

## C27 ACERT™ Diesel Oilfield Generator Set

725 ekW 60 Hz, 1800 rpm

#### **PRIME**



#### **CAT® ENGINE SPECIFICATIONS**

# V-12, 4-Stroke-Cycle water-cooled diesel Bore 137.2 mm (5.41 in) Stroke 152.4 mm (6 in) Displacement 27 L (1648 in³) Compression Ratio 15:1 Aspiration Turbocharged-Aftercooled Fuel System MEUI™ Governor Type ADEM™ A4 Package Weight 9072 kg (20,000 lbs)

#### **FEATURES**

#### **Fuel/Emissions Strategy**

Configuration option to fit any application:

- Fuel economy
- Non-certified, U.S. EPA Non-road Tier 2 levels
- U.S. EPA Tier 4 Interim without use of aftertreatment

#### **Engine Design**

- Rugged components for durability in harsh oilfield conditions
- Increased power density and rugged base for highly mobile jobs
- Permanent magnet, two-bearing, close coupled, oversized generator ideal for oilfield applications
- Heavy-duty, easy-to-clean cooling system with high ambient capability
- Advanced controls
- Focus on operator safety

#### **Advanced Digital Engine Management**

ADEM A4 control system providing integrated ignition, speed governing, protection, and controls. ADEM A4 has improved: user interface, display system, shutdown controls, and system diagnostics.

#### Cat® EMCP 4.2 Series Control Panels

- Integrated control system and communications gateway
- EMCP 4.2 is standard and offers basic engine/ generator monitoring, metering and protection and an open protocol allowing for simple integration.
- Also features more advanced options including power metering, modbus capability, and programmable discreet output

## Product Support Offered Through Global Cat Dealer Network

- More than 2,200 dealer outlets
- Cat factory-trained dealer technicians service every aspect of your petroleum engine
- Cat parts and labor warranty

Preventive maintenance agreements available for repair-before-failure options

S•O•S<sup>SM</sup> program matches your oil and coolant samples against Caterpillar set standards to determine:

- Internal engine component condition
- Presence of unwanted fluids
- Presence of combustion by-products
- Site-specific oil change interval

# Over 80 Years of Engine Manufacturing Experience

Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable products.

- Cast engine blocks, heads, cylinder liners, and flywheel housings
- Machine critical components
- Assemble complete engine

#### Web Site

For all your petroleum power requirements, visit www.catoilandgasinfo.com

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#### STANDARD EQUIPMENT

#### **Air Inlet System**

Heavy-duty dual element canister-type air cleaner Service indicator

#### **Control Panels**

**EMCP 4.2** 

User interface panel — rear mount Emergency stop pushbutton Generator housing mounted

#### **Cooling System**

Radiator with guard sized for 50°C Side-by-side cores
Metal top and bottom tanks
Coolant drain line with valve
Fan and belt guards
Cat Extended Life Coolant

Coolant level sensor

#### Exhaust System

Dry exhaust manifold

#### **Fuel System**

Primary fuel filter Secondary fuel filter Manual fuel priming pump Fuel pump

### Generators

Class H insulation Permanent magnet IP23 protection Form wound stator Anti-condensation space heaters

Two bearing Close coupled Oversized

#### Governor

ADEM™ A4

#### **Lube System**

Lubricating oil and filter Oil cooler Oil drain line with valves Fumes disposal — left side Gear-type lube oil pump

#### **Mounting System**

Heavy-duty oilfield welded steel base (skiddable) Anti-vibration mounts (shipped loose) Designed welded base for increased durability (I-beam design) Dragability Package lifting eyes

#### Starting/Charging System

24V starting motor(s) 24V, 45-amp charging alternator

#### General

Paint — Cat yellow except rails and radiators (gloss black)
SAE standard rotation
Flywheel and flywheel housing — SAE No. 0

#### **OPTIONAL EQUIPMENT**

#### Air Inlet System

Precleaners

#### **Control System**

Direct rack

#### **Cooling System**

Jacket water heater

#### **Exhaust System**

Flange and exhaust expanders Exhaust shielding

#### Generators

Self excited

#### **Mounting System**

Short base — 186" (4725 mm) total length Note: short base option does not include drag bars

#### Starting/Charging System

Air starting motor

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#### **SPECIFICATIONS**

Cat SR4B Generator kVAr (per phase, average, and percent) Frame size ...... 691, 693 kW-hr (total) Excitation ...... Permanent Magnet, SE Option kVAr-hr (total) Pitch...... 0.7143, 0.667 Warning/shutdown with common LED indication Number of poles ...... 4 of shutdowns for: Number of bearings ...... 2 Low oil pressure Number of leads ...... 6 High coolant temperature Insulation ...... UL 1446 Recognized Class H Overspeed with coastal insulation protection Emergency stop IP Rating ...... Drip Proof IP23 Failure to start (overcrank) Alignment ...... Close Coupled Low coolant temperature Low coolant level Cat EMCP 4.2 Series Control Panel **EMCP 4 controls** Programmable protective relaying functions Run/Auto/Stop control Generator phase sequence Speed adjust Over/Under voltage (27/59) Over/Under Frequency (81 o/u) Voltage adjust Engine cycle crank Reverse Power (kW) (32) Emergency stop pushbutton Reverse Reactive Power (kVAr) (32RV) Overcurrent (50/51) EMCP 4.2 controller 24-volt DC operation Communications Environmental sealed front face Customer data link (Modbus RTU) Text alarm/event descriptions Accessory module data link True RMS AC metering, 3-phase, é1% accuracy Serial annunciator module data link 6 programmable digital inputs Digital indication for: 4 programmable relay outputs (Form A) rpm

rpm DC volts

Operating hours

Oil pressure (psi, kPa, or bar)

Coolant temperature

Volts (L-L and L-N), frequency (Hz) Amps (per phase and average) Power Factor (per phase and average)

kW (per phase, average, and percent)

kVA (per phase, average, and percent)

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 CAN annunciator Remote serial annunciator

RTD module

Thermocouple module

#### C27 ACERT OILFIELD GENERATOR SET PACKAGES

	Drilling – 60 Hz	Production/Camp Power – 60 Hz	
ekW Rating	725	725	
kVA Rating	1035	907	
rpm	1800	1800	
Rated PF	0.7	0.8	
Temperature Rise	80°C	105°C	
Insulation Class	Н	Н	
Overload	300%/10 sec	300%/10 sec	
Excitation	PMG standard, SE option	PMG standard, SE option	
Voltage	600	480	
Voltage Regulator	Cat DVR	Cat DVR	
Configuration	2-Brg	2-Brg	
Coastal Protection	Yes	Yes	
Space Heater	Yes	Yes	
Construction	FW	FW	
Frame Size	693	691	
Available Configurations	Low BSFC, Low Emissions*, EPA Tier 4 Interim	Low BSFC, Low Emissions*, EPA Tier 4 Interim	
BSFC – Low BSFC:	199.6 g/kW-hr (0.328 lb/bhp-hr)	199.6 g/kW-hr (0.328 lb/bhp-hr)	
BSFC – Low Emissions:	203.3 g/kW-hr (0.334 lb/bhp-hr)	203.3 g/kW-hr (0.334 lb/bhp-hr)	
BSFC – Tier 4 Interim:	212.3 g/kW-hr (0.349 lb/bhp-hr)	212.3 g/kW-hr (0.349 lb/bhp-hr)	

<sup>\*</sup>Non-certified Tier 2 levels

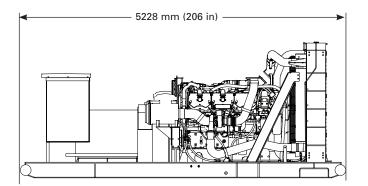
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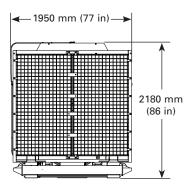


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#### **DIMENSIONS**





Package Dimensions			
Length	5228 mm	206 in	
Length w/short base option	4725 mm	186 in	
Width	1950 mm	77 in	
Height	2180 mm	86 in	
Engine Weight (dry)	9072 kg	20,000 lb	

**Note:** Overall dimensions apply to all configurations, diagram may differ from actual package. For reference only — do not use for installation design. See general dimension drawing #3716011 for detail.

#### **RATING DEFINITIONS AND CONDITIONS**

Meets or Exceeds International Specifications: AS1359, CSA, IEC60034, ISO3046, ISO8528, NEMA MG 1-33, UL508A, 98/37/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. 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.

**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 Cat representative for details. For information regarding low sulfur fuel and biodiesel capability, please consult your Cat dealer.