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 Consumption, U.S. EPA Stationary Emergency Use Only
Voltage	3300 to 13800 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 in³
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 other 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

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

Cooling System

- SCAC cooling
- JW Inlet: 6" ANSI / JW Outlet: 5" Cat Flange
- 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

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

Generators and Attachments

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

Governing System

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

Lube System

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

Mounting Systems

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

Starting / Charging System

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

General

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

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

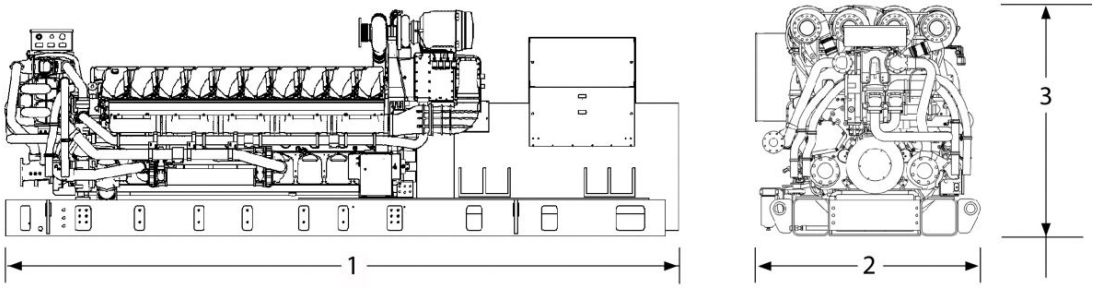
Starting / Charging System

- 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)

Rating Type: MISSION CRITICAL STANDBY

Fuel Strategy: LOW EMISSIONS

Image shown may not reflect actual configuration

C175-20
3100 ekW/ 3875 kVA
50 Hz/ 1500 rpm/ 3300 V

	Metric	English
Package Performance		
Genset Power Rating without Fan @ 0.8 Power Factor	3100 ekW	
Genset Power Rating	3875 kVA	
Aftercooler (Separate Circuit)	46.0 ° C	114.8 ° F
Fuel Consumption		
100% Load with Fan	828.6 L/hr	218.9 gal/hr
75% Load with Fan	653.7 L/hr	172.7 gal/hr
50% Load with Fan	439.2 L/hr	116.0 gal/hr
25% Load with Fan	244.6 L/hr	64.6 gal/hr
Cooling System[1]		
Engine Coolant Capacity	440.0 L	116.2 gal
Radiator Water Capacity High Temp Circuit	N/A	N/A
Radiator Water Capacity Low Temp Circuit	N/A	N/A
Radiator Total Capacity	N/A	N/A
Inlet Air		
Combustion Air Inlet Flow Rate	305.5 m³/min	10787.2 cfm
Max. Allowable Combustion Air Inlet Temp	51 ° C	123 ° F
Exhaust System		
Exhaust Stack Gas Temperature	460.7 ° C	861.3 ° F
Exhaust Gas Flow Rate	704.6 m³/min	24878.5 cfm
Exhaust System Backpressure (Maximum Allowable)	6.7 kPa	27.0 in. water

Rating Type: MISSION CRITICAL STANDBY

Fuel Strategy: LOW EMISSIONS

Heat Rejection		
Heat Rejection to Jacket Water	1732 kW	98485 Btu/min
Heat Rejection to Exhaust (Total)	3034 kW	172549 Btu/min
Heat Rejection to Aftercooler	N/A	N/A
Heat Rejection to Atmosphere from Engine	196 kW	11146 Btu/min
Heat Rejection to Atmosphere from Generator	133 kW	7535 Btu/min

Alternator[2]	
Motor Starting Capability @ 30% Voltage Dip	7904 skVA
Current	678 amps
Frame Size	3055
Excitation	PM
Temperature Rise	130 ° C

Emissions (Nominal)[3]		
NOx	2346.6 mg/Nm³	5.0 g/hp-hr
CO	254.9 mg/Nm³	0.5 g/hp-hr
HC	43.0 mg/Nm³	0.1 g/hp-hr
PM	4.6 mg/Nm³	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.

Rating Type: MISSION CRITICAL STANDBY

Fuel Strategy: LOW EMISSIONS

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.

MISSION CRITICAL STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the standby power rating. Typical peak demand up to 100% of standby rated ekW for 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 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 35º API [16º C (60º F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29º C (85º 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.: EM1361-03

Feature Code: 175DR3K

Generator Arrangement: 3313034

Date: 11/14/2018

Source Country: U.S.