
Diesel Generator Set

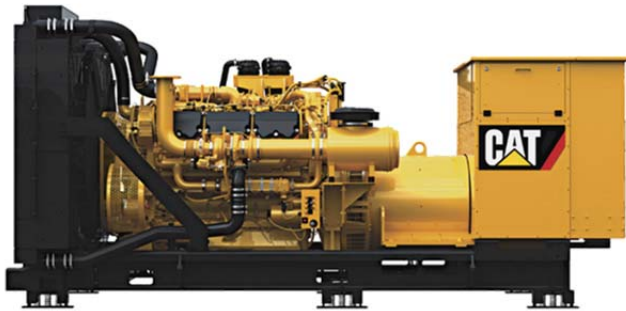


Image shown may not reflect actual package

Standby 800 kW 1000 kVA 60 Hz 1800 rpm 480 Volts

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

FUEL/EMISSIONS STRATEGY

- EPA Tier 4 Interim

DESIGN CRITERIA

- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response.

UL 2200

- UL 2200 packages available. Certain restrictions may apply. Consult with your Cat dealer.

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

SINGLE-SOURCE SUPPLIER

- Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT

- Cat® dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1600 dealer branch stores operating in 200 countries.
- The Cat® SOSSM program effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by products.

CAT C27 ATAAC DIESEL ENGINE

- Reliable, rugged, durable design
- Field proven in thousands of applications worldwide
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight

CAT GENERATOR

- Matched to the performance and output characteristics of Cat engines
- Single point access to accessory connections
- UL 1446 Recognized Class H insulation

CAT EMCP 4 CONTROL PANELS

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway

SEISMIC CERTIFICATION

- Seismic Certification available.
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength. IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer.
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007.
- Pre-approved by OSHP and carries an OPA#(OSP-0084-01) for use in healthcare projects in California.

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Factory Installed Standard & Optional Equipment

| System | Standard | Optional |
|---------------------|--|--|
| Air Inlet | <ul style="list-style-type: none"> • Single element canister type air cleaner Indicator • Service indicator | <ul style="list-style-type: none"> <input type="checkbox"/> Dual element air cleaners <input type="checkbox"/> Heavy duty air cleaners with dual elements and precleaners |
| Cooling | <ul style="list-style-type: none"> • Radiator with guard • Jacket water heater • Fan and belt guards • Coolant drain line with valve • Coolant level sensors • Caterpillar Extended Life Coolant | |
| Exhaust | <ul style="list-style-type: none"> • Exhaust manifold - dry - dual • Flanged dual outlets | <ul style="list-style-type: none"> <input type="checkbox"/> Mufflers <input type="checkbox"/> Stainless steel exhaust flex fittings <input type="checkbox"/> Elbows, flanges, expanders, & Y adapters |
| Fuel | <ul style="list-style-type: none"> • Secondary fuel filters • Fuel cooler* • Electric fuel priming pump | |
| Generator | <ul style="list-style-type: none"> • 3 Phase brushless, Salient pole • Class H insulation • Cat digital voltage regulator (CDVR) with VAR/PF control, 3-phase sensing • Winding temperature detectors | <ul style="list-style-type: none"> <input type="checkbox"/> Anti-condensation space heaters |
| Power Termination | <ul style="list-style-type: none"> • Bus bar (NEMA mechanical lug holes) • Top cable entry | <ul style="list-style-type: none"> <input type="checkbox"/> Circuit breakers, UL listed, 3 pole shunt trip, 100% rated, choice of trip units, manual or electrically operated <input type="checkbox"/> Bottom cable entry <input type="checkbox"/> Right, left, and/or rear power termination |
| Governor | <ul style="list-style-type: none"> • ADEM™ A4 | <ul style="list-style-type: none"> <input type="checkbox"/> Load share module |
| Control Panel | <ul style="list-style-type: none"> • EMCP 4.2 Genset Controller • User interface panel (UIP) - rear mount • AC & DC customer wiring area (right side) • Emergency Stop Pushbutton | <ul style="list-style-type: none"> <input type="checkbox"/> Local & remote annunciator modules <input type="checkbox"/> Digital I/O Module <input type="checkbox"/> Generator temperature monitoring & protection <input type="checkbox"/> EMCP 4.2 <input type="checkbox"/> EMCP 4.3 |
| Lube | <ul style="list-style-type: none"> • Lubricating oil • Gear type lube oil pump • Oil filter, filler and dipstick • Oil drain line and valve • Open crankcase ventilation filters | |
| Mounting | <ul style="list-style-type: none"> • Rails - engine / generator / radiator mounting • Spring type vibration isolator | |
| Starting / Charging | <ul style="list-style-type: none"> • 24 volt starting motor(s) • Charging alternator • Batteries with rack and cables • Battery disconnect switch | <ul style="list-style-type: none"> <input type="checkbox"/> Battery chargers <input type="checkbox"/> Oversize batteries |
| General | <ul style="list-style-type: none"> • Right hand service • Paint – Cat yellow except rails and radiators gloss black • SAE standard rotation • Flywheel and flywheel housing – SAE No. 00 | <ul style="list-style-type: none"> <input type="checkbox"/> UL 2200 listed <input type="checkbox"/> CSA Certification <input type="checkbox"/> Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007 |

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SPECIFICATIONS

CAT GENERATOR

Frame 1424
Excitation PM
Pitch.....0.6667
Number of poles.....4
Number of leads.....6
Number of bearingsSingle Bearing
InsulationClass H
IP ratingDrip proof IP23
Over speed capability - % of rated.....125%
Wave form deviation.....2 %
Voltage regulator..... 3 phase sensing with load adjustable module
Voltage regulation....Less than $\pm 1/2\%$ (steady state)
Less than $\pm 1/2\%$ (3% speed change)

CAT DIESEL ENGINE

C27 ATAAC, V-12, 4 stroke, water-cooled diesel

Bore137.20 mm (5.4 in)
Stroke152.4 mm (6.0 in)
Displacement27.03 L (1649.47 in³)
Compression ratio.....16.0:1
Aspiration.....TA
Fuel system.....Electronic unit injection
Governor Type..... ADEM™ A4

CAT EMCP 4 CONTROL PANELS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed & Voltage Adjust
- Engine Cycle Crank
- Emergency stop pushbutton

EMCP 4.2 controller features:

- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- Power Factor (per phase & average)
- kW (per phase, average & percent)
- kVA (per phase, average & percent)
- kVAr (per phase, average & percent)
- kW-hr & kVAr-hr (total)

Warning/shutdown with common LED indication of shutdowns for:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32)
- Reverse Reactive Power (kVAr) (32RV)
- Overcurrent (50/51)

Communications

- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- 6 programmable digital inputs
- 4 programmable relay outputs (Form A)
- 2 programmable relay outputs (Form C)
- 2 programmable digital outputs

Compatible with the following optional modules:

- Digital I/O module
- Local Annunciator
- Remote annunciator
- RTD module
- Thermocouple module

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TECHNICAL DATA

| Open Generator Set - 1800 rpm/60 Hz/480 Volts | STANDBY DM8868 | |
|--|---------------------------|----------------|
| Package Performance | | |
| Power rating | 800 ekW | |
| Power rating @ 0.8 pf | 1000 kVA | |
| Fuel Consumption¹ | | |
| 100% load with fan | 223 L/hr | 58.9 Gal/hr |
| 75% load with fan | 171 L/hr | 45.1 Gal/hr |
| 50% load with fan | 125 L/hr | 32.9 Gal/hr |
| Cooling System² | | |
| Ambient air temperature | 43 °C | 109 °F |
| Air flow restriction (system) | 0.12 kPa | 0.48 in water |
| Air flow (max @rated speed) | 1239 m ³ /min | 43755 cfm |
| Engine coolant Capacity with radiator arrangement) | 110.0 L | 29.1 US Gal |
| Engine coolant capacity | 60.0 L | 15.9 US Gal |
| Radiator coolant capacity | 50.0 L | 13.2 US Gal |
| Inlet Air | | |
| Combustion air inlet flow rate | 56.2 m ³ /min | 1984.7 cfm |
| Exhaust System³ | | |
| Exhaust stack gas temperature | 465 °C | 869.8 °F |
| Exhaust gas flow rate | 137.9 m ³ /min | 4870 cfm |
| Exhaust flange size (internal diameter) | 203 mm | 8 in. |
| Exhaust system backpressure (minimum allowable) | 2 kPa | 8 in. water |
| Exhaust system backpressure (maximum allowable) | 10 kPa | 40 in. water |
| Heat Rejection | | |
| Heat rejection to coolant (total) | 491 kW | 27923 Btu/min |
| Heat rejection to exhaust (total) | 702 kW | 39923 Btu/min |
| Heat rejection to aftercooler | 162 kW | 9213 Btu/min |
| Heat rejection to atmosphere from engine | 114 kW | 6483 Btu/min |
| Heat rejection to atmosphere from generator | 39.5 kW | 2246.4 Btu/min |
| Alternator⁴ | | |
| Motor starting capability @ 30% voltage dip | 3430 skVA | |
| Frame | 1424 | |
| Temperature Rise | 80°C | 144 °F |
| Lube System⁵ | | |
| Lube oil refill with filter change for standard sump | 95 L | 25 US Gal |
| Emissions (Nominal)⁶ | | |
| NO _x g/hp-hr | 2.35 g/hp-hr | |
| CO g/hp-hr | 0.49 g/hp-hr | |
| HC g/hp-hr | 0.06 g/hp-hr | |
| PM g/hp-hr | 0.03 g/hp-hr | |

¹ EPA Tier 4 Interim diesel engines required the use of Ultra Low Sulfur Diesel (ULSD) fuel in order to protect emissions control systems, help comply with emissions standards, and meet published maintenance intervals. ULSD fuel will have ≤ 15 ppm (0.0015%) sulfur using the ASTM D5453, ASTM 2622, or SIN 51400 test methods.

² For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

³ Backpressure allowance is total backpressure available for the customer.

⁴ Some packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40 degree C ambient per NEMA MG1-32.

⁵ Requires the use of CJ4 oil in order to meet published maintenance intervals.

⁶ Emissions data measurement procedures 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 operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

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RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards:

AS1359, CSA, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, UL508A, 72/23/EEC, 98/37/EC, 2004/108/EC

Standby - Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions

Fuel Rates are based on fuel oil of 35° API [16° C (60° F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.). Additional ratings may be available for specific customer requirements, contact your Caterpillar representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

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Dimensions

| Package Dimensions | | |
|--------------------|-----------|----------|
| Length | 4332.8 mm | 170.6 in |
| Width | 2015.8 mm | 79.3 in |
| Height | 2173.0 mm | 85.6 in |
| Weight | 7430 kg | 17699 lb |

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions.

Performance No.: DM8868

Feature Code: C27DE40

Gen. Arr. Number: 3492958

Source: U.S. Sourced

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