DIESEL GENERATOR SET





MISSION CRITICAL 3200 ekW 4000 kVA 50 Hz 1500 rpm 11000 Volts

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

Image shown may not reflect actual package

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.

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 S•O•S[™] program effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by products.

CAT C175-20 DIESEL ENGINE

- Reliable, rugged, durable design
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight

CAT SR5 GENERATOR

- Designed to match performance and output characteristics of Cat diesel engines
- Single point access to accessory connections

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 | Air cleaner, 4 x single element canister with service indicator(s) Plug group for air inlet shut-off | [] Air cleaner, 4 x dual element with service indicator(s)[] Air inlet adapters | |
| Cooling | SCAC cooling Jacket water and AC inlet/outlet flanges | [] Remote horizontal SCAC radiator [] Remote fuel cooler [] Low coolant level sensor (for remote radiators) | |
| Exhaust | Dry exhaust manifold Bolted flange (ANSI 8" & DIN 200) with bellow for each turbo (qty 4) | [] Engine exhaust temperature module [] Mufflers (15 dBA,25 dBA, or 40 dBA) [] Dual 20" or single 24" vertical exhaust collector [] Weld flanges: ANSI 20" and ANSI 24" | |
| Crankcase Systems | Open crankcase ventilation | [] Crankcase explosion relief valve | |
| Fuel | Primary fuel filter with water separator Secondary fuel filters (engine mounted) | | |
| Generator SR5 | 3 phase brushless, salient pole Space heater kit IEC platinum stator RTD's | [] Oversize generators [] Power connection arrangement | |
| Governor | ADEM™ A4 | [] Redundant shutdown | |
| Control Panels | Shipp loose EMCP 4 control panel | [] EMCP 4.2 [] EMCP 4.3 [] Local & remote annunciator modules [] Discrete I/O module [] Generator temperature monitoring & protection [] Remote monitoring [] Load share module | |
| Lube | Lubricating oil Oil filter, filler and dipstick Oil drain line with valves Fumes disposal Gear type lube oil pump Integral lube oil cooler Electric prelube pumps | | |
| Mounting | Rails-engine / generator Rubber anti-vibration mounts (shipped loose) | [] Spring type linear vibration isolators [] IBC vibration isolators | |
| Starting / Charging | Dual 24 volt electric starting motors Batteries with rack and cables Battery disconnect switch | [] Oversized battery set [] 75 amp charging alternator [] Battery chargers (20,35 or 50 Amp) [] Jacket water heater [] Redundant Electric Starter | |
| General | RH service (Except LH Service Oil Filter) Paint - Caterpillar Yellow with high gloss black rails SAE standard rotation Flywheel and flywheel housing - SAE No. 00 | [] Barring group- manual or air powered [] Factory test reports | |

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SPECIFICATIONS

CAT GENERATOR

| Frame | |
|--|---------|
| Pitch | |
| Number of poles | 4 |
| Number of bearings | |
| Number of Leads | 6 |
| InsulationC | lass H |
| IP ratingDrip proc | of IP23 |
| Over speed capability - % of rated | 125% |
| Wave form deviation | 3 % |
| Voltage regulator3 phase sensi selectable V/Hz reg | • |

CAT DIESEL ENGINE

C175-20 SCAC, V-20, 4 stroke, water-cooled diesel

| Bore |
|---|
| Stroke |
| |
| Compression ratio15.3:1 AspirationTA |
| Fuel systemCommon Rail |
| Governor TypeADEM™ A4 |

CAT EMCP 4 CONTROL PANELS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed Adjust
- 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
 - True RMS AC metering, 3-phase, $\pm 1\%$

accuracy. 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 (total)
- 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
- 6 programmable relay outputs (Form A)
- 2 programmable relay outputs (Form C)
- 2 programmable digital outputs

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Technical Data

| Open Generator Set - 1500 rpm/50 Hz/11 000 Volts | EM03 | EM0375-00 | |
|--|---------------------------|----------------|--|
| Low Fuel Consumption | | | |
| Generator Set Package Performance | | | |
| Genset Power rating @ 0.8 pf | 4000 kVA | | |
| Genset Power Rating without fan | 3200 ekW | | |
| Fuel Consumption | | | |
| 100% Load with fan | 787.2 L/hr | 208.0 Gal/hr | |
| 75% Load with fan | 586.3 L/hr | 154.9 Gal/hr | |
| 50% Load with fan | 409.5 L/hr | 108.2 Gal/hr | |
| Inlet Air | | | |
| Combustion air inlet flow rate | 267.0 m ³ /min | 9429 cfm | |
| Exhaust System | | | |
| Exhaust stack gas temperature (engine out) | 421.7 °C | 791 °F | |
| Exhaust gas flow rate | 652.1 m ³ /min | 23028 cfm | |
| Exhaust system backpressure (maximum allowable) | 6.7 kPA | 26.9 in water | |
| Heat Rejection | | | |
| Heat rejection to coolant | 1620 kW | 92113 Btu/min | |
| Heat rejection to exhaust (total) | 2769 kW | 157446 Btu/min | |
| Heat rejection to aftercooler | 377 kW | 21419 Btu/min | |
| Heat rejection to atmosphere from engine | 184 kW | 10456 Btu/min | |
| Heat rejection to atmosphere from generator | 165 kW | 9392 Btu/min | |
| Alternator | | | |
| Motor starting capabiliy @30% voltage dip | 10130 skVA | | |
| Frame | 3055 | | |
| Temperature Rise | 130 °C | 234 °F | |
| Lube System | | | |
| Sump refill with filter | 675 L | 178.3 gal | |
| Emissions (Nominal) ² | | | |
| NOx mg/nm ³ | 4168.6 mg/nm ³ | | |
| CO mg/nm ³ | 61.8 mg/nm ³ | | |
| HC mg/nm ³ | 21.0 mg/nm ³ | | |
| PM mg/nm ³ | 6.2 mg/nm ³ | | |

Note: This generator set is not offered with an engine driven radiator. Addition of an engine driven fan will reduce the output below the nameplate rating.

¹ 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 NEM A M G1-32.

² Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8 178-11 or measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77%, 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. Emissions values are tailpipe out with aftertreatment installed. Values shown as zero may be greater than zero but were below the detection level of the equipment used at the tie of measurement. 50 Hz 1500 rpm 11000 Volts



RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards:

AS1359,CSAC22.2 No100-04, UL142,UL489, 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

MISSION CRITICAL – Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical power rating. Typical peak demand up to 100% of mission critical rated ekW for 5% of the operating time. 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 | 6642 mm | 261.5 in | | | |
| Width | 2243 mm | 88.3 in | | | |
| Height | 2225 mm | 87.6 in | | | |
| Weight | 23400 kg | 51588 lbs | | | |

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

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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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Performance No: EM0375-00 Feature Code: 175DR1L Gen. Arr. Number: 331-3052 Sourced: U.S. Sourced

LEHE0607-00 (06/14)