### **DIESEL GENERATOR SET**





Image shown may not reflect actual package.

# PRIME 635 ekW 794 kVA 60 Hz 1800 rpm 480 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**

• Low Fuel consumption

#### UL 2200 / CSA - Optional

- UL 2200 listed packages
- CSA Certified Certain restrictions may apply. Consult with your Cat® Dealer.

#### **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® 3412C TA DIESEL ENGINE**

- · Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight

#### CAT GENERATOR

- Designed to match the performance and output characteristics of Cat diesel engines
- Single point access to accessory connections
- UL 1446 recognized Class H insulation

#### **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	
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	595
Excitation	Self Excitation
Pitch	0.7333
Number of poles	4
Number of bearings	Single bearing
Number of Leads	012
InsulationUL 1446 Recog	nized Class H with
tropicalization and antiabrasion - Consult your Caterpillar dealer for ava	ailable voltages
IP Rating	Drip Proof IP22
Alignment	Pilot Shaft
Overspeed capability	150
Wave form Deviation (Line to Line)	Less than 5%
deviation Voltage regulationLess than +/-	1/2% (steady state)
Less than +/- 1% (no load to full load)	

#### **CAT DIESEL ENGINE**

3412C TA, V-12, 4-Stroke Wa	ter-cooled Diesel
Bore	137.20 mm (5.4 in)
Stroke	152.40 mm (6.0 in)
Displacement	27.02 L (1648.86 in <sup>3</sup> )
Compression Ratio	14.5:1
Aspiration	TA
Fuel System	Pump and Lines
Governor Type	PEEC - Cat Electronic

#### **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/480 Volts	DM0631		
Package Performance			
Genset Power rating with fan	635 ekW		
Genset Power rating @ 0.8 pf	793.75 kVA		
Fuel Consumption			
100% load with fan	171.0 L/hr	45.2 Gal/hr	
75% load with fan	133.0 L/hr	35.1 Gal/hr	
50% load with fan	95.5 L/hr	25.2 Gal/hr	
Cooling System <sup>1</sup>			
Air flow restriction (system)	0.12 kPa	0.48 in. water	
Air flow (max @ rated speed for radiator arrangement)	1266 m³/min	44708 cfm	
Engine coolant capacity	59.0 L	15.6 gal	
Radiator coolant capacity	84.0 L	22.2 gal	
Engine Coolant capacity with radiator/exp. tank	143.0 L	37.8 gal	
Exhaust System			
Combustion air inlet flow rate	48.5 m³/min	1712.8 cfm	
Exhaust stack gas temperature	542.5 ° C	1008.5 ° F	
Exhaust gas flow rate	141.1 m³/min	4982.9 cfm	
Exhaust flange size (internal diameter)	203.2 mm	8.0 in	
Exhaust system backpressure (maximum allowable)	6.7 kPa	26.9 in. water	
Heat rejection			
Heat rejection to coolant (total)	395 kW	22464 Btu/min	
Heat rejection to exhaust (total)	637 kW	36226 Btu/min	
Heat rejection to atmosphere from engine	94 kW	5346 Btu/min	
Heat rejection to atmosphere from generator	32.0 kW	1819.8 Btu/min	
Alternator <sup>2</sup>			
Motor starting capability @ 30% voltage dip	1406 skVA		
Frame	595		
Temperature Rise	105 ° C	189 ° F	
Lube System			
Sump refill with filter	139.0 L	36.7 gal	
Emissions <sup>3</sup>			
NOx g/hp-hr	8.71 g/hp-hr		
CO g/hp-hr	.64 g/hp-hr		
HC g/hp-hr	.06 g/hp-hr		
PM g/hp-hr	.083 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°C ambient per NEMA MG1-32.

<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

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	4485.0 mm	176.57 in		
Width	1798.1 mm	70.79 in		
Height	1986.7 mm	78.22 in		

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2923107).

Performance No.: DM0631

Feature Code: 412DEAB

Gen. Arr. Number: 1492439

Source: European Sourced

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