

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.



Specifications

Generator Set Specifications	
Minimum Rating	3150 kVA
Maximum Rating	4000 kVA
Emissions/Fuel Strategy	Low Fuel, Low Emissions
Voltage	3300 to 11000 Volts
Frequency	50 Hz
Speed	1500 RPM
Duty Cycle	Standby, Mission Critical, Prime, Continuous

Engine Specifications	
Engine Model	C175-20 SCAC, V-20, 4-Stroke Water-Cooled Diesel
Bore	175 mm 6.89 in
Stroke	220 mm 8.66 in
Displacement	105.8 l 6456.31 in ³
Compression Ratio	15:03:01
Aspiration	Turbo Aftercooled
Fuel System	Common Rail
Governor Type	ADEM™ A4

Generator Set Dimensions	
Length - Minimum	6642.8 mm 261.5 in
Length - Maximum	8397 mm 330.6 in
Width - Minimum	2170.2 mm 85.4 in
Width - Maximum	8397 mm 330.6 in
Height - Minimum	2224.3 mm 87.6 in
Height - Maximum	3827 mm 150.7 in

Dry Weight - Genset (minimum)	25000 kg	55100 lb
Dry Weight - Genset (maximum)	30000 kg	66200 lb

Benefits and Features

Cat Generator Set Package

- Cat generator set packages have been fully prototype tested
- Accepts 100% block load in one step and meets NFPA 110 loading requirements
- Conform to ISO 8528-5 steady state and transient response requirements

Cat Diesel Engine

- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight

SR5 Alternator

- Superior motor starting capability minimizes need for oversizing alternator
- Designed to match performance and output characteristics of Cat diesel engines
- Robust Class H insulation

EMCP 4 Control Panel

- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirement
- Expansion modules and site-specific programming for specific customer requirements

Cooling System

- Designed to operate in standard ambient temperatures up to 50°C (122°F)
- Contact your Cat Dealer for specific ambient and altitude capabilities

Certifications

- UL2200
- IBC seismic certification
- OSHPD pre-approval
- EU Certification of Conformance (CE)
- EEC Declaration of Conformity

One Safe Source

- Components used in the generator set are selected at the design stage to provide optimum package performance
- The generator set is fully assembled at a Caterpillar facility following our quality guidelines
- Each generator set package is tested before leaving the Caterpillar facility
- Cat product support, including dealer service, parts and warranty covers the entire Cat power system

Standard Equipment

Air Inlet

- 4 x Single element canister air cleaners with service indicator(s).

Control Panel

- EMCP 4.2

- Speed adjust
- Engine cycle crank
- 24 Volt DC operation
- DC volts
- True RMS AC metering, 3-phase, +/-2% accuracy
- Operating hours
- Low oil pressure
- High coolant temperature
- Failure to start (overcrank)
- RPM
- Engine cool-down timer
- Warning / shutdown Indicators
- Volts (L-L & L-N)
- Alarm acknowledge
- Oil pressure (psi, kPa or bar)
- 4 Programmable relay output
- Environmental sealed front face
- 4 Programmable relay Inputs
- Coolant temperature
- Overspeed
- Auto / start / stop control
- Low coolant level
- Emergency stop pushbutton
- Text alarm / event descriptions
- Wall Mounted Controls
- Amps (per phase & average)
- Frequency (Hz)
- Lamp test
- Digital Indicators
- Emergency stop

Cooling System

- JW Inlet: 6" ANSI / JW Outlet: 5" Cat Flange
- SCAC cooling
- AC Inlet: 6" ANSI / AC Outlet: 3-1/2" ANSI
- Coolant Sensors

Exhaust

- Dry exhaust manifold
- Bolted flange (ANSI 6" & DIN 150) with bellow for each turbo (Qty 4). 50 Hz

Fuel

- 4 Micron spin on type
- 10 Micron Spin On Type
- Primary fuel filter water / fuel water separator
- Secondary / tertiary fuel filters
- Engine mounted filters x 3
- Filters x 3

Generators and Attachments

- Class H temperature rise at 40C ambient
- Exciter diode monitor
- RFI suppression
- 3 Phase voltage sensing
- Permanent Magnet
- Salient Pole
- IEC Platinum Stator RTDs
- 6 Leads
- Right side extension box, bottom cable entry
- Min/max Exciter limiter
- Anti condensation space Heater
- NEMA Class H insulation
- Voltage Regulator:
- Reactive droop capability
- Form Wound
- 3 Phase brushless

Governing System

- ADEM A4
- Redundant Shutdown (Overspeed protection through a duplicate speed sensing system)

Lube System

- Gear type lube oil pump
- Oil drain lines and valve
- Lubricating oil
- Oil filter, filler and dipstick
- Fumes disposal
- Integral lube oil cooler

Mounting Systems

- Rails - Engine/Generator
- Rubber anti-vibration mounts (shipped loose)

Starting / Charging System

- Batteries and battery rack w/cables
- Dual 24 volt electric starting motors
- Battery disconnect switch

General

- SAE standard rotation
- Paint - Caterpillar Yellow with high gloss black rails
- Right hand service

Optional Equipment

Air Inlet Systems

- Single element air cleaner

Control Panels

- EMCP 4.3
- EMCP and MV and HV power connection locations
- Load share module
- EMCP voltage and current sensing groups
- Speed adjust
- Annunciator modules
- Customer interface options
- Generator temperature monitoring
- E-Stop
- Interconnect harness
- Generator harness
- Modbus monitoring of packages
- Vandal proof panel door

Cooling System

- Package mounted radiators
- Remote radiators
- Fuel cooler

Crankcase Systems

- Explosive relief valves
- Crankcase ventilation system

Exhaust System

- Front housing - Standby or mission critical
- Front housing - Prime or continuous
- Exhaust collectors / Manifold
- Mufflers (15, 25 and 34 dBA)

Fuel System

- Primary fuel filter

Generators and Attachments

- Medium voltage - 3000 Frames - 50 Hz, 3 phase, 1500 rpm, FW, PM, No of leads=6, Pitch 0.6667
- Thermostat for space heater
- Generator air cleaner
- Differential current transformers - (5, 9 and 15 kV Class)

Instrumentation

- Pyrometer and thermocouples

Lube System

- Lube oil heater
- Lube oil heater with crankcase explosion relief valve
- Drain group oil pans
- Lubricating oil
- Electric prelube pumps
- Oil filters

Mounting System

- Rubber anti-vibration mounts
- Spring type linear vibration isolators
- IBC vibration isolators - Shipped loose

Special Tests / Reports

- Generator test report
- PGS test report @ 1.0 power factor
- PGS test report @ 0.8 power factor
- Standard genset TVA (Torsional Vibration Analysis) report
- Custom genset TVA report
- Special test charge - Engine only
- Genset fuel consumption test
- Standard engine test charge

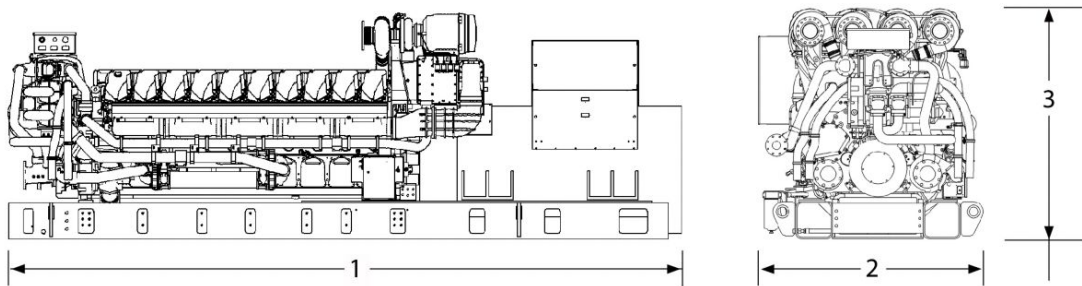
Starting / Charging System

- 24 Volt electric starting motors
- Air starting motor
- Air pressure regulator
- Starter location covers
- 24 Volt battery sets - Dry
- 20, 35 and 50 Amp battery chargers
- Charging alternators - Dry
- Jacket water heaters

General

- Special paint - 3500, Colors (other than Caterpillar yellow) or high performance paints
- US aid emblem
- Service tools
- Engine barring group
- Manual
- Engine barring Air powered
- control GP - Air powered bar group

Dimensional Art



Dimensions	Dimension 1	Dimension 2	Dimension 3
Genset dimensions	8396.5 mm (330.6 in)	3243.8 mm (127.7 in)	3827 mm (150.7 in)

The International System of Units (SI) is used in this publication. CAT, CATERPILLAR, their respective logos, ADEM, EUI, S•O•S, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

C175-20

2800 ekW/ 3500 kVA/ 50 Hz/ 1500 rpm/ 11000 V/ 0.8 Power Factor

Rating Type: PRIME

Fuel Strategy: LOW FUEL CONSUMPTION

C175-20

2800 ekW/ 3500 kVA
50 Hz/ 1500 rpm/ 11000 V



Image shown may not reflect actual configuration

Metric

English

Package Performance		
Genset Power Rating without Fan @ 0.8 Power Factor	2800 ekW	
Genset Power Rating	3500 kVA	
Aftercooler (Separate Circuit)	46.0 ° C	114.8 ° F

Fuel Consumption		
100% Load with Fan	711.6 L/hr	188.0 gal/hr
75% Load with Fan	537.2 L/hr	141.9 gal/hr
50% Load with Fan	376.4 L/hr	99.4 gal/hr
25% Load with Fan	213.6 L/hr	56.4 gal/hr

Cooling System¹		
Engine Coolant Capacity	440.0 L	116.2 gal
Radiator Water Capacity High Temp Circuit	349 L	92 gal
Radiator Water Capacity Low Temp Circuit	235 L	62 gal
Radiator Total Capacity	584 L	154 gal

Inlet Air		
Combustion Air Inlet Flow Rate	248.2 m ³ /min	8763.9 cfm
Max. Allowable Combustion Air Inlet Temp	50 ° C	122 ° F

Exhaust System		
Exhaust Stack Gas Temperature	416.2 ° C	781.2 ° F
Exhaust Gas Flow Rate	596.1 m ³ /min	21048.2 cfm
Exhaust System Backpressure (Maximum Allowable)	6.7 kPa	27.0 in. water

C175-20

2800 ekW/ 3500 kVA/ 50 Hz/ 1500 rpm/ 11000 V/ 0.8 Power Factor

Rating Type: PRIME

Fuel Strategy: LOW FUEL CONSUMPTION

Heat Rejection		
Heat Rejection to Jacket Water	1431 kW	81384 Btu/min
Heat Rejection to Exhaust (Total)	2516 kW	143057 Btu/min
Heat Rejection to Aftercooler	N/A	N/A
Heat Rejection to Atmosphere from Engine	177 kW	10089 Btu/min
Heat Rejection to Atmosphere from Generator	154 kW	8735 Btu/min

Alternator ²	
Motor Starting Capability @ 30% Voltage Dip	10130 skVA
Current	184 amps
Frame Size	3055
Excitation	PM
Temperature Rise	105 ° C

Emissions (Nominal) ³		
NOx	4278.9 mg/Nm ³	8.0 g/hp-hr
CO	64.5 mg/Nm ³	0.1 g/hp-hr
HC	23.5 mg/Nm ³	0.1 g/hp-hr
PM	7.2 mg/Nm ³	0.0 g/hp-hr

DEFINITIONS AND CONDITIONS

1. For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.
2. UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.
3. Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.



C175-20

2800 ekW/ 3500 kVA/ 50 Hz/ 1500 rpm/ 11000 V/ 0.8 Power Factor

Rating Type: PRIME

Fuel Strategy: LOW FUEL CONSUMPTION

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, 2006/95/EC, 2006/42/EC, 2004/108/EC.

Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

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.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions

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.). Additional ratings may be available for specific customer requirements, contact your Cat representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

Performance No.: DM8941-06

Feature Code: 175DR2V

Generator Arrangement: 3313052

Date: 11/14/2018

Source Country: U.S.

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