

# Cat® G3512H

## 60 Hz Continuous Gas Generator Sets

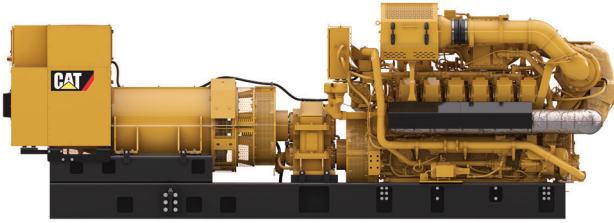


Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.7)
Stroke – mm (in)	215 (8.5)
Displacement – L (in <sup>3</sup> )	59 (3574)
Aspiration	Turbocharged
Fuel System	Electronic Fuel Control Valve
Governor Type	ADEM™ A4 W/ IM

	Fuel Type	ekW (kVA)	Compression Ratio	Engine Speed – rpm
Humidity/Fuel Tolerant W/ Pumps	Natural Gas	1475 (1844)	11.1	1500
Humidity/Fuel Tolerant W/O Pumps	Natural Gas	1490 (1863)	11.1	1500
High Efficiency W/ Pumps	Natural Gas	1475 (1844)	12.1	1500
High Efficiency W/O Pumps	Natural Gas	1490 (1863)	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**

- 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
- Electric prelube

#### **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
- Jacket water heater

### Generators

#### **Output voltage**

- 380V
- 440V
- 480V
- 600V
- 2400V
- 4160V

#### **Temperature Rise (over 40°C ambient)**

- 105°C
- 80°C

#### **Attachments**

- Anti-condensation heater
- Generator RTD module
- Neutral Ground

### Power Termination

#### **Type**

- NEMA Bus bar
- Circuit breaker

#### **Circuit Breaker Options**

- 2500A
- 3000A
- 4000A
- UL  IEC
- 3-pole  4-pole
- Manually operated
- Electrically operated

#### **Trip Unit Options**

- LSI  LSI-G
- LSI-G-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

### Certifications

- CSA Certification

### 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

**Note:** Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.

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

Performance	Continuous			
	60 Hz		60 Hz	
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – kW (kVA)	1475	(1844)	1475	(1844)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	246	(0.50)	504	(1.00)
Performance number	EM2861-03		EM2859-03	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.65	(8202)	8.41	(7972)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.80	(8341)	8.58	(8137)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.46	(8966)	9.22	(8745)
<b>Cooling System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	58	(136)	58	(136)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
<b>Inlet Air</b>				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.09	(4050)	3.94	(3903)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1250	(4101)	1500	(4921)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	408	(767)	406	(763)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.34	(9952)	4.18	(9560)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.47	(18589)	5.27	(17920)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	357	(20289)	350	(19894)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	752	(42769)	719	(40882)
Heat rejection to auxiliary circuit – kW (Btu/min)	148	(8396)	132	(7521)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	118	(6546)	114	(6312)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	854	(48532)	815	(46912)

**60 Hz High Efficiency Package Performance – AC and JW Pumps**

Performance	Continuous			
	60 Hz		60 Hz	
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1475	(1844)	2469	(3086)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	252	(0.50)	510	(1.00)
Performance number	EM1191-02		EM1189-02	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.47	(8032)	8.24	(7809)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.60	(8153)	8.40	(7961)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.24	(8766)	9.00	(8534)
<b>Cooling System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	54	(130)	54	(130)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
<b>Inlet Air</b>				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.07	(4036)	3.94	(3906)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1400	(4593)	1500	(4921)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	393	(740)	390	(735)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.32	(9686)	4.18	(9334)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.45	(18513)	5.27	(17919)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	347	(19715)	335	(19052)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	708	(40245)	677	(38523)
Heat rejection to auxiliary circuit – kW (Btu/min)	154	(8774)	139	(7892)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	111	(6144)	108	(5976)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	810	(46019)	786	(44677)

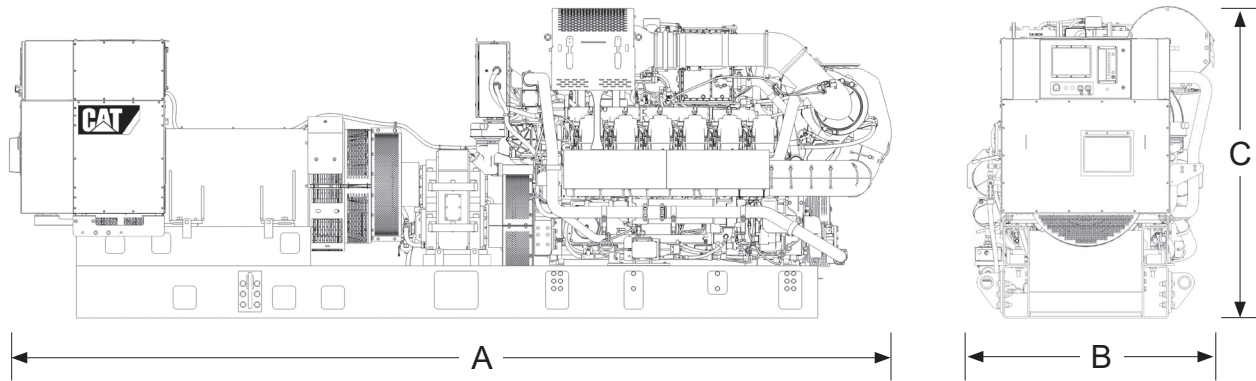
**60 Hz Humidity/Fuel Tolerant Package Performance – No Pumps**

Performance	Continuous			
	60 Hz		60 Hz	
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1490	(1863)	1490	(1863)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	249	(0.50)	510	(1.00)
Performance number	EM2860-03		EM2858-03	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.56	(8115)	8.32	(7890)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.66	(8215)	8.46	(8017)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.25	(8769)	9.03	(8558)
<b>Cooling System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	58	(136)	58	(136)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
<b>Inlet Air</b>				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bKW-hr (ft <sup>3</sup> /min)	4.04	(4047)	3.89	(3901)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1250	(4101)	1500	(4921)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	409	(767)	406	(763)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bKW-hr (ft <sup>3</sup> /min)	4.28	(9944)	4.13	(9556)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.40	(18573)	5.21	(17911)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	357	(20284)	350	(19900)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	752	(42743)	719	(40870)
Heat rejection to auxiliary circuit – kW (Btu/min)	147	(8386)	132	(7516)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	121	(6686)	117	(6454)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	853	(48493)	825	(46900)

**60 Hz High Efficiency Package Performance – No Pumps**

Performance	Continuous			
	60 Hz		60 Hz	
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	1490	(1863)	1490	(1863)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	255	(0.50)	516	(1.00)
Performance number	EM1190-02		EM1188-02	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.38	(7947)	8.15	(7729)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.47	(8030)	8.27	(7843)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.04	(8573)	8.81	(8351)
<b>Cooling System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	54	(130)	54	(130)
Jacket water temperature (maximum outlet) – °C (°F)	99	(210)	99	(210)
<b>Inlet Air</b>				
Combustion air inlet flow rate (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bKW-hr (ft <sup>3</sup> /min)	4.02	(4032)	3.90	(3904)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1400	(4593)	1500	(4921)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	393	(740)	390	(735)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bKW-hr (ft <sup>3</sup> /min)	4.26	(9678)	4.13	(9330)
Exhaust gas mass flow – kg/bKW-hr (lb/hr)	5.38	(18497)	5.21	(17910)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	347	(19710)	335	(19058)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	707	(40220)	677	(38511)
Heat rejection to auxiliary circuit – kW (Btu/min)	154	(8764)	139	(7887)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	114	(6288)	111	(6119)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	809	(45982)	785	(44666)

## Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
6777 (266.8)	1911 (75.2)	2328 (91.6)	15 740 (34,700)

**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 kW 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

- For transient response, ambient, and altitude capabilities consult your local Cat dealer.
- 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.
- For a complete reference of definitions and conditions see the following data sheets
  - 60 Hz 1475kW Continuous / Standard (W/ Pumps)**
    - EM1189-02 (1.0 g/bhp-hr NOx) - High Efficiency
    - EM1191-02 (0.5 g/bhp-hr NOx) - High Efficiency
    - EM1193-02 (1.0 g/bhp-hr NOx) - High Response
    - EM1195-02 (0.5 g/bhp-hr NOx) - High Response
    - EM2859-03 (1.0 g/bhp-hr NOx) - Humidity/Fuel Tolerant
    - EM2861-03 (0.5 g/bhp-hr NOx) - Humidity/Fuel Tolerant
  - 60 Hz 1490kW Continuous / Standard (W/O Pumps)**
    - EM1188-02 (1.0 g/bhp-hr NOx) - High Efficiency
    - EM1190-02 (0.5 g/bhp-hr NOx) - High Efficiency
    - EM1192-02 (1.0 g/bhp-hr NOx) - High Response
    - EM1194-02 (0.5 g/bhp-hr NOx) - High Response
    - EM2858-03 (1.0 g/bhp-hr NOx) - Humidity/Fuel Tolerant
    - EM2860-03 (0.5 g/bhp-hr NOx) - Humidity/Fuel Tolerant

<http://www.cat.com/powergeneration>

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The International System of Units (SI) is used in this publication.