

Caterpillar Gas Generator 2000KVA/1600KWe



Shown with
Optional Equipment

CONTINUOUS 2000 kVA @ 1500 RPM 50 Hz

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES



EMISSIONS

- Meets most worldwide emissions requirements down to 0.5 g/bhp-hr NOx level without after treatment

FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested

SINGLE-SOURCE SUPPLIER

- **Fully Prototype Tested** with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT

- With over 1,800 dealer branch stores operating in 166 countries, you're never far from the Caterpillar part you need.
- 99.5% of parts orders filled within 48 hours. The best product support record in the industry.
- Caterpillar dealer service technicians are trained to service every aspect of your electric power generation system.
- Customer Support Agreements offer back-to-back services from scheduled inspections and preventive maintenance to before-failure overhauls and Total Cost-Per-Hour Guarantees.



CAT® G3516C GAS ENGINE

- Robust high speed diesel block design provides prolonged life and lower owning and operating costs
- Designed for maximum performance on low pressure pipeline natural gas
- Simple open chamber combustion system for reliability and fuel flexibility
- Leading edge technology in ignition system and air/fuel ratio control for lower emissions and higher engine efficiency
- One electronic control module handles all engine functions: ignition, governing, air fuel ratio control, and engine protection



CAT SR4B GENERATOR

- Designed to match performance and output characteristics of Caterpillar engines
- Optimum winding pitch for minimum total harmonic distortion and maximum efficiency
- Segregated low voltage (AC/DC) accessory box provides single point access to accessory connections



CAT CONTROL MODULE

- Designed to meet individual customer needs:
 - Gas Engine Control Module provides full-featured, engine management and control functions, purge cycle, staged shutdown logic, plus programmable protective relaying functions
- Remote control and monitor capability options

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FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	2 element, single stage air cleaner with enclosure, service indicator, horizontal mount (shipped loose)	2 elements with enclosure vertical mount (shipped loose). Stand to mount horizontal or optional vertical air cleaner. Heavy duty air cleaner w/precleaner, horizontal mount (shipped loose)
Cooling	No engine driven water pumps for jacket water or aftercooler circuit, jacket water and SCAC thermostats Cat flange connections on jacket water inlet ANSI type flanged outlet on jacket water outlet ANSI/DIN flanges on 2nd stage AC (shipped loose)	Remote radiator for JW and SCAC circuits, water level switch included but not wired, coolant level drain line with valve, 400/480V electric driven fans with guard, motor control and disconnect switch
Engine Control Module	Fuel/air ratio control transient richening and turbo bypass control Start/stop logic: gas purge cycle, staged shutdown Engine Protection Systems: detonation sensitive timing, high jacket water temperature, low oil pressure, failure to start overcrank, overspeed, high oil temperature, emergency stop	
Exhaust	Dry exhaust manifolds, Cat flanged outlet Individual exhaust port and turbocharger outlet wired to integrated Temperature Sensing Module with Gas ECM providing alarms and shutdowns	15 dBA muffler, 18 dBA muffler, 25 dBA muffler with ANSI style flanges. Spark arresting muffler with ANSI style flanges.
Fuel	Electronic air fuel ratio control (Engine Control Module) ADEM III based, electronic fuel control valve, throttle plate; hydraulically actuated and electronically control by ECM, low pressure pipeline natural gas fuel supply (35-350 mbar). Sized for 31.5 to 47.2 MJ/N·m ³ (800 to 1200 Btu/cu ft) dry pipeline natural gas.	Gas Shutoff Valve, 24 Volt Energized-to-Run (ETR) Fuel filter (non-coalescent) Knockdown regulator
Ignition	ECM provides electronic ignition, individual cylinder timing and individual cylinder detonation control (through the use of one detonation sensor per 2 cylinders)	
Integrated Thermo Sensing Module (ITSM)	24 thermocouples to input individual exhaust port temperatures and inlet and outlet temperatures of both turbochargers	CCM transfers Cat DataLink information through RS232 to customer terminal
Generator	Permanent magnet excitation, 105° C rise, two bearing, six lead, 3-phase sensing, platinum stator RTDs, Class H Insulation, Caterpillar's® Digital Voltage Regulator with adjustable 1:1 or 2:1 volt/Hz and PF control, bus bar termination, extension box, segregated low voltage wiring panel, winding temperature detectors, anti-condensation space heaters	Oversize and premium generators Bearing temperature detector Low voltage cable extension box
Governor	Electronic (ADEM III), ProAct actuator	Electronic load sharing
Control Panels	EMCP II+	Local alarm and remote annunciator modules Synchronizing module
Lube	Lubricating oil and filter, oil drain valve, crankcase breathers, gear type lube oil pump, integral lube oil cooler, filler/dipstick	Closed Crankcase ventilation system, prelube pump
Mounting	330 mm structural steel rails, spring-type anti-vibration mounts (shipped loose)	
Starting/Charging	24 volt starting motor, batteries with rack and cables, batteries disconnect switch	Battery charger, 24V charging alternator, air starting system, jacket water coolant heaters, 9 kW (480V/3 phases with 240V/1 phase pump, include isolation valves) oversize batteries
General	Damper	Manual barring device, certifications, crankcase explosion relief valve

SPECIFICATIONS



CAT SR4B GENERATOR

Frame size	826
Excitation	Permanent magnet
Pitch	0.7143
Number of poles	4
Number of bearings	2
Number of leads	6
Insulation	UL 1446 Recognized Class H Insulation
IP rating	Drip proof IP22
Alignment	Pilot shaft
Overspeed capability	125%
Wave form	Less than 5% deviation
Paralleling kit droop transformer	Standard
Voltage regulator	3-phase sensing with adjustable 1:1 or 2:1 Volts/Hz, UL 508A Listed
TIF	Less than 50
THD	Less than 3%

Consult your Caterpillar dealer for available voltages.



CAT ENGINE

G3516C SCAC, 4-stroke-cycle watercooled Gas	
Bore — mm (in)	170 (6.7)
Stroke — mm (in)	190 (7.5)
Displacement — L (cu in)	69 (4210)
Compression ratio	11.3:1
Aspiration	Turbocharged Separate Circuit Aftercooled
Fuel system	Low Pressure
Governor type	Electronic (ADEM III)



CAT CONTROL PANEL

24 Volt DC Control	
NEMA 1, IP22 enclosure	
Electrically dead front	
Lockable hinged door	
Generator instruments meet ANSI C-39-1	
Terminal box mounted	
Single location customer connector point	
EC compliant — segregated AC/DC connections and wiring	

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TECHNICAL DATA

Generator Set — 1500 rpm/50 Hz/400 Volts		DM5615-00	DM5614-00
G3516C LE Gas Generator Set Emission level (NOx) Aftercooler, two stage (JW in/SCAC)	mg/N·m ³ Deg C	250 54	500 54
Package Performance (1) Electrical Efficiency @ 1.0 pf (5) Power rating @ 1.0 pf Power rating @ 0.8 pf Mechanical Power	% ekW ekW kVA bkW	39.9 1618 1600 2000 1656	40.9 1618 1600 2000 1656
Fuel Consumption (2) Low Heat Value (LHV) Fuel Input (ISO3046/1) 100% load without fan without engine driven pumps 75% load without fan without engine driven pumps 50% load without fan without engine driven pumps	kW N·m ³ /hr N·m ³ /hr N·m ³ /hr	4057 411 314 219	3956 401 306 214
Altitude Capability (3) At 25° C ambient	M	400	500
Cooling System Ambient air temperature Jacket water temperature (maximum outlet)	Deg C Deg C	25 99	25 99
Exhaust System Combustion air inlet flow rate Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size — (internal diameter) System backpressure (maximum allowable)	N·m ³ /min Deg C N·m ³ /min mm kPa	120 475 127 360 6.75	115 477 122 360 6.75
Heat Rejection (4) Heat rejection jacket water (includes JW, oil cooler and A/C — stage 1). Heat rejection to A/C — stage 2 Heat rejection to exhaust (LHV to 120° C) Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	kW kW kW kW kW	813 134 1064 117 48	774 128 1030 117 48
Alternator Motor starting capability @ 30% voltage dip Frame Temperature rise	kVA Deg C	4028 826 105	4028 826 105
Lube System Lube oil refill volume w/filter change	L	401	401
Emissions*** NOx @ 5% O ₂ CO HC (total) HC (non-methane) Exhaust O ₂ (dry)	mg/N·m ³ mg/N·m ³ mg/N·m ³ mg/N·m ³ %	250 1020 2415 363 10.8	500 972 2111 317 10.3

* Assume synchronous driver.

** Emissions data measurements are consistent with those described in EPA CFR 40 Part 89 Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state engine operating conditions of 25° C (77° F), 96.28 kPa (28.43 in Hg) and fuel having an LHV of 35.6 MJ/ N·m³ (905 Btu/cu ft) at 101.60 kPa (30.00 in Hg) absolute and 0° C (32° F). Emission data shown is subject to instrumentation, measurement, facility, and engine fuel system adjustments.

RATING DEFINITIONS AND CONDITIONS

Continuous — Output available without varying load for an unlimited time.

(1) Ratings are based on pipeline natural gas having an LHV of 35.6 MJ/N·m³ (905 Btu/cu ft) and 80 Methane Number. For values in excess of the altitude, temperature, inlet/exhaust restriction, or for natural gas compositions different from the conditions listed, contact your local Caterpillar dealer.

(2) Ratings and fuel consumption are based on ISO3046/1 standard reference conditions of 25° C (77° F) and 100 kPa (29.61 in Hg) with 0,+5% fuel tolerance.

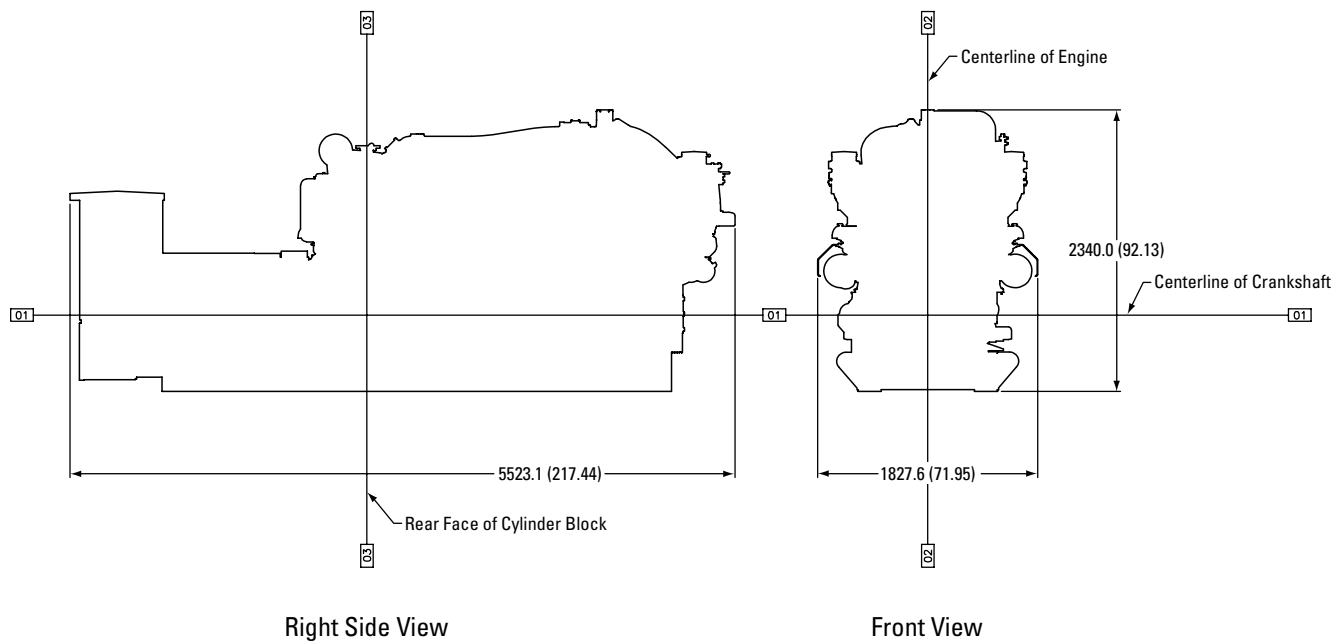
(3) Altitude capability is based on 2.5 kPa inlet and 5.0 kPa exhaust restriction.

(4) Heat Rejection — values based on ISO3046/1 with fuel tolerance of ±2.5% and 2.5 kPa inlet and 5.0 kPa exhaust restriction.

(5) Efficiency of standard generator is used. For higher efficiency generators contact your local Caterpillar dealer.

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OPEN GENERATOR SET PACKAGE



Package Dimensions		
Length	5523.1 mm	217.44 in
Width	1827.6 mm	71.95 in
Height	2340.0 mm	92.13 in
Shipping Weight	15 640 kg	34,480 lb

Note: Do not use for installation design.
See general dimension drawings
for detail (Drawing # 202-2201).