



# Diesel generator set QSK23 series engine

750 kVA - 900 kVA 50 Hz  
680 kW - 800 kW 60 Hz



## Description

This Cummins® commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for stationary standby, prime power, and continuous duty applications.

## Features

**Cummins HHP 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 and fault clearing short-circuit capability.

**Enclosure** - Optional sound attenuated enclosure is available.

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

**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.

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

**Motorized circuit breaker** - Optional 3 or 4 pole motorized circuit breaker available.

**ISO 8528-5 G3 Capable** – Refer to factory for site and configuration specific transient performance classification

Model	Standby rating		Prime rating		Emissions compliance	Data sheets	
	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)		50 Hz	60 Hz
C825 D5	825 (660)		750 (600)		TA Luft – EU Stage	DS32-CPGK	
C900 D5	900 (720)		820 (656)			DS33-CPGK	
C825D5E	825 (660)		750 (600)		EPA Tier 2	D-6550	
C900D5E	900 (720)		820 (656)		EPA Tier 2	D-6551	
C750 D6		750 (938)		680 (850)			DS77-CPGK
C800 D6		800 (1000)		725 (906)			DS78-CPGK

## Generator set specifications

Governor Regulation	ISO 8528-5 part 1
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMC compatibility	EN61000-6-4 / EN61000-6-2

## Engine specifications

Design	4 cycle, in-line, turbocharged and after-cooled
Bore	169.9 mm (6.69 in.)
Stroke	169.9 mm (6.69 in.)
Displacement	23.15 liter (1413 in <sup>3</sup> )
Cylinder block	Cast iron, 6 cylinder
Battery capacity	1800 amps at ambient temperature 0 °F to 32 °F (-18 °C to -0 °C)
Battery charging alternator	35 amps
Starting voltage	24 volt, negative ground
Fuel system	Direct injection
Fuel filter	Spin on fuel filters with water separator
Air cleaner type	Dry replaceable element with restriction indicator
Lube oil filter type(s)	Fleetguard dual venturi spin on, combination full flow and bypass
Standard cooling system	104 °F (40 °C) ambient radiator

## Alternator specifications

Design	Brushless, 4 pole, revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible disc
Insulation system	Class H
Standard temperature rise	150 °C
Exciter type	Permanent Magnet Generator (PMG)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform Total Harmonic Distortion (THDV)	No load < 1.5%. Non distorting balanced linear load < 5%
Telephone Influence Factor (TIF)	< 50% per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	< 2%

## Available voltages

50 Hz Line-Neutral/Line-Line	60 Hz Line – Neutral/Line – Line
<ul style="list-style-type: none"> <li>220/380</li> <li>230/400</li> <li>240/416</li> <li>255/440</li> </ul>	<ul style="list-style-type: none"> <li>120/208</li> <li>127/220</li> <li>220/380*</li> <li>230/400</li> <li>240/416</li> <li>255/440</li> <li>277/480</li> </ul>

\* Derate may be applicable at this voltage. Please consult factory for details.

## Generator set options and accessories

### Engine

- Heavy duty air cleaner
- Medium duty air cleaner
- Water jacket heater 220/240 V

### Alternator

- Alternator heater

### Cooling

- Antifreeze 50/50 (Ethylene glycol)
- Optional 50 °C cooling radiator

### Circuit breaker

- 3 or 4 pole main circuit breaker
- 3 or 4 pole motorized circuit breaker
- Aux contacts and trip alarm

### Control panel

- PowerCommand 3.3
- PowerCommand 3.3 MLD
- Shutdown audible alarm
- Shunt trip – 24 VDC
- Shutdown - Ground/Earth Fault (Single Set)

### Warranty

- 2 years for Prime application
- 5 years for Standby application

### Silencer

- 9 dB attenuation critical silencer
- 25 dB residential – delivered loose

### Base frame

- 1250 L integrated Fuel Tank
- 1000L integrated Fuel Tank

### Enclosure

- Sound attenuated enclosure

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

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## PowerCommand 3.3(MLD) control system

The PowerCommand 3.3 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, UKCA 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)

#### Masterless Load Demand (MLD)

- Load dependent start/stop of multi-gen system
- Predictive load input
- Run hour equalization



PowerCommand 3.3 control operator/display 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.

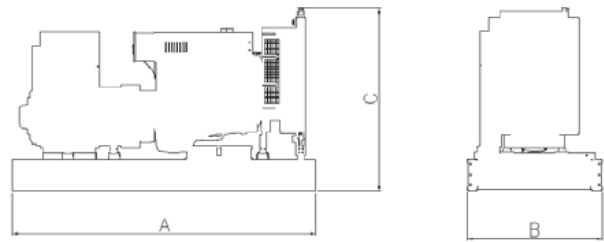
### Prime Power (PRP):

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.

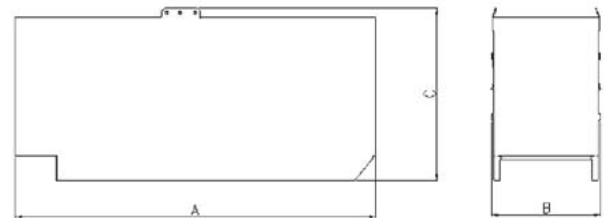
### Base Load (Continuous) Power (COP):

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.

OPEN



ENCLOSED



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	Open				Enclosed			
	Length "A" mm	Width "B" mm	Height "C" mm	Dry Wt. kg	Length "A" mm	Width "B" mm	Height "C" mm	Dry Wt. kg
<b>C825D5</b>	4340	1763	2095	6091	5708	2108	2467	9868
<b>C900D5</b>	4340	1763	2095	6091	5708	2108	2467	9868
<b>C825D5E</b>	4340	1763	2095	6091	5708	2108	2467	9868
<b>C900D5E</b>	4340	1763	2095	6091	5708	2108	2467	9868
<b>C750D6</b>	4340	1763	2095	6091	5708	2108	2467	9868
<b>C800D6</b>	4340	1763	2095	6091	5708	2108	2467	9868

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

## Codes and standards

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

	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.		The CE marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.
	This generator set is available with CSA compliance to product class 4215-01 as an option.		The UKCA marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.
<b>ISO 8528</b>	This generator set has been designed to comply with ISO 8528 standards.		

For more information contact your local Cummins distributor or visit [power.cummins.com](http://power.cummins.com)

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