

# Cat® 3516B

## 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	14.0:1
Aspiration	TA
Fuel System	EUI
Governor Type	ADEM™ A3

Prime-DCP 50 Hz kVA (ekW)	Emissions Performance
2000 (1600)	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

#### 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

- 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

- ISO 9001
- ISO 14001
- CE
- VDE

**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	Prime-DCP		Prime-DCP		Prime-DCP	
Frequency	50 Hz		50 Hz		50 Hz	
Gen set power rating with fan	1600 ekW		1600 ekW		1600 ekW	
Gen set power rating with fan @ 0.8 power factor	2000 kVA		2000 kVA		2000 kVA	
Emissions	Low Fuel		Low Fuel		Low Fuel	
Performance number	EM5861-00		EM5862-00		EM5863-00	
Aftercooler (separate circuit) – °C (°F)	30	(86)	60	(140)	90	(194)
<b>Fuel Consumption</b>						
100% load with fan – L/hr (gal/hr)	380.0	(100.4)	384.5	(101.6)	393.7	(103.1)
75% load with fan – L/hr (gal/hr)	288.0	(76.1)	291.4	(77.0)	299.3	(78.3)
50% load with fan – L/hr (gal/hr)	202.2	(53.4)	205.0	(54.1)	211.0	(54.9)
25% load with fan – L/hr (gal/hr)	119.5	(31.6)	121.2	(32.0)	125.9	(32.5)
<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)	2083	(73560)	2083	(73560)	2083	(73560)
Engine coolant capacity – L (gal)	233.0	(61.6)	233.0	(61.6)	233.0	(61.6)
Radiator coolant capacity – L (gal)	128.7	(34.0)	128.7	(34.0)	128.7	(34.0)
Total coolant capacity – L (gal)	361.7	(95.6)	361.7	(95.6)	361.7	(95.6)
<b>Inlet Air</b>						
Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)	125.9	(4445.6)	122.4	(4320.3)	119.9	(4209.0)
<b>Exhaust System</b>						
Exhaust stack gas temperature – °C (°F)	442.9	(829.2)	476.2	(889.1)	509.8	(948.0)
Exhaust gas flow rate – m <sup>3</sup> /min (cfm)	315.1	(11126.2)	321.2	(11340.6)	330.1	(11571.1)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
<b>Heat Rejection</b>						
Heat rejection to jacket water – kW (Btu/min)	593	(33724)	624	(35501)	666	(37646)
Heat rejection to exhaust (total) – kW (Btu/min)	1378	(78365)	1446	(82224)	1527	(86099)
Heat rejection to aftercooler – kW (Btu/min)	361	(20529)	299	(17023)	250	(13990)
Heat rejection to atmosphere from engine – kW (Btu/min)	129	(7337)	138	(7850)	150	(8531)
Heat rejection from alternator – kW (Btu/min)	63	(3583)	63	(3583)	63	(3583)
<b>Emissions* (Nominal)</b>						
NOx mg/Nm <sup>3</sup> (g/hp-h)	3894.0	(7.68)	4265.1	(8.49)	4387.9	(8.87)
CO mg/Nm <sup>3</sup> (g/hp-h)	182.5	(0.36)	206.6	(0.41)	249.8	(0.51)
HC mg/Nm <sup>3</sup> (g/hp-h)	58.1	(0.11)	58.2	(0.12)	52.5	(0.11)
PM mg/Nm <sup>3</sup> (g/hp-h)	24.0	(0.05)	22.7	(0.05)	21.1	(0.04)
<b>Emissions* (Potential Site Variation)</b>						
NOx mg/Nm <sup>3</sup> (g/hp-h)	4672.8	(9.21)	5118.1	(10.19)	5265.5	(10.65)
CO mg/Nm <sup>3</sup> (g/hp-h)	328.5	(0.65)	371.9	(0.74)	449.6	(0.91)
HC mg/Nm <sup>3</sup> (g/hp-h)	77.3	(0.15)	77.4	(0.15)	69.8	(0.14)
PM mg/Nm <sup>3</sup> (g/hp-h)	33.6	(0.07)	31.8	(0.06)	29.5	(0.06)

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

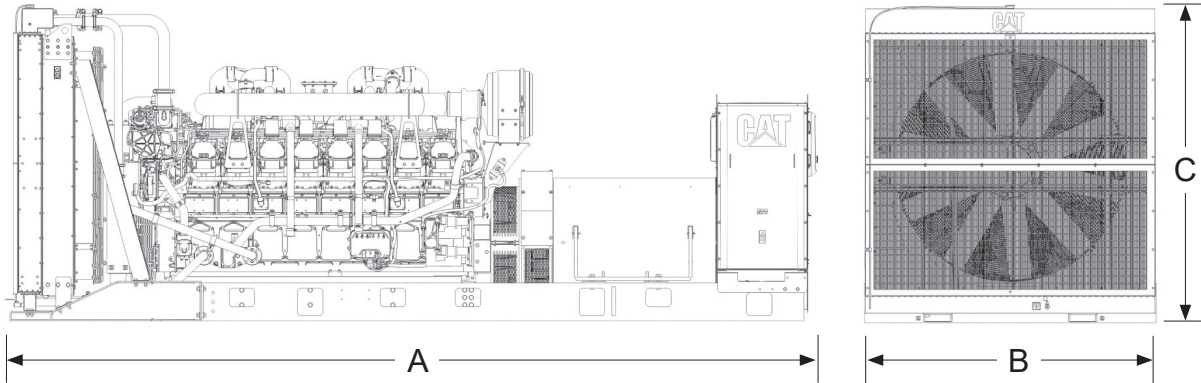
## Package Performance

### Low Emissions

Performance	Prime-DCP		Prime-DCP		Prime-DCP	
Frequency	50 Hz		50 Hz		50 Hz	
Gen set power rating with fan	1600 ekW		1600 ekW		1600 ekW	
Gen set power rating with fan @ 0.8 power factor	2000 kVA		2000 kVA		2000 kVA	
Emissions	Low Emissions		Low Emissions		Low Emissions	
Performance number	EM5864-00		EM5865-00		EM5866-00	
Aftercooler (separate circuit) – °C (°F)	30	(86)	60	(140)	90	(194)
<b>Fuel Consumption</b>						
100% load with fan – L/hr (gal/hr)	427.9	(113.0)	412.7	(109.0)	395.5	(104.5)
75% load with fan – L/hr (gal/hr)	317.1	(83.8)	305.9	(80.8)	298.4	(78.8)
50% load with fan – L/hr (gal/hr)	212.2	(56.0)	211.0	(55.7)	208.2	(54.9)
25% load with fan – L/hr (gal/hr)	121.1	(32.0)	119.9	(31.7)	122.5	(32.4)
<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)	2083	(73560)	2083	(73560)	2083	(73560)
Engine coolant capacity – L (gal)	233.0	(61.6)	233.0	(61.6)	233.0	(61.6)
Radiator coolant capacity – L (gal)	128.7	(34.0)	128.7	(34.0)	128.7	(34.0)
Total coolant capacity – L (gal)	361.7	(95.6)	361.7	(95.6)	361.7	(95.6)
<b>Inlet Air</b>						
Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)	142.8	(5042.3)	132.6	(4682.1)	122.2	(4314.9)
<b>Exhaust System</b>						
Exhaust stack gas temperature – °C (°F)	487.0	(908.6)	492.8	(919.0)	515.6	(960.1)
Exhaust gas flow rate – m <sup>3</sup> /min (cfm)	378.8	(13375.5)	357.0	(12605.7)	336.8	(11892.4)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
<b>Heat Rejection</b>						
Heat rejection to jacket water – kW (Btu/min)	650	(36965)	660	(37534)	670	(38102)
Heat rejection to exhaust (total) – kW (Btu/min)	1709	(97187)	1625	(92410)	1566	(89055)
Heat rejection to aftercooler – kW (Btu/min)	487	(27693)	385	(21894)	257	(14615)
Heat rejection to atmosphere from engine – kW (Btu/min)	147	(8360)	152	(8643)	151	(8587)
Heat rejection from alternator – kW (Btu/min)	63	(3583)	63	(3583)	63	(3583)
<b>Emissions* (Nominal)</b>						
NOx mg/Nm <sup>3</sup> (g/hp-h)	1461.9	(3.24)	2180.1	(4.67)	3791.1	(7.76)
CO mg/Nm <sup>3</sup> (g/hp-h)	108.8	(0.24)	126.0	(0.27)	205.2	(0.42)
HC mg/Nm <sup>3</sup> (g/hp-h)	94.0	(0.21)	74.2	(0.16)	58.4	(0.12)
PM mg/Nm <sup>3</sup> (g/hp-h)	26.4	(0.06)	18.3	(0.04)	23.7	(0.05)
<b>Emissions* (Potential Site Variation)</b>						
NOx mg/Nm <sup>3</sup> (g/hp-h)	1754.3	(3.89)	2616.1	(5.61)	4549.3	(9.31)
CO mg/Nm <sup>3</sup> (g/hp-h)	195.8	(0.43)	226.8	(0.49)	369.4	(0.76)
HC mg/Nm <sup>3</sup> (g/hp-h)	125.0	(0.28)	98.7	(0.21)	77.7	(0.16)
PM mg/Nm <sup>3</sup> (g/hp-h)	37.0	(0.08)	25.6	(0.05)	33.2	(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



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
5957 (234.5)	2286 (90.0)	2494 (98.2)	15 630 (34,460)

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

## Ratings Definitions

### Prime-DCP

For data center applications only. Prime-DCP power output available with varying load for unlimited time. Average power output is not to exceed 100% of prime-DCP rated kW. Typical peak demand is 100% of the prime-DCP 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, 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 prime-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.

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

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