## DIESEL GENERATOR SET





Image shown may not reflect actual package.

# PRIME 2725 ekW 3406 kVA 60 Hz 1800 rpm 600 Volts

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

## **FEATURES**

## **FUEL/EMISSIONS STRATEGY**

 EPA Certified for Stationary Emergency Application (EPA Tier 2 emissions levels)

#### **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<sup>SM</sup> program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

#### **CAT® C175-16 DIESEL ENGINE**

- · Reliable and durable
- Four-stroke diesel engine combines superior performance with excellent fuel economy
- · Advanced electronic engine control
- · Low installation and operating cost

#### **CAT GENERATOR**

- Matched to the performance and output characteristics of Cat engines
- Industry leading mechanical and electrical design
- · Industry leading motor starting capabilities
- High Efficiency

## **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 OSHPD and carries an OSP-0084-10 for use in healthcare projects in California

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## FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional	
Air Inlet	Air cleaner		
Cooling	Package mounted radiator		
Exhaust	• Exhaust flange outlet	[] Exhaust mufflers (except Tier 4)	
Fuel	<ul><li>Primary fuel filter with integral water separator</li><li>Secondary fuel filters</li><li>Fuel priming pump</li></ul>		
Generator	Matched to the performance and output characteristics of Cat engines     Load adjustment module provides engine relief upon load impact and improves laod acceptance and recovery time     IP23 protection	[ ] Oversize and premium generators [ ] Permanent magnet excitation (PMG) [ ] Internal excited (IE) [ ] Anti-condensation space heaters	
Power Termination	Bus bar	[ ] Circuit breakers, UL listed [ ] Circuit breakers, IEC compliant	
Control Panel	• EMCP 4 Genset Controller	[] EMCP 4.2 [] EMCP 4.3 [] EMCP 4.4 [] Generator temperature monitoring and protection [] Load share module [] Digital I/O module [] Remote monitoring software	
Mounting		[] Rubber vibration isolators	
Starting/Charging		[] Battery chargers [] Oversize batteries [] Jacket water heater [] Heavy duty starting system [] Charging alternator [] Air starting motor with control and silencer (3500 & C175 models only)	
General	Paint - Caterpillar Yellow except rails and radiators gloss black	The following options are based on regional and product configuration:  [] Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007  [] EU Certificate of Conformance (CE)  [] UL 2200 package  [] CSA Certification  [] EEC Declaration of Conformity  [] Enclosures- sound attenuated, weather protective  [] Automatic transfer switches (ATS)  [] Integral & sub-base fuel tanks  [] Integral & sub-base UL listed dual wall fuel tanks	

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## **SPECIFICATIONS**

#### **CAT GENERATOR**

Frame size	1866
Excitation	Permanent Magnet
Pitch	0.6667
Number of poles	4
Number of bearings	2
Number of Leads	006
InsulationClass H with tropicalizat	ion and anti-abrasion
- Consult your Caterpillar dealer for a	available voltages
IP Rating	IP23
Alignment	Closed Coupled
Overspeed capability	125
Wave form Deviation (Line to Line)	5%
Voltage regulator3 Phase se	ensing with selectible
volts/Hz Voltage regulationLess than -	+/- 1/2% (steady state)
Less than +/- 1/2% (with 3% speed ch	nange)

## **CAT DIESEL ENGINE**

C175 SCAC, V-16, 4-Stroke	Water-cooled Diesel
Bore	175.00 mm (6.89 in)
Stroke	220.00 mm (8.66 in)
Displacement	84.67 L (5166.88 in³)
Compression Ratio	15.3:1
Aspiration	Turbo Aftercooled
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 1800 rpm/60 Hz/600 Volts	DM8449		
EPA Certified for Stationary Emergency Application			
(EPA Tier 2 emissions levels)			
Generator Set Package Performance			
Genset Power rating @ 0.8 pf	3406.25 kVA		
Genset Power rating with fan	2725 ekW		
Fuel Consumption			
100% load with fan	723.8 L/hr	191.2 Gal/hr	
75% load with fan	571.0 L/hr	150.8 Gal/hr	
50% load with fan	462.0 L/hr	122.0 Gal/hr	
Cooling System <sup>1</sup>			
Air flow restriction (system)	0.12 kPa	0.48 in. water	
Engine coolant capacity	303.5 L	80.2 gal	
Inlet Air			
Combustion air inlet flow rate	249.0 m³/min	8793.4 cfm	
Exhaust System			
Exhaust stack gas temperature	460.9 ° C	861.6 ° F	
Exhaust gas flow rate	634.0 m³/min	22389.5 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)	1248 kW	70974 Btu/min	
Heat rejection to exhaust (total)	2726 kW	155027 Btu/min	
Heat rejection to atmosphere from engine	170 kW	9668 Btu/min	
Heat rejection to atmosphere from generator	101.8 kW	5789.4 Btu/min	
Alternator <sup>2</sup>			
Motor starting capability @ 30% voltage dip	8375 skVA		
Frame	1866		
Temperature Rise	125 ° C	225 ° F	
Emissions (Nominal) <sup>3</sup>			
NOx g/hp-hr	6.28 g/hp-hr		
CO g/hp-hr	.41 g/hp-hr		
HC g/hp-hr	.04 g/hp-hr		
PM g/hp-hr	.038 g/hp-hr		

<sup>&</sup>lt;sup>1</sup> For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory. <sup>2</sup> 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.

<sup>&</sup>lt;sup>3</sup> 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, 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, CSA C22.2 No 100-04, UL142, UL489, UL601, UL869, UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, 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 or 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. Consult your Cat representative for details.

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## **DIMENSIONS**

Package Dimensions				
Length	Information not			
Width	available at this time.			
Height				

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3288943).

Performance No.: DM8449

Feature Code: 175DR09

Gen. Arr. Number: 3111148

Source: U.S. Sourced

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