

# Spark-ignited generator set

45–100 kW standby  
EPA emissions



## Description

Cummins Power Generation generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby applications.

## Features

**Gas engine** - Rugged 4-cycle Cummins QSJ5.9G spark-ignited engine delivers reliable power. The electronic air/fuel ratio control provides optimum engine performance and fast response to load changes.

**Alternator** - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

**Control system** - The PowerCommand® 1.1 electronic control is standard equipment and provides total generator set system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

**Cooling system** - Standard cooling package provides reliable running at up to 50 °C (122 °F) ambient temperature.

**Enclosures** - The aesthetically appealing enclosure incorporates special designs that deliver one of the quietest generators of its kind. Aluminum material plus durable powder coat paint provides the best anti-corrosion performance. The generator set enclosure has been evaluated to withstand 180 MPH wind loads in accordance with ASCE7-10. The design has hinged doors to provide easy access for service and maintenance.

**NFPA** - The generator set accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

**Warranty and service** - Backed by a comprehensive warranty and worldwide distributor and dealer network.

Model	Natural Gas		Propane		Data sheets 60 Hz
	Standby 60 Hz kW	kVA	Standby 60 Hz kW	kVA	
<b>C45 N6</b>	45	56	45	56	NAD-6093-EN
<b>C50 N6</b>	50	63	50	63	NAD-6094-EN
<b>C60 N6</b>	60	75	60	75	NAD-6095-EN
<b>C70 N6</b>	70	88	70	88	NAD-6096-EN
<b>C80 N6</b>	80	100	80	100	NAD-6097-EN
<b>C100 N6</b>	100	125	100	125	NAD-6098-EN

## Generator set specifications

Governor regulation class	ISO 8528 Part 1 Class G3
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	± 0.25% @ 60 Hz
Radio frequency emissions compliance	Meets requirements of most industrial and commercial applications

## Engine specifications

Design	Naturally aspirated or turbo charged (varies by generator set model)
Bore	102.1 mm (4.02 in)
Stroke	119.9 mm (4.72 in)
Displacement	5.9 liters (359 in <sup>3</sup> )
Cylinder block	Cast iron, in-line 6 cylinder
Battery capacity	850 amps at ambient temperature of 0 °F to 32 °F (-18 °C to 0 °C)
Battery charging alternator	52 amps
Starting voltage	12 volt, negative ground
Lube oil filter type(s)	Spin-on with relief valve
Standard cooling system	50 °C (122 °F) ambient cooling system
Rated speed	1800 rpm

## Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Direct coupled, flexible disc
Insulation system	Class H per NEMA MG1-1.65
Standard temperature rise	120 °C (248 °F) standby
Exciter type	Torque match (shunt) with PMG as option
Alternator cooling	Direct drive centrifugal blower
AC waveform total harmonic distortion	< 5% no load to full linear load, < 3% for any single harmonic
Telephone influence factor (TIF)	< 50 per NEMA MG1-22.43
Telephone harmonic factor (THF)	<3%

## Available voltages

1-phase	3-phase
• 120/240	• 120/208 • 120/240 • 277/480 • 347/600 • 127/220

## Generator set options

### Fuel system

- Single fuel - natural gas or propane vapor, field selectable
- Dual fuel - natural gas and propane vapor auto changeover
- Low fuel gas pressure warning

### Engine

- Engine air cleaner
- Shut down - low oil pressure
- Extension - oil drain
- Engine oil heater

### Alternator

- 120 °C temperature rise alternator
- 105 °C temperature rise alternator
- PMG

- Alternator heater, 120V
- Reconnectable full 1 phase output alternator

### Control

- AC output analog meters
- Stop switch - emergency
- Auxiliary output relays (2)
- Auxiliary configurable signal inputs (8) and relay outputs (8)

### Electrical

- One, two or three circuit breaker configurations
- 80% rated circuit breakers
- 100% rated LSI circuit breakers
- Battery charger

### Enclosure

- Aluminum enclosure Sound Level 1 or Level 2, sandstone or green color
- Aluminum weather protective enclosure with muffler installed, green color

### Cooling system

- Shutdown - low coolant level
- Warning - low coolant level
- Extension - coolant drain
- Coolant heater options:
  - < 4 °C (40 °F) - cold weather
  - < -17 °C (0 °F) - extreme cold

### Exhaust system

- Exhaust connector NPT
- Exhaust muffler mounted

### Generator set application

- Base barrier - elevated genset
- Battery rack, standard battery
- Battery rack, larger battery
- Radiator outlet duct adapter

### Warranty

- Base warranty - 2 year/400 hours, standby
- 3 year standby warranty options
- 5 year standby warranty options

## Generator set accessories

- Coolant heaters - 1000W / 1500W
- Battery rack, standard/larger battery
- Battery heater kit
- Engine oil heater
- Remote control displays
- Auxiliary output relays (2)
- Auxiliary configurable signal inputs (8) and relay outputs (8)
- Annunciator - RS485
- Remote monitoring device - PowerCommand 500/550
- Battery charger - stand-alone, 12V
- Circuit breakers
- Enclosure Sound Level 1 to Sound Level 2 upgrade kit
- Base barrier - elevated generator set
- Mufflers - industrial, residential or critical
- Alternator PMG
- Alternator heater

## Control system PowerCommand 1.1



**PowerCommand control** is an integrated generator set control system providing voltage regulation, engine protection, operator interface and isochronous governing (optional). Major features include:

- Battery monitoring and testing features and smart starting control system.
- Standard PCCNet interface to devices such as remote annunciator for NFPA 110 applications.
- Control boards potted for environmental protection.
- Control suitable for operation in ambient temperatures from -40 °C to +70 °C (-40 °F to +158 °F) and altitudes to 5000 meters (13,000 feet).
- Prototype tested; UL, CSA, and CE compliant.
- InPower™ PC-based service tool available for detailed diagnostics.

### Operator/display panel

- Manual off switch
- Alpha-numeric display with pushbutton access for viewing engine and alternator data and providing setup, controls and adjustments (English or international symbols)
- LED lamps indicating generator set running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -40 °C to +70 °C
- Bargraph display (optional)

### AC protection

- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- Field overload

### Engine protection

- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- High, low and weak battery voltage warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown

### Alternator data

- Line-to-line and Line-to-neutral AC volts
- 3-phase AC current
- Frequency
- Total kVa

### Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature
- Engine speed

### Other data

- Generator set model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface
- Data logging and fault simulation (requires InPower service tool)

### Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

### Digital voltage regulation

- Integrated digital electronic voltage regulator
- 2-phase line-to-line sensing
- Configurable torque matching

### Control functions

- Time delay start and cooldown
- Cycle cranking
- PCCNet interface
- (2) Configurable inputs
- (2) Configurable outputs
- Remote emergency stop
- Automatic transfer switch (ATS) control
- Generator set exercise, field adjustable

### Options

- Auxiliary output relays (2)
- Remote annunciator with (3) configurable inputs and (4) configurable outputs
- PMG alternator excitation
- PowerCommand 500/550 for remote monitoring and alarm notification (accessory)
- Auxiliary, configurable signal inputs (8) and configurable relay outputs (8)
- Digital governing
- AC output analog meters (bargraph)
  - Color-coded graphical display of:
    - 3-phase AC voltage
    - 3-phase current
    - Frequency
    - kVa
- Remote operator panel

## Ratings definitions

### Emergency standby power (ESP):

Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

### Limited-time running power (LTP):

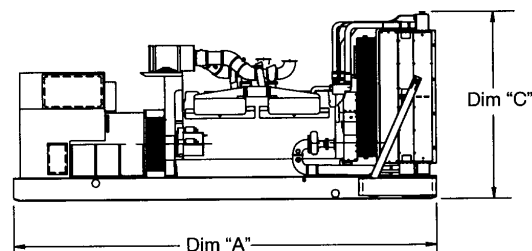
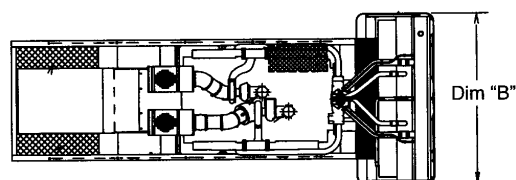
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

### Prime power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

### Base load (continuous) power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.



This outline drawing is for reference only. See respective model data sheet for specific model outline drawing number.

**Do not use for installation design**

Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Set Weight* kg (lbs)
<b>Open Set</b>				
<b>C45 N6</b>	2489 (98)	1016 (40)	1473 (58)	989 (2180)
<b>C50 N6</b>	2489 (98)	1016 (40)	1473 (58)	989 (2180)
<b>C60 N6</b>	2489 (98)	1016 (40)	1473 (58)	1103 (2431)
<b>C70 N6</b>	2489 (98)	1016 (40)	1473 (58)	1111 (2449)
<b>C80 N6</b>	2489 (98)	1016 (40)	1473 (58)	1173 (2587)
<b>C100 N6</b>	2489 (98)	1016 (40)	1473 (58)	1233 (2719)
<b>Weather Protective Enclosure</b>				
<b>C45 N6</b>	2489 (98)	1016 (40)	1473 (58)	1070 (2359)
<b>C50 N6</b>	2489 (98)	1016 (40)	1473 (58)	1070 (2359)
<b>C60 N6</b>	2489 (98)	1016 (40)	1473 (58)	1184 (2610)
<b>C70 N6</b>	2489 (98)	1016 (40)	1473 (58)	1192 (2628)
<b>C80 N6</b>	2489 (98)	1016 (40)	1473 (58)	1255 (2766)
<b>C100 N6</b>	2489 (98)	1016 (40)	1473 (58)	1315 (2898)
<b>Sound Attenuated Enclosure Level 1</b>				
<b>C45 N6</b>	3023 (119)	1016 (40)	1473 (58)	1114 (2455)
<b>C50 N6</b>	3023 (119)	1016 (40)	1473 (58)	1114 (2455)
<b>C60 N6</b>	3023 (119)	1016 (40)	1473 (58)	1227 (2706)
<b>C70 N6</b>	3023 (119)	1016 (40)	1473 (58)	1236 (2724)
<b>C80 N6</b>	3023 (119)	1016 (40)	1473 (58)	1298 (2862)
<b>C100 N6</b>	3023 (119)	1016 (40)	1473 (58)	1358 (2994)
<b>Sound Attenuated Enclosure Level 2</b>				
<b>C45 N6</b>	3454 (136)	1016 (40)	1473 (58)	1127 (2485)
<b>C50 N6</b>	3454 (136)	1016 (40)	1473 (58)	1127 (2485)
<b>C60 N6</b>	3454 (136)	1016 (40)	1473 (58)	1241 (2736)
<b>C70 N6</b>	3454 (136)	1016 (40)	1473 (58)	1249 (2754)
<b>C80 N6</b>	3454 (136)	1016 (40)	1473 (58)	1312 (2892)
<b>C100 N6</b>	3454 (136)	1016 (40)	1473 (58)	1372 (3024)

\* Weights above are average. Actual weight varies with product configuration.





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## Codes and standards

Codes or standards compliance may not be available with all model configurations – consult factory for availability.

 <p>The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins Power Generation products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.</p>	 <p>This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.</p>
<p><b>International Building Code</b></p> <p>The generator set is certified to International Building Code (IBC) 2012.</p>	 <p>The generator set is available Listed to UL 2200, Stationary Engine Generator Assemblies.</p>  <p>All low voltage models are CSA certified to product class 4215-01.</p>
	<p><b>U.S. EPA</b></p> <p>Engine certified to U.S. EPA SI Stationary Emission Regulation 40 CFR, Part 60.</p>

**Warning:** Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

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