

# Cat® 3412

## Diesel Generator Sets



Image shown may not reflect actual configuration

|                                     |                 |
|-------------------------------------|-----------------|
| Bore – mm (in)                      | 137.2 (5.4)     |
| Stroke – mm (in)                    | 152.4 (6)       |
| Displacement – L (in <sup>3</sup> ) | 27.02 (1648.86) |
| Compression Ratio                   | 13.0:1          |
| Aspiration                          | TA              |
| Fuel System                         | Pump and Lines  |
| Governor Type                       | ADEM™ A5        |

| Standby<br>50 Hz kVA (ekW) | Prime<br>50 Hz kVA (ekW) | Emissions Performance                 |
|----------------------------|--------------------------|---------------------------------------|
| 800 (640)                  | 725 (850)                | Optimized for<br>Low Fuel Consumption |
| 900 (720)                  | 810 (648)                |                                       |

### Standard Features

#### Cat® Diesel Engine

- Designed and optimized for low fuel consumption
- Reliable performance proven in thousands of applications worldwide

#### Generator Set Package

- Accepts 100% block load in one step and meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

#### Alternators

- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

#### Cooling System

- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

#### EMCP 4 Control Panels

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

#### Warranty

- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

#### Worldwide 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

#### Financing

- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

## Optional Equipment

### Engine

#### Air Cleaner

- Single element
- Dual element
- Heavy duty

#### Muffler

- Industrial grade (10 dB)

#### Starting

- Standard batteries
- Oversized batteries
- Heavy duty electric starter(s)
- Dual electric starter(s)
- Jacket water heater

### Alternator

#### Output voltage

- 380V
- 400V
- 415V

#### Temperature Rise (over 40°C ambient)

- 125°C
- 105°C
- 80°C

#### Winding type

- Random wound

#### Excitation

- Self excited
- Permanent magnet (PM)

#### Attachments

- Anti-condensation heater
- Stator and bearing temperature monitoring and protection

### Power Termination

#### Type

- Bus bar
- Circuit breaker
- 1250A    1600A
- 2500A    3-pole
- IEC
- Manually operated
- Electrically operated

#### Trip Unit

- LSI

### Fuel Tank

- 317 gal (1200 L)

### Control System

#### Controller

- EMCP 4.2B
- EMCP 4.3
- EMCP 4.4

#### Attachments

- Local annunciator module
- Remote annunciator module
- Expansion I/O module
- Remote monitoring software

### Charging

- Battery charger – 5A

### Cat Connect

#### Connectivity

- Ethernet
- Cellular
- Satellite

### Extended Service Options

#### Terms

- 2 year (prime)
- 3 year
- 5 year
- 10 year

#### Coverage

- Silver
- Gold
- Platinum
- Platinum Plus

### Ancillary Equipment

- Automatic transfer switch (ATS)
- Uninterruptible power supply (UPS)
- Paralleling switchgear
- Paralleling controls

### Certifications

- Eurasian Conformity (EAC)

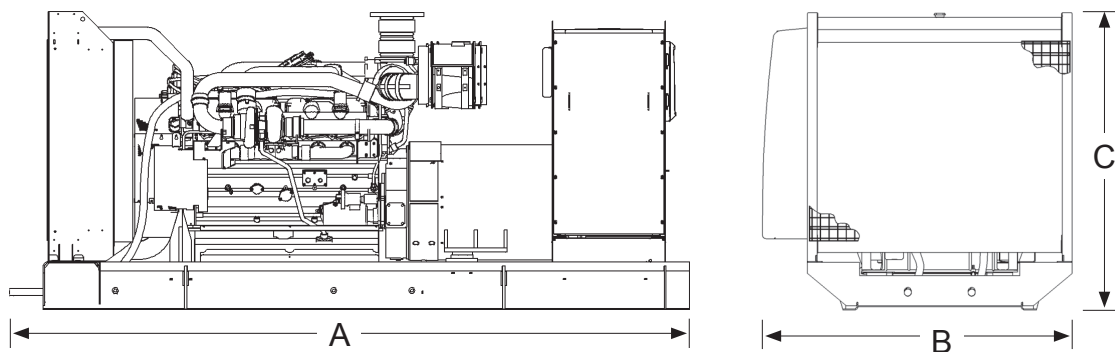
**Note:** Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.

## Package Performance

| Performance   | Standby   |          | Prime     |          | Standby   |          | Prime     |          |
|---|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
| Frequency   | 50 Hz     |          | 50 Hz     |          | 50 Hz     |          | 50 Hz     |          |
| Gen set power rating with fan                                     | 640 ekW   |          | 580 ekW   |          | 720 ekW   |          | 648 ekW   |          |
| Gen set power rating with fan @ 0.8 power factor                  | 800 kVA   |          | 725 kVA   |          | 900 kVA   |          | 810 kVA   |          |
| Emissions   | Low Fuel  |          | Low Fuel  |          | Low Fuel  |          | Low Fuel  |          |
| Performance number  | EM1166-01 |          | EM1167-01 |          | EM1164-00 |          | EM1165-00 |          |
| <b>Fuel Consumption</b>   |           |          |           |          |           |          |           |          |
| 100% load with fan – L/hr (gal/hr)                                | 169.1     | (44.7)   | 153.7     | (40.6)   | 191.7     | (50.6)   | 171.5     | (45.3)   |
| 75% load with fan – L/hr (gal/hr)                                 | 128.9     | (34.1)   | 117.5     | (31.0)   | 143.8     | (38.0)   | 130.2     | (34.4)   |
| 50% load with fan – L/hr (gal/hr)                                 | 90.0      | (23.8)   | 82.5      | (21.8)   | 99.5      | (26.3)   | 90.7      | (23.9)   |
| 25% load with fan – L/hr (gal/hr)                                 | 52.1      | (23.8)   | 48.2      | (12.7)   | 57.0      | (15.0)   | 52.4      | (13.8)   |
| <b>Cooling System</b>   |           |          |           |          |           |          |           |          |
| Radiator air flow restriction (system) – kPa (in. water)          | 0.12      | (0.48)   | 0.12      | (0.48)   | 0.12      | (0.48)   | 0.12      | (0.48)   |
| Radiator air flow – m <sup>3</sup> /min (cfm)                     | 815.0     | (28781)  | 815.0     | (28781)  | 815.0     | (28781)  | 815.0     | (28781)  |
| Engine coolant capacity – L (gal)                                 | 58.6      | (15.5)   | 58.6      | (15.5)   | 58.6      | (15.5)   | 58.6      | (15.5)   |
| Radiator coolant capacity – L (gal)                               | 90.0      | (23.8)   | 90.0      | (23.8)   | 90.0      | (23.8)   | 90.0      | (23.8)   |
| Total coolant capacity – L (gal)                                  | 148.8     | (39.3)   | 148.8     | (39.3)   | 148.8     | (39.3)   | 148.8     | (39.3)   |
| <b>Inlet Air</b>  |           |          |           |          |           |          |           |          |
| Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)        | 48.1      | (1698.5) | 44.2      | (1560.8) | 54.6      | (1928.7) | 48.8      | (1721.4) |
| <b>Exhaust System</b>   |           |          |           |          |           |          |           |          |
| Exhaust stack gas temperature – °C (°F)                           | 538.7     | (1001.7) | 534.0     | (993.2)  | 544.2     | (1011.5) | 539.4     | (1002.9) |
| Exhaust gas flow rate – m <sup>3</sup> /min (cfm)                 | 137.2     | (4844.7) | 125.4     | (4428.1) | 156.4     | (5521.9) | 139.1     | (4913.4) |
| Exhaust system backpressure (maximum allowable) – kPa (in. water) | 6.7       | (27.0)   | 6.7       | (27.0)   | 6.7       | (27.0)   | 6.7       | (27.0)   |
| <b>Heat Rejection</b>   |           |          |           |          |           |          |           |          |
| Heat rejection to jacket water – kW (Btu/min)                     | 381       | (21667)  | 347       | (19734)  | 431       | (24527)  | 385       | (21921)  |
| Heat rejection to exhaust (total) – kW (Btu/min)                  | 628       | (35714)  | 571       | (32473)  | 701       | (39846)  | 636       | (36184)  |
| Heat rejection to aftercooler – kW (Btu/min)                      | 83        | (4703)   | 66        | (3776)   | 115       | (6518)   | 85        | (4860)   |
| Heat rejection to atmosphere from engine – kW (Btu/min)           | 105       | (5971)   | 95        | (5402)   | 120       | (6801)   | 108       | (6122)   |
| Heat rejection from alternator – kW (Btu/min)                     | 25        | (1439)   | 22        | (1268)   | 28        | (1575)   | 24        | (1376)   |
| <b>Emissions* (Nominal)</b>                                       |           |          |           |          |           |          |           |          |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 2969.2    | (6.21)   | 2932.1    | (6.14)   | 3167.8    | (6.05)   | 2972.5    | (6.22)   |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 181.6     | (0.38)   | 171.7     | (0.36)   | 443.3     | (0.97)   | 193.7     | (0.41)   |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 120.1     | (0.25)   | 102.6     | (0.21)   | 248.1     | (0.57)   | 122.3     | (0.26)   |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 45.1      | (0.09)   | 45.0      | (0.09)   | 51.5      | (0.13)   | 45.9      | (0.10)   |
| <b>Emissions* (Potential Site Variation)</b>                      |           |          |           |          |           |          |           |          |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 3592.7    | (7.51)   | 3547.8    | (7.43)   | 3833.0    | (7.33)   | 3596.7    | (7.52)   |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 339.6     | (0.71)   | 321.1     | (0.67)   | 828.9     | (1.82)   | 362.2     | (0.76)   |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 227.0     | (0.48)   | 193.9     | (0.41)   | 468.9     | (1.07)   | 231.1     | (0.48)   |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 87.9      | (0.18)   | 87.7      | (0.18)   | 100.5     | (0.26)   | 89.5      | (0.19)   |

\*mg/Nm<sup>3</sup> levels are corrected to 5% O<sub>2</sub>. Contact your local Cat dealer for further information.

## Weights and Dimensions



| Standby<br>50 Hz kVA (ekW) | Prime<br>50 Hz kVA (ekW) | Dim "A"<br>mm (in) | Dim "B"<br>mm (in) | Dim "C"<br>mm (in) | Dry Weight<br>kg (lb) |
|----------------------------|--------------------------|--------------------|--------------------|--------------------|-----------------------|
| 800 (640)                  | 725 (580)                | 4125 (162.4)       | 1705 (67.1)        | 1906 (75.0)        | 5461 (12,039)         |
| 900 (720)                  | 810 (648)                | 4125 (162.4)       | 1705 (67.1)        | 1906 (75.0)        | 5679 (12,521)         |

**Note:** For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.

## Ratings Definitions

### Standby

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

### 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 kW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

### Applicable Codes and Standards

AS 1359, CSA C22.2 No. 100-04, UL 142, UL 489, UL 869, UL 2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU.

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

### Data Center Applications

- ISO 8528-1 Data Center Power (DCP) compliant per DCP application of Cat diesel generator set prime power rating.
- All ratings Tier III/Tier IV compliant per Uptime Institute requirements.
- All ratings ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

### Fuel Rates

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.)

[www.cat.com/electricpower](http://www.cat.com/electricpower)

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