

# Cat® C175-20

## Diesel Generator Sets



Image shown may not reflect actual configuration

|                                     |                 |
|-------------------------------------|-----------------|
| Bore – mm (in)                      | 175 (6.89)      |
| Stroke – mm (in)                    | 220 (8.66)      |
| Displacement – L (in <sup>3</sup> ) | 105.8 (6456.31) |
| Compression Ratio                   | 15.3:1          |
| Aspiration                          | TA              |
| Fuel System                         | Common Rail     |
| Governor Type                       | ADEM™ A4        |

| Standby<br>60 Hz ekW (kVA) | Mission Critical<br>60 Hz ekW (kVA) | Prime<br>60 Hz ekW (kVA) | Continuous<br>60 Hz ekW (kVA) | Emissions Performance              |
|----------------------------|-------------------------------------|--------------------------|-------------------------------|------------------------------------|
| 4000 (5000)                | 4000 (5000)                         | 3600 (4500)              | 3250 (4062)                   | Optimized for Low Fuel Consumption |

### Standard 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 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

#### 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

## Optional Equipment

### Engine

#### Air Cleaner

- Single element

#### Muffler

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

#### Starting

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

### Alternator

#### Output voltage

- 4160V     12470V
- 6300V     13200V
- 6600V     13800V
- 6900V

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

- 150°C
- 125°C/130°C
- 105°C
- 80°C

#### Winding type

- Form wound

#### Excitation

- Permanent magnet (PM)

#### Attachments

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

### Control System

#### Controller

- EMCP 4.2B
- EMCP 4.3

#### Attachments

- Local annunciator module
- Remote annunciator module
- Expansion I/O module
- Remote monitoring software

### Charging

- Battery charger – 20A
- Battery charger – 35A
- Battery charger – 50A

### 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

- UL2200
- CSA
- IBC seismic certification
- OSHPD pre-approval

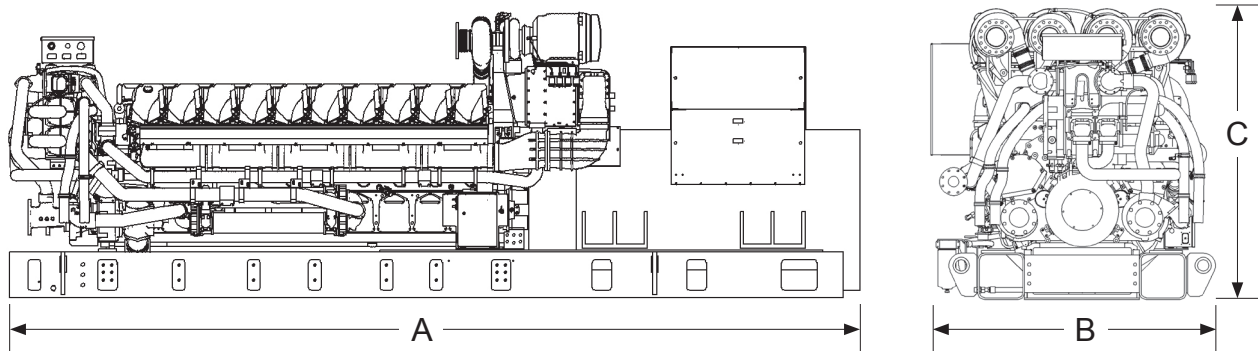
**Note:** Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.

## Package Performance

| Performance   | Standby         | Mission Critical | Prime           | Continuous      |
|---|-----------------|------------------|-----------------|-----------------|
| Frequency   | 60 Hz           | 60 Hz            | 60 Hz           | 60 Hz           |
| Gen set power rating without fan                                  | 4000 ekW        | 4000 ekW         | 3600 ekW        | 3250 ekW        |
| Gen set power rating without fan @ 0.8 power factor               | 5000 kVA        | 5000 kVA         | 4500 kVA        | 4062 kVA        |
| Emissions   | Low Fuel        | Low Fuel         | Low Fuel        | Low Fuel        |
| Performance number  | DM8857-02       | EM0373-01        | DM8858-03       | DM8859-02       |
| <b>Fuel Consumption</b>   |                 |                  |                 |                 |
| 100% load without fan – L/hr (gal/hr)                             | 1038.8 (274.4)  | 1038.8 (274.4)   | 922.4 (243.7)   | 824.7 (217.9)   |
| 75% load without fan – L/hr (gal/hr)                              | 739.3 (195.3)   | 739.3 (195.3)    | 667.8 (176.4)   | 607.1 (160.4)   |
| 50% load without fan – L/hr (gal/hr)                              | 518.9 (137.1)   | 518.9 (137.1)    | 471.8 (124.6)   | 434.2 (114.7)   |
| 25% load without fan – L/hr (gal/hr)                              | 290.1 (76.6)    | 290.1 (76.6)     | 266.1 (70.3)    | 247.0 (65.3)    |
| <b>Cooling System</b>   |                 |                  |                 |                 |
| Radiator coolant capacity – L (gal)                               | 440.0 (116.2)   | 440.0 (116.2)    | 440.0 (116.2)   | 440.0 (116.2)   |
| <b>Inlet Air</b>  |                 |                  |                 |                 |
| Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)        | 338.3 (11946.4) | 338.3 (11946.4)  | 309.5 (10927.6) | 277.0 (9780.1)  |
| <b>Exhaust System</b>   |                 |                  |                 |                 |
| Exhaust stack gas temperature – °C (°F)                           | 479.1 (894.5)   | 479.1 (894.5)    | 458.0 (856.4)   | 459.7 (859.5)   |
| Exhaust gas flow rate – m <sup>3</sup> /min (cfm)                 | 870.3 (30730.2) | 870.3 (30730.2)  | 775.3 (27376.3) | 694.0 (24504.8) |
| Exhaust system backpressure (maximum allowable) – kPa (in. water) | 6.7 (27.0)      | 6.7 (27.0)       | 6.7 (27.0)      | 6.7 (27.0)      |
| <b>Heat Rejection</b>   |                 |                  |                 |                 |
| Heat rejection to jacket water – kW (Btu/min)                     | 2123 (120753)   | 2124 (120785)    | 1857 (105629)   | 1641 (93325)    |
| Heat rejection to exhaust (total) – kW (Btu/min)                  | 3956 (224969)   | 3957 (225032)    | 3459 (196692)   | 3099 (176224)   |
| Heat rejection to aftercooler – kW (Btu/min)                      | 438 (24931)     | 438 (24931)      | 437 (24874)     | 282 (16051)     |
| Heat rejection to atmosphere from engine – kW (Btu/min)           | 207 (11748)     | 207 (11749)      | 194 (11017)     | 189 (10750)     |
| Heat rejection from alternator – kW (Btu/min)                     | 171 (9725)      | 171 (9725)       | 158 (8974)      | 143 (8104)      |
| <b>Emissions* (Nominal)</b>                                       |                 |                  |                 |                 |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 2381 (5.26)     | 2381 (5.26)      | 2816.7 (5.57)   | 3136 (6.64)     |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 225.6 (0.50)    | 225.6 (0.50)     | 303.2 (0.63)    | 326.8 (0.68)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 70.8 (0.18)     | 70.8 (0.18)      | 69.9 (0.17)     | 70.2 (0.16)     |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 14.0 (0.04)     | 14.0 (0.04)      | 18.2 (0.04)     | 23.5 (0.06)     |
| <b>Emissions* (Potential Site Variation)</b>                      |                 |                  |                 |                 |
| NOx mg/Nm <sup>3</sup> (g/hp-h)                                   | 2857.2 (6.31)   | 2857.2 (6.31)    | 3380.0 (6.69)   | 3763.2 (7.97)   |
| CO mg/Nm <sup>3</sup> (g/hp-h)                                    | 406.1 (0.90)    | 406.1 (0.90)     | 545.8 (1.13)    | 588.3 (1.22)    |
| HC mg/Nm <sup>3</sup> (g/hp-h)                                    | 94.2 (0.24)     | 94.2 (0.24)      | 92.9 (0.22)     | 93.4 (0.22)     |
| PM mg/Nm <sup>3</sup> (g/hp-h)                                    | 19.6 (0.05)     | 19.6 (0.05)      | 25.5 (0.06)     | 33.0 (0.08)     |

\*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) |
|--------------------|--------------------|--------------------|-----------------------|
| 6643 (261.5)       | 2170 (85.4)        | 2224 (87.6)        | 25 000 (55,100)       |

**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 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.

### Continuous

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

### Applicable Codes and Standards

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, 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

Tier III/Tier IV compliant per Uptime Institute requirements. 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.)

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