

# Cat® G3520H

## 50 Hz Continuous Gas Generator Sets

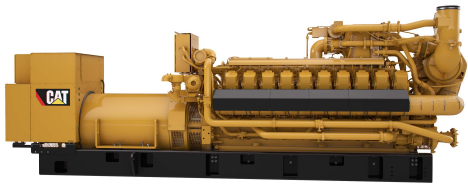


Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.7)
Stroke – mm (in)	215 (8.5)
Displacement – L (in <sup>3</sup> )	97.5 (5956)
Aspiration	Turbocharged
Fuel System	Electronic Fuel Control Valve
Governor	ADEM™ A4 W/ IM

	Fuel Type	ekW (kVA)	Compression Ratio	Engine Speed – rpm
Humidity/Fuel Tolerant W/ Pumps	Natural Gas	2486 (3107)	11.1	1500
Humidity/Fuel Tolerant W/O Pumps	Natural Gas	2500 (3125)	11.1	1500
High Efficiency W/ Pumps	Natural Gas	2486 (3107)	12.1	1500
High Efficiency W/O Pumps	Natural Gas	2500 (3125)	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
- 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

- 380V  6300V
- 400V  6600V
- 415V  6900V
- 3300V  10000V
- 10500V
- 11000V

#### 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

- IEC Bus bar - LV
- Circuit breaker - LV

#### Circuit Breaker Options

- 5000A
- 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

- 2006/42/EC & 2006/95/EC Declaration of Incorporation
- Germany, VDE 4110 Grid Code Compliance
- United Kingdom, G99 Grid Code Compliance
- Belgium, C10/11 MV-1 Grid Code Compliance
- Turkish Ministry Compliance
- Eurasian Conformity (EAC)

### 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.

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

Performance	Continuous			
	50 Hz		50 Hz	
Frequency	50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	2486	(3107)	2486	(3107)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	250	(0.50)	500	(0.96)
Performance number	EM3733-00		EM3731-01	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.51	(8064)	8.24	(7811)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.70	(8247)	8.43	(7995)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.18	(8704)	8.91	(8449)
<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)	4.05	(6692)	3.85	(6364)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	975	(3199)	1500	(4921)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	400	(751)	400	(753)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.30	(16229)	4.09	(15469)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.42	(30720)	5.16	(29232)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	663	(37729)	618	(35149)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1203	(68426)	1150	(65391)
Heat rejection to auxiliary circuit – kW (Btu/min)	343	(19498)	272	(15473)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	180	(10259)	175	(9955)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1362	(77500)	1349	(76733)

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

Performance	Continuous			
	50 Hz		50 Hz	
Frequency	50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	2486	(3107)	2486	(3107)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	250	(0.49)	500	(0.94)
Performance number	EM0903-03		EM0901-03	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.32	(7887)	8.04	(7627)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.47	(8034)	8.21	(7783)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.86	(8397)	8.56	(8137)
<b>Cooling System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	48	(118)	48	(118)
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)	4.01	(6619)	4.92	(6295)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	900	(2953)	750	(2461)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	391	(736)	394	(740)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.25	(15838)	4.04	(15135)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.36	(30373)	5.10	(28901)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	649	(36931)	593	(33735)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1115	(63391)	1092	(62128)
Heat rejection to auxiliary circuit – kW (Btu/min)	324	(18419)	439	(16122)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	196	(11139)	161	(9175)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1310	(74499)	1263	(71826)

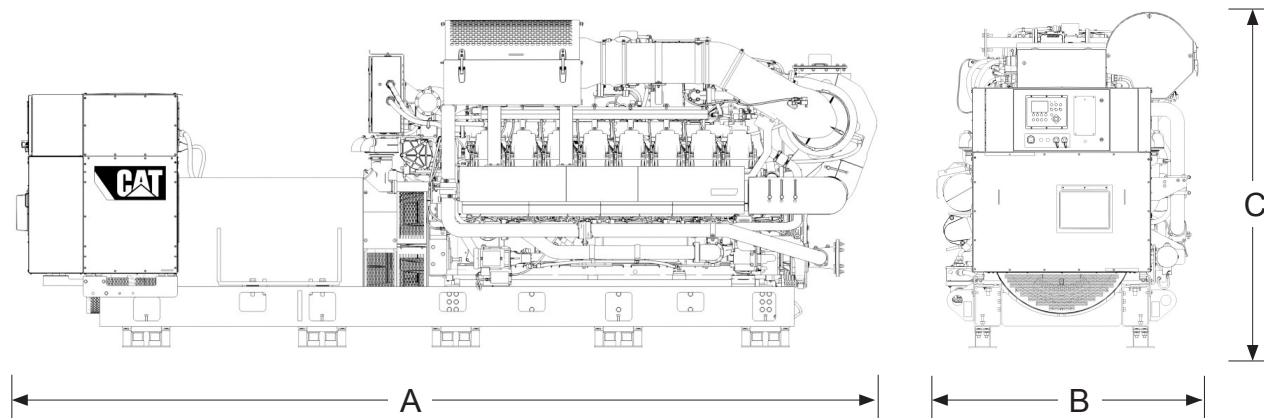
**50 Hz Humidity/Fuel Tolerant Package Performance – No Pumps**

Performance	Continuous			
	50 Hz		50 Hz	
Frequency	50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	2500	(3125)	2500	(3125)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	250	(0.50)	500	(0.96)
Performance number	EM3732-00		EM3730-01	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.46	(8017)	8.19	(7766)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.63	(8183)	8.37	(7934)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.08	(8608)	8.81	(8356)
<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)	4.03	(6692)	4.95	(6364)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	975	(3199)	1500	(4921)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	400	(751)	400	(753)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.27	(16228)	4.07	(15469)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.39	(30718)	5.13	(29230)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	663	(37728)	618	(35148)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1203	(68424)	1150	(65389)
Heat rejection to auxiliary circuit – kW (Btu/min)	343	(19496)	272	(15472)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	181	(10287)	176	(9983)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1362	(77495)	1349	(76729)

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

Performance	Continuous			
	50 Hz		50 Hz	
Frequency	50 Hz		50 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	2500	(3125)	2500	(3125)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	250	(0.48)	500	(0.94)
Performance number	EM0902-03		EM0900-03	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.27	(7841)	8.00	(7582)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.41	(7972)	8.15	(7723)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.76	(8303)	8.49	(8047)
<b>Cooling System</b>				
Auxiliary Circuit temperature (maximum inlet) – °C (°F)	48	(118)	48	(118)
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)	3.98	(6619)	3.79	(6295)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	900	(2953)	750	(2461)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	391	(736)	394	(742)
Exhaust gas flow (0°C, 101.3 kPa)/(77°F, 14.7 psia) – Nm <sup>3</sup> /bkW-hr (ft <sup>3</sup> /min)	4.22	(15837)	4.02	(15153)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.33	(30371)	5.07	(28899)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	649	(36930)	593	(33734)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1115	(63389)	1092	(62123)
Heat rejection to auxiliary circuit – kW (Btu/min)	324	(18418)	283	(16120)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	196	(11167)	162	(9203)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1310	(74494)	1263	(71820)

## Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
6940 (273)	2173 (86)	2473 (97)	24 800 (54,675)

**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
  - 50 Hz 2486kW Continuous / Standard (W/ Pumps)**
    - EM3731-01 (500mg/Nm<sup>3</sup> NOx) - Humidity/Fuel Tolerant
    - EM3733-00 (250mg/Nm<sup>3</sup> NOx) - Humidity/Fuel Tolerant
    - EM0901-03 (500mg/Nm<sup>3</sup> NOx) - High Efficiency
    - EM0903-03 (250mg/Nm<sup>3</sup> NOx) - High Efficiency
    - EM0905-04 (500mg/Nm<sup>3</sup> NOx) - High Response
    - EM0907-03 (250mg/Nm<sup>3</sup> NOx) - High Response
    - EM0909-04 (500mg/Nm<sup>3</sup> NOx) - High Altitude/Ambient
    - EM0911-03 (250mg/Nm<sup>3</sup> NOx) - High Altitude/Ambient
  - 50 Hz 2500kW Continuous / Standard (W/O Pumps)**
    - EM0900-03 (500mg/Nm<sup>3</sup> NOx) - High Efficiency
    - EM0902-03 (250mg/Nm<sup>3</sup> NOx) - High Efficiency
    - EM0904-04 (500mg/Nm<sup>3</sup> NOx) - High Response
    - EM0906-03 (250mg/Nm<sup>3</sup> NOx) - High Response
    - EM0908-04 (500mg/Nm<sup>3</sup> NOx) - High Altitude/Ambient
    - EM0910-03 (250mg/Nm<sup>3</sup> NOx) - High Altitude/Ambient
    - EM3730-01 (500mg/Nm<sup>3</sup> NOx) - Humidity/Fuel Tolerant
    - EM3732-00 (250mg/Nm<sup>3</sup> NOx) - Humidity/Fuel Tolerant

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

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Materials and specifications are subject to change without notice.  
The International System of Units (SI) is used in this publication.