

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



## Specifications

Generator Set Specifications	
Minimum Rating	680 kVA
Maximum Rating	900 kVA
Emissions/Fuel Strategy	Low Fuel Consumption
Voltage	380 to 415 Volts
Frequency	50 Hz
Speed	1500 rpm
Duty Cycle	Standby, Prime

Engine Specifications	
Engine Model	3412C TA, V-12, 4-Stroke Water-Cooled Diesel
Bore	137.2 mm 5.4 in
Stroke	152.4 mm 6 in
Displacement	27.02 l 1648.86 in <sup>3</sup>
Compression Ratio	13:01
Aspiration	TA
Fuel System	Pump and Lines
Governor Type	ADEM™ A5

Generator Set Dimensions	
Length - Maximum	4125 mm 162.4 in
Width - Minimum	1906 mm 75 in
Width - Maximum	1989 mm 78.3 in
Height - Maximum	1906 mm 75 in
Dry Weight - Genset (minimum)	5461 kg 12039 lb
Dry Weight - Genset (maximum)	5910 kg 13030 lb

## Benefits and Features

### Cat Generator Set Package

- Cat generator set packages have been fully prototype tested
- Accepts 100% block load in one step and meets NFPA 110 loading requirements
- Conform to ISO 8528-5 steady state and transient response requirements

### Cat 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

### SR500 Alternator

- Superior motor starting capability minimizes need for oversizing alternator
- Designed to match performance and output characteristics of Cat diesel engines
- Robust Class H insulation

### EMCP 4 Control Panel

- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirement
- Expansion modules and site-specific programming for specific customer requirements

### Cooling System

- Designed to operate in standard ambient temperatures up to 50°C (122°F)
- Contact your Cat Dealer for specific ambient and altitude capabilities

### Certifications

- EU Declaration of Conformity
- EU Declaration of Incorporation
- Eurasian Conformity (EAC)

### One Safe Source

- Components used in the generator set are selected based on seamless design integration to provide the optimum performance
- The generator set is fully assembled at a Caterpillar facility following our quality guidelines
- Each generator set package is tested before leaving the Caterpillar facility
- Cat product support, including dealer service, parts and warranty covers the entire Cat power system

### World Wide Product Support

- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

## Standard Equipment

### Air Inlet System

- Air cleaner, single element canister type with service indicator

### Control Panel

- EMCP 4.2B
- Customer data link (Modbus RTU)
- 2 programmable relay outputs (Form C)
- Features:
- Voltage adjust

- Failure to start (overcrank)
- Volts (L-L & L-N)
- Reverse power (kW) (32)
- Accessory module data link
- Over / under voltage (27 / 59)
- Speed adjust
- Low coolant temperature
- Oil pressure (psi, kPa or bar)
- Environmental sealed front face
- Generator temperature monitoring module
- DC volts
- Serial annunciator module data link
- Reverse reactive power (kVAr) (32RV)
- Amps (per phase & average)
- High coolant temperature
- 24-volt DC operation
- Communications
- Power Factor (per phase & average)
- Compatible with the following optional modules:
  - Low coolant level
  - Text alarm / event descriptions
  - Digital I/O module
  - 6 programmable digital inputs
  - Low oil pressure
  - Remote Serial annunciator
  - Engine cycle crank
  - Local annunciator
  - Digital indication for:
    - Over / under Frequency (81 o/u)
    - Generator phase sequence
    - Emergency stop
    - kVAr (per phase, average & percent)
    - Run / Auto / Stop Control
    - Operating hours
    - kVA (per phase, average & percent)
    - Warning / shutdown with common LED indication of shutdowns for:
      - Emergency stop pushbutton
      - Frequency (Hz)

- coolant temperature
- Overspeed
- 4 programmable relay outputs (Form A)
- kW-hr (total)
- 2 programmable digital outputs
- Remote CAN annunciator
- Overcurrent (50 / 51)
- kW (per phase, average & percent)
- RPM
- Programmable protective relaying functions:

### Cooling System

- Radiator with guard (Sized for 50 degrees C)
- Coolant level shutdown
- Coolant drain line with valve, piped to edge of base
- Fan and belt guards
- Caterpillar Extended Life Coolant

### Exhaust System

- Stainless steel exhaust flex with ANSI style outlet flange, gasket, bolts and mating weld flange, shipped loose

### Fuel System

- Primary and secondary fuel filters
- Fuel priming pump
- Flexible fuel lines terminated on base
- Water separator

### Generator and Attachments

- 2:1 Volts/Hz
- Bus bar termination
- 3-phase sensing
- Class H insulation
- Reactive droop
- VR6 Voltage Regulator
- SR4B self excited
- 12 lead
- Class F temperature rise

### Governing System

- Cat electronic governor

### Lube System

- Oil drain line with valve, piped to edge of base
- Lubricating oil

- Oil filter
- Fumes disposal, piped to front of radiator

### Mounting System

- Base, formed steel with linear vibration isolators between base and engine-generator

### Starting / Charging System

- 45 amp charging alternator
- Battery with rack, cables
- Fuel shutoff solenoid
- 24 volt starting motor

## Optional Equipment

### Air Inlet System

- Heavy duty air cleaners
- Dual element air cleaners
- Open element air cleaners

### Circuit breakers

- 1600 Amp, 3 pole, Non-UL, 100% rated, 24 volt DC shunt trip
- 1250, 1600 Amp, 3 pole, IEC 100% rated, 24 volt DC shunt trip

### Control Panel

- Generator temperature monitoring package
- EMCP 4.4
- First local annunciators
- Vandal proof panel door
- Remote custom annunciators
- EMCP 4.3
- Local discrete I/O package
- Common alarm / shutdown relay
- Ground fault relay
- Generator running VFC

### Cooling System

- Radiator duct flange
- Jacket water heaters

### European Certifications

- Eurasian conformity (EAC) mark

### Exhaust System

- Through wall installation kit
- Mufflers
- Manifold and turbocharger guard

- Elbow kit

**Generator and Attachments**

- Permanent magnet excitation
- Space heater
- Digital voltage regulator
- Oversize and premium generators

**Lube System**

- Manual sump pump

**Mounting System**

- Fuel tank base (1200 ltr)

**Special Tests / Reports**

- PGS test report @ 0.8 power factor
- PGS test report @ 1.0 power factor

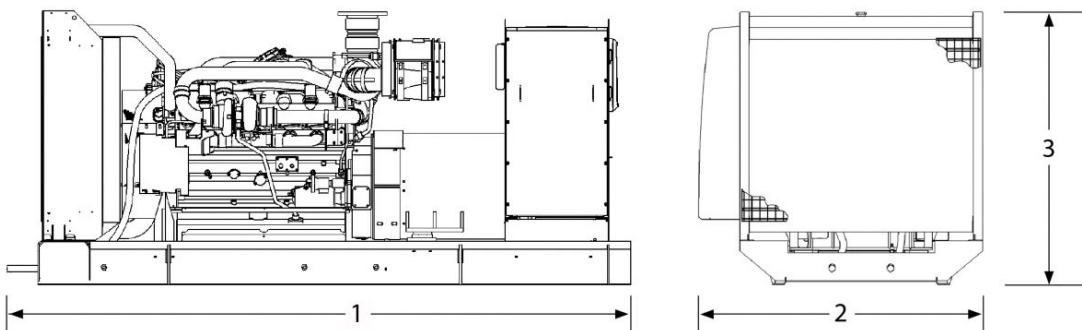
**Starting / Charging**

- Oversize batteries
- Battery chargers
- Battery disconnect switch
- Heavy-duty starting system

**Governing System**

- Electronic load share

**Dimensional Art**



Dimensions	Dimension 1	Dimension 2	Dimension 3
Genset dimensions	4125 mm (162.4 in)	1989 mm (78.3 in)	1906 mm (75.0 in)

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3412C

648 ekW/ 810 kVA/ 50 Hz/ 1500 rpm/ 400 V/ 0.8 Power Factor

Rating Type: PRIME

Fuel Strategy: LOW FUEL CONSUMPTION



**3412C**  
**648 ekW/ 810 kVA**  
**50 Hz/ 1500 rpm/ 400 V**

Image shown may not reflect actual configuration

**Metric English**

Package Performance		
Genset Power Rating with Fan @ 0.8 Power Factor	648 ekW	
Genset Power Rating	810 kVA	
Aftercooler (Separate Circuit)	91.0 ° C	195.8 ° F

Fuel Consumption		
100% Load with Fan	169.3 L/hr	44.7 gal/hr
75% Load with Fan	128.5 L/hr	33.9 gal/hr
50% Load with Fan	89.5 L/hr	23.6 gal/hr
25% Load with Fan	51.7 L/hr	13.7 gal/hr

Cooling System <sup>1</sup>		
Engine Coolant Capacity	58.6 L	15.5 gal
Radiator Water Capacity High Temp Circuit	84 L	22 gal
Radiator Water Capacity Low Temp Circuit	N/A	N/A
Radiator Total Capacity	84 L	22 gal

Inlet Air		
Combustion Air Inlet Flow Rate	48.8 m <sup>3</sup> /min	1721.4 cfm
Max. Allowable Combustion Air Inlet Temp	90 ° C	194 ° F

Exhaust System		
Exhaust Stack Gas Temperature	539.4 ° C	1002.9 ° F
Exhaust Gas Flow Rate	139.1 m <sup>3</sup> /min	4913.4 cfm
Exhaust System Backpressure (Maximum Allowable)	6.7 kPa	27.0 in. water



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Heat Rejection		
Heat Rejection to Jacket Water	385 kW	21921 Btu/min
Heat Rejection to Exhaust (Total)	636 kW	36184 Btu/min
Heat Rejection to Aftercooler	85 kW	4860 Btu/min
Heat Rejection to Atmosphere from Engine	108 kW	6122 Btu/min
Heat Rejection to Atmosphere from Generator	29 kW	1661 Btu/min

Alternator <sup>2</sup>	
Motor Starting Capability @ 30% Voltage Dip	2033 skVA
Current	1169 amps
Frame Size	E3835L4
Excitation	IE
Temperature Rise	105 ° C

Emissions (Nominal) <sup>3</sup>		
NOx	2972.5 mg/Nm <sup>3</sup>	6.2 g/hp-hr
CO	193.7 mg/Nm <sup>3</sup>	0.4 g/hp-hr
HC	122.3 mg/Nm <sup>3</sup>	0.3 g/hp-hr
PM	45.9 mg/Nm <sup>3</sup>	0.1 g/hp-hr

**DEFINITIONS AND CONDITIONS**

1. For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.
2. 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.
3. 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.

**Applicable Codes and Standards:**

AS1359, CSA C22.2 No100-04, UL142,UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22,NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.

Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.





**3412C**

**648 ekW/ 810 kVA/ 50 Hz/ 1500 rpm/ 400 V/ 0.8 Power Factor**

**Rating Type: PRIME**

**Fuel Strategy: LOW FUEL CONSUMPTION**

**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 15° C (59° F) and weighing 850 g/liter (7.094 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.

Performance No.: EM1165-01

Feature Code: 412DRYF

Generator Arrangement: 5089176

Date: 03/17/2021

Source Country: U.K.

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