

Caterpillar Power Plants

GCM34

G16CM34 • G20CM34 • 60Hz



Engine Specifications

Engine Type.....	4-stroke engine
Cylinder configuration.....	Vee - 16, 20
Fuel type.....	Natural gas
Bore.....	340 mm (13.4 in)
Stroke.....	420 mm (16.5 in)
Cylinder displacement.....	38.1 L (2328 cu in)
Cylinder output.....	500 kW
Mean piston speed.....	10.1 m/s (34.5 ft/s)
Mean effective pressure.....	21.9 bar
Aspiration.....	Turbocharged and after-cooled
Enginerating.....	8,000-10,000kW
Generator set rating.....	7,760-9,700 kW

Features

Designed for Reliable Operation

- ▶ Spark ignition, lean burn combustion and pre-chamber design
- ▶ Intensive cooling of key components including spark plugs, main/pre-chamber and exhaust valve seats
- ▶ Proven Cat® electronic control system, precise fuel delivery and long stroke design result in world-class efficiency
- ▶ Robust engine platform based on proven heavy fuel engine design

Low Emissions

- ▶ Air-to-fuel ratio control, optimized pre-chamber design and Cat® electronic control result in low emissions
- ▶ Configurations with NOx emissions to 500 or 250 mg/ N·m³ at 5% O₂ available

Minimized Mechanical Wear

- ▶ Modular design & state of the art material ensures long life of components

Overall Economy

- ▶ Cost savings include high availability, low maintenance requirements, low fuel and oil consumption

Highest Quality Engine Parts

- ▶ Semi-dry wear resistant liners with calibration inserts
- ▶ Pistons with forged steel crown and aluminum skirt
- ▶ Inlet/Outlet valves with armored seats
- ▶ High efficiency turbo charger

One-Piece Dry Engine Block

- ▶ Cast from nodular cast iron with under slung crankshaft and free from cooling water

Ease of Maintenance & Reliability

- ▶ Easily removable cylinder heads, quick removable fluid connections
- ▶ Split connecting rods to allow piston removal without disturbing the big end bearing
- ▶ High reliability, modular design and integral construction reduce the number of components by 40% over conventional designs

Total Power Solutions

- ▶ Caterpillar® can develop, finance, design, build, test, maintain and operate medium speed reciprocating engine power plants and at the customer's option provide:
 - Power generation equipment
 - Engineered systems
 - Turnkey power plants
 - Contract power
 - Combined heat and power systems
 - Construction and installation services
 - Operation and maintenance services

Worldwide Product Support

- ▶ With nearly 200 Cat® dealers & 1500 facilities worldwide serving in excess of 200 countries, you're never far from the Caterpillar support you need.
- ▶ Customer Support Agreements offer back-to-back services including scheduled inspections, preventative maintenance and overhauls to full operations and maintenance.

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Nominal Performance

	Engine Rating	Generator Set Rating		Speed	Frequency	Heat Rate		Specific Lube Oil Consumption	
	<u>kWm</u>	<u>kWe</u>	<u>kVA</u>	<u>RPM</u>	<u>Hz</u>	<u>kJ/kWh</u>	<u>Btu/kWh</u>	<u>g/kWh</u>	<u>lb/kWh</u>
G16CM34	8,000	7,760	9,700	720	60	7,668	7,268	0.3	0.0006
G20CM34	10,000	9,700	12,125	720	60	7,668	7,268	0.3	0.0006

Rating Definitions and Conditions

Ratings: Based on ISO 3046/1 standard reference conditions and natural gas having a methane number of 70 minimum.

Power output: May require adjustment for values other than ISO 3046/1 standard reference conditions.

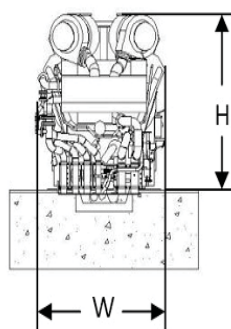
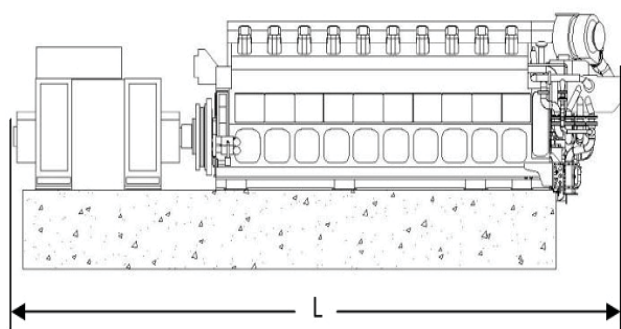
Conditions output: Available for an unlimited time without varying load.

Generator efficiency: Efficiency of 97.0% based on 0.8 pf with medium voltage class generator; actual efficiency will depend on generator selection.

Fuel consumption: Based on ISO 3046/1 standard reference conditions of 25° C (77 F) and 100 kPa (29.61 in Hg), natural gas with methane number of 80, including engine-driven pumps, with 5% tolerance. Value based on measurement at the generator terminals.

Lube oil consumption: Tolerance on value of +/-0.15 g/kWh (0.00035-lb/kWh). Lube oil consumption can only be demonstrated after 500 hours of operation.

GENERATOR SET DIMENSIONS



FOR MORE INFORMATION
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	Generator Set Dimension						Approximate Weight (Dry)			
	Height (H)		Width (W)		Length (L)		Engine		Generator	
	<u>mm</u>	<u>in</u>	<u>mm</u>	<u>in</u>	<u>mm</u>	<u>in</u>	<u>kg</u>	<u>lb</u>	<u>kg</u>	<u>lb</u>
G16CM34	3,306	130	2,907	114	12,251	482	81,000	178,574	23,800	52,470
G20CM34	3,306	130	2,907	114	13,000	512	93,000	205,030	37,000	81,571

Materials and specifications are subject to change without notice.

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