

# Cat® G3520H

## 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> )	97.5 (5956)
Aspiration	Turbocharged
Fuel System	Electronic Fuel Control Valve
Governor Type	ADEM™ A4

	Fuel Type	ekW (kVA)	Compression Ratio	Engine Speed – rpm
Humidity/Fuel Tolerant W/ Pumps	Natural Gas	2476 (3095)	11.1	1500
Humidity/Fuel Tolerant W/O Pumps	Natural Gas	2490 (3113)	11.1	1500
High Efficiency W/ Pumps	Natural Gas	2476 (3095)	12.1	1500
High Efficiency W/O Pumps	Natural Gas	2490 (3113)	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

- 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

- 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

### 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 – ekW (kVA)	2476	(3095)	2476	(3095)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	251	(0.50)	520	(1.00)
Performance number	EM3852-02		EM3850-02	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.56	(8114)	8.28	(7855)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.76	(8305)	8.49	(8046)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.26	(8781)	8.98	(8514)
<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	(6709)	3.85	(6371)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1000	(3281)	1500	(4921)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	399	(750)	400	(752)
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	(16261)	4.08	(15481)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.42	(30798)	5.15	(29263)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	664	(37782)	621	(35295)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1205	(68506)	1150	(65405)
Heat rejection to auxiliary circuit – kW (Btu/min)	344	(19575)	272	(15492)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	176	(9639)	170	(9286)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1366	(77697)	1353	(76936)

**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)	2476	(3095)	2476	(3095)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	256	(0.50)	530	(1.00)
Performance number	EM2175-01		EM2173-01	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.37	(7941)	8.10	(7678)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.53	(8090)	8.27	(7837)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.93	(8465)	8.65	(8202)
<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	(6640)	3.81	(6315)
<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	(735)	394	(741)
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	(15877)	4.05	(15193)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.36	(30469)	5.10	(28994)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	655	(37242)	593	(33748)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1112	(63239)	1095	(62271)
Heat rejection to auxiliary circuit – kW (Btu/min)	331	(18799)	285	(16192)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	192	(10546)	158	(8583)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1314	(74700)	1266	(72021)

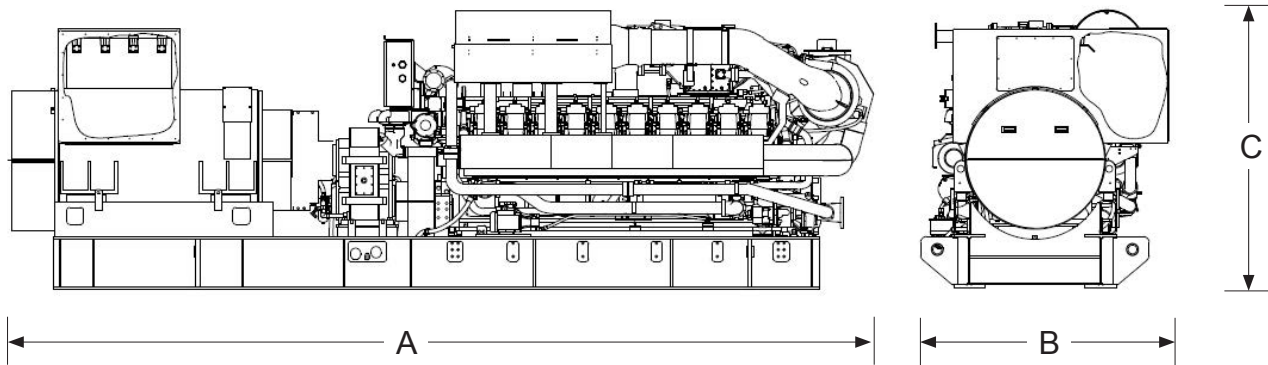
**60 Hz Humidity/Fuel Tolerant Package Performance – No Pumps**

Performance	Continuous			
	60 Hz		60 Hz	
Frequency	60 Hz		60 Hz	
Genset power rating @ 0.8 power factor – ekW (kVA)	2490	(3113)	2490	(3113)
Engine Speed – rpm	1500		1500	
Compression ratio	11.1		11.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	253	(0.50)	523	(1.00)
Performance number	EM3851-02		EM3849-02	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.51	(8066)	8.24	(7808)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.69	(8239)	8.42	(7983)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	9.16	(8681)	8.88	(8418)
<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	(6706)	3.82	(6368)
<b>Altitude Capability</b>				
At 25°C (77°F) ambient, above sea level – m (ft)	1000	(3281)	1500	(4921)
<b>Exhaust System</b>				
Exhaust temperature – engine outlet – °C (°F)	399	(751)	400	(752)
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	(16254)	4.06	(15474)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.39	(30782)	5.12	(29250)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	665	(37800)	621	(35312)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1204	(68480)	1150	(65384)
Heat rejection to auxiliary circuit – kW (Btu/min)	344	(19559)	272	(15481)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	177	(9648)	171	(9301)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1366	(77686)	1352	(76925)

**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)	2490	(3113)	2490	(3113)
Engine Speed – rpm	1500		1500	
Compression ratio	12.1		12.1	
NOx Emission Level – mg/Nm <sup>3</sup> (g/bhp-hr) NOx	258	(0.50)	533	(1.00)
Performance number	EM2174-01		EM2172-01	
<b>Fuel Consumption</b>				
100% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.32	(7892)	8.05	(7632)
75% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.46	(8026)	8.20	(7775)
50% load with fan – MJ/ekW-hr (Btu/ekW-hr)	8.82	(8367)	8.55	(8108)
<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	(6637)	3.79	(6312)
<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	(735)	394	(741)
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	(15870)	4.02	(15187)
Exhaust gas mass flow – kg/bkW-hr (lb/hr)	5.33	(30453)	5.07	(28980)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	650	(36964)	594	(33764)
Heat rejection to exhaust (LHV to 120°C/248°F) – kW (Btu/min)	1116	(63490)	1094	(62232)
Heat rejection to auxiliary circuit – kW (Btu/min)	325	(18490)	285	(16181)
Heat rejection to atmosphere from engine and generator – kW (Btu/min)	193	(10559)	158	(8595)
Heat rejection to jacket water circuit (JW+OC+AC1) – kW (Btu/min)	1313	(74690)	1266	(72011)

## Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
7672 (302)	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
  - 60 Hz 2400ekW Continuous / Standard (W/ Pumps)**  
EM5821-00 Power Module (1.0 g/bhp-hr NOx) - Humidity/Fuel Tolerant  
EM5822-01 Power Module (0.5 g/bhp-hr NOx) - Humidity/Fuel Tolerant
  - 60 Hz 2476ekW Continuous / Standard (W/ Pumps)**  
EM2173-01 w/o fan (1.0 g/bhp-hr NOx) - High Efficiency  
EM2175-01 w/o fan (0.5 g/bhp-hr NOx) - High Efficiency  
EM2177-01 w/o fan (1.0 g/bhp-hr NOx) - High Response  
EM2179-01 w/o fan (0.5 g/bhp-hr NOx) - High Response  
EM2181-01 w/o fan (1.0 g/bhp-hr NOx) - High Altitude/Ambient  
EM2183-01 w/o fan (0.5 g/bhp-hr NOx) - High Altitude/Ambient  
EM3850-02 w/o fan (1.0 g/bhp-hr NOx) - Humidity/Fuel Tolerant  
EM3852-02 w/o fan (0.5 g/bhp-hr NOx) - Humidity/Fuel Tolerant
  - 60 Hz 2490ekW Continuous / Standard (W/O Pumps)**  
EM2172-01 w/o fan (1.0 g/bhp-hr NOx) - High Efficiency  
EM2174-01 w/o fan (0.5 g/bhp-hr NOx) - High Efficiency  
EM2176-01 w/o fan (1.0 g/bhp-hr NOx) - High Response  
EM2178-01 w/o fan (0.5 g/bhp-hr NOx) - High Response  
EM2180-01 w/o fan (1.0 g/bhp-hr NOx) - High Altitude/Ambient  
EM2182-01 w/o fan (0.5 g/bhp-hr NOx) - High Altitude/Ambient  
EM3849-02 w/o fan (1.0 g/bhp-hr NOx) - Humidity/Fuel Tolerant  
EM3851-02 w/o fan (0.5 g/bhp-hr 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.