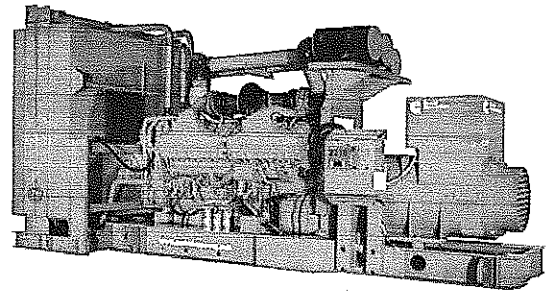


# Diesel generator set QSK60 series engine EPA emissions

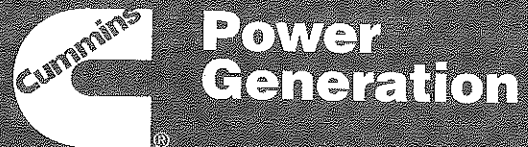


## > Specification sheet

1450 kW - 2250 kW 60 Hz

1200 kW - 2000 kW 50 Hz

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## Description

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



This generator set is designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO9002.



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. The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage. Circuit breaker assemblies are UL 489 Listed for 100% continuous operation and also UL 869A Listed Service Equipment.

## U.S. EPA

All 60 Hz models comply with EPA emissions requirements for stationary applications. Some 60 Hz models comply with EPA TPEM requirements for mobile applications.

## 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.

**Permanent magnet generator** - Offers enhanced motor starting and fault clearing short-circuit capability.

**Control system** - The PowerCommand® 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, AmpSentry™ protection, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

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

**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
DQKB	1750 (2188)	1500 (1875)	1600 (2000)	1350 (1688)	1450 (1813)	1200 (1500)	D-3220/3224	D-3221
DQKC	2000 (2500)	1650 (2063)	1825 (2281)	1500 (1875)	1600 (2000)	1200 (1500)	D-3222/3225	D-3223
DQKD		1800 (2250)		1600 (2000)		1320 (1650)		D-3250
DQKH	2250 (2813)	2000 (2500)					D-3235	D-3236

## Generator set specifications

Governor regulation class	ISO8528 Part 1 Class G3
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
Radio frequency emissions compliance	IEC 801.2 through IEC 801.5; MIL STD 461C, Part 9

## Engine specifications

Design	4 cycle, V-block, turbocharged and low temperature aftercooled
Bore	158.8 mm (6.25 in)
Stroke	190.0 mm (7.48 in)
Displacement	60.2 litres (3673 in <sup>3</sup> )
Cylinder block	Cast iron, 60°V, 16 cylinder
Battery capacity	2200 amps minimum at ambient temperature of -18 °C to 0 °C (0 °F to 32 °F)
Battery charging alternator	40 amps
Starting voltage	24 volt, negative ground
Fuel system	Direct injection: number 2 diesel fuel
Fuel filter	Triple element, 10 micron filtration, spin-on fuel filters with water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Four spin-on, combination full flow and bypass filters
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 is available on low and medium voltage, Class F is available 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	< 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

60 Hz line-neutral/line-line				50 Hz line-neutral/line-line			
• 219/380	• 277/480	• 2400/4160	• 7620/13200	• 220/380	• 240/415	• 1905/3300	• 3810/6600
• 254/440	• 347/600	• 7200/12470	• 7970/13800	• 230/400	• 254/440	• 3640/6300	• 6350/11000

\* Note: Consult factory for other voltages.

## Generator set options and accessories

<p><b>Engine</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Low exhaust emission configuration DQKB 60 Hz, 5.5 g/hp-hr NO<sub>x</sub> data sheet D-3224</li> <li><input type="checkbox"/> DQKC 60 Hz, 5.5 g/hp-hr NO<sub>x</sub> data sheet D-3225</li> <li><input type="checkbox"/> 208/240/480 V coolant heater for ambient above 4.5 °C (40 °F)</li> <li><input type="checkbox"/> 208/240/480 V coolant heater for ambient below 4.5 °C (40 °F)</li> <li><input type="checkbox"/> High capacity oil pan</li> </ul> <p><b>Cooling system</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Radiator, 50 °C ambient</li> <li><input type="checkbox"/> Heat exchanger cooling</li> <li><input type="checkbox"/> Remote radiator cooling</li> </ul>	<p><b>Control panel</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 120/240 V, 100 W control anti-condensation space heater</li> <li><input type="checkbox"/> Paralleling configurations</li> <li><input type="checkbox"/> Remote fault signal package</li> <li><input type="checkbox"/> Run relay package</li> </ul> <p><b>Exhaust system</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Industrial grade exhaust silencer</li> <li><input type="checkbox"/> Residential grade exhaust silencer</li> <li><input type="checkbox"/> Critical grade exhaust silencer</li> </ul>	<p><b>Alternator</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 80 °C rise alternator</li> <li><input type="checkbox"/> 105 °C rise alternator</li> <li><input type="checkbox"/> 125 °C rise alternator</li> <li><input type="checkbox"/> 120/240 V, 300 W anti-condensation heater</li> <li><input type="checkbox"/> Temperature sensor - RTDs, 2/phase</li> <li><input type="checkbox"/> Temperature sensor - alternator bearing RTD</li> <li><input type="checkbox"/> Differential current transformers</li> </ul>	<p><b>Generator set</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> DQKC 60 Hz, 5.5 g/hp-hr NO<sub>x</sub> data sheet D-3225</li> <li><input type="checkbox"/> 208/240/480 V coolant heater</li> <li><input type="checkbox"/> Batteries</li> <li><input type="checkbox"/> Battery Rack w/hold-down - floor standing</li> <li><input type="checkbox"/> Circuit breaker - set mounted</li> <li><input type="checkbox"/> Disconnect switch - set mounted</li> <li><input type="checkbox"/> PowerCommand network</li> <li><input type="checkbox"/> Remote annunciator panel</li> <li><input type="checkbox"/> Spring isolators</li> <li><input type="checkbox"/> 2 year warranty</li> <li><input type="checkbox"/> 5 year warranty</li> <li><input type="checkbox"/> 10 year major components warranty</li> </ul>
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\* Note: Some options may not be available on all models - consult factory for availability.

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## Control system

### Operator panel features

**Analog AC metering panel** - Provides color-coded display of generator set output voltage, current, frequency, power factor and kW. All phases of voltage and current are simultaneously displayed. Easy to see output status from a distance.

**Graphical data display** - Allows operator to view all engine and alternator data; perform operator adjustments for speed, voltage and time delays; view fault history; and set up and adjust the generator set (set up requires password access). A portion of the display is allocated to display system status including alarm and shutdown conditions. Display is controlled by sealed membrane switches. Up to 9 lines of data can be displayed with approximately 26 characters per line.

**LED status lamps** - The status lamps indicate remote start command (green), not in auto (red-flashing), warning (amber) and shutdown (red).

**Mode selector switch** - Off/manual/auto and run/stop switches allow remote automatic starting or manual starting from the operator panel. Panel includes an LED lamp to indicate manual mode operation.

**Exerciser switch** - Automated exercise function in the control allows an operator to initiate an exercise period and have it automatically completed by the control.

**Fault reset switch** - Allows the operator to reset the control after a warning or shutdown condition. LED lamp with switch indicates that a fault is present on the system.

**Panel lamps and switch** - Operator panel can be illuminated by a series of high-intensity LED lamps controlled by a membrane switch on the panel. Panel lamps include a time delay to automatically switch off after a preset time period.

**Emergency stop switch** - Provides positive and immediate shutdown of the generator set on operation.

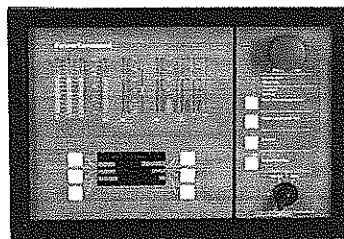
**Construction** - Operator panel is a sealed design with membrane switches for most functions. Mechanical switches are oil-tight design. Plug interfaces are provided to the generator set control system. Display panel labeling is configurable for language.

### Standard control functions

- Integrated Isochronous governing and fuel control system.
- Integrated 3-phase sensing voltage regulation system with automatic single and three phase fault regulation.
- Integrated AC protective functions include over/under voltage, short-circuit, overcurrent (warning and shutdown) and overload.
- Integrated engine management system including configurable cycle-cranking functions and configurable start sequence.
- Comprehensive warning and shutdown protection including customer configurable warning and shutdown conditions.
- Comprehensive data displays including 3-phase AC voltage, current, power factor, kW and kVA; engine oil pressure, coolant temperature, DC volts and other service functions; operating history (load and fault conditions) and system setup information.

### Options

- Integrated digital paralleling controls including options for semi-automatic and automatic (isolated bus) applications.
- LonMark compliant network interface.
- Control anti-condensation heater.
- Key-type mode select switch.
- Relay outputs for genset running, common warning and common shutdown.
- Exhaust temperature alarm.
- Alternator temperature alarm(s).
- Centinel™ lube oil burn system.
- Power transfer control function to allow generator set to control remote power circuit breakers for open, fast closed or soft (ramping) power transfer from a utility source to the genset (2 minute maximum fail-to-disconnect timer).



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 **Power  
Generation**

## 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):

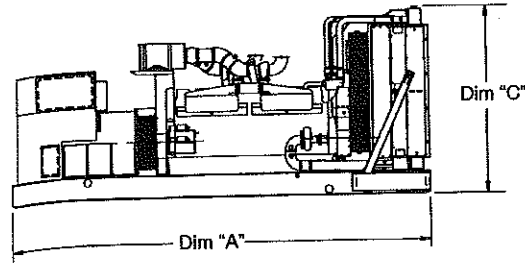
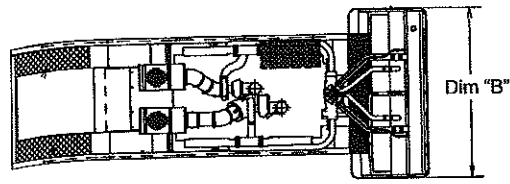
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

### 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)
DQKB	6175 (243)	2286 (90)	2537 (100)	14365 (31669)	14868 (32779)
DQKC	6175 (243)	2286 (90)	2537 (100)	14649 (32296)	15152 (33405)
DQKD	6175 (243)	2286 (90)	2537 (100)	14863 (32767)	15366 (33876)
DQKH	6175 (243)	2494 (98)	3116 (123)	15254 (33629)	15781 (34790)

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

## Cummins Power Generation

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Important: 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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