Cat® G3516H

60 Hz Continuous Gas Generator Sets

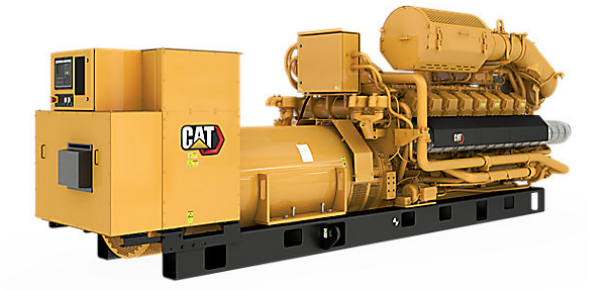


Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.7)
Stroke – mm (in)	215 (8.5)
Displacement – L (in^3)	78 (4765)
Aspiration	Turbocharged
Fuel System	Electronic Fuel Control Valve
Governor	ADEM™ A4

	Fuel Type	ekW (kVA)	Compression Ratio	Engine Speed – rpm
Humidity/Fuel Tolerant W/ Pumps	Natural Gas	1966 (2457)	11.1	1500
Humidity/Fuel Tolerant W/O Pumps	Natural Gas	1982 (2477)	11.1	1500
High Efficiency W/ Pumps	Natural Gas	1966 (2457)	12.1	1500
High Efficiency W/O Pumps	Natural Gas	1982 (2477)	12.1	1500

Standard Features

Cat® Engine

- Robust high speed block design provides prolonged life and lower owning and operating costs
- High power density and efficiency

Generator Set Package

- Top tier electrical efficiency
- Lowest maintenance and overhaul costs driven by low oil consumption, extended service intervals, and reduced downtime
- Capable of ISO 8528-5 Class G1 transient performance with specified load steps
- Complete genset reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Generators

- High-efficiency design
- Designed to match performance and output characteristics of Cat engines

Applications

- Caterpillar generator sets are capable of maximizing power production opportunities in an extensive range of industries

EMCP 4 Control Panels

- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements

Warranty

- 12 months/unlimited hour warranty for continuous ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support

- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing

- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

Optional Equipment

Engine

Air Cleaner (Single Element)

- ❑ Installed
- ❑ Shipped loose

Cooling System

- ❑ JW & SCAC engine driven pumps
- ❑ RH JW outlet flange

Exhaust System

- ❑ Elbows
- ❑ Expanders
- ❑ Flanges
- ❑ Flexible fittings

Fuel System

- ❑ Gas train pressure sensors
- ❑ Gas knockdown regulator

General

- ❑ Barring group

Lubrication

- ❑ Lubricating oil (NGEO)
- ❑ Oil level regulator
- ❑ Positive crankcase ventilation
- ❑ Electric prelube
- ❑ Extended Life Oil Tank

Mufflers

- ❑ Industrial Grade (15dB)
- ❑ Residential Grade (18dB)
- ❑ Critical Grade (25dB)
- ❑ Spark Arresting

Protection System

- ❑ Explosion relief valves

Starting/Charging

- ❑ Charging alternator - 60A
- ❑ Battery charger - 20A
- ❑ Oversized batteries
- ❑ Battery cables / racks
- ❑ Air starters

Generators

Output voltage

- ❑ 440V
- ❑ 480V
- ❑ 600V
- ❑ 2400V
- ❑ 4160V
- ❑ 6300V
- ❑ 6600V
- ❑ 6900V
- ❑ 12470V
- ❑ 13200V
- ❑ 13800V

Temperature Rise (over 40°C ambient)

- ❑ 105°C
- ❑ 80°C

Attachments

- ❑ Anti-condensation heater
- ❑ Generator RTD module
- ❑ Neutral Ground - LV
- ❑ Cross-Current CT - HV
- ❑ Differential CTs - HV
- ❑ Shipped loose CT - HV

Power Termination

Type

- ❑ NEMA Bus bar - LV
- ❑ Circuit breaker - LV

Circuit Breaker Options

- ❑ 4000A
- ❑ UL ❑ IEC
- ❑ 3-pole ❑ 4-pole
- ❑ Manually operated
- ❑ Electrically operated

Trip Unit Options

- ❑ LSI ❑ LSI-G
- ❑ LSIG-P

Cat Connect

Connectivity

- ❑ Ethernet
- ❑ Satellite
- ❑ Cell

Control System

Controller

- ❑ EMCP 4.3
- ❑ EMCP 4.4

Attachments

- ❑ Discrete I/O module
- ❑ Load share module
- ❑ Local annunciator module
- ❑ Remote annunciator module
- ❑ Remote monitoring software

Vibration Isolators

- ❑ Rubber
- ❑ Spring
- ❑ Seismic rated

Enclosure

- ❑ Weather protective
- ❑ Sound attenuated

Attachments

- ❑ Cold weather bundle
- ❑ DC lighting package
- ❑ AC lighting package
- ❑ Motorized louvers

Ancillary Equipment

- ❑ Automatic transfer switch (ATS)
- ❑ Uninterruptible power supply (UPS)
- ❑ Paralleling switchgear
- ❑ Paralleling controls

60 Hz Humidity/Fuel Tolerant Package Performance – AC and JW Pumps

Performance	Continuous			
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1966	(2457)	1966	(2457)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm^3 (g/bhp-hr) NOx	266	(0.50)	539	(1.00)
Performance number	EM4638-00		EM4636-00	
Fuel Consumption				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.56	(8115)	8.33	(7895)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.77	(8316)	8.54	(8102)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.26	(8784)	9.05	(8578)
Cooling System				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	52	(126)	52	(126)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
Inlet Air				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm^3/bkW-hr (ft^3/min)	4.00	(5295)	3.83	(5068)
Altitude Capability				
At 25°C (77°F) ambient, above sea level – m (ft)	1500	(4921)	1750	(5741)
Exhaust System				
Exhaust temperature – engine outlet – °C (°F)	408	(766)	408	(766)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm^3/bkW-hr (ft^3/min)	4.25	(13016)	4.07	(12468)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.35	(24306)	5.12	(23275)
Heat Rejection				
Heat rejection to jacket water – kW (Btu/min)	496	(28203)	485	(27599)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	981	(55796)	940	(53475)
Heat rejection to auxiliary circuit – kW (Btu/min)	225	(12815)	193	(10989)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	137	(7426)	140	(7624)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1104	(62767)	1069	(60803)

60 Hz High Efficiency Package Performance – AC and JW Pumps

Performance	Continuous			
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1966	(2457)	1966	(2457)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm^3 (g/bhp-hr) NOx	270	(0.50)	554	(1.00)
Performance number	EM1341-02		EM1339-02	
Fuel Consumption				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.39	(7954)	8.16	(7738)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.57	(8125)	8.36	(7923)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.05	(8580)	8.84	(8385)
Cooling System				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	48	(118)	48	(118)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
Inlet Air				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm^3/bkW-hr (ft^3/min)	3.95	(5233)	3.75	(4965)
Altitude Capability				
At 25°C (77°F) ambient, above sea level – m (ft)	1250	(4101)	1200	(3937)
Exhaust System				
Exhaust temperature – engine outlet – °C (°F)	399	(751)	403	(758)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm^3/bkW-hr (ft^3/min)	4.20	(12705)	3.99	(12139)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.29	(24014)	5.02	(22801)
Heat Rejection				
Heat rejection to jacket water – kW (Btu/min)	478	(27157)	465	(26433)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	903	(51343)	875	(49748)
Heat rejection to auxiliary circuit – kW (Btu/min)	234	(13294)	209	(11881)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	149	(8094)	151	(8197)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1058	(60111)	1013	(57551)

60 Hz Humidity/Fuel Tolerant Package Performance – No Pumps

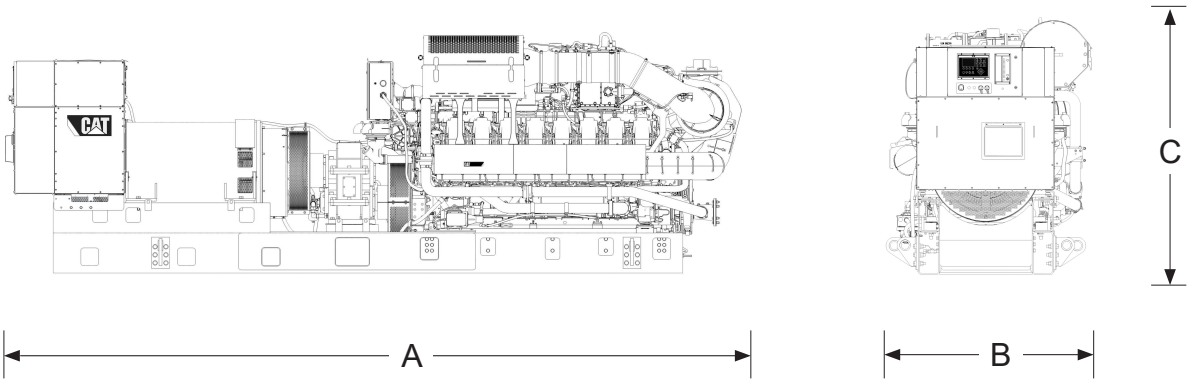
Performance	Continuous			
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1982	(2477)	1982	(2477)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm^3 (g/bhp-hr) NOx	268	(0.50)	543	(1.00)
Performance number	EM4637-00		EM4635-00	
Fuel Consumption				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.49	(8047)	8.26	(7829)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.67	(8224)	8.45	(8013)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.11	(8642)	8.90	(8443)
Cooling System				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	52	(126)	52	(126)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
Inlet Air				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm^3/bkW-hr (ft^3/min)	3.97	(5293)	3.80	(5066)
Altitude Capability				
At 25°C (77°F) ambient, above sea level – m (ft)	1500	(4921)	1750	(5741)
Exhaust System				
Exhaust temperature – engine outlet – °C (°F)	408	(766)	408	(766)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm^3/bkW-hr (ft^3/min)	4.21	(13009)	4.04	(12463)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.31	(24294)	5.08	(23266)
Heat Rejection				
Heat rejection to jacket water – kW (Btu/min)	496	(28229)	486	(27618)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	981	(55769)	940	(53457)
Heat rejection to auxiliary circuit – kW (Btu/min)	225	(12806)	193	(10984)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	137	(7425)	141	(7641)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1104	(62767)	1070	(60804)

60 Hz High Efficiency Package Performance – No Pumps

Performance	Continuous			
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1982	(2477)	1982	(2477)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm^3 (g/bhp-hr) NOx	272	(0.50)	559	(1.00)
Performance number	EM1340-02		EM1338-02	
Fuel Consumption				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.32	(7887)	8.09	(7674)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.47	(8034)	8.27	(7837)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.90	(8442)	8.70	(8252)
Cooling System				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	48	(118)	48	(118)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
Inlet Air				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm^3/bkW-hr (ft^3/min)	3.92	(5230)	3.72	(4963)
Altitude Capability				
At 25°C (77°F) ambient, above sea level – m (ft)	1250	(4101)	1200	(3937)
Exhaust System				
Exhaust temperature – engine outlet – °C (°F)	399	(751)	403	(758)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm^3/bkW-hr (ft^3/min)	4.16	(12698)	3.96	(12135)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.24	(24002)	4.98	(22792)
Heat Rejection				
Heat rejection to jacket water – kW (Btu/min)	478	(27182)	465	(26450)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	902	(51273)	874	(49706)
Heat rejection to auxiliary circuit – kW (Btu/min)	234	(13285)	209	(11875)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	150	(8138)	151	(8241)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1057	(60111)	1012	(57551)

G3516H 60 Hz Continuous Natural Gas Generator Sets Electric Power

Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
7003 (276)	1955 (77)	2408 (95)	18 315 (40,384)

Note: *For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.*

Ratings Definitions

Continuous Power Rating

Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous power rating. Typical peak demand is 100% of continuous rated ekW for 100% of operating hours.

Applicable Codes and Standards

AS 1359, CSA C22.2 No. 100-04, UL 142, UL 489, UL 869, UL 2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

Fuel Rates

1. For transient response, ambient, and altitude capabilities consult your local Cat dealer.
2. Fuel pressure range specified is to the engine fuel control valve. Additional fuel train components may be required and should be considered in pressure and flow calculations.
3. For a complete reference of definitions and conditions see the following data sheets
   a. **60 Hz 1966ekW Continuous / Standard (W/ Pumps)**
      EM1339-02 w/o fan (1.0 g/bhp-hr NOx) - High Efficiency
      EM1341-02 w/o fan (0.5 g/bhp-hr NOx) - High Efficiency
      EM1343-02 w/o fan (1.0 g/bhp-hr NOx) - High Response
      EM1345-02 w/o fan (0.5 g/bhp-hr NOx) - High Response
      EM2312-01 w/o fan (1.0 g/bhp-hr NOx) - High Altitude/Ambient
      EM2314-01 w/o fan (0.5 g/bhp-hr NOx) - High Altitude/Ambient
      EM4636-00 w/o fan (1.0 g/bhp-hr NOx) - Humidity/Fuel Tolerant
      EM4638-00 w/o fan (0.5 g/bhp-hr NOx) - Humidity/Fuel Tolerant
   b. **60 Hz 1982ekW Continuous / Standard (W/O Pumps)**
      EM1338-02 w/o fan (1.0 g/bhp-hr NOx) - High Efficiency
      EM1340-02 w/o fan (0.5 g/bhp-hr NOx) - High Efficiency
      EM1342-02 w/o fan (1.0 g/bhp-hr NOx) - High Response
      EM1344-02 w/o fan (0.5 g/bhp-hr NOx) - High Response
      EM2311-01 w/o fan (1.0 g/bhp-hr NOx) - High Altitude/Ambient
      EM2313-01 w/o fan (0.5 g/bhp-hr NOx) - High Altitude/Ambient
      EM4635-00 w/o fan (1.0 g/bhp-hr NOx) - Humidity/Fuel Tolerant
      EM4637-00 w/o fan (0.5 g/bhp-hr NOx) - Humidity/Fuel Tolerant

http://www.cat.com/powergeneration