GAS GENERATOR SET

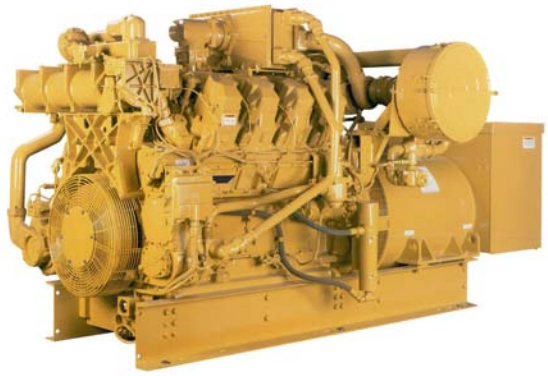

Image shown may not reflect actual package

NATURAL GAS CONTINUOUS

480 ekW 600 kVA
495 ekW 619 kVA
505 ekW 631 kVA
510 ekW 637 kVA
50 HZ 1500 RPM 400 VOLTS

Caterpillar® is leading the power generation market place with power solutions engineered to deliver unmatched flexibility, expandability, reliability and cost-effectiveness.

FEATURES

FULL RANGE OF ATTACHMENT
- Wide range of bolt-on system expansion attachments, factory designed and tested.
- Flexible packaging options for easy and cost effective installation.

PROVEN SYSTEM
- Fully prototype tested.
- Field proven in a wide range of applications worldwide.
- Certified torsional vibration analysis available.

WORLDWIDE PRODUCT SUPPORT
- Caterpillar dealers provide extensive post sales support including maintenance and repair agreements
- Caterpillar dealers have over 1,600 dealer branch stores operating in 200 countries
- The CAT® S.O.S SM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT® G3508 LEAN BURN GAS ENGINE
- Robust high speed diesel block design provides prolonged life and lower owning and operating costs
- Designed for maximum performance on low pressure gaseous fuel supply.
- Simple open chamber combustion system for reliability and fuel flexibility.

CAT SR4B GENERATOR
- Designed to match performance and output characteristics of Caterpillar gas engines
- Industry leading mechanical and electrical design
- High efficiency

CAT EMCP II+ CONTROL PANEL
- Simple user friendly interface and navigation
- Digital monitoring, metering and protection setting
- Fully-featured power metering and protective relaying
- UL 508A Listed.
- Remote control and monitor capability options

CONTINUOUS 600 kVA to 637 kVA

50 Hz 1500 rpm 400 Volts

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	Air cleaner; intermediate duty with service indicator	Ship-loose air cleaner Air inlet adapter
Control	EMCP II+ Instrument panel on engine	Communications Module (PL1000T, PL1000E) Alarm module Customer interface module Synchronizing module
Cooling	**For 508GE01 and 508GEX2** Combined jacket water and oil cooler circuit Engine driven JW pump; Thermostats and housing Separate aftercooler circuit Single-stage aftercooler Engine driven SCAC pump; Second-stage thermostat and housing **For 508GEX3** No engine driven water pumps for JW and SCAC No thermostats provided for separate aftercooler circuit Two stage separate aftercooler circuit	Cleanable aftercooler Raw water aftercooler Inlet/Outlet connections. Expansion and overflow tank Water level switch gauge
Exhaust	Watercooled exhaust manifolds for 508GE01 and 508GEX2 Dry exhaust manifolds for 508GEX3	Flexible fitting; Elbow; Flange and Expander Muffler & spark-arresting muffler w/companion flanges
Fuel	Gas pressure regulator Requires 241.3 to 275.8 kPa (35 to 40 psi) gas for 508GE01 Requires 10.3 to 34.5 kPa (1.5 to 5 psi) gas for 508GEX2 and 508GEX3 Natural gas carburetor for 508GE01 Deltec natural gas carburetor for 508GEX2 and 508GEX3 (31 to 35 MJ/Nm^3 venturi standard) Fuel system is sized for 31.5 to 47.2 MJ/Nm^3 (800 to 1200 Btu/scf)	High Btu carburetor mixer for 508GEX2 and 508GEX3 Gas filter Gas shutoff valve
Generator	SR4B generator, includes: PM excited, form wound with Class H insulation Platimum stator RTDs Caterpillar's Digital Voltage Regulator (CDVR) including KVAR/PF control Space heater	Set mounted circuit breakers Medium voltage generator Bearing temperature detectors (RTD) Low voltage extension box Cable access box Air filter for generator European bus bar
Governing	Woodward 2301A Speed Control for 508GE01 Woodward ProAct Speed Control for 508GEX2 and 508GEX3	Ship-loose 2301A Speed Controller 2301A load sharing governor 2301D dual gain governor
Ignition	Caterpillar Electronic Ignition System (E.I.S.) including detonation sensing timing	
Lubrication	Crankcase breather; top mounted Oil cooler Oil filter Shallow oil pan	Oil level regualtor Oil pan drain valve Sump pump Prelube pump Lubricating oil
Mounting	Rail, engine-generator mounting, 330 mm, industrial type	Spring type vibration Isolators Rubber type isolator pad
Protection	Shutoff solenoid; 24VDC, ETR Detonation shutdown Additional safety shutdown protection on Control Panel	
Starting / Charging	Single 24 VDC starting motor	Battery charger; Charging alternator Battery set, cable and rack Oversized battery Jacket water heater
General	Paint -- Caterpillar Yellow (engine and generator) Crankshaft vibration damper and guard Lifting eyes Operation and Maintenance Manuals; Parts Book.	Crankcase explosion relief valve Engine barring group

CONTINUOUS 600 kVA to 637 kVA

50 Hz 1500 rpm 400 Volts

SPECIFICATIONS

CAT GAS ENGINE

G3508 SCAC 4-stroke-cycle, spark-ignited engine	
Number of Cylinders	V8
Bore --- mm (in)	170 (6.7)
Stroke --- mm (in)	190 (7.5)
Displacement --- L (cu in)	33.7 (2105)
Compression Ratio (508GE01)	8:1
Compression Ratio (508GEX2)	11:1
Compression Ratio (508GEX3)	11:7:1
Aspiration	Turbocharged Separate Circuit Aftercooled
Cooling Type (508GE01 & 508GEX2)	JW & O/C combined, SCAC
Cooling Type (508GEX3)	Combined JW & O/C & 1st stage aftercooler
Fuel System	Low Pressure
Governor Type (508GE01 & 508GEX2))	Woodward 2301A
Governor Type (508GEX3)	Woodward ProAct II

CAT SR4B GENERATOR

Frame size	692
Excitation	Permanent Magnet
Pitch	0.7143
Number of poles	4
Number of bearings	1
Number of leads	6
Insulation	Class H
IP rating	Drip proof IP22
Alignment	Pilot shaft
Overspeed capability -- % of rated	125%
Waveform deviation line to line, no load	less than 3.0%
Voltage regulator	CDVR
Voltage level adjustment	+/- 5.0%
Voltage regulation, steady state	+/- 0.5%
Voltage regulation with 3% speed change	+/- 0.5%
Telephone Influence Factor (TIF)	less than 50

Consult your Caterpillar dealer for available voltage

CAT EMCPII+ CONTROL PANEL

- Power by 24 volts DC
- NEMA 12, IP44 dust-proof enclosure
- Lockable hinged door
- Single-location customer connection
- Auto start/stop control switch
- Voltage adjustment potentiomenter
- True RMS AC metering, 3 phase
- Pruge cycle and staged shutdown logic
- Digital indication for:
  - RPM
  - Operating hours
  - Oil pressure
  - Coolant temperature
  - DC voltage
  - L-L volts, L-N volts, phase amps, Hz, ekW, kVA, kVAR, kWhr, %kW, pf
  - System diagnostic codes
- Shutdown with indicating lights;
  - Low oil pressure
  - High coolant temperature
  - High oil temperature
  - Overspeed
  - Overcrank
  - Emergency stop
  - High inlet air temperature (for TA engine only)
  - Detonation sensitive timing (for LE engine only)
- Programmable protective relaying functions:
  - Under / Over voltage
  - Under / Over frequency
  - Overcurrent
  - Reverse power
- Spare indicator LEDs
- Spare alarm/shutdown inputs

Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.

CONTINUOUS 600 kVA to 637 kVA

50 Hz 1500 rpm 400 Volts

TECHNICAL DATA

G3508 Gas Generator Set		508GEX2		508GE01		
		DM8729	DM8644	DM 0536	DM 5889	DM 0537
Emission level (NO_x)	mg/Nm^3	500	500	Standard Emission	Standard Emission	Standard Emission
Aftercooler SCAC	Deg C	32	54	32	43	54
Package Performance (1)						
Power Rating @ 0.8 pf (w/ water pumps and w/o fan)	ekW Cont.	505	480	510	495	480
Power Rating @ 0.8 pf (w/ water pumps and w/o fan)	kVA Cont.	631	600	637	619	600
Power Rating @ 1.0 pf (w/ water pumps and w/o fan)	ekW Cont.	516	486	516	501	486
Electric Efficiency @ 1.0 pf (ISO 3046/1) **(2)**	%	33.5	33.3	31.4	31.5	31.3
Mechanical Power (w/ water pumps and w/o fan)	bkW	535	505	535	520	505
Fuel Consumption (3)						
100% load w/o fan	Nm^3/hr	155	148	166	161	157
75% load w/o fan	Nm^3/hr	119	113	126	122	121
50% load w/o fan	Nm^3/hr	85	81	93	91	89
Altitude Capability						
At 25 Deg C (77 Deg F) ambient, above sea level	M	900	900	305	305	305
Cooling System						
Ambient air temperature	Deg C	25	25	25	25	25
Jacket water temperature (Maximum outlet)	Deg C	99	99	99	99	99
Exhaust System						
Combustion air inlet flow rate	$Nm^{3/}min$	39.2	36.5	41.4	40.3	39.3
Exhaust stack gas temperature	Deg C	426	418	465	464	462
Exhaust gas flow rate	$Nm^{3/}min$	41.9	39.1	44.2	43.1	42
Heat Rejection						
Heat rejection to jacket water and oil cooler	kW	452	468	465	462	458
Heat rejection to AC	kW	105	78	130	116	102
Heat rejection to exhaust (LHV to 25 Deg C)	kW	397	361	465	452	440
Heat rejection to exhaust (LHV to 120 Deg C)	kW	302	274	361	350	339
Heat rejection to atmosphere from engine	kW	60	60	60	60	60
Heat rejection to atmosphere from generator	kW	24.4	23.1	24.6	23.9	23.1
Generator						
Frame		692	692	692	692	692
Temperature rise	Deg C	80	80	80	80	80
Motor starting capability @ 30% voltage dip **(4)**	skVA	1700	1700	1700	1700	1700
Emissions (5)						
NO_x @ 5% O2 (dry)	mg/Nm^3	500	500	732	719	705
CO @ 5% O2 (dry)	mg/Nm^3	738	778	663	675	681
THC @ 5% O2 (dry)	mg/Nm^3	1314	1240	529	574	617
NMHC @ 5% O2 (dry)	mg/Nm^3	198	186	80	87	93
Exhaust O2 (dry)	%	8	8	7.5	7.6	7.7

CONTINUOUS 600 kVA to 637 kVA

50 Hz 1500 rpm 400 Volts

TECHNICAL DATA

G3508 Gas Generator Set		508GEX3			
		DM 5232	DM 5231	DM 5234	DM 5233
Emission level (NO_x)	mg/Nm^3	500	250	500	250
Aftercooler SCAC, Stage 1	Deg C				
Aftercooler SCAC, Stage 2	Deg C	54	54	32	32
Package Performance (1)					
Power Rating @ 0.8 pf (w/ water pumps and w/o fan	ekW Cont.	480	480	510	510
Power Rating @ 0.8 pf (w/ water pumps and w/o fan	kVA Cont.	600	600	637	637
Power Rating @ 1.0 pf (w/ water pumps and w/o fan	ekW Cont.	486	486	516	516
Electric Efficiency @ 1.0 pf (ISO 3046/1) **(2)**	%	37.4	36.3	38.1	37.3
Mechanical Power (w/ water pumps and w/o fan)	bkW	505	505	535	535
Fuel Consumption (3)					
100% load w/o fan	Nm^3/hr	129.5	133.4	134.8	137.6
75% load w/o fan	Nm^3/hr	101.8	104.8	104.9	107.1
50% load w/o fan	Nm^3/hr	73.5	74.9	75.2	77.3
Altitude Capability					
At 25 Deg C (77 Deg F) ambient, above sea level	M	500	350	500	350
Cooling System					
Ambient air temperature	Deg C	25	25	25	25
Jacket water temperature (Maximum outlet)	Deg C	99	99	99	99
Exhaust System					
Combustion air inlet flow rate	$Nm^{3/}min$	35.4	37.5	37.2	39.1
Exhaust stack gas temperature	Deg C	500	492	453	453
Exhaust gas flow rate	$Nm^{3/}min$	37.8	40.1	39.8	41.7
Heat Rejection					
Heat rejection to jacket water and oil cooler	kW	265	266	250	260
Heat rejection to AC - Stage 1	kW	29	37	31	39
Heat rejection to AC - Stage 2	kW	37	41	56	60
Heat rejection to exhaust (LHV to 25 Deg C)	kW	442	463	422	449
Heat rejection to exhaust (LHV to 120 Deg C)	kW	337	349	308	323
Heat rejection to atmosphere from engine	kW	60	60	60	60
Heat rejection to atmosphere from generator	kW	23.1	23.1	19	19
Generator					
Frame		692	692	692	692
Temperature rise	Deg C	80	80	80	80
Motor starting capability @ 30% voltage dip **(4)**	skVA	1700	1700	1700	1700
Emissions (5)					
NO_x @ 5% O2 (dry)	mg/Nm^3	500	250	500	250
CO @ 5% O2 (dry)	mg/Nm^3	1015	1012	945	1005
THC @ 5% O2 (dry)	mg/Nm^3	1755	2019	2031	2316
NMHC @ 5% O2 (dry)	mg/Nm^3	264	303	305	348
Exhaust O2 (dry)	%	9.5	9.8	9.6	9.9

CONTINUOUS 600 kVA to 637 kVA

50 Hz 1500 rpm 400 Volts

RATING DEFINITIONS AND CONDITIONS

(1) **Continuous** --- Maximum output available for an unlimited time.

Ratings are based on pipeline natural gas having a Low Heat Value (LHV) of 35.6 MJ/Nm^3 (905 Btu/ft^3) for 508GE01 & 508GEX2 and 36.2 MJ/Nm^3 for 508GEX3 and 80 Caterpillar Methane Number. For values in excess of altitude, ambient temperature, inlet / exhaust restriction, or different from the conditions listed, contact your local Caterpillar dealer.

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

(3) **Ratings and fuel consumption** are based on ISO3046/1 standard reference conditions of 25 °C (77 deg F) of ambient temperature and 100 kPa (29.61 in Hg) of total barometic pressure, 30% relative humidity with 0, +5% fuel tolerance.

(4) Assume synchronous driver

(5) **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, NO_x. 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 a LHV of 35.6 MJ/Nm^3 (905 Btu/ft^3) and 80 Caterpillar Methane Number at 101.60 kPa (30.00 in Hg) absolute and 0 deg C (32 ° F). Emission data shown is subject to instrumentation, measurement, facility, and engine fuel system adjustment.

CONTINUOUS 600 kVA to 637 kVA

50 Hz 1500 rpm 400 Volts

DIMENSIONS

Package Dimensions		
Length	3661.0 mm	144.13 in
Width	2155.4 mm	84.86 in
Height	2125.6 mm	83.68 in
Approx. Shipping Weight	7627 kg	16 800 lb

Note: Do not use for installation design.
See general dimension drawings
for detail (Drawing # 201-9594)

Performance Numbers :	DM0536, DM0537, DM5231
	DM5232, DM5233, DM5234
	DM5889, DM8644, DM8729
Feature Codes:	508GE01
	508GEX2
	508GEX3
Generator Arr:	144-1848
Source:	US Sourced
LEHE0052-00 (07/09)	

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