

# Cat® 3516

## Diesel Generator Sets



Image shown may not reflect actual configuration

|                                     |              |
|-------------------------------------|--------------|
| Bore – mm (in)                      | 170 (6.69)   |
| Stroke – mm (in)                    | 190 (7.48)   |
| Displacement – L (in <sup>3</sup> ) | 69 (4210.64) |
| Compression Ratio                   | 13.0:1       |
| Aspiration                          | TA           |
| Fuel System                         | MUI          |
| Governor Type                       | Mechanical   |

| Standby<br>50 Hz kVA (ekW) | Mission Critical<br>50 Hz kVA (ekW) | Prime<br>50 Hz kVA (ekW) | Continuous<br>50 Hz kVA (ekW) | Emissions Performance              |
|----------------------------|-------------------------------------|--------------------------|-------------------------------|------------------------------------|
| 2000 (1600)                | 2000 (1600)                         | 1825 (1460)              | 1600 (1280)                   | Optimized for Low Fuel Consumption |

### 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
- 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

## Standard and Optional Equipment

### Engine

#### **Air Cleaner**

- ☐ Single element
- ☐ Dual element
- ☐ Heavy duty

#### **Muffler**

- ☐ Industrial grade (15 dB)
- ☐ Residential grade (25 dB)
- ☐ Critical grade (35 dB)

#### **Starting**

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

### Alternator

#### **Output voltage**

- ☐ 380V    ☐ 6900V
- ☐ 400V    ☐ 10000V
- ☐ 415V    ☐ 10500V
- ☐ 6300V    ☐ 11000V
- ☐ 6600V

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

- ☐ 150°C
- ☐ 125°C/130°C
- ☐ 105°C
- ☐ 80°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
- ☐ 2000A    ☐ 3200A
- ☐ 2500A    ☐ 4000A
- ☐ IEC
- ☐ 3-pole
- ☐ Electrically operated

#### **Trip Unit**

- ☐ LSI    ☐ LSI-G
- ☐ LSIG-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

### 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)
- ☐ Paralleling switchgear
- ☐ Paralleling controls

### Certifications

- ☐ EU & GB Declaration of Conformity
- ☐ EU & GB Declaration of Incorporation
- ☐ Eurasian Conformity (EAC)
- ☐ Telecommunication Lab of China

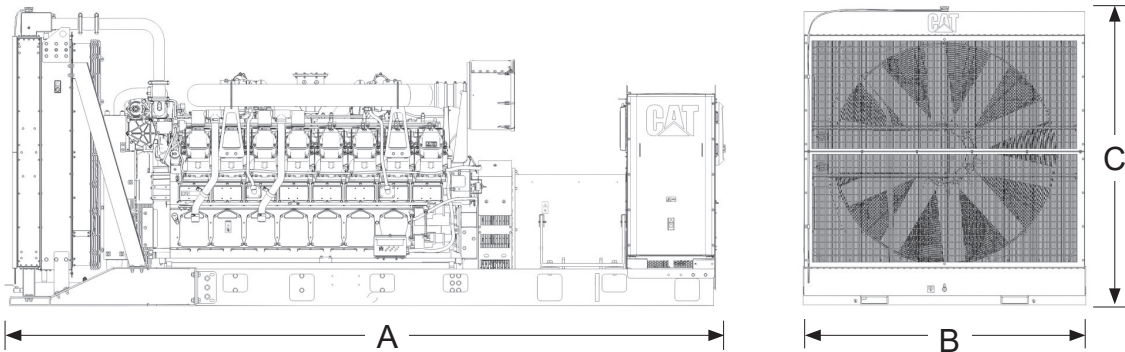
**Note:** Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.

## Package Performance

| Performance                                                       | Standby   |           | Mission Critical |           | Prime     |           | Continuous |          |
|-------------------------------------------------------------------|-----------|-----------|------------------|-----------|-----------|-----------|------------|----------|
| Frequency                                                         | 50 Hz     |           | 50 Hz            |           | 50 Hz     |           | 50 Hz      |          |
| Gen set power rating with fan                                     | 1600 ekW  |           | 1600 ekW         |           | 1460 ekW  |           | 1280 ekW   |          |
| Gen set power rating with fan @ 0.8 power factor                  | 2000 kVA  |           | 2000 kVA         |           | 1825 kVA  |           | 1600 kVA   |          |
| Emissions                                                         | Low Fuel  |           | Low Fuel         |           | Low Fuel  |           | Low Fuel   |          |
| Performance number                                                | DM7961-03 |           | EM0609-01        |           | DM7962-03 |           | DM7963-02  |          |
| Fuel Consumption                                                  |           |           |                  |           |           |           |            |          |
| 100% load with fan – L/hr (gal/hr)                                | 405.7     | (107.2)   | 405.7            | (107.2)   | 370.6     | (97.9)    | 326.3      | (86.2)   |
| 75% load with fan – L/hr (gal/hr)                                 | 305.7     | (80.8)    | 305.7            | (80.8)    | 282.8     | (74.7)    | 252.3      | (66.6)   |
| 50% load with fan – L/hr (gal/hr)                                 | 217.3     | (57.4)    | 217.3            | (57.4)    | 203.1     | (53.7)    | 181.5      | (48.0)   |
| 25% load with fan – L/hr (gal/hr)                                 | 126.4     | (33.4)    | 126.4            | (33.4)    | 119.5     | (31.6)    | 109.0      | (28.8)   |
| Cooling System                                                    |           |           |                  |           |           |           |            |          |
| 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 – m³/min (cfm)                                  | 1396      | (49299)   | 1396             | (49299)   | 1396      | (49299)   | 1396       | (49299)  |
| Engine coolant capacity – L (gal)                                 | 233.0     | (61.6)    | 233.0            | (61.6)    | 233.0     | (61.6)    | 233.0      | (61.6)   |
| Radiator coolant capacity – L (gal)                               | 144.0     | (38.0)    | 144.0            | (38.0)    | 144.0     | (38.0)    | 144.0      | (38.0)   |
| Total coolant capacity – L (gal)                                  | 377.0     | (99.6)    | 377.0            | (99.6)    | 377.0     | (99.6)    | 377.0      | (99.6)   |
| Inlet Air                                                         |           |           |                  |           |           |           |            |          |
| Combustion air inlet flow rate – m³/min (cfm)                     | 124.5     | (4396.2)  | 124.5            | (4396.2)  | 118.4     | (4179.2)  | 104.5      | (3690.0) |
| Exhaust System                                                    |           |           |                  |           |           |           |            |          |
| Exhaust stack gas temperature – °C (°F)                           | 490.3     | (914.5)   | 490.3            | (914.5)   | 488.2     | (910.7)   | 464.5      | (868.1)  |
| Exhaust gas flow rate – m³/min (cfm)                              | 333.0     | (11758.4) | 333.0            | (11758.4) | 305.1     | (10773.9) | 270.3      | (9544.6) |
| Exhaust system backpressure (maximum allowable) – kPa (in. water) | 6.7       | (27.0)    | 6.7              | (27.0)    | 6.7       | (27.0)    | 6.7        | (27.0)   |
| Heat Rejection                                                    |           |           |                  |           |           |           |            |          |
| Heat rejection to jacket water – kW (Btu/min)                     | 1051      | (59769)   | 1051             | (59769)   | 953       | (54169)   | 848        | (48226)  |
| Heat rejection to exhaust (total) – kW (Btu/min)                  | 1527      | (86838)   | 1527             | (86838)   | 1386      | (78814)   | 1206       | (68585)  |
| Heat rejection to aftercooler – kW (Btu/min)                      | 234       | (13307)   | 234              | (13307)   | 187       | (10611)   | 137        | (7791)   |
| Heat rejection to atmosphere from engine – kW (Btu/min)           | 116       | (9440)    | 116              | (9440)    | 158       | (8978)    | 149        | (8474)   |
| Heat rejection from alternator – kW (Btu/min)                     | 77        | (4385)    | 77               | (4385)    | 69        | (3913)    | 60         | (3429)   |
| Emissions* (Nominal)                                              |           |           |                  |           |           |           |            |          |
| NOx mg/Nm³ (g/hp-h)                                               | 6743.6    | (14.17)   | 6743.6           | (14.17)   | 7690.3    | (14.43)   | 7553.0     | (15.80)  |
| CO mg/Nm³ (g/hp-h)                                                | 354.7     | (0.74)    | 354.7            | (0.74)    | 324.3     | (0.67)    | 359.8      | (0.75)   |
| HC mg/Nm³ (g/hp-h)                                                | 104.2     | (0.22)    | 104.2            | (0.22)    | 82.0      | (0.20)    | 86.9       | (0.18)   |
| PM mg/Nm³ (g/hp-h)                                                | 34.1      | (0.07)    | 34.1             | (0.07)    | -         | -         | 35.5       | (0.07)   |
| Emissions* (Potential Site Variation)                             |           |           |                  |           |           |           |            |          |
| NOx mg/Nm³ (g/hp-h)                                               | 8092.3    | (17.00)   | 8092.3           | (17.00)   | 9228.4    | (17.31)   | 9063.6     | (18.96)  |
| CO mg/Nm³ (g/hp-h)                                                | 638.5     | (1.34)    | 638.5            | (1.34)    | 583.8     | (1.21)    | 647.6      | (1.35)   |
| HC mg/Nm³ (g/hp-h)                                                | 138.6     | (0.29)    | 138.6            | (0.29)    | 109.0     | (0.26)    | 115.6      | (0.24)   |
| PM mg/Nm³ (g/hp-h)                                                | 47.7      | (0.10)    | 47.7             | (0.10)    | -         | -         | 49.7       | (0.10)   |

\*mg/Nm³ levels are corrected to 5% O<sub>2</sub>. Contact your local Cat dealer for further information.

## Weights and Dimensions



| Dim "A"<br>mm (in) | Dim "B"<br>mm (in) | Dim "C"<br>mm (in) | Dry Weight<br>kg (lb) |
|--------------------|--------------------|--------------------|-----------------------|
| 5953 (234.4)       | 2286 (90.0)        | 2410 (94.9)        | 15 350 (33,840)       |

**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 rated kW. 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 rated kW. Typical peak demand up to 100% of rated kW 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 rated kW. 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.

### Continuous

Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous rated kW. Typical peak demand is 100% of continuous rated kW for 100% of the operating hours.

### Applicable Codes and Standards

AS 1359, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU and facilitates compliance to NFPA 37, NFPA 70, NFPA 99, NFPA 110.

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

### Data Center Applications

- 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 consumption reported in accordance with ISO 3046-1, 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 (7.0936 lbs/U.S. gal.) All fuel consumption values refer to rated engine power.

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 The International System of Units (SI) is used in this publication.