# Cat® C175-16
## Diesel Generator Sets

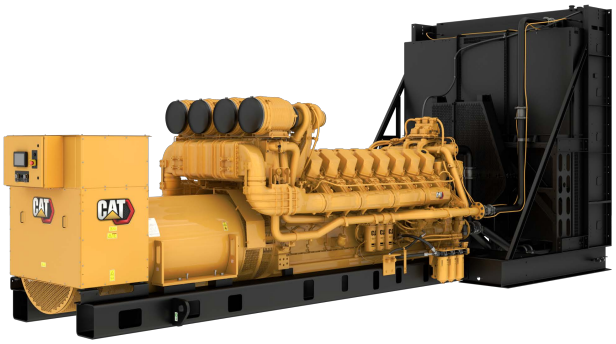


Image shown may not reflect actual configuration

| | |
|---|---|
| Bore – mm (in) | 175 (6.89) |
| Stroke – mm (in) | 220 (8.66) |
| Displacement – L ($in^3$) | 84.7 (5167) |
| Compression Ratio | 16.7:1 |
| 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 |
|---|---|---|---|---|
| 3000 (3750) | 3000 (3750) | 2725 (3406) | 2500 (3125) | U.S. EPA Stationary Emergency Use Only (Tier 2) |

## Features

### Cat® Diesel Engine
- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emission standards
- 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

### Cat Energy Control System (ECS)
- 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
- Graphical touchscreen display
- Easily upgradeable

### 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

***Muffler***
- ❑ Industrial grade (15 dB)
- ❑ Residential grade (25 dB)
- ❑ Critical grade (34 dB)

***Starting***
- ❑ Standard batteries
- ❑ Oversized batteries
- ❑ Standard electric starter(s)
- ❑ Dual electric starter(s)
- ❑ Air starter(s)
- ❑ Jacket water heater

## Alternator

***Output voltage***
- ❑ 480V ❑ 6900V
- ❑ 600V ❑ 12470V
- ❑ 4160V ❑ 13200V
- ❑ 6300V ❑ 13800V
- ❑ 6600V

***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

## Power Termination

***Type***
- ❑ Bus bar
- ❑ Circuit breaker
- ❑ 4000A ❑ 5000A
- ❑ UL ❑ IEC
- ❑ 3-pole
- ❑ Electrically operated

***Trip Unit***
- ❑ LSI ❑ LSI-G
- ❑ LSIG-P

## Control System

***Controller***
- ❑ Cat ECS 100
- ❑ Cat ECS 200
- ❑ 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

## Telematics

***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

- ❑ ULC 2200 Listed
- ❑ 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 | |
| Genset power rating with fan | 3000 ekW | | 3000 ekW | | 2725 ekW | | 2500 ekW | |
| Genset power rating with fan @ 0.8 power factor | 3750 kVA | | 3750 kVA | | 3406 kVA | | 3125 kVA | |
| Emissions | EPA ESE (Tier 2) | | EPA ESE (Tier 2) | | EPA ESE (Tier 2) | | EPA ESE (Tier 2) | |
| Performance number | DM8448-17 | | DM9226-09 | | DM8449-10 | | DM8450-08 | |
| **Fuel Consumption** | | | | | | | | |
| 100% load with fan – L/hr (gal/hr) | 784.9 | (207.3) | 784.9 | (207.3) | 700.7 | (185.1) | 641.4 | (169.4) |
| 75% load with fan – L/hr (gal/hr) | 605.9 | (160.1) | 605.9 | (160.1) | 552.8 | (146.0) | 509.4 | (134.6) |
| 50% load with fan – L/hr (gal/hr) | 477.8 | (126.2) | 477.8 | (126.2) | 447.3 | (118.2) | 421.1 | (111.2) |
| 25% load with fan – L/hr (gal/hr) | 295.2 | (78.0) | 295.2 | (78.0) | 285.7 | (75.5) | 269.4 | (71.2) |
| **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 – $m^3$/min (cfm) | 2933 | (103578) | 2933 | (103578) | 2933 | (103578) | 2933 | (103578) |
| Engine coolant capacity – L (gal) | 303.5 | (80.2) | 303.5 | (80.2) | 303.5 | (80.2) | 303.5 | (80.2) |
| Radiator coolant capacity – L (gal) | 632.0 | (166.0) | 632.0 | (166.0) | 632.0 | (166.0) | 632.0 | (166.0) |
| Total coolant capacity – L (gal) | 935.5 | (246.2) | 935.5 | (246.2) | 935.5 | (246.2) | 935.5 | (246.2) |
| **Inlet Air** | | | | | | | | |
| Combustion air inlet flow rate – $m^3$/min (cfm) | 276.7 | (9772.2) | 276.7 | (9772.2) | 249.0 | (8790.7) | 233.4 | (8241.9) |
| **Exhaust System** | | | | | | | | |
| Exhaust stack gas temperature – °C (°F) | 477.7 | (891.9) | 477.7 | (891.9) | 460.9 | (861.5) | 444.1 | (831.4) |
| Exhaust gas flow rate – $m^3$/min (cfm) | 725.6 | (25620.0) | 725.6 | (25620.0) | 634.0 | (22388.6) | 579.4 | (20460.1) |
| 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) | 1373 | (78059) | 1373 | (78059) | 1248 | (70951) | 1161 | (66018) |
| Heat rejection to exhaust (total) – kW (Btu/min) | 3134 | (178226) | 3134 | (178226) | 2726 | (155037) | 2494 | (141849) |
| Heat rejection to aftercooler – kW (Btu/min) | 492 | (27992) | 492 | (27992) | 391 | (22254) | 349 | (19848) |
| Heat rejection to atmosphere from engine – kW (Btu/min) | 146 | (8307) | 146 | (8307) | 170 | (9645) | 165 | (9390) |
| Heat rejection from alternator – kW (Btu/min) | 112 | (6369) | 112 | (6369) | 99 | (5619) | 112 | (6386) |
| **Emissions* (Nominal)** | | | | | | | | |
| $NO_x$ mg/$Nm^3$ (g/hp-h) | 3103.2 | (6.07) | 3103.2 | (6.07) | 3313.2 | (6.33) | 3260.4 | (6.12) |
| CO mg/$Nm^3$ (g/hp-h) | 149.2 | (0.34) | 149.2 | (0.34) | 184.9 | (0.41) | 222.9 | (0.48) |
| HC mg/$Nm^3$ (g/hp-h) | 15.7 | (0.04) | 15.7 | (0.04) | 16.4 | (0.04) | 16.8 | (0.04) |
| PM mg/$Nm^3$ (g/hp-h) | 10.0 | (0.03) | 10.0 | (0.03) | 15.1 | (0.04) | 15.2 | (0.04) |
| **Emissions* (Potential Site Variation)** | | | | | | | | |
| $NO_x$ mg/$Nm^3$ (g/hp-h) | 3723.8 | (7.29) | 3723.8 | (7.29) | 3975.8 | (7.59) | 3912.5 | (7.34) |
| CO mg/$Nm^3$ (g/hp-h) | 268.6 | (0.60) | 268.6 | (0.60) | 332.8 | (0.73) | 401.1 | (0.87) |
| HC mg/$Nm^3$ (g/hp-h) | 20.9 | (0.06) | 20.9 | (0.06) | 21.8 | (0.06) | 22.3 | (0.06) |
| PM mg/$Nm^3$ (g/hp-h) | 14.0 | (0.04) | 14.0 | (0.04) | 21.1 | (0.05) | 21.3 | (0.05) |

**mg/$Nm^3$ levels are corrected to 5% $O_2$. Data must not be used for emissions permitting purposes, contact your Cat dealer for the latest applicable emissions data and for details on measurement standards and procedures.*

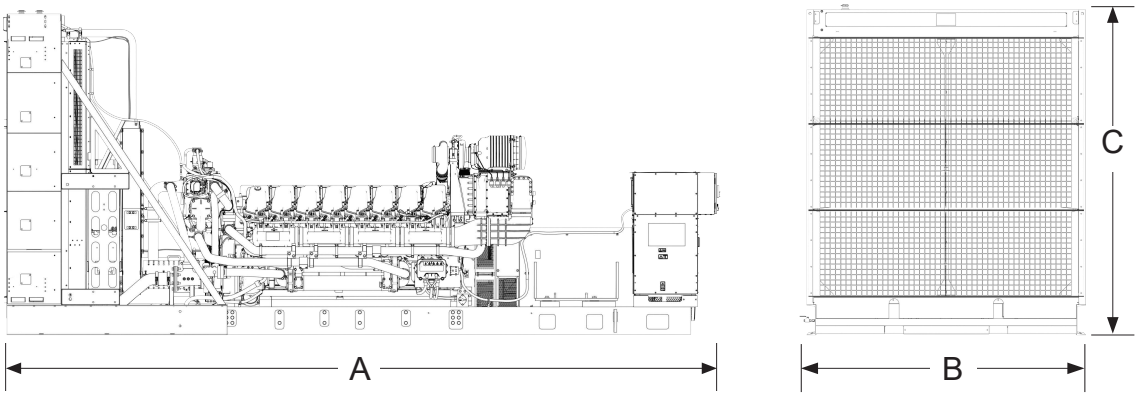
## Package Performance (High Altitude)

| Performance | Standby | | Mission Critical | | Prime | |
|---|---|---|---|---|---|---|
| Frequency | 60 Hz | | 60 Hz | | 60 Hz | |
| Genset power rating with fan | 3000 ekW | | 3000 ekW | | 2725 ekW | |
| Genset power rating with fan @ 0.8 power factor | 3750 kVA | | 3750 kVA | | 3406 kVA | |
| Emissions | EPA ESE (Tier 2) | | EPA ESE (Tier 2) | | EPA ESE (Tier 2) | |
| Performance number | EM5781-06 | | EM5958-05 | | EM5783-04 | |
| **Fuel Consumption** | | | | | | |
| 100% load with fan – L/hr (gal/hr) | 747.2 | (197.4) | 747.2 | (197.4) | 695.2 | (183.7) |
| 75% load with fan – L/hr (gal/hr) | 619.9 | (163.8) | 619.9 | (163.8) | 564.8 | (149.2) |
| 50% load with fan – L/hr (gal/hr) | 447.1 | (118.1) | 447.1 | (118.1) | 411.6 | (108.7) |
| 25% load with fan – L/hr (gal/hr) | 256.8 | (67.8) | 256.8 | (67.8) | 240.3 | (63.5) |
| **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 – $m^3$/min (cfm) | 2933 | (103578) | 2933 | (103578) | 2933 | (103578) |
| Engine coolant capacity – L (gal) | 303.5 | (80.2) | 303.5 | (80.2) | 303.5 | (80.2) |
| Radiator coolant capacity – L (gal) | 632.0 | (166.0) | 632.0 | (166.0) | 632.0 | (166.0) |
| Total coolant capacity – L (gal) | 935.5 | (246.2) | 935.5 | (246.2) | 935.5 | (246.2) |
| **Inlet Air** | | | | | | |
| Combustion air inlet flow rate – $m^3$/min (cfm) | 254.8 | (9005.8) | 254.8 | (9005.8) | 245.9 | (8681.9) |
| **Exhaust System** | | | | | | |
| Exhaust stack gas temperature – °C (°F) | 480.0 | (896.3) | 480.0 | (896.3) | 474.9 | (886.9) |
| Exhaust gas flow rate – $m^3$/min (cfm) | 660.3 | (23350.1) | 660.3 | (23350.1) | 631.3 | (22290.9) |
| 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) | 1375 | (78358) | 1375 | (78358) | 1250 | (71089) |
| Heat rejection to exhaust (total) – kW (Btu/min) | 3136 | (178728) | 3136 | (178728) | 2848 | (161966) |
| Heat rejection to aftercooler – kW (Btu/min) | 492 | (28107) | 492 | (28107) | 405 | (23033) |
| Heat rejection to atmosphere from engine – kW (Btu/min) | 183 | (10406) | 183 | (10406) | 177 | (10058) |
| Heat rejection from alternator – kW (Btu/min) | 112 | (6369) | 112 | (6369) | 99 | (5619) |
| **Emissions* (Nominal)** | | | | | | |
| $NO_x$ mg/$Nm^3$ (g/hp-h) | 3324.3 | (6.52) | 3324.3 | (6.52) | 2755.7 | (5.52) |
| CO mg/$Nm^3$ (g/hp-h) | 170.5 | (0.33) | 170.5 | (0.33) | 183.3 | (0.36) |
| HC mg/$Nm^3$ (g/hp-h) | 14.8 | (0.03) | 14.8 | (0.03) | 15.3 | (0.03) |
| PM mg/$Nm^3$ (g/hp-h) | 6.6 | (0.02) | 6.6 | (0.02) | 6.8 | (0.02) |
| **Emissions* (Potential Site Variation)** | | | | | | |
| $NO_x$ mg/$Nm^3$ (g/hp-h) | 3989.1 | (7.83) | 3989.1 | (7.83) | 3306.8 | (6.62) |
| CO mg/$Nm^3$ (g/hp-h) | 307.0 | (0.60) | 307.0 | (0.60) | 329.9 | (0.65) |
| HC mg/$Nm^3$ (g/hp-h) | 19.7 | (0.04) | 19.7 | (0.04) | 20.4 | (0.05) |
| PM mg/$Nm^3$ (g/hp-h) | 9.2 | (0.02) | 9.2 | (0.02) | 9.6 | (0.02) |

**mg/$Nm^3$ levels are corrected to 5% $O_2$. Data must not be used for emissions permitting purposes, contact your Cat dealer for the latest applicable emissions data and for details on measurement standards and procedures.*

# C175-16 Diesel Generator Sets
# Electric Power

## Weights and Dimensions




| Dim "A" mm (in) | Dim "B" mm (in) | Dim "C" mm (in) | Dry Weight kg (lb) |
|---|---|---|---|
| 8182 (322.1) | 2983 (117.5) | 3410 (134.3) | 22 906 (50,500) |

**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 ekW. 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 ekW. Typical peak demand up to 100% of rated ekW 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 ekW. Typical peak demand is 100% of prime rated ekW 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 ekW. Typical peak demand is 100% of continuous rated ekW for 100% of the operating hours.

**Applicable Codes and Standards**
AS 1359, ULC 2200 3rd edition, UL 489, UL 869A, 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 35º API [16°C (60ºF)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 15ºC (59ºF) and weighing 850 g/liter (7.0936 lbs/U.S. gal.) All fuel consumption values refer to rated engine power.

www.cat.com/electricpower

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