DIESEL GENERATOR SET

Image shown may not reflect actual package

CONTINUOUS
2080 ekW 2600 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 BSFC

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® C175-16 DIESEL ENGINE
- Reliable, rugged, durable design
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight

CAT SR5 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 PANEL
- 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 6" & DIN 150) with bellow for each turbo (qty 4)	[ ] Engine Exhaust Temperature Module [ ] Mufflers (15 dBA,25 dBA, or 40 dBA) [ ] Dual 16" or single 20" vertical exhaust collector [ ] Weld flange ANSI 20"
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 • IEC platinum stator RTD's • Cat digital voltage regulator (Cat DVR)	[ ] Space heater kit [ ] Oversize generators [ ] Power connection arrangement
Governor	• ADEM™ A4	[ ] Redundant shutdown
Control Panels	• EMCP 4.2	[ ] 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 (standard for Prime and Continuous only)
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
Circuit Breakers		[ ] Circuit breakers, UL 100% rated, 3 pole with shunt trip [ ] Circuit breakers, IEC rated, 3 or 4 pole with shunt
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 …….…….. .1868
Excitation ……PM
Pitch……0.6667
Number of poles……4
Number of bearings ……2
Number of Leads……6
Insulation ……Class H
IP rating ……..Drip proof IP23
Over speed capability - % of rated……125%
Wave form deviation……...3 %
Voltage regulator…… 3 phase sensing with load adjustable module

CAT DIESEL ENGINE

C175 SCAC, V-16, 4 stroke, water-cooled diesel

Bore ……175.00 mm (6.89 in)
Stroke ……..220.00 mm (8.66in)
Displacement ……84.67 L (5166.88 in^3)
Compression ratio……16.7:1
Aspiration……TA
Fuel system……Common Rail
Governor Type……ADEM™ A4

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:
- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 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)
- ekW, kVA, kVAR, kW-hr, %kW, PF

Warning/shutdown with common LED indication of:
- 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:
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- Emergency stop pushbutton

Compatible with the following:
- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

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TECHNICAL DATA

Open Generator Set - 1500 rpm/50 Hz/400 Volts	CONTINUOUS DM8727	
Package Performance		
Power rating	2080 ekW	
Power rating @ 0.8 pf	2600 kVA	
Fuel Consumption		
100% load with fan	510.7 L/hr	134.9 Gal/hr
75% load with fan	389.9 L/hr	102.9 Gal/hr
50% load with fan	272.9 L/hr	72.1 Gal/hr
Cooling System*		
Coolant to aftercooler temp max	48° C at 30° C ambient 118° C at 86° F ambient	
Inlet Air		
Combustion air inlet flow rate	160.3 m^3/min	5662.3 cfm
Exhaust System		
Exhaust stack gas temperature	476.2 °C	889.1 °F
Exhaust gas flow rate	416.6 m^3/min	14716.8 cfm
Exhaust flange size (internal diameter)	150 mm	6 in
Exhaust system backpressure (maximum allowable)	6.7 kPa	26.9 in. water
Heat Rejection		
Heat rejection to coolant (total)	951.8 kW	54142 Btu/min
Heat rejection to exhaust (total)	1867.9 kW	106249 Btu/min
Heat rejection to aftercooler	163.6 kW	9306 Btu/min
Heat rejection to atmosphere from engine	248.6 kW	14142 Btu/min
Heat rejection to atmosphere from generator	79.9 kW	4544 Btu/min
Alternator**		
Motor starting capability @ 30% voltage dip	7645 SKVA	
Frame	1868	
Temperature Rise	105°C	189 °F
Lube System		
Lube oil refill volume with filter change for standard sump	540 L	142.6 US Gal
Emissions (Nominal)***		
NO_x	8.46 g/hp-hr	4593.0 mg/nm^3
CO	0.26 g/hp-hr	128.5 mg/nm^3
HC	0.23 g/hp-hr	94.8 mg/nm^3
PM	0.05 g/hp-hr	22.8 mg/nm^3

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

* For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.
** UL 2200 Listed 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.
*** 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.

RATING DEFINITIONS AND CONDITIONS

Meets or Exceeds International Specifications: 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. Standby power in accordance with ISO8528. Fuel stop power in accordance with ISO3046. Standby ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just below the shutdown temperature.

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. Prime power in accordance with ISO3046. Prime ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just below the alarm temperature.

Continuous – Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous power rating. Typical peak demand is 100% of continuous rated ekW for 100% of operating hours. Continuous power in accordance with ISO3046. Continuous ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature below the alarm temperature.

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 Caterpillar representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

DIMENSIONS

Package Dimensions		
Length	6631.6 mm	261.1 in
Width	2089.4 mm	82.3 in
Height	2207.9 mm	86.9 in

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

www.Cat-ElectricPower.com

Performance No.: DM8727
Feature Code: 175DE17
Generator Arrangement: 311-1150
Sourced: 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.