

Shown with
Optional Equipment

FEATURES



EMISSIONS

- Meets most worldwide emissions requirements down to 250 mg/N·m³ NO_x 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.

CONTINUOUS 2500 kVA

50 Hz

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



CAT® G3520C 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 emission and 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

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 option vertical air cleaner. Heavy duty air cleaner w/precleaner, horizontal mount (shipped loose)
Cooling	Combined jacket water, oil cooler, and 1st stage aftercooler circuit for maximum heat recovery Separate circuit 2nd stage aftercooler ANSI/DN connection for JW outlet (150 DN), Cat flange on JW inlet, DN 80 (ANSI 3 in.) flanges on 2nd stage of aftercooler. No engine driven JW/SCAC pumps, bypass lines or SCAC thermostat (JW thermostats are included)	Complete Factory CHP Packages are available – for more information contact your local Caterpillar dealer.
Engine Control Module	Fuel/air ratio control Start/stop logic: gas purge cycle, stage shutdown Engine Protection Systems: detonation sensitive timing, high jacket water temperature, low oil pressure, failure to start overcrank, overspeed, high oil temperature, emergency stop, transient richening and turbo bypass control	
Exhaust	Dry exhaust manifolds, insulated and shielded, center section cooled turbocharger Cat flanged outlet on turbocharger 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 Weld flanges, elbows, expanders, and flexible fittings
Fuel	Electronic air fuel ratio control (Engine Control Module: ADEM III based, electronic fuel control valve, throttle plate; 24V DC actuator, electronically controlled by ECM: gas shutoff valve, 24 volt energized-to-run: fuel system sized for with low pressure pipeline natural gas fuel supply (35-350 mbar) with 31.5 to 47.2 MJ/N·M ³ (800 to 1200 Btu/cu ft) energy content.	Fuel filter (non-coalescent) Gas pressure regulator ETR (Energized-to-Run), 24 volt gas shutoff valve
Ignition	Electronic ignition system, individual cylinder timing and detonation control, sensors (1 per 2 cylinders) to monitor detonation	
Integrated Thermo Sensing Module (ITSM)	24 thermocouples to input individual exhaust port temperatures and turbo inlet and outlet temperatures on both the turbine and compressor	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, Digital Voltage Regulator with adjustable 1:1 or 2:1 volt/Hz, bus bar termination, extension box, segregated low voltage wiring panel, winding temperature detectors, anti-condensation space heaters	Digital Voltage Regulator with KVAR/PF control, reverse power protection and remote monitoring connection. Oversize and premium generators, medium and high voltage generators, bearing temperature detectors Low voltage cable extension box European bus bars
Governor	Electronic (ADEM III)	Electronic load sharing
Control Panels		EMCP II+, Customer Communication 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, oil level regulator
Mounting	330 mm structural steel rails (for low and medium voltage units), high voltage units have engine mounted to rails and rails to base with generator mounted to base spring-type anti-vibration mounts (shipped loose)	
Starting/Charging	Dual 50 MT 24 volt starting motors, batteries with rack and cables, batteries disconnect switch	Battery charger, 45 amp 24 V DC charging alternator, air starting system, jacket water coolant heaters, 9 kW (400V/3 phases with 200V/1 phase pump, includes isolation valves) oversize batteries
Other	Damper guard	EEC Declaration of Incorporation, certifications, manual barring device, crankcase explosion relief valves

SPECIFICATIONS

 **CAT SR4B GENERATOR**

Frame size	828
Excitation	Permanent magnet
Pitch	0.778
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**

G3520C SCAC, 4-stroke-cycle watercooled Gas	
Bore — mm (in)	170 (6.7)
Stroke — mm (in)	190 (7.5)
Displacement — L (cu in)	86 (5248)
Compression ratio	11.3:1
Aspiration	Separate Circuit Aftercooled
Fuel system	Electronic Ignition System
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

TECHNICAL DATA

Generator Set — 1500 rpm/50 Hz/400 Volts		DM3182-00	DM3185-00	DM3180-00	DM3177-00
G3520C LE Gas Generator Set					
Emission level (NOx)	mg/N•m ³	250	250	500	500
Aftercooler, two stage (JW in/SCAC)	Deg C	82/32	82/54	82/32	92/54
Package Performance (1)					
Power rating @ 1.0 pf (unity)	ekW	2016	2016	2016	2016
Power rating @ 0.9 pf	ekW	2009	2009	2009	2009
Power rating @ 0.8 pf	ekW	2000	2000	2000	2000
kVA rating @ 0.8 pf	kVA	2500	2500	2500	2500
Fuel Consumption (2)					
Electrical Efficiency @ 1.0 pf	%	40.1	40.0	41.2	41.0
100% load with fan	N•m ³ /hr	501	502	488	491
75% load with fan	N•m ³ /hr	387	385	376	377
50% load with fan	N•m ³ /hr	269	268	262	262
Altitude Capability (3)					
At 25° C ambient	M	310	250	510	350
Cooling System					
Jacket water temperature (maximum outlet)	Deg C	90	90	90	99
Exhaust System					
Combustion air inlet flow rate	N•m ³ /min	149	151	144	145
Exhaust stack gas temperature	Deg C	457	458	449	464
Exhaust gas flow rate	N•m ³ /min	158	160	152	155
Exhaust flange size — (internal diameter)	mm	300	300	300	300
System backpressure (maximum allowable)	kPa	5	5	5	5
Heat Rejection (4)					
Low Heat Value (LHV) fuel input	kW	5160	5171	5025	5052
Heat rejection jacket water (includes JW, oil cooler and A/C — stage 1).	kW	1023	1089	1005	991
Heat rejection to A/C — stage 2	kW	199	134	195	154
Heat rejection to exhaust (LHV to 120° C)	kW	1743	1267	1175	1175
Heat rejection to atmosphere	kW	125	125	125	138
Thermal rating**	kW	2277	2356	2180	2241
Alternator					
Motor starting capability @ 30% voltage dip*	skVA	4285	4285	4285	4285
Frame		828	828	828	828
Temperature rise	Deg C	105	105	105	105
Lube System					
Lube oil refill volume w/filter change for std sump	L	541	541	541	541
Emissions***					
NOx @ 5% O ₂	mg/N•m ³	250	250	500	500
CO @ 5% O ₂	mg/N•m ³	957	968	971	1035
HC (total) @ 5% O ₂	mg/N•m ³	2540	2376	2229	1984
HC (non-methane) @ 5% O ₂	mg/N•m ³	381	357	335	298
Exhaust O ₂ (dry)	%	9.7	9.5	9.3	9.2

*Assume synchronous driver.

**Thermal Rating: Heat rejection jacket water + Heat rejection to exhaust (LHV to 120° C)

***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).

Not to exceed 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 MN. 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.

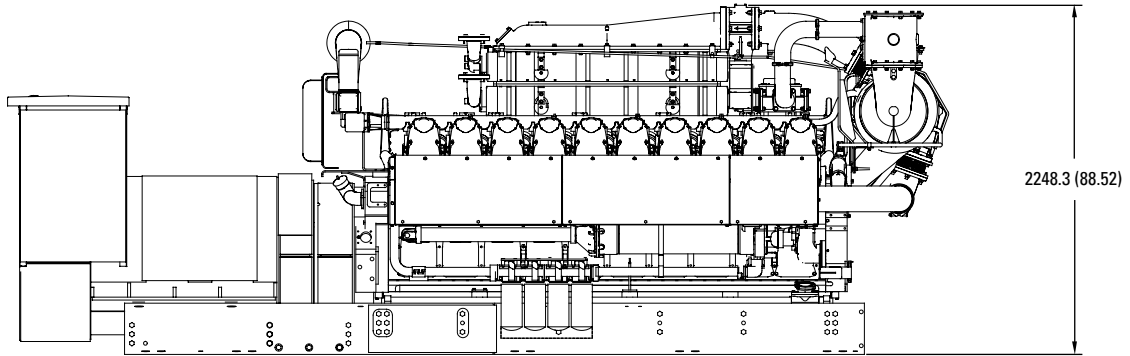
(3) Altitude capability is based on 2.5 kPa inlet and 5.0 kPa exhaust restriction.

(4) Heat Rejection — values based on ISO3046/1 with fuel tolerance of ±3% and 2.5 kPa inlet and 5.0 kPa exhaust restriction. All performance values listed on this page are listed at these conditions except fuel consumption (2).

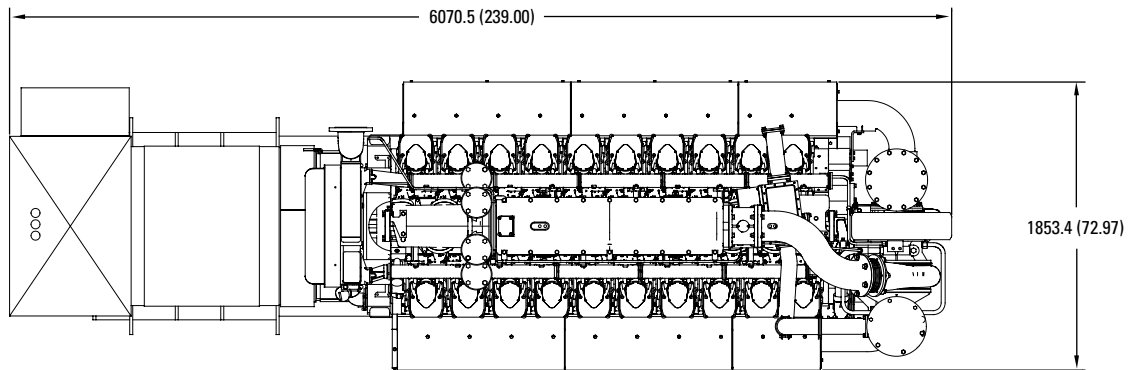
**C O N T I N U O U S
P O W E R 2 5 0 0 k V A
5 0 H z**



CHP GENERATOR SET — SIDE VIEW



CHP GENERATOR SET — TOP VIEW



Package Dimensions		
Length	6070.5 mm	239.00 in
Width	1853.4 mm	72.97 in
Height	2248.3 mm	88.52 in
Shipping Weight	18 350 kg	40,437 lb

Note: Do not use for installation design.
See general dimension drawings
for detail (Drawing # 234-3560).

www.CAT-ElectricPower.com

TMI Reference No.: DM3177-00, DM3180-00, DM3182-00, DM3185-00

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