# 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 (in³)	84.7 (6456.31)		
Compression Ratio	16.7:1		
Aspiration	TA		
Fuel System	Common Rail		
Governor Type	ADEM™ A4		

Standby 50 Hz kVA (ekW)	Mission Critical 50 Hz kVA (ekW)	Prime 50 Hz kVA (ekW)	Continuous 50 Hz kVA (ekW)	Emissions Performance
3000 (2400)	3000 (2400)	2725 (2180)	2500 (2000)	Optimized for Low Fuel Consumption
3000 (2400)	3000 (2400)	_	_	Optimized for Low Emissions

### Standard 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 other 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 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

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## **Optional Equipment**

Optional Equipment				
Engine	Power Termination	Vibration Isolators		
Air Cleaner  □ Single element □ Dual element  Muffler □ Industrial grade (15 dB) □ Residential grade (25 dB) □ Critical grade (34 dB)	Type □ Bus bar □ Circuit breaker □ 4000A □ 5000A □ UL □ IEC □ 3-pole □ Electrically operated	□ Rubber □ Spring □ Seismic rated  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		
Starting  ☐ Standard batteries ☐ Oversized batteries	<i>Trip Unit</i> □ LSI □ LSI-G □ LSIG-P			
☐ Standard electric starter(s)	Control System			
<ul><li>□ Dual electric starter(s)</li><li>□ Air starter(s)</li><li>□ Jacket water heater</li></ul>	Controller ☐ EMCP 4.2 ☐ EMCP 4.3			
Alternator	□ EMCP 4.4			
Output voltage  □ 380V □ 6600V  □ 400V □ 6900V  □ 415V □ 10000V  □ 3300V □ 10500V  □ 6300V □ 11000V	Attachments  □ Local annunciator module □ Remote annunciator module □ Expansion I/O module □ Remote monitoring software			
Temperature Rise (over 40°C ambient)	Charging  □ Battery charger – 20A			
□ 150°C □ 125°C/130°C □ 105°C □ 80°C	☐ Battery charger – 25A ☐ Battery charger – 50A	Certifications  ☐ IBC seismic certification ☐ EU Certification of Conformance (CE) ☐ EEC Declaration of Conformi		
Winding type ☐ Form wound		,		
Excitation  ☐ Permanent magnet (PM)				
Attachments  ☐ Anti-condensation heater ☐ Stator and bearing temperature				

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

monitoring and protection

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## Package Performance

### **Low Fuel Consumption**

Performance	Sta	andby	Missio	n Critical	Р	rime	Cont	inuous	
Frequency	50	50 Hz		50 Hz		50 Hz		50 Hz	
Gen set power rating with fan	240	2400 ekW		2400 ekW		2180 ekW		2000 ekW	
Gen set power rating with fan @ 0.8 power factor	300	0 kVA	3000 kVA		2725 kVA		2500 kVA		
Emissions	Lov	Low Fuel		Low Fuel		Low Fuel		Low Fuel	
Performance number	DM8	719-03	EM0371-02		DM8720-05		DM8	721-04	
Fuel Consumption									
100% load with fan – L/hr (gal/hr)	595.9	(157.4)	595.9	(157.4)	541.7	(143.1)	500.1	(132.1)	
75% load with fan – L/hr (gal/hr)	452.8	(119.7)	452.8	(119.7)	415.8	(109.9)	387.2	(102.3)	
50% load with fan - L/hr (gal/hr)	321.2	(84.9)	321.2	(84.9)	297.7	(78.6)	278.2	(73.5)	
25% load with fan - L/hr (gal/hr)	192.6	(50.8)	192.6	(50.8)	181.1	(47.8)	171.9	(45.4)	
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 – m³/min (cfm)	2074	(73242)	2074	(73242)	2074	(73242)	2074	(73242)	
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)	579	(152)	579	(152)	579	(152)	579	(152)	
Total coolant capacity – L (gal)	882.5	(232.2)	882.5	(232.2)	882.5	(232.2)	882.5	(232.2)	
Inlet Air									
Combustion air inlet flow rate – m³/min (cfm)	188.8	(6665.5)	188.8	(6665.5)	175.7	(6205.3)	162.2	(5728.8)	
Exhaust System									
Exhaust stack gas temperature – °C (°F)	485.3	(905.6)	485.3	(905.6)	476.2	(889.2)	476.0	(888.8)	
Exhaust gas flow rate – m³/min (cfm)	498.0	(17584.3)	498.0	(17584.3)	456.9	(16132.1)	422.0	(14902.7)	
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)	1160	(65983)	1160	(65983)	1047	(59569)	961	(54650)	
Heat rejection to exhaust (total) – kW (Btu/min)	2264	(128724)	2264	(128724)	2063	(117309)	1919	(109160)	
Heat rejection to aftercooler – kW (Btu/min)	221	(12570)	221	(12570)	188	(10714)	168	(9531)	
Heat rejection to atmosphere from engine – kW (Btu/min)	171	(9742)	171	(9742)	165	(9356)	162	(9209)	
Heat rejection from alternator – kW (Btu/min)	92	(5243)	92	(5243)	81	(4629)	75	(4248)	
Emissions (Nominal)									
NOx mg/Nm³ (g/hp-h)	4103.7	(7.72)	4103.7	(7.72)	4524.1	(8.21)	4411.8	(8.17)	
CO mg/Nm³ (g/hp-h)	153.1	(0.32)	153.1	(0.32)	133.5	(0.27)	125.9	(0.26)	
HC mg/Nm³ (g/hp-h)	52.3	(0.13)	52.3	(0.13)	81.8	(0.19)	92.1	(0.22)	
PM mg/Nm³ (g/hp-h)	10.4	(0.03)	10.4	(0.03)	18.5	(0.04)	21.4	(0.05)	
Emissions (Potential Site Variation)									
NOx mg/Nm³ (g/hp-h)	4924.5	(9.26)	4924.5	(9.26)	5429.0	(9.86)	5294.1	(9.81)	
CO mg/Nm³ (g/hp-h)	275.5	(0.57)	275.5	(0.57)	240.3	(0.48)	226.6	(0.47)	
HC mg/Nm³ (g/hp-h)	69.5	(0.17)	69.5	(0.17)	108.8	(0.25)	122.5	(0.29)	
PM mg/Nm³ (g/hp-h)	14.5	(0.04)	14.5	(0.04)	25.9	(0.06)	30.0	(0.07)	

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## Package Performance

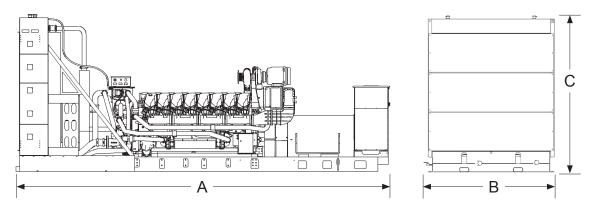
### **Low Emissions**

Performance	Sta	ındby	Mission Critical		
Frequency	50	) Hz	50 Hz		
Gen set power rating with fan	2400 ekW		2400 ekW		
Gen set power rating with fan @ 0.8 power factor	3000 kVA		3000 kVA		
Emissions	Low Emissions		Low Emissions		
Performance number	DM8	716-03	EM0670-02		
Fuel Consumption					
100% load with fan – L/hr (gal/hr)	646.2	(170.7)	646.2	(170.7)	
75% load with fan – L/hr (gal/hr)	518.4	(137)	518.4	(137)	
50% load with fan – L/hr (gal/hr)	345.8	(91.4)	345.8	(91.4)	
25% load with fan – L/hr (gal/hr)	193.8	(51.2)	193.8	(51.2)	
Cooling System					
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	
Radiator air flow – m³/min (cfm)	2074	(73242)	2074	(73242)	
Engine coolant capacity – L (gal)	303.5	(80.2)	303.5	(80.2)	
Radiator coolant capacity – L (gal)	579	(152)	579	(152)	
Total coolant capacity – L (gal)	882.5	(232.2)	882.5	(232.2)	
Inlet Air					
Combustion air inlet flow rate – m³/min (cfm)	215.3	(7601.2)	215.3	(7601.2)	
Exhaust System					
Exhaust stack gas temperature – °C (°F)	499.7	(931.4)	499.7	(931.4)	
Exhaust gas flow rate – m³/min (cfm)	578.2	(20418.0)	578.2	(20418.0)	
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	
Heat Rejection					
Heat rejection to jacket water – kW (Btu/min)	1269	(72155)	1269	(72155)	
Heat rejection to exhaust (total) – kW (Btu/min)	2595	(147577)	2595	(147577)	
Heat rejection to aftercooler – kW (Btu/min)	287	(16311)	287	(16311)	
Heat rejection to atmosphere from engine – kW (Btu/min)	185	(10507)	185	(10507)	
Heat rejection from alternator – kW (Btu/min)	92	(5243)	92	(5243)	
Emissions (Nominal)					
NOx mg/Nm³ (g/hp-h)	2068.2	(4.20)	2068.2	(4.20)	
CO mg/Nm³ (g/hp-h)	285.3	(0.63)	285.3	(0.63)	
HC mg/Nm³ (g/hp-h)	37.1	(0.09)	37.1	(0.09)	
PM mg/Nm³ (g/hp-h)	15.4	(0.04)	15.4	(0.04)	
Emissions (Potential Site Variation)					
NOx mg/Nm³ (g/hp-h)	2481.8	(5.04)	2481.8	(5.04)	
CO mg/Nm³ (g/hp-h)	513.5	(1.13)	513.5	(1.13)	
HC mg/Nm³ (g/hp-h)	49.3	(0.13)	49.3	(0.13)	
PM mg/Nm³ (g/hp-h)	21.6	(0.06)	21.6	(0.06)	

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### **Weights and Dimensions**



Dim "A" Dim "B" mm (in) mm (in)		Dim "C" mm (in)	Dry Weight kg (lb)		
7900 (311.0)	2756 (108.5)	3307 (130.2)	23 020 (50,750)		

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 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 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, ISO3046, ISO8528, 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 Consumption reported in accordance with ISO 3046-1.

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Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication.