# Cat® C175-20

# **Diesel Generator Sets**





Image shown m	nay not reflect actu	al configuration

Bore – mm (in)	175 (6.89)	
Stroke – mm (in)	220 (8.66)	
Displacement – L (in³)	105.8 (6456.31)	
Compression Ratio	15.3:1	
Aspiration	TA	
Fuel System	Common Rail	
Governor Type	ADEM™ A4	

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Continuous 60 Hz ekW (kVA)	Emissions Performance
3900 (4875)	3900 (4875)	3500 (4375)	3150 (3937)	Optimized for Low Fuel Consumption

### Standard Features

# Cat® Diesel Engine

- Designed and optimized for low 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

- 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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☐ Form wound Excitation

Attachments

☐ Permanent magnet (PM)

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

Optional Equipment			
Engine	Control System	<b>Extended Service Options</b>	
Air Cleaner  ☐ Single element  Muffler ☐ Industrial grade (15 dB) ☐ Regidential grade (25 dR)	Controller  □ EMCP 4.2B □ EMCP 4.3 □ EMCP 4.4	Terms □ 2 year (prime) □ 3 year □ 5 year □ 10 year	
<ul><li>□ Residential grade (25 dB)</li><li>□ Critical grade (35 dB)</li></ul>	Attachments ☐ Local annunciator module	Coverage	
Starting  ☐ Standard batteries ☐ Oversized batteries	<ul><li>□ Remote annunciator module</li><li>□ Expansion I/O module</li><li>□ Remote monitoring software</li></ul>	<ul><li>□ Silver</li><li>□ Gold</li><li>□ Platinum</li><li>□ Platinum Plus</li></ul>	
<ul> <li>□ Standard electric starter(s)</li> <li>□ Heavy duty electric starter(s)</li> <li>□ Dual electric starter(s)</li> <li>□ Air starter(s)</li> <li>□ Jacket water heater</li> </ul>	Charging		
	<ul><li>□ Battery charger – 20A</li><li>□ Battery charger – 35A</li><li>□ Battery charger – 50A</li></ul>	Ancillary Equipment  ☐ Automatic transfer switch (ATS) ☐ Uninterruptible power suppi	
Alternator	Vibration Isolators	(UPS)	
Output voltage  □ 4160V □ 12470V	☐ Rubber☐ Spring	<ul><li>□ Paralleling switchgear</li><li>□ Paralleling controls</li></ul>	
□ 6300V □ 13200V □ 6600V □ 13800V □ 6900V	☐ Seismic rated	Certifications	
	Cat Connect	□ IBC seismic certification	
Temperature Rise (over 40°C ambient)  □ 150°C  □ 125°C/130°C  □ 105°C  □ 80°C	Connectivity  ☐ Ethernet ☐ Cellular ☐ Satellite	□ OSHPD pre-approval	
Winding type			

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

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# **Package Performance**

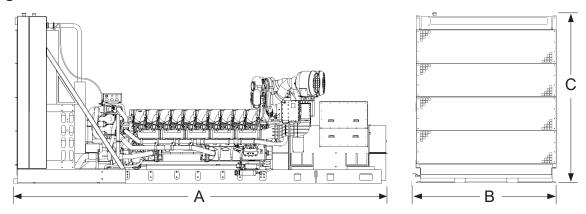
Performance	Sta	andby	Missio	n Critical	P	rime	Cont	inuous
Frequency	60	) Hz	60	) Hz	60	) Hz	60	) Hz
Gen set power rating with fan	390	0 ekW	390	0 ekW	350	0 ekW	315	0 ekW
Gen set power rating with fan @ 0.8 power factor	487	5 kVA	487	5 kVA	437	5 kVA	393	7 kVA
Emissions	Lov	v Fuel	Lov	v Fuel	Lov	v Fuel	Lov	v Fuel
Performance number	EM0	795-01	EM0	794-01	EM0	796-01	EM0	797-01
Fuel Consumption								
100% load with fan – L/hr (gal/hr)	1039.1	(274.5)	1039.1	(274.5)	922.4	(243.7)	824.6	(217.8)
75% load with fan – L/hr (gal/hr)	737.6	(194.9)	737.6	(194.9)	673.7	(178.0)	612.7	(161.9)
50% load with fan – L/hr (gal/hr)	524.9	(138.7)	524.9	(138.7)	482.4	(127.4)	445.3	(117.6)
25% load with fan – L/hr (gal/hr)	304.8	(80.5)	304.8	(80.5)	283.0	(74.8)	264.0	(69.7)
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)	3426	(120988)	3426	(120988)	3426	(120988)	3426	(120988
Engine coolant capacity – L (gal)	440.0	(116.2)	440.0	(116.2)	440.0	(116.2)	440.0	(116.2)
Radiator coolant capacity – L (gal)	845.0	(223.2)	845.0	(223.2)	845.0	(223.2)	845.0	(223.2)
Total coolant capacity - L (gal)	1285	(339.2)	1285	(339.2)	1285	(339.2)	1285	(339.2)
Inlet Air								
Combustion air inlet flow rate - m³/min (cfm)	338.4	(11949.3)	338.4	(11949.3)	308.8	(10904.0)	276.9	(9778.6)
Exhaust System								
Exhaust stack gas temperature – °C (°F)	479.1	(894.5)	479.1	(894.5)	459.0	(858.1)	459.7	(859.5)
Exhaust gas flow rate - m³/min (cfm)	870.3	(30730.2)	870.3	(30730.2)	774.2	(27338.5)	693.9	(24501.0
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)	2124	(120785)	2124	(120785)	1858	(105648)	1641	(93312)
Heat rejection to exhaust (total) - kW (Btu/min)	3957	(225032)	3957	(225032)	3439	(195567)	3098	(176198
Heat rejection to aftercooler - kW (Btu/min)	438	(24931)	438	(24931)	348	(19808)	282	(16051)
Heat rejection to atmosphere from engine – kW (Btu/min)	207	(11749)	207	(11749)	194	(11048)	189	(10750)
Heat rejection from alternator - kW (Btu/min)	167	(9480)	167	(9480)	153	(8724)	142	(8047)
Emissions* (Nominal)								
NOx mg/Nm³ (g/hp-h)	2381	(5.26)	2381	(5.26)	2890.8	(5.70)	3138	(6.64)
CO mg/Nm³ (g/hp-h)	225.6	(0.50)	225.6	(0.50)	295.0	(0.61)	326.7	(0.68)
HC mg/Nm³ (g/hp-h)	70.8	(0.18)	70.8	(0.18)	71.2	(0.17)	70.2	(0.16)
PM mg/Nm³ (g/hp-h)	14.0	(0.04)	14.0	(0.04)	18.2	(0.04)	23.6	(0.06)
Emissions* (Potential Site Variation)								
NOx mg/Nm³ (g/hp-h)	2857.2	(6.31)	2857.2	(6.31)	3469	(6.84)	3765.6	(7.97)
CO mg/Nm³ (g/hp-h)	406.1	(0.90)	406.1	(0.90)	531	(1.10)	588.1	(1.22)
HC mg/Nm³ (g/hp-h)	94.2	(0.24)	94.2	(0.24)	94.7	(0.22)	93.4	(0.22)
PM mg/Nm³ (g/hp-h)	19.6	(0.05)	19.6	(0.05)	25.5	(0.06)	33.0	(0.08)

<sup>\*</sup> $mg/Nm^3$  levels are corrected to 5%  $O_2$ . Contact your local Cat dealer for further information.

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# Weights and Dimensions



Dim "A"	Dim "B"	Dim "C"	Dry Weight
mm (in)	mm (in)	mm (in)	kg (lb)
8402 (330.8)	3249 (127.9)	3828 (150.7)	

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**

AS 1359, CSA C22.2 No. 100-04, UL 142, UL 489, UL 869, UL 2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC 60034-1, 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**

- ISO 8528-1 Data Center Power (DCP) compliant per DCP application of Cat diesel generator set prime power 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 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.)

www.cat.com/electricpower

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Materials and specifications are subject to change without notice.

The International System of Units (SI) is used in this publication.