



Image shown may not reflect actual package

NATURAL GAS CONTINUOUS (ISLAND MODE OPERATION) 1555 ekW 1944 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 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® G3516C 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+ Kilowatt transducer (ship loose for LV & MV, installed in wall mounted EMCP for HV) | <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 Oversized generators |
| 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 | <ul style="list-style-type: none"> 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 |

SPECIFICATIONS

CAT GAS ENGINE

G3516C SCAC 4-stroke-cycle watercooled gas engine
Number of Cylinders V16
Bore — mm (in) 170 (6.7)
Stroke — mm (in)..... 190 (7.5)
Displacement — L (cu in)..... 69 (4,210)
Compression Ratio 11.3:1
Aspiration .. Turbocharged Separate Circuit Aftercooled
Cooling Type Two stage aftercooler,
JW + O/C + A/C 1 combined
Fuel System..... Low pressure
Governor Type..... Electronic (ADEM III)

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 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%
Paralleling kit droop transformer Standard
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 EMCP II+ 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 potentiometer
- True RMS AC metering, 3 phase
- Purge 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

TECHNICAL DATA

| Generator Set — 1500 rpm/50 Hz/400 Volts | | DM 8670 | DM 8671 |
|---|----------------------|----------------|----------------|
| G3516C Gas Generator Set (Island Mode) | | | |
| Emission level (NOx) | mg/Nm ³ | 500 | 250 |
| Aftercooler SCAC (Stage 2) | Deg C | 54 | 54 |
| Package Performance (1) | | | |
| Power Rating @ 0.8 pf (with 2 water pumps and without fan) | ekW Continuous | 1555 | 1555 |
| Power Rating @ 0.8 pf (with 2 water pumps and without fan) | kVA Continuous | 1944 | 1944 |
| Power Rating @ 1.0 pf (with 2 water pumps and without fan) | ekW Continuous | 1581 | 1581 |
| Electric Efficiency @ 1.0 pf (ISO 3046/1) (2) | % | 40.4 | 39.2 |
| Mechanical Power (with 2 water pumps and without fan) | bkW | 1622 | 1622 |
| Fuel Consumption (3) | | | |
| 100% load without fan | Nm ³ /hr | 396 | 408 |
| 75% load without fan | Nm ³ /hr | 303 | 312 |
| 50% load without fan | Nm ³ /hr | 212 | 218 |
| Altitude Capability (4) | | | |
| At 25° C (77° F) ambient, above sea level | M | 1500 | 1500 |
| Cooling System | | | |
| Ambient air temperature | Deg C | 25 | 25 |
| Jacket water temperature (Maximum outlet) | Deg C | 99 | 99 |
| Exhaust System | | | |
| Combustion air inlet flow rate | Nm ³ /min | 112 | 116 |
| Exhaust stack gas temperature | Deg C | 463 | 462 |
| Exhaust gas flow rate | Nm ³ /min | 118 | 123 |
| Exhaust flange size (internal diameter) | mm | 360 | 360 |
| Heat Rejection (5) | | | |
| Heat rejection to jacket water and oil cooler and AC — Stage 1 | kW | 864 | 900 |
| Heat rejection to AC — Stage 2 | kW | 138 | 149 |
| Heat rejection to exhaust (LHV to 25° C) | kW | 1236 | 1310 |
| Heat rejection to exhaust (LHV to 120° C) | kW | 956 | 989 |
| Heat rejection to atmosphere from engine | kW | 115 | 115 |
| Heat rejection to atmosphere from generator | kW | 50 | 50 |
| Generator | | | |
| Frame | | 826 | 826 |
| Temperature rise | Deg C | 105 | 105 |
| Motor starting capability @ 30% voltage dip (6) | skVA | 4225 | 4225 |
| Lubrication System | | | |
| Standard sump refill with filter change | L | 401 | 401 |
| Emissions (7) | | | |
| NOx @ 5% O ₂ (dry) | mg/Nm ³ | 500 | 250 |
| CO @ 5% O ₂ (dry) | mg/Nm ³ | 910 | 872 |
| THC @ 5% O ₂ (dry) | mg/Nm ³ | 2538 | 2768 |
| NMHC @ 5% O ₂ (dry) | mg/Nm ³ | 381 | 416 |
| Exhaust O ₂ (dry) | % | 10 | 10.2 |

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 | 5553.1 mm | 218.63 in |
| Width | 1860.3 mm | 73.24 in |
| Height | 2347.4 mm | 92.42 in |
| Approx. Shipping Weight | 15 640 kg | 34,480 lb |

Note: Do not use for installation design.
See general dimension drawings
for detail (Drawing # 326-8873).

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Performance Number: DM8670
DM8671

Feature Code: 516GE64

Generator Arrangement: 144-1826

Source: U.S. Sourced

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

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