

# Cat® 3512B

## Diesel Generator Sets



|                                     |                |
|-------------------------------------|----------------|
| Bore – mm (in)                      | 170 (6.69)     |
| Stroke – mm (in)                    | 190 (7.48)     |
| Displacement – L (in <sup>3</sup> ) | 51.8 (3161.03) |
| Compression Ratio                   | 14.0:1         |
| Aspiration                          | TA             |
| Fuel System                         | EUI            |
| Governor Type                       | ADEM™ A3       |

Image shown may not reflect actual configuration

| Prime-DCP<br>60 Hz ekW (kVA) | Emissions Performance                                  |
|------------------------------|--|
| 1275 (1593)                  | Optimized for Low Fuel Consumption<br>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-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

#### Muffler

- Industrial grade (15 dB)

#### Starting

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

### Alternator

#### Output voltage

- 380V
- 480V

#### 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
- 2500A
- 3200A
- 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

### 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

**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   | 60 Hz     |           | 60 Hz     |           | 60 Hz     |           |
| Gen set power rating with fan                                     | 1275 ekW  |           | 1275 ekW  |           | 1275 ekW  |           |
| Gen set power rating with fan @ 0.8 power factor                  | 1594 kVA  |           | 1594 kVA  |           | 1594 kVA  |           |
| Emissions   | Low Fuel  |           | Low Fuel  |           | Low Fuel  |           |
| Performance number  | EM5943-00 |           | EM5944-00 |           | EM5945-00 |           |
| Aftercooler (separate circuit) – °C (°F)                          | 30        | (86)      | 60        | (140)     | 90        | (194)     |
| <b>Fuel Consumption</b>   |           |           |           |           |           |           |
| 100% load with fan – L/hr (gal/hr)                                | 331.0     | (87.4)    | 333.3     | (88.1)    | 336.2     | (88.8)    |
| 75% load with fan – L/hr (gal/hr)                                 | 246.9     | (65.2)    | 248.0     | (65.5)    | 248.7     | (65.7)    |
| 50% load with fan – L/hr (gal/hr)                                 | 172.6     | (45.6)    | 175.4     | (46.3)    | 177.4     | (46.9)    |
| 25% load with fan – L/hr (gal/hr)                                 | 108.0     | (28.5)    | 108.6     | (28.6)    | 110.3     | (29.1)    |
| <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)                     | 1611      | (56892)   | 1611      | (56892)   | 1611      | (56892)   |
| Engine coolant capacity – L (gal)                                 | 156.8     | (41.4)    | 156.8     | (41.4)    | 156.8     | (41.4)    |
| Radiator coolant capacity – L (gal)                               | 149.0     | (39.4)    | 149.0     | (39.4)    | 149.0     | (39.4)    |
| Total coolant capacity – L (gal)                                  | 305.8     | (80.8)    | 305.8     | (80.8)    | 305.8     | (80.8)    |
| <b>Inlet Air</b>  |           |           |           |           |           |           |
| Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)        | 120.2     | (4244.3)  | 118.8     | (4194.9)  | 116.6     | (4117.2)  |
| <b>Exhaust System</b>   |           |           |           |           |           |           |
| Exhaust stack gas temperature – °C (°F)                           | 416.2     | (781.2)   | 436.2     | (817.2)   | 459.9     | (859.8)   |
| Exhaust gas flow rate – m <sup>3</sup> /min (cfm)                 | 291.3     | (10285.9) | 296.4     | (10466.0) | 300.7     | (10617.8) |
| 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)                     | 532       | (30254)   | 559       | (31789)   | 591       | (33609)   |
| Heat rejection to exhaust (total) – kW (Btu/min)                  | 1217      | (69209)   | 1259      | (71597)   | 1308      | (74383)   |
| Heat rejection to aftercooler – kW (Btu/min)                      | 376       | (21382)   | 317       | (18027)   | 269       | (15298)   |
| Heat rejection to atmosphere from engine – kW (Btu/min)           | 116       | (6597)    | 124       | (7052)    | 136       | (7735)    |
| Heat rejection from alternator – kW (Btu/min)                     | 64        | (3657)    | 64        | (3657)    | 64        | (3657)    |
| <b>Emissions* (Nominal)</b>                                       |           |           |           |           |           |           |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 2732.3    | (5.81)    | 3361.9    | (7.19)    | 4152.9    | (8.97)    |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 700.8     | (1.49)    | 687.4     | (1.47)    | 667.4     | (1.44)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 128.8     | (0.27)    | 126.5     | (0.27)    | 123.1     | (0.27)    |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 63.3      | (0.13)    | 49.4      | (0.11)    | 41.8      | (0.09)    |
| <b>Emissions* (Potential Site Variation)</b>                      |           |           |           |           |           |           |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 3278.8    | (6.97)    | 4034.4    | (8.63)    | 4983.5    | (10.77)   |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 1261.5    | (2.68)    | 1237.3    | (2.65)    | 1201.3    | (2.60)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 171.3     | (0.36)    | 168.2     | (0.36)    | 163.7     | (0.35)    |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 88.6      | (0.19)    | 69.2      | (0.15)    | 58.5      | (0.13)    |

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

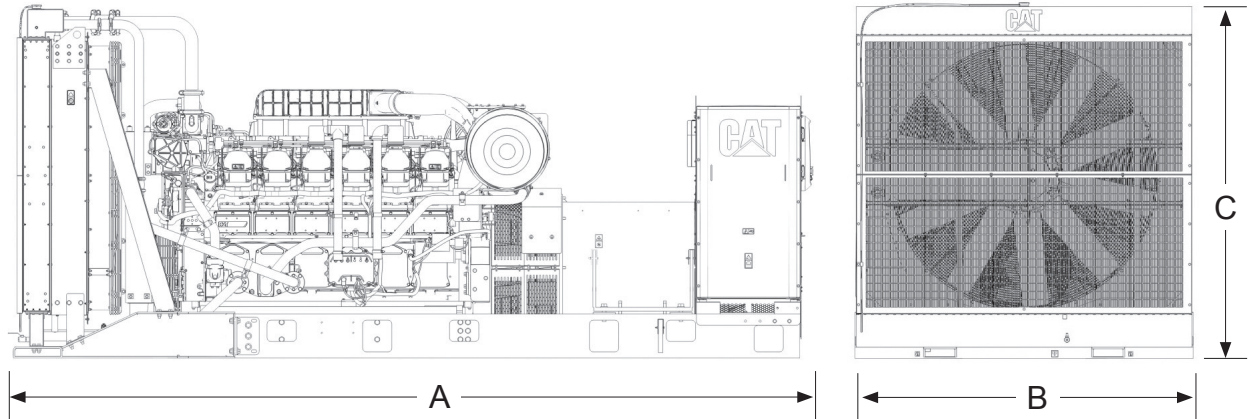
## Package Performance

### Low Emissions

| Performance   | Prime-DCP     |           | Prime-DCP     |           | Prime-DCP     |           |
|---|---------------|-----------|---------------|-----------|---------------|-----------|
| Frequency   | 60 Hz         |           | 60 Hz         |           | 60 Hz         |           |
| Gen set power rating with fan                                     | 1275 ekW      |           | 1275 ekW      |           | 1275 ekW      |           |
| Gen set power rating with fan @ 0.8 power factor                  | 1594 kVA      |           | 1594 kVA      |           | 1594 kVA      |           |
| Emissions   | Low Emissions |           | Low Emissions |           | Low Emissions |           |
| Performance number  | EM5946-00     |           | EM5947-00     |           | EM5948-00     |           |
| Aftercooler (separate circuit) – °C (°F)                          | 30            | (86)      | 60            | (140)     | 90            | (194)     |
| <b>Fuel Consumption</b>   |               |           |               |           |               |           |
| 100% load with fan – L/hr (gal/hr)                                | 357.1         | (94.4)    | 345.6         | (91.3)    | 335.3         | (88.6)    |
| 75% load with fan – L/hr (gal/hr)                                 | 262.8         | (69.5)    | 261.5         | (69.1)    | 264.3         | (69.8)    |
| 50% load with fan – L/hr (gal/hr)                                 | 178.4         | (47.1)    | 178.2         | (47.1)    | 189.8         | (50.1)    |
| 25% load with fan – L/hr (gal/hr)                                 | 110.3         | (29.1)    | 109.3         | (28.8)    | 115.6         | (30.5)    |
| <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)                     | 1611          | (56892)   | 1611          | (56892)   | 1611          | (56892)   |
| Engine coolant capacity – L (gal)                                 | 156.8         | (41.4)    | 156.8         | (41.4)    | 156.8         | (41.4)    |
| Radiator coolant capacity – L (gal)                               | 149.0         | (39.4)    | 149.0         | (39.4)    | 149.0         | (39.4)    |
| Total coolant capacity – L (gal)                                  | 305.8         | (80.8)    | 305.8         | (80.8)    | 305.8         | (80.8)    |
| <b>Inlet Air</b>  |               |           |               |           |               |           |
| Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)        | 130.0         | (4590.4)  | 124.9         | (4410.3)  | 116.4         | (4110.1)  |
| <b>Exhaust System</b>   |               |           |               |           |               |           |
| Exhaust stack gas temperature – °C (°F)                           | 446.3         | (835.3)   | 441.1         | (826.0)   | 457.2         | (855.0)   |
| Exhaust gas flow rate – m <sup>3</sup> /min (cfm)                 | 328.5         | (11599.4) | 313.5         | (11069.8) | 299.2         | (10564.8) |
| 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)                     | 561           | (31902)   | 578           | (32871)   | 593           | (33723)   |
| Heat rejection to exhaust (total) – kW (Btu/min)                  | 1397          | (79445)   | 1356          | (77112)   | 1314          | (74725)   |
| Heat rejection to aftercooler – kW (Btu/min)                      | 437           | (24851)   | 358           | (20358)   | 271           | (15411)   |
| Heat rejection to atmosphere from engine – kW (Btu/min)           | 126           | (7166)    | 133           | (7563)    | 137           | (7791)    |
| Heat rejection from alternator – kW (Btu/min)                     | 64            | (3657)    | 64            | (3657)    | 64            | (3657)    |
| <b>Emissions* (Nominal)</b>                                       |               |           |               |           |               |           |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 1962.6        | (4.50)    | 2768.8        | (6.16)    | 4290.7        | (9.24)    |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 702.0         | (1.61)    | 695.6         | (1.55)    | 668.9         | (1.44)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 129.0         | (0.30)    | 127.9         | (0.28)    | 123.3         | (0.27)    |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 86.6          | (0.20)    | 59.8          | (0.13)    | 42.0          | (0.09)    |
| <b>Emissions* (Potential Site Variation)</b>                      |               |           |               |           |               |           |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 2355.1        | (5.40)    | 3322.5        | (7.39)    | 5148.8        | (11.09)   |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 1263.6        | (2.90)    | 1252.1        | (2.79)    | 1204.0        | (2.59)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 171.6         | (0.39)    | 170.1         | (0.38)    | 164.0         | (0.35)    |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 121.2         | (0.28)    | 83.7          | (0.19)    | 58.8          | (0.13)    |

\*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"<br>mm (in) | Dim "B"<br>mm (in) | Dim "C"<br>mm (in) | Dry Weight<br>kg (lb) |
|--------------------|--------------------|--------------------|-----------------------|
| 5279 (207.8)       | 2286 (90.0)        | 2409 (94.9)        | 11 021 (24,297)       |

**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, CSA C22.2 No. 100-04, UL 142, UL 489, UL 869, UL 2200, 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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