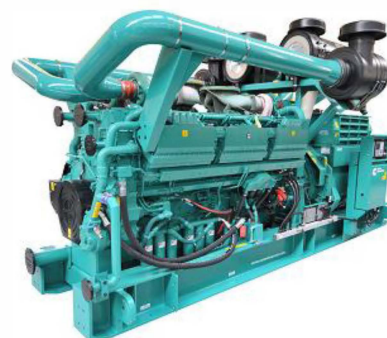


Diesel Generator set QSK78 series engine

2500 kVA - 2750 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 - Optional remote mounted horizontal cooling system, designed and tested for rated ambient temperatures, offers maximum flexibility for facility design requirements.

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

Model	50 Hz kVA (kW)	Emissions Compliance TA LUFT	Controller	Data sheets
C2750 D5	2500 (2000)	4g TA LUFT	3.3	DS335-CPGK-DC-RevA
C3000 D5	2750 (2200)	4g TA LUFT	3.3	DS352-CPGK-DC-RevA

Generator set specifications

Governor regulation	ISO 8528 G3
Steady state voltage regulation, no load to full load	± 0.25%
Steady state frequency variation	± 0.25%
Frequency regulation	Isochronous
EMC compatibility	Radiated emissions to BS EN 61000-6.3 Conducted immunity to BS EN 61000-6.2

Engine specifications

Design	4 cycle, V, turbo charged and low temperature after-cooled
Bore	170
Stroke	190
Displacement	77.6 L (4735 in ³)
Cylinder block	Cast iron, 18 cylinder
Battery capacity	1400 A
Battery charging alternator	55 amps
Starting voltage	24-volt, negative ground
Fuel system	Direct injection: number 2 diesel fuel, fuel filter, automatic electric fuel shutoff
Fuel filter	Triple element, 10 micron filtration, spin on fuel filter with water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Six spin-on, combination full flow and bypass filters
Cooling system	104 °F (40 °C) ambient

Alternator specifications

Design	Brushless, 4 pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	2 bearing, flexible coupling
Insulation system	Class H on low and medium voltage, Class F on high voltage
Standard temperature rise	150 °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	No load <1.5%. Non distorting balanced linear load <3%
Telephone influence factor (TIF)	< 50% per NEMA MG1-22.43
Telephone harmonic factor (THF)	< 2%

Available voltages

50 Hz line - neutral / line - line

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

Generator set options

Engine

- Water jacket heater
220/240 V
- Centinel
- Eliminator
- Pre-lube system

Alternator

- Alternator heater
- High humidity isolation
- Exciter voltage regulator (PMG)
- Temperature sensor – RTDs
- Temperature sensor – alternator bearing RTD

Generator set

- Vibration isolators
- Batteries
- Battery charger

Control panel

- PowerCommand 3.3
- Paralleling
- Multiple language support
- 240 V control anti-condensation

Exhaust system

- Exhaust silencer packages

Cooling system

- Radiator, 40 °C ambient
- Radiator, 50 °C ambient
- Remote cooling
- Fuel cooler, 40 ° ambient
- Fuel cooler, 50 °C ambient

Generator set

- 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.

PowerCommand® 3.3 control system



Control system

The PowerCommand® control system is an integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing.

AmpSentry – Includes integral AmpSentry protection, which provides a full range of alternator protection functions that are matched to the alternator provided.

Power management – Control function provides battery monitoring and testing features and smart starting control system.

Advanced control methodology – Three phase sensing, full wave rectified voltage regulation, with a PWM output for stable operation with all load types.

Communications interface – Control comes standard with PCCNet and Modbus interface.

Regulation compliant – Prototype tested: UL, CSA and CE compliant.

Service - InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

Reliable design – The control system is designed for reliable operation in harsh environment.

Multi-language support

Operator panel features

Operator panel features – The operator panel, in addition to the alternator, displays the Utility/AC Bus data.

Operator/display functions

- 320 x 240 pixels graphic LED backlight LCD
- Auto, manual, start, stop, fault reset and lamp test/panel lamp switches
- Alpha-numeric display with pushbuttons
- LED lamps indicating genset running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop

Paralleling control functions

- Digital frequency synchronization and voltage matching
- Isochronous kW and kvar load sharing controls
- Droop kW and kvar control
- Sync check
- Extended paralleling (Peak Shave/Base Load)
- Digital power transfer control (AMF) provides load transfer operation in open or closed transition or soft (ramping) transfer mode

Alternator data

- Line-to-neutral and line-to-line AC volts
- 3-phase AC current
- Frequency
- kW, kvar, power factor kVA (three phase and total)

Engine data

- DC voltage
- Engine speed
- Lube oil pressure and temperature
- Coolant temperature
- Comprehensive FAE data (where applicable)

Other data

- Genset model data
- Start attempts, starts, running hours, kW hours
- Load profile (operating hours at % load in 5% increments)
- Fault history
- Data logging and fault simulation (requires InPower)

Standard control functions

Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase, 4-wire line-to-line sensing
- Configurable torque matching

AmpSentry AC protection

- AmpSentry protective relay
- Over current and short circuit shutdown
- Over current warning
- Single and three phase fault regulation
- Over and under voltage shutdown
- Over and under frequency shutdown
- Overload warning with alarm contact
- Reverse power and reverse var shutdown
- Field overload

Engine protection

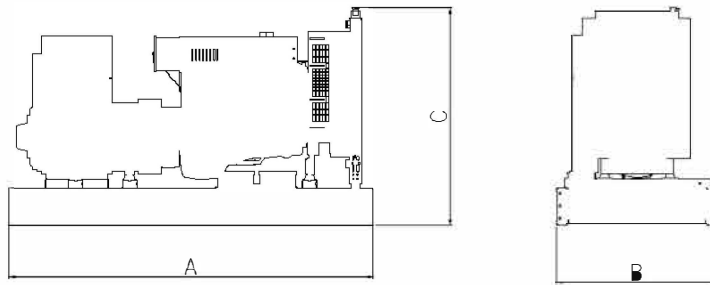
- Battery voltage monitoring, protection and testing
- Over speed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (over crank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown
- Full authority electronic engine protection

Control functions

- Time delay start and cool down
- Real time clock for fault and event time stamping
- Exerciser clock and time of day start/stop
- Data logging
- Cycle cranking
- Load shed
- Configurable inputs and outputs (4)
- Remote emergency stop

Options

- Auxiliary output relays (2)



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

Open set

Model	Dim "A" mm	Dim "B" mm	Dim "C" mm	Set Weight* dry kg	Set Weight* wet kg
C2750 D5	5668	2313	2300	19996	20616
C3000 D5	5668	2313	2300	19996	20616

* **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.



This generator set is available with CE certification.

ISO 8528

This generator set has been designed to comply with ISO 8528 regulation.

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