DIESEL GENERATOR SET

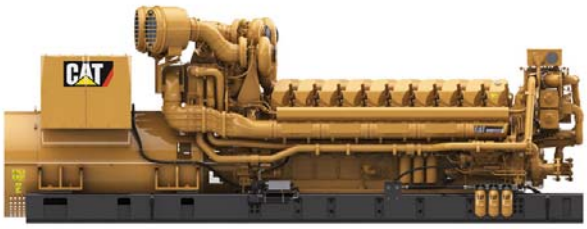

Image shown may not reflect actual package

PRIME
3600 ekW 4500 kVA
60 Hz 1800 rpm 12470 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 Certified for Stationary Emergency Applications (EPA Tier 2 emissions level)

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

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, IBC 2012, CBC 2007, CBC 2010

*Not available with some options – Consult with your Cat dealer.

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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

SPECIFICATIONS

CAT GENERATOR

Frame …….…….. 3055
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 selectable V/Hz regulation

CAT DIESEL ENGINE

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

Bore ……175.00 mm (6.89 in)
Stroke ……..220.00 mm (8.66in)
Displacement ……105.8 L (6456.31 in^3)
Compression ratio……15.3:1
Aspiration……TA
Fuel system……Common Rail
Governor Type……ADEM™ 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, ±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 - 1800 rpm/60 Hz/12 470 Volts	DM8855-01	
EPA Certified for Stationary Emergency Applications (EPA Tier 2 emissions levels)		
Generator Set Package Performance		
Genset Power rating @ 0.8 pf	4500 kVA	
Genset Power Rating without fan	3600 ekW	
Fuel Consumption		
100% Load with fan	925.4 L/hr	244.5 Gal/hr
75% Load with fan	708.5 L/hr	187.2 Gal/hr
50% Load with fan	574.5 L/hr	151.8 Gal/hr
Inlet Air		
Combustion air inlet flow rate	314.7 m^3/min	11112 cfm
Exhaust System		
Exhaust stack gas temperature (engine out)	462.8 °C	865 °F
Exhaust gas flow rate	787.3 m^3/min	27801 cfm
Exhaust system backpressure (maximum allowable)	6.7 kPA	26.9 in water
Heat Rejection		
Heat rejection to coolant	1866 kW	106110 Btu/min
Heat rejection to exhaust (total)	3504 kW	199225 Btu/min
Heat rejection to aftercooler	342 kW	19449 Btu/min
Heat rejection to atmosphere from engine	287 kW	16304 Btu/min
Heat rejection to atmosphere from generator	190 kW	10815 Btu/min
Alternator		
Motor starting capabiliy @30% voltage dip	10728 skVA	
Frame	3055	
Temperature Rise	105 °C	189 °F
Lube System		
Sump refill with filter	675 L	178.3 gal
Emissions (Nominal)[2]		
NOx g/hp-hr	5.73 g/hp-hr	
CO g/hp-hr	0.37 g/hp-hr	
HC g/hp-hr	0.04 g/hp-hr	
PM g/hp-hr	0.05 g/hp-hr	

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 NEMA MG1-32.

[2] 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. 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.

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

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 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	2336 mm	92.0 in
Height	2555 mm	100.6 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.

www.Cat-EectricPower.com

Performance No: DM8855-01

Feature Code: 175DR1J

Gen. Arr. Number: 331-3046

Sourced: U.S. Sourced

LEHE0593-00 (06/14)