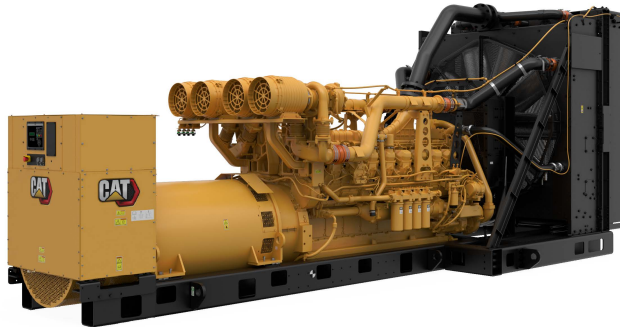


# Cat® 3516E

## Diesel Generator Sets



|                                     |             |
|-------------------------------------|-------------|
| Bore – mm (in)                      | 170 (6.69)  |
| Stroke – mm (in)                    | 215 (8.46)  |
| Displacement – L (in <sup>3</sup> ) | 78.1 (4766) |
| Compression Ratio                   | 14.0:1      |
| Aspiration                          | TA          |
| Fuel System                         | EUI         |
| Governor Type                       | ADEM™ A5    |

Image shown may not reflect actual configuration

| Standby<br>50 Hz kVA (ekW) | Mission Critical<br>50 Hz kVA (ekW) | Prime<br>50 Hz kVA (ekW) | Emissions Performance  |
|----------------------------|-------------------------------------|--------------------------|------------------------|
| 3500 (2800)                | 3500 (2800)                         | 3175 (2540)              | Low NOx                |
| 3250 (2600)                | 3250 (2600)                         | 2950 (2360)              | Low NOx (< 2000mg NOx) |
| 3000 (2400)                | 3000 (2400)                         | 2725 (2180)              |                        |

### Standard Features

#### Cat® Diesel Engine

- Low NOx emissions
- 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 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

#### Muffler

- Industrial grade (15 dB)
- Critical grade (25 dB)
- Hospital grade (35 dB)

#### Starting

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

### Alternator

#### Output voltage

- 400V  6900V
- 415V  10000V
- 3330V  10500V
- 6300V  11000V
- 6600V

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

- 150°C
- 125°C/130°C

#### Winding type

- Random wound
- Form wound

#### Excitation

- Internal excitation (IE)
- Permanent magnet (PM)

#### Attachments

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

### Power Termination

#### Type

- Bus bar
- Circuit breaker
- 5000A  6300A
- UL  IEC
- 3-pole  4-pole
- Manually operated
- Electrically operated

#### Trip Unit

- LSI  LSI-G
- LSI-G-P

### 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 – 10A
- Battery charger – 20A
- Battery charger – 35A

### Vibration Isolators

- Rubber
- Spring
- Seismic rated

### 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

- EU Declaration of Conformity
- EU Declaration of Incorporation
- 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         | Mission Critical | Prime           |
|---|-----------------|------------------|-----------------|
| Engine Speed  | 1500 rpm        | 1500 rpm         | 1500 rpm        |
| Frequency   | 50 Hz           | 50 Hz            | 50 Hz           |
| Gen set power rating with fan                                     | 2800 ekW        | 2800 ekW         | 2540 ekW        |
| Gen set power rating with fan @ 0.8 power factor                  | 3500 kVA        | 3500 kVA         | 3175 kVA        |
| Emissions   | Low NOx         | Low NOx          | Low NOx         |
| Performance number  | EM4868-01       | EM4870-01        | EM4872-00       |
| <b>Fuel Consumption</b>   |                 |                  |                 |
| 100% load with fan – L/hr (gal/hr)                                | 726.3 (191.9)   | 726.3 (191.9)    | 672.3 (177.6)   |
| 75% load with fan – L/hr (gal/hr)                                 | 585.6 (154.7)   | 585.6 (154.7)    | 540.4 (142.8)   |
| 50% load with fan – L/hr (gal/hr)                                 | 434.0 (114.6)   | 434.0 (114.6)    | 397.5 (105.0)   |
| 25% load with fan – L/hr (gal/hr)                                 | 226.7 (59.9)    | 226.7 (59.9)     | 210.1 (55.5)    |
| <b>Cooling System</b>   |                 |                  |                 |
| Radiator air flow restriction (system) – kPa (in. water)          | 0.12 (0.48)     | 0.12 (0.48)      | 0.12 (0.48)     |
| Radiator air flow – m <sup>3</sup> /min (cfm)                     | 3026 (106862)   | 3026 (106862)    | 3026 (106862)   |
| Engine coolant capacity – L (gal)                                 | 179.0 (47.3)    | 179.0 (47.3)     | 179.0 (47.3)    |
| Radiator coolant capacity – L (gal)                               | 202.0 (53.4)    | 202.0 (53.4)     | 202.0 (53.4)    |
| Total coolant capacity – L (gal)                                  | 381.0 (100.7)   | 381.0 (100.7)    | 381.0 (100.7)   |
| <b>Inlet Air</b>  |                 |                  |                 |
| Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)        | 229.8 (8114.1)  | 229.8 (8114.1)   | 220.5 (7787.3)  |
| <b>Exhaust System</b>   |                 |                  |                 |
| Exhaust stack gas temperature – °C (°F)                           | 445.9 (834.6)   | 445.9 (834.6)    | 443.0 (829.5)   |
| Exhaust gas flow rate – m <sup>3</sup> /min (cfm)                 | 570.2 (20133.1) | 570.2 (20133.1)  | 541.9 (19133.3) |
| Exhaust system backpressure (maximum allowable) – kPa (in. water) | 7.0 (28.1)      | 7.0 (28.1)       | 7.0 (28.1)      |
| <b>Heat Rejection</b>   |                 |                  |                 |
| Heat rejection to jacket water – kW (Btu/min)                     | 915 (52009)     | 915 (52009)      | 843 (47929)     |
| Heat rejection to exhaust (total) – kW (Btu/min)                  | 2829 (160881)   | 2829 (160881)    | 2675 (152121)   |
| Heat rejection to aftercooler – kW (Btu/min)                      | 872 (49601)     | 872 (49601)      | 791 (44984)     |
| Heat rejection to atmosphere from engine – kW (Btu/min)           | 170 (9653)      | 170 (9653)       | 167 (9479)      |
| Heat rejection from alternator – kW (Btu/min)                     | 121 (6881)      | 121 (6881)       | 98 (5550)       |
| <b>Emissions* (Nominal) - Full Load</b>                           |                 |                  |                 |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 2576.6 (5.05)   | 2576.6 (5.05)    | 2017.9 (4.06)   |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 185.2 (0.39)    | 185.2 (0.39)     | 215.0 (0.46)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 16.6 (0.04)     | 16.6 (0.04)      | 7.3 (0.04)      |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 11.3 (0.03)     | 11.3 (0.03)      | 19.2 (0.05)     |
| <b>Emissions* (Potential Site Variation) - Full Load</b>          |                 |                  |                 |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 2860.0 (5.60)   | 2860.0 (5.60)    | 2239.9 (4.51)   |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 216.7 (0.45)    | 216.7 (0.45)     | 387.0 (0.83)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 19.6 (0.05)     | 19.6 (0.05)      | 23.0 (0.06)     |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 15.7 (0.04)     | 15.7 (0.04)      | 26.8 (0.07)     |

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

## Package Performance

| Performance   | Standby       |           | Mission Critical |           | Prime         |           |
|---|---------------|-----------|------------------|-----------|---------------|-----------|
| Engine Speed  | 1500 rpm      |           | 1500 rpm         |           | 1500 rpm      |           |
| Frequency   | 50 Hz         |           | 50 Hz            |           | 50 Hz         |           |
| Gen set power rating with fan                                     | 2600 ekW      |           | 2600 ekW         |           | 2360 ekW      |           |
| Gen set power rating with fan @ 0.8 power factor                  | 3250 kVA      |           | 3250 kVA         |           | 2950 kVA      |           |
| Emissions   | < 2000 mg NOx |           | < 2000 mg NOx    |           | < 2000 mg NOx |           |
| Performance number  | EM4789-01     |           | EM4793-01        |           | EM4797-01     |           |
| <b>Fuel Consumption</b>   |               |           |                  |           |               |           |
| 100% load with fan – L/hr (gal/hr)                                | 714.8         | (188.8)   | 714.8            | (188.8)   | 652.2         | (172.3)   |
| 75% load with fan – L/hr (gal/hr)                                 | 556.2         | (146.9)   | 556.2            | (146.9)   | 516.0         | (136.3)   |
| 50% load with fan – L/hr (gal/hr)                                 | 382.6         | (101.1)   | 382.6            | (101.1)   | 350.5         | (92.6)    |
| 25% load with fan – L/hr (gal/hr)                                 | 213.7         | (56.5)    | 213.7            | (56.5)    | 198.6         | (52.5)    |
| <b>Cooling System</b>   |               |           |                  |           |               |           |
| Radiator air flow restriction (system) – kPa (in. water)          | 0.12          | (0.48)    | 0.12             | (0.48)    | 0.12          | (0.48)    |
| Radiator air flow – m <sup>3</sup> /min (cfm)                     | 3026          | (106862)  | 3026             | (106862)  | 3026          | (106862)  |
| Engine coolant capacity – L (gal)                                 | 179.0         | (47.3)    | 179.0            | (47.3)    | 179.0         | (47.3)    |
| Radiator coolant capacity – L (gal)                               | 202.0         | (53.4)    | 202.0            | (53.4)    | 202.0         | (53.4)    |
| Total coolant capacity – L (gal)                                  | 381.0         | (100.7)   | 381.0            | (100.7)   | 381.0         | (100.7)   |
| <b>Inlet Air</b>  |               |           |                  |           |               |           |
| Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)        | 222.8         | (7867.2)  | 222.8            | (7867.2)  | 208.6         | (7364.7)  |
| <b>Exhaust System</b>   |               |           |                  |           |               |           |
| Exhaust stack gas temperature – °C (°F)                           | 492.2         | (917.9)   | 492.2            | (917.9)   | 491.2         | (916.2)   |
| Exhaust gas flow rate – m <sup>3</sup> /min (cfm)                 | 598.6         | (21138.7) | 598.6            | (21138.7) | 554.6         | (19582.0) |
| Exhaust system backpressure (maximum allowable) – kPa (in. water) | 7.0           | (28.1)    | 7.0              | (28.1)    | 7.0           | (28.1)    |
| <b>Heat Rejection</b>   |               |           |                  |           |               |           |
| Heat rejection to jacket water – kW (Btu/min)                     | 893           | (50811)   | 893              | (50811)   | 821           | (46693)   |
| Heat rejection to exhaust (total) – kW (Btu/min)                  | 2756          | (156710)  | 2756             | (156710)  | 2555          | (145286)  |
| Heat rejection to aftercooler – kW (Btu/min)                      | 905           | (51446)   | 905              | (51446)   | 773           | (43964)   |
| Heat rejection to atmosphere from engine – kW (Btu/min)           | 168           | (9567)    | 168              | (9567)    | 163           | (9254)    |
| Heat rejection from alternator – kW (Btu/min)                     | 113           | (6426)    | 113              | (6426)    | 88            | (5010)    |
| <b>Emissions* (Nominal) - Full Load</b>                           |               |           |                  |           |               |           |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 1791.1        | (3.94)    | 1791.1           | (3.94)    | 1732.6        | (3.83)    |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 355.7         | (0.79)    | 355.7            | (0.79)    | 333.4         | (0.75)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 13.8          | (0.04)    | 13.8             | (0.04)    | 13.6          | (0.04)    |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 26.0          | (0.07)    | 26.0             | (0.07)    | 19.6          | (0.05)    |
| <b>Emissions* (Potential Site Variation) - Full Load</b>          |               |           |                  |           |               |           |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 1988.1        | (4.38)    | 1988.1           | (4.38)    | 1923.2        | (4.25)    |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 416.1         | (0.93)    | 416.1            | (0.93)    | 390.1         | (0.87)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 16.3          | (0.04)    | 16.3             | (0.04)    | 16.1          | (0.04)    |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 36.2          | (0.10)    | 36.2             | (0.10)    | 27.3          | (0.07)    |

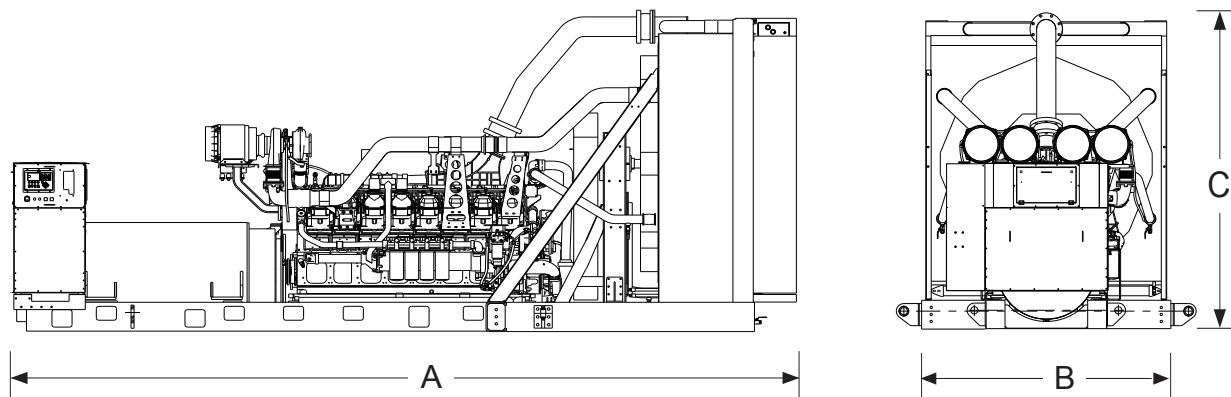
\*mg/Nm<sup>3</sup> levels are corrected to 5% O<sub>2</sub>. Contact your local Cat dealer for further information

## Package Performance

| Performance   | Standby       |           | Mission Critical |           | Prime         |           |
|---|---------------|-----------|------------------|-----------|---------------|-----------|
| Engine Speed  | 1500 rpm      |           | 1500 rpm         |           | 1500 rpm      |           |
| Frequency   | 50 Hz         |           | 50 Hz            |           | 50 Hz         |           |
| Gen set power rating with fan                                     | 2400 ekW      |           | 2400 ekW         |           | 2180 ekW      |           |
| Gen set power rating with fan @ 0.8 power factor                  | 3000 kVA      |           | 3000 kVA         |           | 2725 kVA      |           |
| Emissions   | < 2000 mg NOx |           | < 2000 mg NOx    |           | < 2000 mg NOx |           |
| Performance number  | EM4791-01     |           | EM4795-01        |           | EM4799-01     |           |
| <b>Fuel Consumption</b>   |               |           |                  |           |               |           |
| 100% load with fan – L/hr (gal/hr)                                | 659.4         | (174.2)   | 659.4            | (174.2)   | 610.7         | (161.3)   |
| 75% load with fan – L/hr (gal/hr)                                 | 522.7         | (138.1)   | 522.7            | (138.1)   | 486.5         | (128.5)   |
| 50% load with fan – L/hr (gal/hr)                                 | 355.4         | (93.9)    | 355.4            | (93.9)    | 327.0         | (86.4)    |
| 25% load with fan – L/hr (gal/hr)                                 | 201.1         | (53.1)    | 201.1            | (53.1)    | 187.3         | (49.5)    |
| <b>Cooling System</b>   |               |           |                  |           |               |           |
| Radiator air flow restriction (system) – kPa (in. water)          | 0.12          | (0.48)    | 0.12             | (0.48)    | 0.12          | (0.48)    |
| Radiator air flow – m <sup>3</sup> /min (cfm)                     | 3026          | (106862)  | 3026             | (106862)  | 3026          | (106862)  |
| Engine coolant capacity – L (gal)                                 | 179.0         | (47.3)    | 179.0            | (47.3)    | 179.0         | (47.3)    |
| Radiator coolant capacity – L (gal)                               | 202.0         | (53.4)    | 202.0            | (53.4)    | 202.0         | (53.4)    |
| Total coolant capacity – L (gal)                                  | 381.0         | (100.7)   | 381.0            | (100.7)   | 381.0         | (100.7)   |
| <b>Inlet Air</b>  |               |           |                  |           |               |           |
| Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)        | 208.6         | (7367.5)  | 208.6            | (7367.5)  | 198.5         | (7008.2)  |
| <b>Exhaust System</b>   |               |           |                  |           |               |           |
| Exhaust stack gas temperature – °C (°F)                           | 492.7         | (918.9)   | 492.7            | (918.9)   | 492.7         | (918.9)   |
| Exhaust gas flow rate – m <sup>3</sup> /min (cfm)                 | 558.3         | (19712.5) | 558.3            | (19712.5) | 525.5         | (18546.1) |
| Exhaust system backpressure (maximum allowable) – kPa (in. water) | 7.0           | (28.1)    | 7.0              | (28.1)    | 7.0           | (28.1)    |
| <b>Heat Rejection</b>   |               |           |                  |           |               |           |
| Heat rejection to jacket water – kW (Btu/min)                     | 825           | (46931)   | 825              | (46931)   | 777           | (44207)   |
| Heat rejection to exhaust (total) – kW (Btu/min)                  | 2579          | (146674)  | 2579             | (146674)  | 2433          | (138354)  |
| Heat rejection to aftercooler – kW (Btu/min)                      | 783           | (44531)   | 783              | (44531)   | 691           | (39302)   |
| Heat rejection to atmosphere from engine – kW (Btu/min)           | 164           | (9317)    | 164              | (9317)    | 160           | (9110)    |
| Heat rejection from alternator – kW (Btu/min)                     | 104           | (5914)    | 104              | (5914)    | 79            | (4498)    |
| <b>Emissions* (Nominal) - Full Load</b>                           |               |           |                  |           |               |           |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 1745.8        | (3.85)    | 1745.8           | (3.85)    | 1627.2        | (3.63)    |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 332.8         | (0.74)    | 332.8            | (0.74)    | 365.2         | (0.82)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 13.7          | (0.04)    | 13.7             | (0.04)    | 13.2          | (0.03)    |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 20.1          | (0.05)    | 20.1             | (0.05)    | 19.8          | (0.05)    |
| <b>Emissions* (Potential Site Variation) - Full Load</b>          |               |           |                  |           |               |           |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 1937.9        | (4.28)    | 1937.9           | (4.28)    | 1708.6        | (3.81)    |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 389.4         | (0.87)    | 389.4            | (0.87)    | 427.3         | (0.96)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 16.1          | (0.04)    | 16.1             | (0.04)    | 15.6          | (0.04)    |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 28.0          | (0.08)    | 28.0             | (0.08)    | 27.6          | (0.07)    |

\*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 Rating<br>kVA | Dim "A"<br>mm (in) | Dim "B"<br>mm (in) | Dim "C"<br>mm (in) | Dry Weight<br>kg (lb) |
|-----------------------|--------------------|--------------------|--------------------|-----------------------|
| 3500                  | 7785 (306.5)       | 2612 (102.8)       | 3342 (131.6)       | 20 707 (45,651)       |
| 3250 / 3000           | 7685 (302.6)       | 2612 (102.8)       | 3342 (131.6)       | 20 380 (44,930)       |

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

### 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.

### Mission Critical

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical power rating. Typical peak demand up to 100% of rated power for up to 5% of the operating time. 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)

©2020 Caterpillar  
All rights reserved.

Materials and specifications are subject to change without notice.  
The International System of Units (SI) is used in this publication.