G3306B Certified Oilfield Gas Generator Set
Oil & Gas

130 ekW (162 kVA)
60 Hz (1800 rpm)

Image shown may not reflect actual configuration

Specifications

Cat® G3306B Certified Oilfield Gas Generator Set	Metric	Imperial (English)
Configuration		In-Line 6, 4-Stroke-Cycle-Spark Ignited Gas Engine
Emissions		40 CFR Part 1048 (Mobile) 40 CFR Part 60 (Stationary)
Bore	121 mm	4.76 in
Stroke	152 mm	5.98 in
Displacement	10.5 L	640 in^3
Compression Ratio		8:1
Aspiration		Turbocharged-Aftercooled
Engine Ignition and Control		Electronic ADEM™ A4
Engine Protection		Electronic ADEM A4
Generator Set Control		EMCP 4.4
Generator		SR4B
Voltage		480V
Fuel Rating Fuel Quality		Cat MN 30
Minimum Fuel Quality		Cat MN 30

Benefits & Features

Product Design
- Dual fuel (natural gas and propane) with automatic transfer capability with customer provided iron
- Engine ratings developed to accept low-quality gas down to Cat MN 30 without derate
- Oversized SR4B generator optimized for block load acceptance and motor starting applications
- Package design and fuel flexibility allow minimum site preparation and low installation cost
- Heavy-duty base with tow bars and forklift pockets ideal for loading, transport, and unloading operations
- Open-skid configuration designed to integrate drop-over enclosure

Superior Performance
- Superior gas engine transient capability
  – 70% G1 ISO 8528 load step
  – 50% G1 ISO 8528 load step
- Heavy-duty split core cooling system with low power draw and high ambient capability

Emissions Compliance
- Engine certified to U.S. EPA 40 CFR Part 1048 (mobile) and EPA 40 CFR part 60 Subpart JJJJ (stationary)

Durability
- Tough and durable, built on industry standard G3300 platform
- Rugged design optimized for harsh oilfield environments

Latest Electronics
- ADEM A4 control system provides integrated ignition, speed control, and protection
- Latest EMCP 4.4 controls for integrated engine-generator control, enhanced functionality, and simplified operator interface, paralleling of up to eight units

Custom Packaging
For any petroleum application, trust Caterpillar to meet your project needs with custom factory generator sets and mechanical packages. Cat engines, generators, controls, radiators, and transmissions can be custom-designed and matched in collaboration with our local dealers to create unique solutions. Custom packages are globally supported and are covered by a one-year warranty after startup.

Testing
- Every Cat generator set is full-load tested to ensure proper engine performance
- Generator sets are assembled, tested, and validated as a package to ensure performance, reliability, and durability

Product Support Offered Through Global Cat Dealer Network
- More than 2,200 dealer outlets
- Experienced Cat dealer technicians service every aspect of your Cat engine
- Worldwide parts availability, service, and warranty
- Preventive maintenance agreements available for repair-before-failure options
- S•O•S℠ program matches your oil and coolant samples against Caterpillar set standards to determine:
  – Internal engine component condition
  – Presence of unwanted fluids
  – Presence of combustion by-products
  – Site-specific oil change interval

Web Site
For all your petroleum power requirements, visit www.cat.com/oilandgas.

Standard Equipment

Air Inlet System
Air cleaner — intermediate duty, dry
Air cleaner rain cap
Air cleaner service Indicator

Cooling System
High ambient radiator design for gas fuel applications
Side-by-side aftercooler and jacket water core Metal top and bottom tanks
Coolant drain
Fan and belt guard
Coolant level sensor

Exhaust System
Exhaust manifolds — watercooled
Exhaust elbow and flex fitting — 127 mm (5 in)
Residential grade muffler
Three-way catalyst
Muffler/catalyst mounting structure
Exhaust piping and catalyst heat wrap

Fuel System
Gas pressure regulator — requires 82.7-172.4 kPa (12-25 psi) gas
Natural gas and propane regulators
Air-fuel ratio control

Generator
Rated for continuous duty — 25% oversize
Class H insulation
Permanent magnet
Random wound
240 VAC space heater
Coastal insulation protection
IP23 protection
Cat Digital Voltage Regulator

Control System
Electronic governing ADEM A4
Electronic diagnostics and fault logging
Momentary start/stop logic
High temperature braided engine harness with 70-pin customer connector and service tool connector

Lube System
Crankcase breather, top-mounted
Oil filter, spin-on, left-hand service
Dipstick, left-hand service
Oil pump — gear-driven
Oil cooler

Mounting System
Heavy-duty welded steel base designed for the oilfield
Designed to accommodate a drop-over enclosure
Space claims for makeup tank and coalescing filter
Base design optimized for loading, transport, and unloading
- Fork lift pockets
- Tow bars — fore and aft

Protection System
The following parameters include alarm and shutdown:
- Inlet manifold air temperature
- Inlet manifold air pressure
- Oil pressure
- Oil temperature
- Coolant temperature
- Engine overspeed
- Battery voltage

General
24V starting motor
24V, 45-amp charging alternator
*Jacket water heater

Warranty
- Entire package covered under a one-year Caterpillar warranty
- Warranty includes all components and content
- Warranty for emissions-related components

Technical Data

	Units	EM0325-00
Generator Set Data		
Rated power (includes fan power)	ekW	130
kVA rating	kVA	162
Rated power factor	pf	0.8
Frequency	Hz	60
Engine Data		
Engine power	bkW (bhp)	151 (203)
Engine speed	rpm	1800
Min Cat Methane Number without derate		30
Engine BSFC @ 100% load	MJ/bkW-hr (btu/bhp-hr)	11.43 (8084)
Engine BSFC @ 75% load	MJ/bkW-hr (btu/bhp-hr)	11.91 (8422)
Engine BSFC @ 50% load	MJ/bkW-hr (btu/bhp-hr)	12.96 (9164)
Air flow rate (@ 25°C, 101.3 kPa)	m^3/min (ft^3/min)	8.6 (302)
Inlet manifold pressure @ rated power	kPa (psi)	133 (19.3)
Aftercooler water temperature	°C (°F)	54 (130)
Jacket water temperature	°C (°F)	99 (210)
Exhaust stack temperature	°C (°F)	576 (1069)
Exhaust flow rate (@ stack temp, 101.3 kPa)	m^3/min (ft^3/min)	27.3 (964)
Lube oil system capacity	L (gal)	44.5 (12)
Engine coolant capacity	L (gal)	20 (5)
Radiator coolant capacity	L (gal)	196 (52)
Oil change interval	Hours	750
Emissions (Regulatory) Fuel Requirements		
Pipeline Quality Natural Gas and Field Gas	Btu/scf	800-1600
Propane	Btu/scf	2125-2395**
Generator Data		
Frame size		445
Voltage	Volts	480
Design kVA rating	kVA	213
Insulation class		UL 1446 Class H
Temperature rise (@ 40°C ambient temp)	°C	80
Overload		300%/10 sec
Coastal protection		Included
Excitation		PM
Number of poles		4
Winding		Form wound
Pitch		0.75
Number of leads		6
Number of bearings		1
Ingress protection rating		IP 23
Alignment		Close coupled
Space heater		Available

"**"- Fuel must adhere to HD-5 specification for Commercial Grade Propane Gas"
NOTE: The G3306B Certified Genset is not available for sale or use in California

Altitude and Ambient Deration Factors

FUEL USAGE GUIDE

CAT METHANE NUMBER	30	35	40	45	50	55	60	65	70	75	80
SET POINT TIMING	21	22	22	23	25	26	28	30	31	33	35
DERATION FACTOR	1	1	1	1	1	1	1	1	1	1	1

ALTITUDE DERATION FACTORS AT RATED SPEED

INLET AIR TEMP °C	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
50	0.98	0.96	0.94	0.92	0.90	0.88	0.87	0.85	0.83	0.81	0.79	0.77	0.76
45	0.99	0.97	0.95	0.93	0.91	0.90	0.88	0.86	0.84	0.82	0.80	0.78	0.77
40	1	0.98	0.96	0.94	0.93	0.91	0.89	0.87	0.85	0.83	0.81	0.79	0.78
35	1	0.99	0.97	0.95	0.93	0.91	0.90	0.88	0.86	0.84	0.82	0.80	0.78
30	1	0.99	0.97	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82	0.81	0.79
25	1	1	0.98	0.96	0.95	0.93	0.91	0.89	0.87	0.85	0.84	0.82	0.80
20	1	1	0.98	0.96	0.95	0.93	0.91	0.89	0.87	0.85	0.84	0.82	0.80
15	1	1	0.98	0.96	0.95	0.93	0.91	0.89	0.87	0.85	0.84	0.82	0.80
10	1	1	0.98	0.96	0.95	0.93	0.91	0.89	0.87	0.85	0.84	0.82	0.80

ALTITUDE (METERS ABOVE SEA LEVEL)

EMCP 4.4 Features

140 mm (5.5 in) Graphical Display
- Generator AC voltage
- 3-phase (L-L & L-N)
- ± 0.25% accuracy
- rpm and battery voltage
- Generator AC current (per phase and average)
- Generator frequency
- Power metering (kW, kVA, kVAr, pf)
- Hour meters (kW-hour, kVAr-hour)
- Engine oil pressure (psi, kPa or bar)
- Engine oil temperature (°C or °F)
- Engine coolant temperature (°C or °F)
- Multiple language support
- Engine start and crank attempt counter
- Real-time clock

Communication
- Accessory CAN data link
- RS-485 annunciator data link
- RS-485 SCADA (Modbus RTU)
- Ethernet SCADA (Modbus TCP)

Controls
- Auto/start/stop
- Engine cooldown timer
- Emergency stop
- Engine cycle crank
- Programmable cycle timer
- Paralleling up to eight units*

Generator Set Protection
- Over/under voltage
- Over/under frequency
- Generator phase sequence
- Over current (timed and inverse)
- Reverse kW, kVA
- Current balance
- Low oil pressure
- High coolant temp
- Low coolant level
- Fail to start
- Overspeed

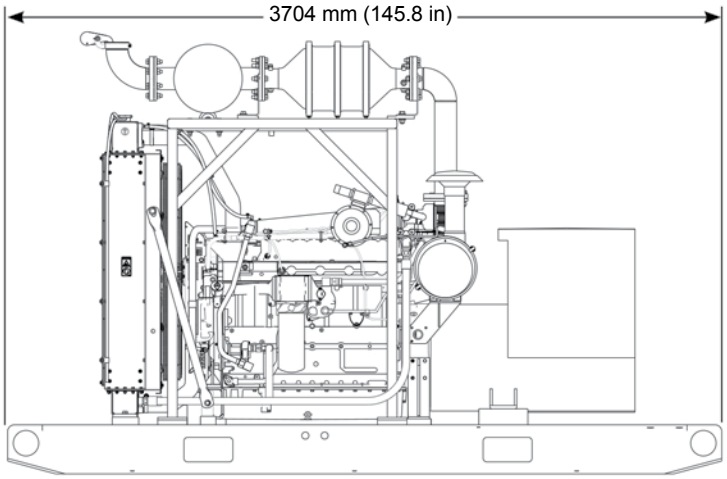
Outputs
- 17 programmable digital outputs
- 3 programmable (4-20mA or ±10V)
- 2 programmable (PWM)

Inputs
- Emergency stop
- Remote start
- 12 programmable digital inputs
- Oil pressure and water temperature
- 3 (4*) programmable inputs (±10V, PWM, current, or resistive)
- Oil temperature, fuel level

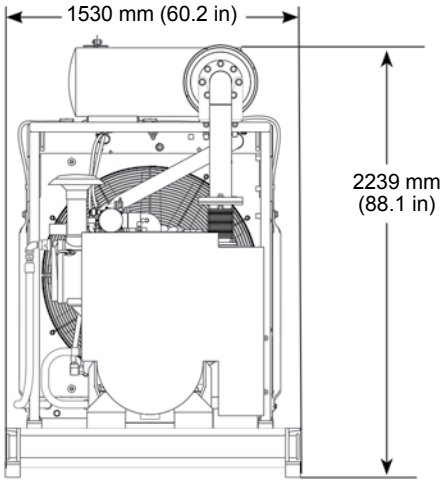
Other Features
- 16 languages supported:
  - Arabic - English - Greek - Russian
  - Chinese - Finnish - Italian - Spanish
  - Danish - French - Japanese - Swedish
  - Dutch - German - Portuguese - Turkish
- Programmable security levels
- Reduced power mode
- Programmable kW relay
- Cat switchgear integration
- Status event log

Dimensions

Certified Oilfield Gas Generator Set



Right Side View



Front View

Generator Set Dimensions and Weight		
Length	3704 mm	145.8 in
Width	1530 mm	60.2 in
Height	2239 mm	88.1 in
Weight (dry)*	3577 kg	7886 lb

*Module weight includes engine, generator, and base.

Note: Do not use for installation design. See installation drawing for details.

Rating Definitions and Conditions

Engine performance is obtained in accordance with SAE J1995, ISO3046/1, BS5514/1, and DIN6271/1 standards.

Transient response data is acquired from an engine/generator combination at normal operating temperature and in accordance with ISO3046/1 standard ambient conditions. Also in accordance with SAE J1995, BS5514/1, and DIN6271/1 standard reference conditions.

Conditions: Power for gas engines is based on fuel having an LHV of 33.74 kJ/L (905 Btu/cu ft) at 101 kPa (29.91 in Hg) and 15°C (59°F). Fuel rate is based on a cubic meter at 100 kPa (29.61 in Hg) and 15.6°C (60.1°F). Air flow is based on a cubic foot at 100 kPa (29.61 in Hg) and 25°C (77°F). Exhaust flow is based on a cubic foot at 100 kPa (29.61 in Hg) and stack temperature.