

Diesel generator set 4BT3.3 series engine EPA emissions



> **Specification sheet**
35 kW - 50 kW standby

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**Power
Generation**

Description

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



This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.



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.



All low voltage models are CSA certified to product class 4215-01.



The generator set is available Listed to UL 2200, Stationary Engine Generator Assemblies.

U.S. EPA

Engine certified to U.S. EPA Nonroad Source Emissions Standards, 40 CFR 89, Tier 2.

Features

Cummins® heavy-duty engine - Rugged 4-cycle, industrial diesel delivers reliable power, low emissions 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® 1301 electronic control is standard equipment and provides total genset 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. The optional PowerCommand 2100 control is UL 508 Listed and provides AmpSentry™ protection.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Enclosures - Optional weather protective and sound attenuated enclosures are available.

Fuel tanks - Dual wall sub-base fuel tanks and in-skid day tanks are also offered.

NFPA - The genset 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 network.

Model	Standby rating		Prime rating		Continuous rating		Data sheets	
	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz	50 Hz
DGGD	35 (44)		30 (38)				D-3438	
DGHD	40 (50)		36 (45)				D-3439	
DGHE	50 (63)		45 (56)				D-3440	

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	5%
Random frequency variation	± 0.5% (isochronous optional ± 0.25%)
Radio frequency emissions compliance	Meets requirements of most industrial and commercial applications

Engine specifications

Design	Turbocharged
Bore	95.0 mm (3.74 in)
Stroke	115.1 mm (4.53 in)
Displacement	3.3 L (199.0 in ³)
Cylinder block	Cast iron, in-line, 4 cylinder
Battery capacity	550 amps minimum at ambient temperature of 0 °C (32 °F)
Battery charging alternator	35 amps
Starting voltage	12 volt, negative ground
Fuel system	Direct injection: number 2 diesel fuel
Fuel filter	Single element, 10 micron filtration, spin-on fuel filter with water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	One spin-on, full flow filter
Standard cooling system	40 °C (104 °F) ambient radiator

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	150 °C (302 °F) standby
Exciter type	Shunt
Phase rotation	A (U), B (V), C (W)
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

Three phase reconnectable				Single phase non-reconnectable	Three phase non-reconnectable	
•120/208	•120/240	•127/220	•139/240	•120/240	•220/380	•347/600
•240/416	•254/440	•277/480				

Note: Consult factory for other voltages.

Generator set options and accessories

Engine

- 120/240 V, 1000 W coolant heater
- 120/240 V, 150 W lube oil heater
- Electronic governor

Fuel system

- 12 hour dual wall sub-base tank
- 24 hour dual wall sub-base tank

- Single wall sub-base tank, 80 gal (303 L)

Alternator

- 105 °C (221 °F) rise alternator
- 125 °C (257 °F) rise alternator
- 120/240 V, 100 W anti-condensation heater
- Extended stack (full single phase output)
- PMG excitation
- Single phase

Exhaust system

- Genset mounted muffler
- Heavy duty exhaust elbow
- Slip on exhaust connection

Cooling system

- 50 °C (122 °F) ambient cooling

Generator set

- AC entrance box
- Batteries

- Battery charger
- Enclosure: aluminum, steel, weather protective or sound attenuated
- Export box packaging
- UL 2200 Listed
- Main line circuit breaker
- Spring isolators
- 2 year standby warranty
- 2 year prime power warranty
- 5 year basic power warranty

Note: Some options may not be available on all models - consult factory for availability.

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Control system

PowerCommand control is an integrated generator set control system providing isochronous governing (optional), voltage regulation, engine protection and operator interface functions.

- Control boards are potted for environmental protection.
- Controls provided include battery monitoring and testing features, and smart starting control system.
- InPower™ PC-based service tool available for detailed diagnostics.
- PCCNet RS485 network interface to devices such as remote annunciator for NFPA110 applications.
- 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.

AmpSentry AC protection

- Over current warning and shut down*
- Over and under voltage shut down
- Over and under frequency shut down
- Overload warning with alarm contact
- Over excitation (loss of sensing) fault
- Field overload

Engine protection

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

Operator/display panel (optional)

- 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 genset running, not in auto, common warning, common shutdown, manual run mode, remote start
- Suitable for operation in ambient temperatures from -20 °C to +70 °C (-4 °F to +158 °F)
- (5) configurable LED lamps
- LED bargraph AC data display (optional)

Alternator data

- Line-to-line and line-to-neutral AC volts*
- Three phase AC current*
- Frequency*
- Total kVA*

Engine data

- DC voltage*
- Lube oil pressure*
- Coolant temperature*

Other data

- Genset model data
- Start attempts, starts, running hours
- kW hours (total and since reset)
- 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
- Two phase line-to-line sensing
- Configurable torque matching

Control functions

- Time delay start and cooldown
- Glow plug control (some models)
- Cycle cranking
- PCCNet interface
- (2) Configurable customer inputs
- (2) Configurable customer outputs
- Remote emergency stop

*Optional operation/display panel required to display warnings and sensor data and for NFPA 110 and CSA 282 applications.

Options

- Local operation/display panel
- Digital electronic governing
- Auxiliary output relays (2)
- 120/240 V, 100 W anti-condensation heater
- Emergency stop switch
- Remote annunciator with (3) configurable inputs & (4) configurable outputs
- PowerCommand for Windows remote monitoring software (direct connect)
- Auxiliary, configurable signal inputs (8) and configurable relay outputs (8)
- PCC2100 Control



Standard PowerCommand 1301 operator panel



Optional PowerCommand 2100 operator/display panel

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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):

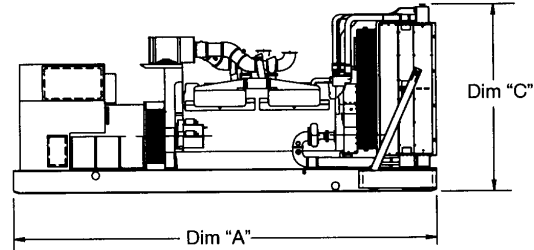
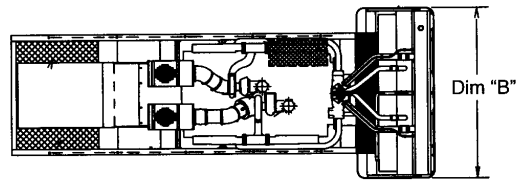
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

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* dry kg (lbs)	Set Weight* wet kg (lbs)
DGGD	2104 (82.8)	1016 (40.0)	1229 (48.4)		711 (1568)
DGHD	2104 (82.8)	1016 (40.0)	1229 (48.4)		711 (1568)
DGHE	2104 (82.8)	1016 (40.0)	1229 (48.4)		727 (1603)

* Weights represent a set with standard features. See outline drawings for weights of other configurations.

Cummins Power Generation

1400 73rd Avenue N.E.
Minneapolis, MN 55432 USA
Telephone: 763 574 5000
Fax: 763 574 5298

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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