

# Diesel Generator set QSK78 series engine

3000 kVA 50 Hz  
Data Center Continuous



## Description

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

## Features

### Data Center Continuous (DCC) -

Applicable for supplying power continuously to a constant or varying electrical load for unlimited hours in a data center application.

**Uptime Compliant** - Meets the requirement of a Tier III and IV data center site by being rated to run for unlimited hours of operation when loaded to 'N' demand for the engine generator set.

**Cummins® heavy-duty engine** - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

### Permanent magnet generator (PMG) -

Offers enhanced motor starting and fault clearing short circuit capability.

**Alternator** - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuits capability, and class F or H insulation.

**Control system** - Standard PowerCommand® electronic control provides total system integration including remote start/stop, precise frequency and voltage regulation, alarm and status message display, AmpSentry protection, output metering, auto-shutdown.

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

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

Model	50 Hz kW (kVA)	Data sheets 50 Hz
C3300 D5	3000 (2400)	DS54-CPGK-DC

## Generator set specifications

Governor regulation class	ISO 8528 G2
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 1%
EMC compatibility	BS EN 61000-6-4 / BS EN 61000-6-2

## Engine specifications

Design	4 cycle, V-black, turbo charged and low temperature after-cooled
Bore	170 mm (6.69 in)
Stroke	190.0 mm (7.48 in)
Displacement	77.6 L (4735 in <sup>3</sup> )
Cylinder block	Cast iron, 60°V 18 cylinder
Battery capacity	2600 amps at ambient temperature 0°F to 32°F (-18 °C to 0°C)
Battery charging alternator	40 amps
Starting voltage	24-volt, negative ground
Fuel system	Direct injection
Fuel filter	Triple element, 10 micron filtration, spin on with fuel separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Six spin-on, combination full flow and bypass filters
Standard cooling system	Remote cooled configuration

## Alternator specifications

Design	Brushless, 4 pole, revolving field
Stator	2/3 pitch
Rotor	Direct coupled by flexible disc
Insulation system	Class H
Standard temperature rise	125 °C standby
Exciter type	PMG (Permanent magnet generator)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
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

### 50 Hz line - neutral / line - line

- |           |              |
|-----------|--------------|
| • 220/380 | • 1905/3300  |
| • 230/400 | • 3640/6300  |
| • 240/415 | • 3810/6600  |
| • 254/440 | • 6350/11000 |

## Generator set options

### Engine

- 208/240/480 V coolant heater temperature dependent packages
- Eliminator – centrifugal oil cleaner

### Control Panel

- 120/240 V, 100 W control anti-condensation space heater
- Paralleling configurations
- Remote fault signal package
- Run relay package

### Exhaust system

- Exhaust silencer packages

### Cooling system

- Radiator, 40 °C ambient
- Radiator, 50 °C ambient
- Remote radiator

### Generator set

- Batteries
- Battery rack w/hold-down – floor standing
- PowerCommand network
- Remote annunciator panel
- Vibration isolators
- 2 year warranty
- 5 year warranty
- 10 year major components warranty

### Data Center Options

- Automatic oil make up system
- Closed crank ventilation system
- Oil sampling valve
- Triplex fuel filters
- Customized testing

Note: Some options may not be available on all models - consult factory for availability. Data Center options are available through RFQ with the Custom Applications Group and could result in additional leadtimes. Please consult with the Custom Applications Group to understand feasibility.

## Control system PCC 3201

The PowerCommand™ 3201 Control is a microprocessorbased generator set monitoring, and control system.

The control provides an operator interface to the genset, digital voltage regulation, digital governing and generator set protective functions.

The PowerCommand™ 3201 generator set control is suitable for use on a wide range of generator sets in nonparalleling and paralleling applications.

The PowerCommand™ Control can be configured for any frequency, voltage and power connection configuration from 120 to 13,800 VAC for 50Hz or 60Hz operation.

Power for the control is derived from the generator set starting batteries. The control functions over a voltage range from 8VDC to 35VDC.

### Major Features

- Digital Full Authority Electronic Engine Controls for Cummins HPI-PT fuel systems.
- Digital Voltage Regulation with 3-phase sensing.
- AmpSentry™ Protection for true alternator overcurrent protection.
- Analog and Digital AC Output Metering.
- Battery Monitoring System to sense and warn against a weak battery condition.
- Digital Alarm and Status Message Display.
- Generator set Monitoring: Displays status of all critical engine and alternator generator set functions.
- Smart Starting Control System: Integrated fuel ramping to limit black smoke and frequency overshoot.
- Advanced Serviceability using InPower, a PC-based software service tool.

### Control system

Includes all functions to locally or remotely start and stop, and protect the generator set.

### Control switch – RUN/OFF/AUTO

- OFF mode – the generator set is shut down and cannot be started.
- RUN mode – the generator set will execute its start sequence.
- AUTO mode – the generator set can be started with a start signal from a remote device.

**LED Indicating Lamps** – includes LED indicating lamps for the following functions:

- Not-in-auto mode
- Common wiring
- Shutdown
- Remote start command
- Panel lamps and switch
- Operator panel can be illuminated by a series of high-intensity LED Lamps
- Fault Reset Switch allows the operator to reset the control after a warning or shutdown condition
- Emergency Stop Switch - immediate shut down of the generator set on operation

### Base Engine Protection

- Overspeed shutdown
- Low Oil Pressure Warning / Shutdown
- High Engine Temperature Warning / Shutdown
- Underspeed / Sensor Fail Shutdown
- Fail to Start / Fail to Crank
- Low / high battery voltage

### Options

- Integrated PowerCommand digital paralleling controls
- Key type mode selector switch
- Exhaust temperature monitoring
- PowerCommand network
- Alternator temperature alarm(s).
- Refer to the PowerCommand Controls Technical Bulletin for detailed information (S1444)



## Generator set data sheet



**Model:** C3300 D5 (2660 DQLB)  
**Frequency:** 50  
**Fuel type:** Diesel  
**kVA rating:** 3000 Data Center Continuous

<b>Spec sheet:</b>	<b>SS18-CPGK</b>
<b>Noise data sheet:</b>	<b>ND50-OSHHP</b>
<b>Airflow data sheet:</b>	<b>AF50-HHP</b>
<b>Derate data sheet:</b>	<b>DD50-OSHHP</b>
<b>Transient data sheet:</b>	<b>RTF</b>

### Fuel consumption kVA (kW)

Ratings	3000 (2400)			
Load	1/4	1/2	3/4	Full
<b>US gph</b>	47.9	84.4	120.5	156.1
<b>L/hr</b>	181	320	457	592

### Engine

Engine manufacturer	Cummins
Engine model	QSK78G6
Configuration	Cast iron, 60 ° V18 cylinder
Aspiration	Turbocharged and low temperature aftercooled
Gross engine power output, kWm	2515
BMEP at set rated load, kPa	2160
Bore, mm	170
Stroke, mm	190
Rated speed, rpm	1800
Piston speed, m/s	11.4
Compression ratio	15.3:1
Lube oil capacity, L	413
Overspeed limit, rpm	2070 ±50
Regenerative power, kW	266
Governor type	Electronic
Starting voltage	24V Volts DC

### Fuel flow

Maximum fuel flow, L/hr	2225
Maximum fuel inlet restriction, mm Hg	RTF
Maximum fuel inlet temperature, °C	70

### Air

Combustion air, m <sup>3</sup> /min	210.9
Maximum air cleaner restriction, kPa	6.2

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<http://www.brizmotors.ru/equipment/cummins/c3300-d5/>

## Exhaust

Exhaust gas flow at set rated load, m <sup>3</sup> /min	487.8
Exhaust gas temperature, °C	440
Maximum exhaust back pressure, kPa	6.7

## Standard set-mounted radiator cooling

Ambient design, °C	RTF
Fan load, kW <sub>m</sub>	RTF
Coolant capacity (with radiator), L	RTF
Cooling system air flow, m <sup>3</sup> /sec @ 12.7 mmH <sub>2</sub> O	RTF
Total heat rejection, Btu/min	83955
Maximum cooling air flow static restriction mm H <sub>2</sub> O	RTF

## Weights\*

	Open
Unit dry weight kgs	24637
Unit wet weight kgs	25280

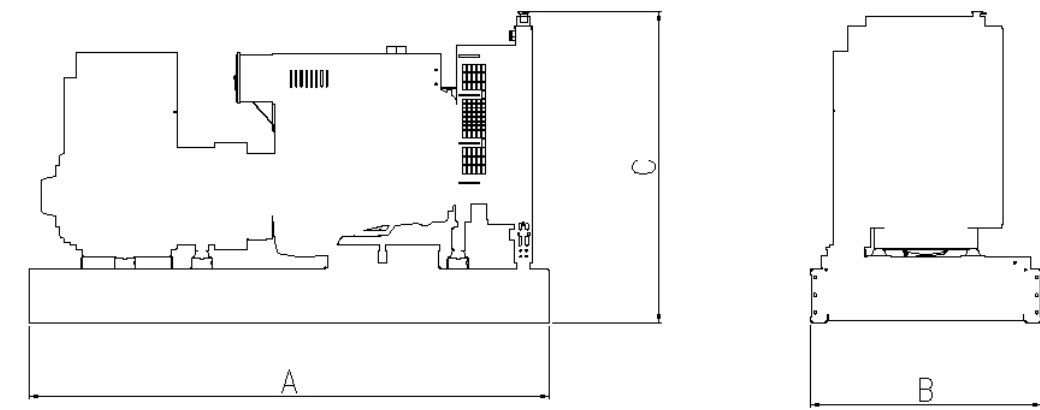
\* Weights represent a set with standard features. See outline drawing for weights of other configurations.

## Dimensions

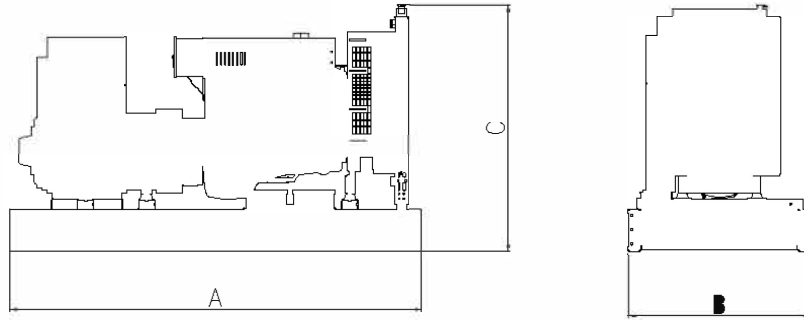
	Length	Width	Height
Standard open set dimensions (no cooling system)	7158	2251	2535

## Genset outline

### Open set



<http://www.brizmotors.ru/equipment/cummins/c3300-d5/>



This outline drawing is to provide representative configuration details for Model series only.



See respective model data sheet for specific model outline drawing number.

**Do not use for installation design**

Model	Dim "A" mm	Dim "B" mm	Dim "C" mm	Set Weight* dry kg	Set Weight* wet kg
<b>C3300 D5</b>	7158	2251	2535	25157	25800

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

### Codes and standards

	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.	<b>2000/14/EC</b>	All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.
	This generator set is available with CE certification.	<b>ISO 8528</b>	This generator set has been designed to comply with ISO 8528 regulation.