



Image shown may not reflect actual package

NATURAL GAS CONTINUOUS 1950 ekW 2438 kVA 50 Hz 1500 rpm 400 Volts

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

BENEFITS

EMISSIONS

- Meets most worldwide emissions requirements down to 250 mg/Nm³ NO_x level without after treatment

FULL RANGE OF ATTACHMENTS

- 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 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·SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT® G3520C GAS ENGINE

- Robust high speed block design provides prolonged life and lower owning and operating costs
- Designed for maximum performance on low pressure gas fuel supply
- Simple open chamber combustion system for reliability and fuel flexibility
- Leading edge technology in ignition system and air/fuel ratio control for lower emission and engine efficiency
- One electronic control module handles all engine functions: ignition, governing, air/fuel ratio control and engine protection
- Island Mode feature improves engine's capability to handle electrical loading and unloading

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

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Gas Engine Control Module (GECM)	<ul style="list-style-type: none"> Fuel/air ratio control Start/stop logic: gas purge cycle, staged shutdown Engine Protection System: detonation sensitive timing, high exhaust temperature shutdown Governor: Transient richening and turbo bypass control Ignition Island Mode Feature — additional engine control module, new software and engine sensors 	
Air Inlet	<ul style="list-style-type: none"> Two element, single-stage air cleaner with enclosure and service indicator 	<ul style="list-style-type: none"> Air cleaner with precleaner Mounting stand
Control Panel	<ul style="list-style-type: none"> EMCP II+ 	<ul style="list-style-type: none"> Local alarm module Remote annunciator Communications module (PL1000T, PL1000E) Synchronizing module Engine failure relay
Cooling	<ul style="list-style-type: none"> Engine driven water pumps for jacket water and aftercooler Jacket water and SCAC thermostats ANSI/DN customer flange connections for JW inlet and outlet Cat flanges on SCAC circuit 	<ul style="list-style-type: none"> Coolant level drain line with valves, fan with guard Inlet/Outlet connections
Exhaust	<ul style="list-style-type: none"> Dry exhaust manifolds, insulated and shielded Center section cooled turbocharger with Cat flanged outlet Individual exhaust port and turbocharger outlet wired to Integrated Temperature Sensing Module (ITSM) with GECM providing alarms and shutdowns 	<ul style="list-style-type: none"> Flange Exhaust expander Elbow Flexible fitting Muffler and spark-arresting muffler with companion flanges.
Fuel	<ul style="list-style-type: none"> Electronic fuel metering valve Throttle plate, 24V DC actuator, controlled by GECM Fuel system is sized for 31.5 to 47.2 MJ/Nm³ (800 to 1200 Btu/cu ft) dry pipeline natural gas with pressure of 10.2 to 34.5 kPa (1.5 to 5 psi) to the engine fuel control valve 	<ul style="list-style-type: none"> Fuel filter Gas pressure regulator Gas shutoff valve, 24V, ETR (Energized-To-Run)
Generator	<ul style="list-style-type: none"> SR4B generator, includes: Caterpillar's Digital Voltage Regulator (CDVR) with 3-phase sensing and KVAR/PF control Reactive droop Bus bar connections Winding temperature detectors Anti-condensation space heater 	<ul style="list-style-type: none"> Medium and high voltage generators and attachments Low voltage extension box Cable access box Air filter for generator Bearing temperature detectors Manual voltage control European bus bar
Governing	<ul style="list-style-type: none"> Electronic speed governor as part of GECM Electronically-controlled 24V DC actuator connected to throttle shaft. 	<ul style="list-style-type: none"> Woodward load sharing module
Ignition	<ul style="list-style-type: none"> Electronic Ignition System controlled by GECM Individual cylinder Detonation Sensitive Timing (DST) 	
Lubrication	<ul style="list-style-type: none"> Lubricating oil Gear type lube oil pump Oil filter, filler and dipstick Integral lube oil cooler Oil drain valve Crankcase breather 	<ul style="list-style-type: none"> Oil level regulator Prelube pump Positive crankcase ventilation system
Mounting	<ul style="list-style-type: none"> 330 mm structural steel base (for low and medium voltage units) Spring-type anti-vibration mounts (shipped loose) 	
Starting/Charging	<ul style="list-style-type: none"> 24V starting motors Battery with cables and rack (shipped loose) Battery disconnect switch 60A, 24V charging alternator (standard on 60 Hz 1,800 rpm only) 	<ul style="list-style-type: none"> Charging alternator Battery charger Oversized battery Jacket water heater
General	<ul style="list-style-type: none"> Paint — Caterpillar Yellow except rails & radiators Damper guard Operation and Maintenance Manuals Parts Book 	<ul style="list-style-type: none"> Crankcase explosion relief valve Engine barring group EEC D.O.I and other certifications

TECHNICAL DATA

Generator Set — 1500 rpm/50 Hz/400 Volts		DM 5831	DM 5833	DM 5835	DM 5837
G3520C Gas Generator Set					
Emission level (NOx)	mg/Nm ³	447	221	464	230
Aftercooler SCAC (Stage 2)	Deg C	54	54	32	32
Package Performance (1)					
Power Rating @ 0.8 pf (with 2 water pumps and without fan)	ekW Continuous	1950	1950	1950	1950
Power Rating @ 0.8 pf (with 2 water pumps and without fan)	kVA Continuous	2438	2438	2438	2438
Power Rating @ 1.0 pf (with 2 water pumps and without fan)	ekW Continuous	1977	1977	1977	1977
Electric Efficiency @ 1.0 pf (ISO 3046/1) (2)	%	39.5	38.6	39.4	38.6
Mechanical Power (with 2 water pumps and without fan)	bkW	2026	2026	2026	2026
Fuel Consumption (3)					
100% load without fan	Nm ³ /hr	507	517	507	519
75% load without fan	Nm ³ /hr	391	399	393	403
50% load without fan	Nm ³ /hr	275	281	277	284
Altitude Capability (4)					
At 25° C (77° F) ambient, above sea level	M	350	350	360	222
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	147	152	147	152
Exhaust stack gas temperature	Deg C	466	470	452	460
Exhaust gas flow rate	Nm ³ /min	156	161	156	161
Exhaust flange size (internal diameter)	mm	304.8	304.8	304.8	304.8
Heat Rejection (5)					
Heat rejection to jacket water and oil cooler and AC — Stage 1	kW	1017	1044	989	1000
Heat rejection to AC — Stage 2	kW	157	165	228	233
Heat rejection to exhaust (LHV to 25° C)	kW	1749	1822	1708	1814
Heat rejection to exhaust (LHV to 120° C)	kW	1268	1319	1214	1287
Heat rejection to atmosphere from engine	kW	138	138	138	138
Heat rejection to atmosphere from generator	kW	62.4	62.4	62.4	62.4
Generator					
Frame		828	828	828	828
Temperature rise	Deg C	105	105	105	105
Motor starting capability @ 30% voltage dip (6)	skVA	4557	4557	4557	4557
Lubrication System					
Standard sump refill with filter change	L	541	541	541	541
Emissions (7)					
NOx @ 5% O ₂ (dry)	mg/Nm ³	447	221	464	230
CO @ 5% O ₂ (dry)	mg/Nm ³	1021	953	979	966
THC @ 5% O ₂ (dry)	mg/Nm ³	2414	2586	2705	3040
NMHC @ 5% O ₂ (dry)	mg/Nm ³	363	388	406	456
Exhaust O ₂ (dry)	%	9.2	9.4	9.5	9.8

TECHNICAL DATA

Generator Set — 1500 rpm/50 Hz/400 Volts		DM 5830	DM 5832	DM 5834	DM 5836
G3520C Gas Generator Set					
Emission level (NOx)	mg/Nm ³	447	221	459	228
Aftercooler SCAC (Stage 2)	Deg C	54	54	32	32
Package Performance (1)					
Power Rating @ 0.8 pf (with 2 water pumps and without fan)	ekW Continuous	1950	1950	1950	1950
Power Rating @ 0.8 pf (with 2 water pumps and without fan)	kVA Continuous	2438	2438	2438	2438
Power Rating @ 1.0 pf (with 2 water pumps and without fan)	ekW Continuous	1977	1977	1977	1977
Electric Efficiency @ 1.0 pf (ISO 3046/1) (2)	%	39.5	38.6	39.4	38.5
Mechanical Power (with 2 water pumps and without fan)	bkW	2026	2026	2026	2026
Fuel Consumption (3)					
100% load without fan	Nm ³ /hr	507	517	508	520
75% load without fan	Nm ³ /hr	391	399	394	403
50% load without fan	Nm ³ /hr	275	281	278	285
Altitude Capability (4)					
At 25° C (77° F) ambient, above sea level	M	250	250	357	221
Cooling System					
Ambient air temperature	Deg C	25	25	25	25
Jacket water temperature (Maximum outlet)	Deg C	90	90	90	90
Exhaust System					
Combustion air inlet flow rate	Nm ³ /min	148	152	147	152
Exhaust stack gas temperature	Deg C	454	458	451	458
Exhaust gas flow rate	Nm ³ /min	157	161	156	161
Exhaust flange size (internal diameter)	mm	304.8	304.8	304.8	304.8
Heat Rejection (5)					
Heat rejection to jacket water and oil cooler and AC — Stage 1	kW	1080	1110	1044	1057
Heat rejection to AC — Stage 2	kW	128	135	198	202
Heat rejection to exhaust (LHV to 25° C)	kW	1727	1800	1705	1810
Heat rejection to exhaust (LHV to 120° C)	kW	1230	1279	1207	1279
Heat rejection to atmosphere from engine	kW	125	125	125	125
Heat rejection to atmosphere from generator	kW	62.4	62.4	62.4	50
Generator					
Frame		828	828	828	828
Temperature rise	Deg C	105	105	105	105
Motor starting capability @ 30% voltage dip (6)	skVA	4557	4557	4557	4557
Lubrication System					
Standard sump refill with filter change	L	541	541	541	541
Emissions (7)					
NOx @ 5% O ₂ (dry)	mg/Nm ³	447	221	459	228
CO @ 5% O ₂ (dry)	mg/Nm ³	1030	961	968	955
THC @ 5% O ₂ (dry)	mg/Nm ³	2680	2872	2755	3089
NMHC @ 5% O ₂ (dry)	mg/Nm ³	402	431	414	464
Exhaust O ₂ (dry)	%	9.4	9.6	9.4	9.7

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/Nm³ (905 Btu/cu ft) 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° F) of ambient temperature and 100 kPa (29.61 in Hg) of total barometric pressure, 30% relative humidity with 0, +5% fuel tolerance.

(4) Altitude capability is based on 2.5 kPa air filter and 5.0 kPa exhaust stack restrictions.

(5) Heat Rejection — Values based on nominal data with fuel tolerance of ±2.5% and 2.5 kPa inlet and 5.0 kPa exhaust restrictions.

(6) Assume synchronous driver

(7) 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 a LHV of 35.6 MJ/Nm³ (905 Btu/cu ft) and 80 Caterpillar Methane Number 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 adjustment.

DIMENSIONS

Package Dimensions		
Length	6443.7 mm	253.69 in
Width	1996.4 mm	78.60 in
Height	2254.0 mm	88.74 in
Approx. Shipping Weight	18 350 kg	40,455 lb

Note: Do not use for installation design.
See general dimension drawings
for detail (Drawing # 234-3559).

Performance Number: DM5830
DM5831
DM5832
DM5833
DM5834
DM5835
DM5836
DM5837

Feature Codes: 520GE04
520GE05
520GE07
520GE08

Generator Arrangement: 144-1830

Source: U.S. Sourced

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