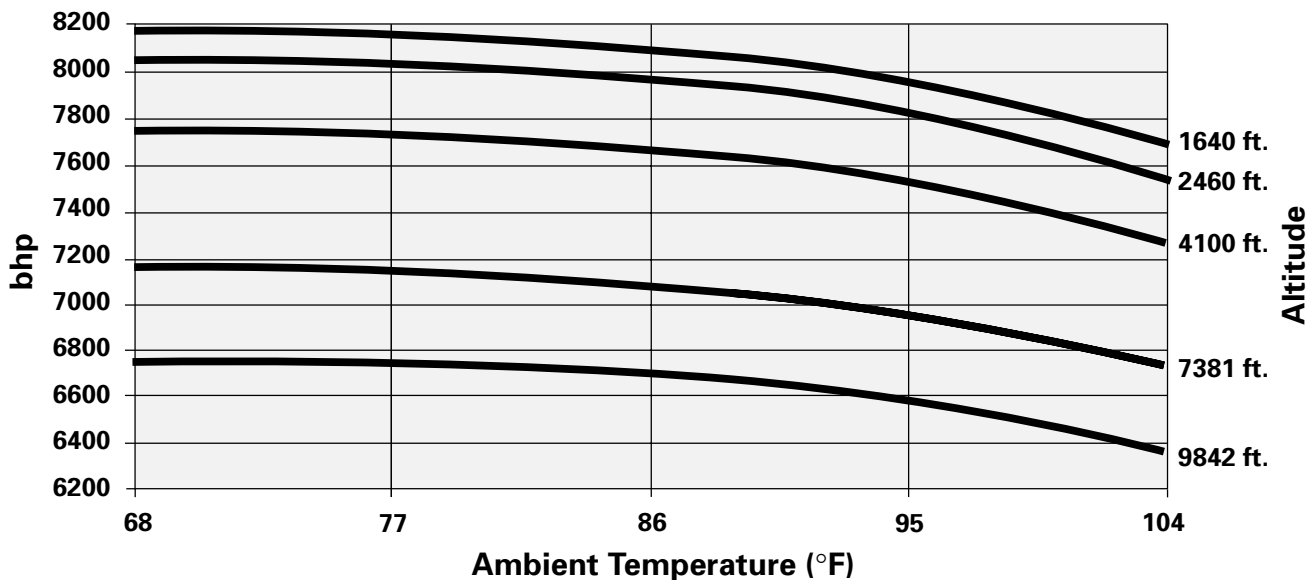
#### Inlet Air

Combustion Air Demand —  
 cfm (m<sup>3</sup>/hr) ..... 23,800 (40 400)  
 Heat Balance — Btu/min (kW)  
 Jacket Water Heat ..... 47,528 (835)  
 Lube Oil Heat ..... 59,200 (1041)  
 HT Charge Air Cooler..... 45,250 (796)  
 LT Charge Air Cooler..... 22,200 (390)  
 Heat Radiation — Btu/min (kW).... 20,492 (360)

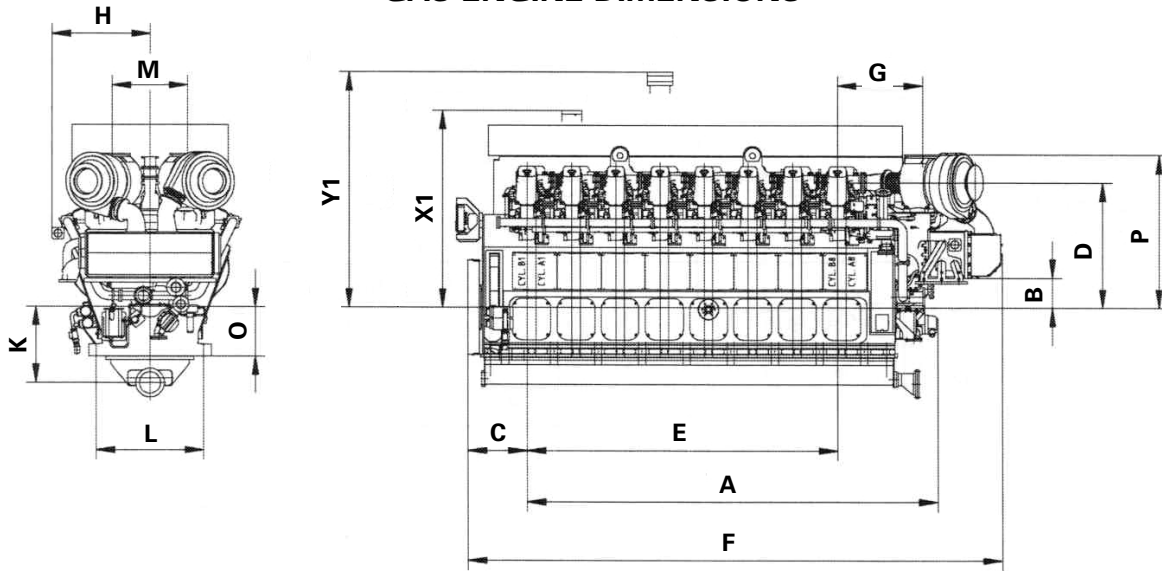
#### Starting

Starting Air Pressure — psi (kPa) ..... 120 (827)  
 Air Demand/Start (Preheated Engine) —  
 ft<sup>3</sup> (m<sup>3</sup>) ..... 283 (8)

### G16CM34 Engine Performance @ 750 rpm



**GAS ENGINE DIMENSIONS**



Engine Type	Engine Dimensions — in (mm)													Weight With Flywheel
	A	B	C	D	E	F	G	H	K	L	M	O	P	
<b>G16CM34</b>	245.4 (6233)	17.8 (452)	34.8 (884)	74.8 (1899)	186.0 (4725)	318.5 (8090)	50.7 (1287)	58.3 (1480)	45.4 (1154)	64.2 (1630)	45.0 (1144)	29.5 (750)	91.3 (2319)	179,080 lb (81 229 kg)

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

Removal of:		
Piston	in traverse direction	X1 = 115.4
Cyl. Liner	in traverse direction	Y1 = 115.4

For additional information on all your petroleum power requirements, visit:

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