

# Cat® 3516B

## Diesel Generator Sets



Image shown may not reflect actual configuration.

Bore – mm (in)	170 (6.69)
Stroke – mm (in)	215 (8.46)
Displacement – L (in <sup>3</sup> )	78.1 (4765)
Compression Ratio	15.5:1
Aspiration	TA
Fuel System	EUI
Governor Type	ADEM™ A3

Mission Critical-DCP 50 Hz kVA (ekW)	Emissions Performance
2500 (2000)	Optimized for Low Fuel Consumption or Low Emissions

## Features

### Cat® Diesel Engine

- Designed and optimized for low emissions or low fuel consumption
- Reliable performance proven in thousands of applications worldwide
- Certified alternative fuels including Hydrotreated Vegetable Oil (HVO), Renewable Diesel (RD) and Hydrotreated Renewable Diesel (HRD) which meet EN 15940 or ASTM D975 can be used or blended with EN 590 diesel

### 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 mission critical-DCP 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**

- ☐ 10500V

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

- ☐ 130 °C
- ☐ 105 °C

#### **Winding type**

- ☐ Form wound

#### **Excitation**

- ☐ Permanent magnet (PM)

#### **Attachments**

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

### Power Termination

#### **Type**

- ☐ Bus bar
- ☐ IEC
- ☐ NEMA

### 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**

- ☐ 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

#### Low Fuel Consumption

Performance	Mission Critical-DCP		Mission Critical-DCP		Mission Critical-DCP	
Frequency	50 Hz		50 Hz		50 Hz	
Gen set power rating with fan	2000 ekW		2000 ekW		2000 ekW	
Gen set power rating with fan @ 0.8 power factor	2500 kVA		2500 kVA		2500 kVA	
Aftercooler (separate circuit) – °C (°F)	30	(86)	60	(140)	90	(194)
Performance number	EM6950-00		EM6951-00		EM6952-00	
Fuel Consumption						
100% load with fan – L/hr (gal/hr)	485.6	(128.3)	490.7	(129.7)	503.2	(132.9)
75% load with fan – L/hr (gal/hr)	358.7	(94.8)	363.1	(95.9)	370.0	(97.7)
50% load with fan – L/hr (gal/hr)	243.0	(64.2)	248.8	(65.7)	251.8	(66.5)
25% load with fan – L/hr (gal/hr)	139.3	(36.8)	142.0	(37.5)	141.4	(37.4)
Cooling System						
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m³/min (cfm)	1612	(56927)	1612	(56927)	1612	(56927)
Engine coolant capacity – L (gal)	233.0	(61.6)	233.0	(61.6)	233.0	(61.6)
Radiator coolant capacity – L (gal)	131.0	(34.6)	131.0	(34.6)	131.0	(34.6)
Total coolant capacity – L (gal)	364.0	(96.2)	364.0	(96.2)	364.0	(96.2)
Inlet Air						
Combustion air inlet flow rate – m³/min (cfm)	160.5	(5667.4)	155.1	(5476.7)	151.7	(5356.6)
Exhaust System						
Exhaust stack gas temperature – °C (°F)	480.8	(897.4)	510.2	(950.4)	554.3	(1029.7)
Exhaust gas flow rate – m³/min (cfm)	425.9	(15038.9)	428.0	(15113.0)	443.2	(15649.7)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
Heat Rejection						
Heat rejection to jacket water – kW (Btu/min)	626	(35600)	684	(38898)	751	(42709)
Heat rejection to exhaust (total) – kW (Btu/min)	1900	(108051)	1965	(111748)	2080	(118288)
Heat rejection to aftercooler – kW (Btu/min)	525	(29856)	452	(25705)	379	(21553)
Heat rejection to atmosphere from engine – kW (Btu/min)	142	(8075)	153	(8701)	166	(9440)
Heat rejection from alternator – kW (Btu/min)	94	(5362)	94	(5362)	94	(5362)
Emissions* (Nominal)						
NOx mg/Nm³ (g/hp-h)	2923.5	(5.94)	3256.7	(6.69)	3351.3	(7.04)
CO mg/Nm³ (g/hp-h)	232.1	(0.47)	291.2	(0.60)	387.1	(0.81)
HC mg/Nm³ (g/hp-h)	69.2	(0.14)	65.4	(0.13)	53.1	(0.11)
PM mg/Nm³ (g/hp-h)	22.5	(0.05)	32.6	(0.07)	26.8	(0.06)
Emissions* (Potential Site Variation)						
NOx mg/Nm³ (g/hp-h)	3508.2	(7.13)	3908.0	(8.02)	4021.6	(8.45)
CO mg/Nm³ (g/hp-h)	417.8	(0.85)	524.2	(1.08)	696.8	(1.46)
HC mg/Nm³ (g/hp-h)	92.0	(0.19)	87.0	(0.18)	70.6	(0.15)
PM mg/Nm³ (g/hp-h)	31.5	(0.06)	45.6	(0.09)	37.5	(0.08)

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

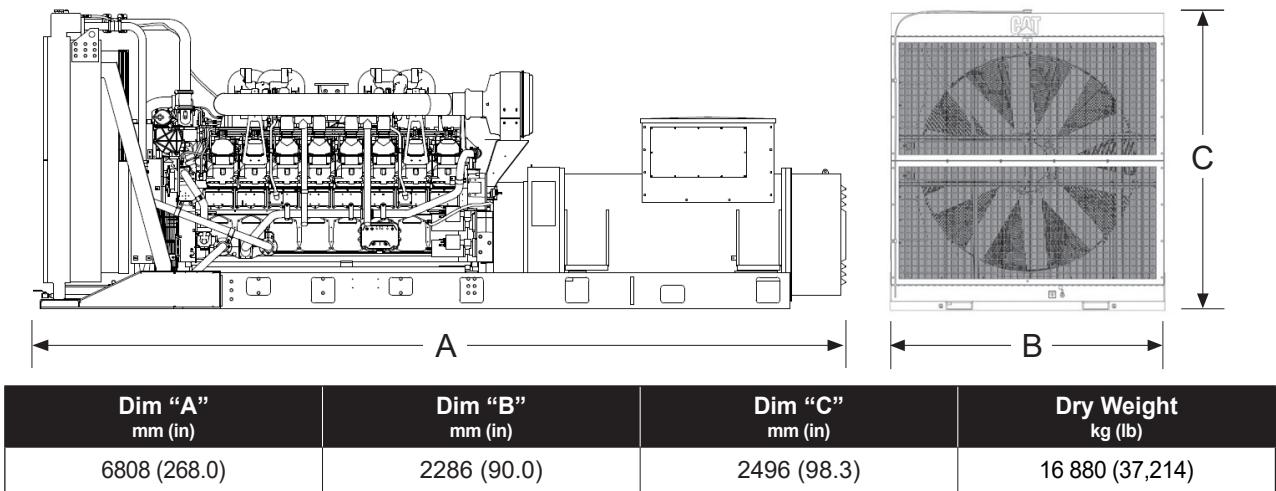
## Package Performance Low Emissions

Performance	Mission Critical-DCP		Mission Critical-DCP		Mission Critical-DCP	
Frequency	50 Hz		50 Hz		50 Hz	
Gen set power rating with fan	2000 ekW		2000 ekW		2000 ekW	
Gen set power rating with fan @ 0.8 power factor	2500 kVA		2500 kVA		2500 kVA	
Aftercooler (separate circuit) – °C (°F)	30	(86)	60	(140)	90	(194)
Performance number	EM6946-00		EM6947-00		EM6948-00	
Fuel Consumption						
100% load with fan – L/hr (gal/hr)	525.3	(143.3)	530.0	(140.0)	508.6	(134.4)
75% load with fan – L/hr (gal/hr)	396.7	(108.2)	399.2	(105.5)	383.2	(101.2)
50% load with fan – L/hr (gal/hr)	264.7	(72.2)	269.9	(71.3)	259.9	(68.7)
25% load with fan – L/hr (gal/hr)	145.3	(39.6)	147.3	(38.9)	148.7	(39.3)
Cooling System						
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m³/min (cfm)	1612	(56927)	1612	(56927)	1612	(56927)
Engine coolant capacity – L (gal)	233.0	(61.6)	233.0	(61.6)	233.0	(61.6)
Radiator coolant capacity – L (gal)	131.0	(34.6)	131.0	(34.6)	131.0	(34.6)
Total coolant capacity – L (gal)	364.0	(96.2)	364.0	(96.2)	364.0	(96.2)
Inlet Air						
Combustion air inlet flow rate – m³/min (cfm)	178.8	(6313.6)	174.3	(6154.7)	158.2	(5586.2)
Exhaust System						
Exhaust stack gas temperature – °C (°F)	511.1	(952.0)	535.3	(995.5)	540.0	(1004.0)
Exhaust gas flow rate – m³/min (cfm)	487.6	(17217.5)	490.2	(17309.3)	453.6	(16017.0)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
Heat Rejection						
Heat rejection to jacket water – kW (Btu/min)	662	(37647)	724	(41173)	759	(43164)
Heat rejection to exhaust (total) – kW (Btu/min)	2228	(126704)	2301	(130856)	2117	(120392)
Heat rejection to aftercooler – kW (Btu/min)	629	(35771)	549	(31221)	406	(23089)
Heat rejection to atmosphere from engine – kW (Btu/min)	153	(8701)	167	(9497)	175	(9952)
Heat rejection from alternator – kW (Btu/min)	94	(5362)	94	(5362)	94	(5362)
Emissions* (Nominal)						
NOx mg/Nm³ (g/hp-h)	1813.3	(3.97)	2095.4	(4.64)	3059.2	(6.50)
CO mg/Nm³ (g/hp-h)	462.8	(1.01)	560.9	(1.24)	323.3	(0.69)
HC mg/Nm³ (g/hp-h)	48.7	(0.11)	40.9	(0.09)	55.2	(0.12)
PM mg/Nm³ (g/hp-h)	42.3	(0.09)	64.4	(0.14)	12.6	(0.03)
Emissions* (Potential Site Variation)						
NOx mg/Nm³ (g/hp-h)	2176.0	(4.77)	2514.5	(5.57)	3671.0	(7.80)
CO mg/Nm³ (g/hp-h)	833.0	(1.82)	1009.6	(2.23)	581.9	(1.24)
HC mg/Nm³ (g/hp-h)	64.8	(0.14)	54.4	(0.12)	73.4	(0.16)
PM mg/Nm³ (g/hp-h)	59.2	(0.13)	90.2	(0.20)	17.6	(0.04)

\*mg/Nm³ levels are corrected to 5% O₂. Contact your local Cat dealer for further information.



Weights and Dimensions



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

Ratings Definitions

Mission Critical-DCP

For data center applications only, continuous power output is available for unlimited time, for the duration of the outage. Average power output is not to exceed 100% of Mission Critical-DCP rated kW. Typical peak demand is 100% of the Mission Critical-DCP rated kW. No overload is available. Mission Critical-DCP rated generator sets are not permitted to operate whilst paralleled to the utility.

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

- ISO 8528-1 Data Center Power (DCP) compliant per Cat diesel generator set mission critical-DCP 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 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.