

# 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)

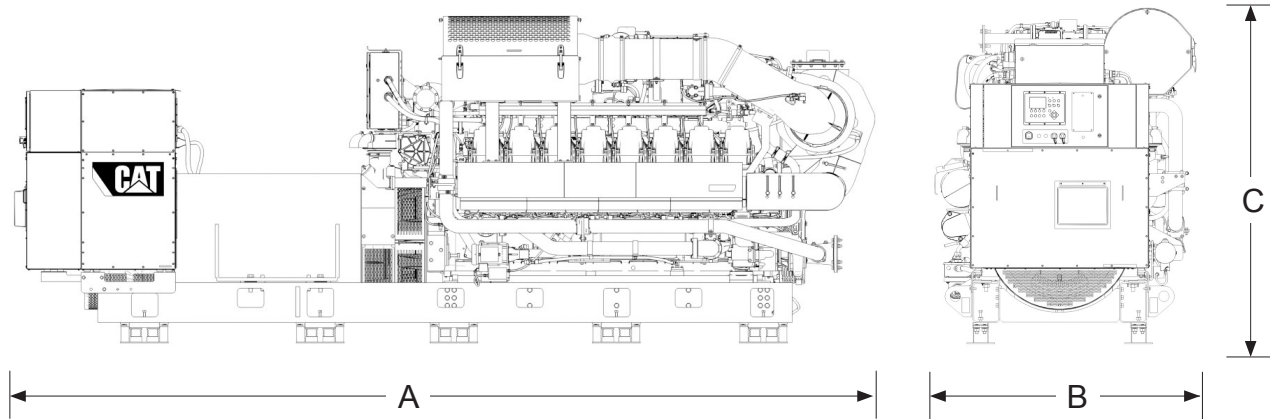
## 50 Hz Humidity/Fuel Tolerant Package Performance – No Pumps

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

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. **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
- b. **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.