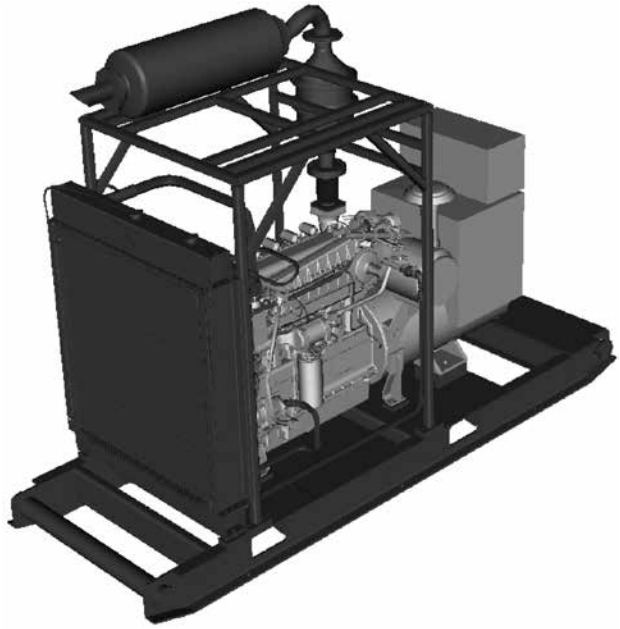
G3306B Gas Petroleum Generator Set

135 ekW, 60 Hz
1800 rpm

0.5 g NSPS Rating
Non-regulated Rating



CAT® ENGINE SPECIFICATIONS

In-Line 6, 4-Stroke-Cycle-Spark Ignited Gas Engine

Emissions (AFRC)	0.5 g NSPS 2010
Emissions (Non-AFRC)	Non-regulated
Bore	121 mm (5.7 in)
Stroke	152 mm (6.4 in)
Displacement	10.5 L (638 in^2)
Rated Engine Speed	1800 rpm
Coolant Capacity (engine)	20 L (5.25 U.S. gal)
Oil Capacity	44.5 L (11.9 U.S. gal)
Aspiration	Turbocharged-Aftercooled
Governor	Electronic ADEM™ A4
Ignition, Protection	Electronic ADEM A4
Air/Fuel Ratio Control	Electronic ADEM A4
Fuel Rating Fuel Quality	Cat® MN 30
0.5g NSPS Package Weight	3535 kg (7885 lb)
Non-regulated Package Weight	3460 kg (7715 lb)

FEATURES

Fuel/Emissions Strategy
- Fuel flexible to 30 Cat methane number
- 0.5 g NOx NSPS emissions
- According to the U.S. EPA, this unit is classified as stationary. The 0.5 g NOx rating is U.S. emissions compliant in accordance with NSPS. 0.5 g NOx rating includes a Caterpillar supplied air/fuel ratio control and three-way catalyst designed specifically for this engine.
- Superior gas engine transient capability allows for 70% G1 and 50% G2 ISO 8528 load step

Engine Design
- Tough and durable, built on industry standard G3300 platform
- Rugged components for durability in harsh oilfield conditions
- Runs on a broad range of fuel heating values at an emissions compliant level

Package Design
- Permanent magnet, continuous duty, SR4B oversized generator ideal for oilfield applications
- Heavy-duty split core cooling system with low power draw and high ambient capability
- Heavy-duty base with towbars for oilfield conditions and transport requirements
- Heavy-duty four-point lifting structure
- 50 Hz or 60 Hz operation — package can be set to operate at either 1500 rpm or 1800 rpm
- 400V or 480V operation — package voltage regulator can be set to operate at either 400V or 480V

Advanced Digital Engine Management
ADEM A4 control system providing integrated ignition, speed governing, protection, and controls. ADEM A4 has improved:
- User Interface
- Display system
- Shutdown controls
- System diagnostics

Cat EMCP 4.3 Series Control Panels
- Integrated control system and communications gateway.
- EMCP 4.3 is standard, offers engine and generator monitoring, metering and protection, a 5.5-inch display screen, and an open protocol for simple integration
- Also features power metering, modbus capability, and programmable discrete outputs

Product Support Offered Through Global Cat Dealer Network
- More than 2,200 dealer outlets
- Cat factory-trained dealer technicians service every aspect of your petroleum engine
- Cat parts and labor warranty
- Preventive maintenance agreements available for repair-before-failure options

Web Site
For all your petroleum power requirements, visit www.catoilandgasinfo.com.

STANDARD EQUIPMENT

Air Inlet System
Air cleaner — intermediate duty, dry
Air cleaner rain cap (shipped loose)
Service indicator

Control Panels
EMCP 4.3 — engine and generator monitoring
User interface panel — rear facing, mounted to generator housing
Modbus RTU customer data link
Large 140 mm (5.5 in) display
Warning/shutdown with common LED indications
Emergency stop pushbutton

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

Exhaust System
Exhaust manifolds — watercooled
Exhaust elbow and flex fitting (dry) — 127 mm (5 in)
Three-way catalyst — 0.5 g NOx catalyst standard
Residential grade muffler
Catalyst and exhaust mounting structure

Fuel System
Air/fuel ratio controller
Gas pressure regulator
Requires 82.7-172.4 kPa (12-25 psi) gas
Natural gas carburetor

Generator
Continious rating — 25% oversize
Class H insulation
Permanent magnet
Random wound
Coastal insulation protection
IP23 protection

Control System
Electronic governing ADEM A4 ECU
Electronic diagnostics and fault logging
Fuel/air ratio control
Momentary start/stop logic
High temp 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
Variety of methods to move package
- Fork lift pocket
- Towbars, fore and aft
- Four-point lifting frame for crane lifting

Spill containment of oil and coolant — 4 corner drains

Starting/Charging Systems
24V starting motor
24V — 45-amp charging alternator

Protection System
The following parameters include alarm and shutdown:
- inlet manifold air temperature
- inlet manifold air pressure
- oil pressure
- oil temperature
- coolant temperature
- engine speed (overspeed)
- battery voltage
- catalyst inlet/outlet temperature (sensors shipped loose)

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

OPTIONAL EQUIPMENT

85 dB Sound Attenuated Enclosure
Aluminum construction
Drop-over design for ease of servicing
Three large access doors
Radiator deflector
Control panel view window

Weather Enclosure
Lower cost option
Removes radiator deflector and sound insulation
Three external E-stops
Large ventilation for high ambient operation
External bus bar connection compartment
External generator breaker compartment

TECHNICAL DATA AND SPECIFICATIONS

G3306B Gas Petroleum Generator Set

		DM9398-00 0.5 g NOx NTE	DM9397-00 Non-regulated
Engine Speed	**rpm**	**1800 rpm**	**1800 rpm**
Maximum Electric Output (inc fan losses)	ekW	135	135
Fuel Consumption (100% load)	MJ/bkW-hr (Btu/bhp-hr)	11.43 (8066)	11.43 (8066)
Fuel Consumption (75% load)	MJ/bkW-hr (Btu/bhp-hr)	11.96 (8458)	11.96 (8458)
Fuel Consumption (50% load)	MJ/bkW-hr (Btu/bhp-hr)	13.07 (9239)	13.07 (9239)
Air Flow (100% load)	kg/hr (lb/hr)	600 (1339)	600 (1339)
Exhaust Flow (100% load)	kg/hr (lb/hr)	637 (1421)	637 (1421)
Min Cat Methane Number (full rating)		30	30
Compression Ratio		8.0:1	8.0:1
Inlet Manifold Pressure (abs) (100% load)	kPa (in Hg)	133 (39.3)	133 (39.3)
Inlet Manifold Pressure (abs) (75% load)	kPa (in Hg)	108 (32)	108 (32)
Inlet Manifold Pressure (abs) (50% load)	kPa (in Hg)	81 (24.1)	81 (24.1)
Full Rating Max Altitude at 25°C	m (ft)	275 (900)	275 (900)
Full Rating Max Ambient at 0 m Altitude	°C (°F)	43 (109)	43 (109)
Aftercooler Temperature	°C (°F)	54 (130)	54 (130)
JW Temperature	°C (°F)	99 (210)	99 (210)
Emissions (NTE)			
NOx	g/bkW-hr (g/bhp-hr)	0.67 (0.5)	20.48 (15.28)
CO	g/bkW-hr (g/bhp-hr)	2.68 (2.0)	20.47 (15.27)
THC	g/bkW-hr (g/bhp-hr)	1.41 (1.05)	1.43 (1.07)
NMHC	g/bkW-hr (g/bhp-hr)	0.21 (0.16)	0.21 (0.16)
NMNEHC	g/bkW-hr (g/bhp-hr)	0.15 (0.11)	0.15 (0.11)
HCHO (formaldehyde)	g/bkW-hr (g/bhp-hr)	0.34 (0.25)	0.32 (0.24)
Ambient Capability @ Full Rating			
@305 m (1000 ft) — Open	°C (°F)	46 (115)	46 (115)
@1524 m (5000 ft) — Open	°C (°F)	44 (111)	44 (111)
Transient Capability			
G1 — Load Step	Load Step	70%	70%
G2 — Load Step	Load Step	50%	50%
Generator			
Generator Frame		445 SR4B	445 SR4B
Oversize @ Continuous Rating		25%	25%
Generator Design Rating	ekW	170	170
Generator Design kV•A	kV•A	213	213
Frequency	Hz	60	60
Volts	V	480	480
Temperature Rise	°C	80/40	80/40
Overload		300%/10 sec	300%/10 sec
Excitation		Permanent Magnet	Permanent Magnet
Insulation		UL 1446 Class H	UL 1446 Class H
Ingress Protection Rating		IP23	IP23
Voltage Regulator		Cat DVR	Cat DVR
Bearing Configuration		Single	Single
Number of Leads		6	6
Coastal Protection		Yes	Yes
Space Heater		Available	Available

GAS ENGINE TECHNICAL DATA

G3306B Gas Petroleum Generator Set — 135 ekW (1800 rpm)

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 °F	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	0.96	0.94	0.92	0.90	0.88	0.85	0.83	0.81	0.79	0.77	0.74	0.70	0.67
120	0.98	0.96	0.93	0.91	0.89	0.87	0.84	0.82	0.80	0.78	0.75	0.72	0.68
110	0.99	0.97	0.95	0.92	0.90	0.88	0.86	0.83	0.81	0.79	0.77	0.74	0.70
100	1	0.98	0.96	0.94	0.91	0.89	0.87	0.85	0.82	0.80	0.78	0.75	0.72
90	1	0.99	0.96	0.94	0.92	0.90	0.87	0.85	0.83	0.80	0.78	0.76	0.73
80	1	0.99	0.97	0.95	0.93	0.90	0.88	0.86	0.84	0.81	0.79	0.77	0.74
70	1	1	0.97	0.95	0.93	0.91	0.89	0.86	0.84	0.82	0.80	0.77	0.75
60	1	1	0.97	0.95	0.93	0.91	0.89	0.86	0.84	0.82	0.80	0.77	0.75
50	1	1	0.97	0.95	0.93	0.91	0.89	0.86	0.84	0.82	0.80	0.77	0.75

ALTITUDE (FEET ABOVE SEA LEVEL)

Cat EMCP 4.3 Series Control Panel
EMCP 4 controls
Run/auto/stop
Speed adjust
Voltage adjust
Engine crank cycle
Emergency stop pushbutton
EMCP 4.3 controller
24-volt DC operation
Environmental sealed front face
Text alarms/events descriptions

Digital Indication for:
rpm
DC volts
Operating hours
Oil pressure (psi, kPa, or bar)
Coolant temperature
Volts (L-L and L-N), frequency (Hz)
Amps (per phase and average)
Power factor (per phase and average)
kW (per phase, average, and percent)
kV•A (per phase, average, and percent)
kV•Ar (per phase, average, and percent)
kW-hr (total)
kV•Ar-hr (total)

Warning/Shutdown with Common LED Indication of Shutdowns for:
Low oil pressure
High coolant temp
Overspeed
Emergency stop
Failure to start (overcrank)
Low coolant temperature
Low coolant level

Programmable Protective Relaying Functions
Generator phase sequence
Over/under voltage (27/59)
Over/under frequency (81 o/u)
Reverse power (kW) (32)
Reverse reactive power (kV•Ar) (32RV)
Overcurrent (50/51)

Communications
Customer data link (Modbus RTU)
Accessory module data link
Serial annunciator module data link
2 programmable digital outputs
2 programmable digital inputs
1 programmable analogue output
Compatible with the following optional modules:
Digital I/O module
Local annunciator
Remote CAN annunciator
Remote serial annunciator
RTD module
Thermocouple module

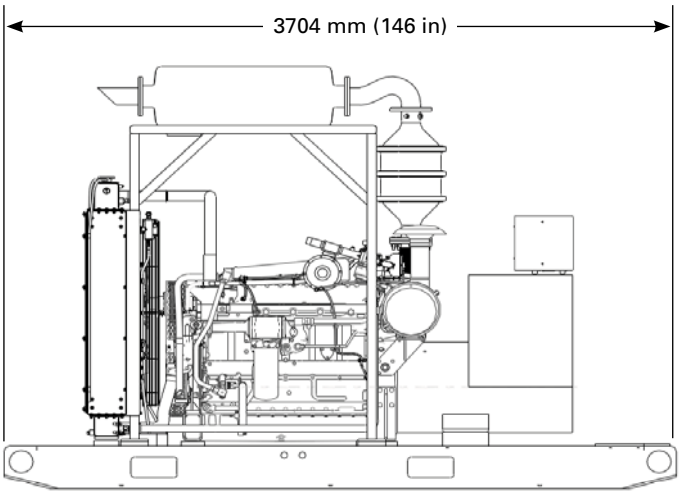
G3306B GAS PETROLEUM GENERATOR SET

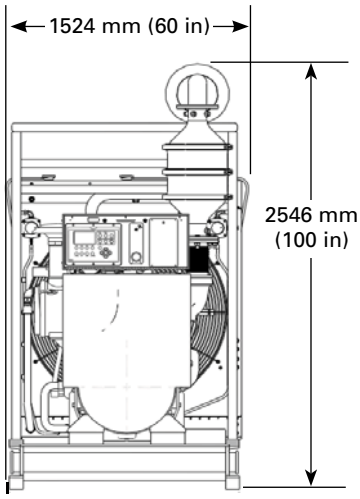
135 ekW, 60 Hz
1800 rpm

DIMENSIONS

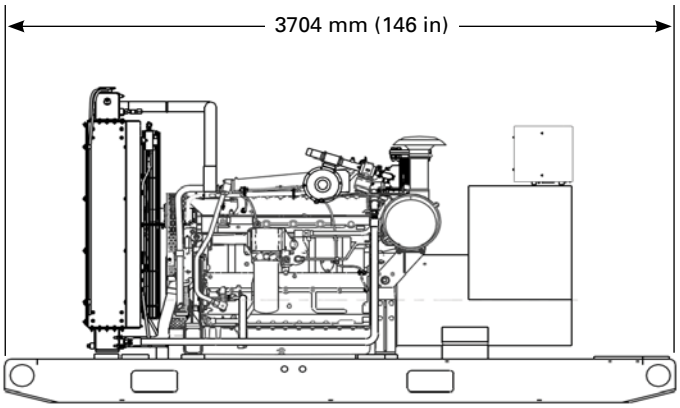
GAS PETROLEUM GENERATOR SET

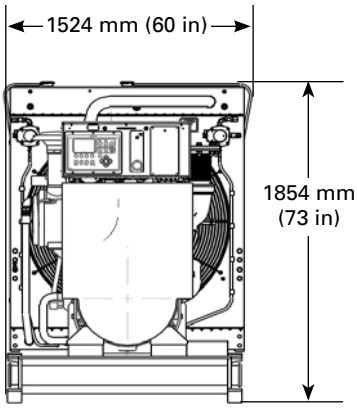
0.5 g NSPS Emissions Compliant Package





Non-regulated Package





DIMENSIONS – 0.5 g NSPS EMISSIONS COMPLIANT PACKAGE		
Length	mm (in)	3704 (146)
Width	mm (in)	1524 (60)
Height	mm (in)	2546 (100)
Weight	kg (lb)	3535 (7885)

DIMENSIONS – NON-REGULATED PACKAGE		
Length	mm (in)	3704 (146)
Width	mm (in)	1524 (60)
Height	mm (in)	1854 (73)
Weight	kg (lb)	3460 (7715)

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.