# Diesel Generator Set

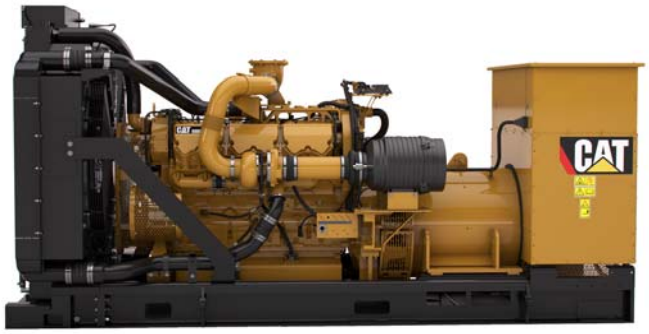

Image shown may not reflect actual package

# PRIME
## 880 ekW 1100 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.

**FUEL/EMISSIONS STRATEGY**
- Low fuel consumption

**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 1,800 dealer branch stores operating in 200 countries.
- The Cat® SOS℠ program effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by products.

**CAT C32 ATAAC DIESEL ENGINE**
- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight

**CAT GENERATOR**
- Matched to the performance and output characteristics of Caterpillar 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

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## Factory Installed Standard & Optional Equipment

| System | Standard | Optional |
|---|---|---|
| Air Inlet | • Single element canister type air cleaner with service indicator | [ ] Dual element air cleaners |
| Cooling | • Package mounted radiator | |
| Exhaust | • Exhaust flange outlet | [ ] Mufflers |
| Fuel | • Secondary fuel filters<br>• Fuel cooler<br>• Fuel priming pump | |
| Generator | • Matched to the performance and output characteristics of Cat engines | [ ] Oversize & premium generators<br>[ ] Permanent magnet excitation (PMG)<br>[ ] Internal excitation (IE)<br>[ ] Winding temperature detectors<br>[ ] Anti-condensation space heaters |
| Power Termination | • Bus bar | [ ] Circuit breakers, UL listed<br>[ ] Circuit breakers, IEC listed<br>[ ] Bottom cable entry<br>[ ] Right, left, and/or rear power termination |
| Governor | • ADEM™ A4 | [ ] Load share module |
| Control Panel | • EMCP 4 | [ ] EMCP 4.2<br>[ ] EMCP 4.3<br>[ ] EMCP 4.4<br>[ ] Local & remote annunciator modules<br>[ ] Digital I/O Module<br>[ ] Generator temperature monitoring & protection |
| Mounting | | [ ] Rubber vibration isolators<br>[ ] Spring type vibration isolator<br>[ ] IBC seismic certification |
| Starting / Charging | • 24 volt starting motor(s)<br>• Battery disconnect switch | [ ] Battery charger<br>[ ] Charging alternator<br>[ ] Batteries with rack<br>[ ] Oversize batteries<br>[ ] Ether starting aids<br>[ ] Heavy duty starting motors<br>[ ] Barring device (manual)<br>[ ] Jacket water heater |
| General | • Paint – Caterpillar Yellow except rails and radiators gloss black | [ ] UL 2200 listed<br>[ ] CSA Certification |

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## SPECIFICATIONS

### CAT GENERATOR

Frame ……..…….. 1424
Excitation ……..……...IE
Pitch…….0.6667
Number of poles……..……4
Number of leads…….……6
Number of bearings ……..……Single Bearing
Insulation ……..Class H
IP rating ……..Drip proof IP23
Over speed capability - % of rated……125%
Wave form deviation……...2 %
Voltage regulator…… 3 phase sensing
Voltage regulation….Less than ±1/2% (steady state)
Less than ±1/2% (3% speed change)

### CAT DIESEL ENGINE

C32 ATAAC, V-12, 4 stroke, water-cooled diesel

Bore ……..145.00 mm (5.71 in)
Stroke ……..162.00 mm (6.38 in)
Displacement ……..……32.10 (1958.86 $in^3$)
Compression ratio……15.0:1
Aspiration……ATAAC
Fuel system……..……MEUI
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 - 1500 rpm/50 Hz/400 Volts | | |
|---|---|---|
| **Low Fuel Consumption** | | |
| **Generator Set Package Performance** | | |
| Genset Power rating @ 0.8 pf | 1100 kVA | |
| Genset Power Rating with fan | 880 ekW | |
| **Fuel Consumption** | | |
| 100% Load with fan | 220.7 L/hr | 58.3 Gal/hr |
| 75% Load with fan | 164.6 L/hr | 43.5 Gal/hr |
| 50% Load with fan | 116.2 L/hr | 30.7 Gal/hr |
| **Cooling System[1]** | | |
| Air flow restriction (system) | 0.12 kPa | 0.48 in. water |
| Air flow (max @ rated speed for radiator arrangement) | 883.0 m3/min | 31182 cfm |
| Engine coolant capacity with radiator | 403.5 L | 106.6 gal |
| Engine coolant capacity | 233.2 L | 61.6 gal |
| Radiator coolant capacity | 170.3 L | 45.0 gal |
| **Inlet Air** | | |
| Combustion air inlet flow rate | 67.9 $m^3$/min | 2397.4 cfm |
| **Exhaust System** | | |
| Exhaust stack gas temperature (engine out) | 440.7 °C | 825.2 °F |
| Exhaust gas flow rate | 170.3 $m^3$/min | 6012.6 cfm |
| Exhaust flange size | 203.2 mm | 8 in |
| Exhaust system backpressure (maximum allowable) | 10 kPa | 40.2 in water |
| **Heat Rejection** | | |
| Heat rejection to cooolant | 308.4 kW | 17537 Btu/min |
| Heat rejection to exhaust (total) | 431.9 kW | 24558 Btu/min |
| Heat rejection to aftercooler | 196.5 kW | 11173 Btu/min |
| Heat rejection to atmosphere from engine | 444.3 kW | 25261 Btu/min |
| Heat rejection to atmosphere from generator | 43.4 kW | 2470 Btu/min |
| **Alternator[2]** | | |
| Motor starting capabiliy @30% voltage dip | 2883 skVA | |
| Frame | 1424 | |
| Temperature Rise | 125 °C | 225 °F |
| **Lube System** | | |
| Sump refil with filter | 99 L | 26.2 gal |
| **Emissions (Nominal)[3]** | | |
| NOx g/hp-hr | 6.15 g/hp-hr | |
| CO g/hp-hr | 0.42 g/hp-hr | |
| HC g/hp-hr | 0.01 g/hp-hr | |
| PM g/hp-hr | 0.03 g/hp-hr | |

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

[2] Generator temperature rise is basd on a 40 degree C ambient per NEMA MG1-32. UL 2200 Listed ppackages may have oversized generators with a different temperature rise and motor starting characteristics.

[3] Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1for measuring HC, CO, PM, NOx. 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,CSAC22.2 No100-04, UL142,UL489, UL601, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110,IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 72/23/EEC, 98/37/EC, 2004/108/EC

**Prime** – Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 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 35º API [16º C (60º F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29º C (85º F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

Additional ratings may be available for specific customer requirements, contact your Cat Dealer for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat Dealer.

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## DIMENSIONS

| Package Dimensions | | |
|---|---|---|
| Length | 4334 mm | 170.6 in |
| Width | 2010 mm | 79.1 in |
| Height | 2174 mm | 85.6 in |

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

www.Cat-EectricPower.com

Feature Code: C32DR44

Gen. Arr. Number: 432-6118

Sourced: U.S. Sourced

EPD0273-A (01/14)