



Tier4 certified diesel generator set QSK78 series engine

2500 kW 60 Hz

Data Center Continuous EPA emissions



Description

Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary Standby, Prime and Continuous duty power 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.

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.

Cummins aftertreatment system - Fully integrated power generation systems that are certified to EPA Tier 4 standards. They provide optimum performance, reliability and versatility for stationary Standby, Prime Power and Continuous duty applications.

Permanent Magnet Generator (PMG) - 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 remote cooled configuration with an optional remote radiator package available.

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

NFPA - The generator set accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

Model	60 Hz kW (kVA)	Data sheets 60 Hz
DQLH	2500 (3125)	D-3542-DC

Generator set specifications

Governor regulation class	G2
Steady state voltage regulation, no load to full load	+/- 0.5%
Random voltage variation	+/- 0.5%
Frequency regulation	Isochronous
Steady state frequency band	+/- 0.5%
Radio frequency emissions compliance	BS EN61000-6-4:2001 emissions-industrial
Immunity frequency emissions compliance	BS EN61000-6-2:2001 immunity-industrial IEC 801.2 through IEC 801.5; MIL STD 461C, Part 9

Engine specifications

Bore	170.0 mm (6.69 in)
Stroke	190.0 mm (7.48 in)
Displacement	77.6 litres (4735 in ³)
Configuration	Cast iron, V 18 cylinder
Battery capacity	2200 amps minimum at ambient temperature of -18 °C to 0 °C (0 °F to 32 °F)
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 standard; heavy duty optional
Lube oil filter type(s)	Six spin-on, combination full flow filter and bypass filters; Eliminator™ option available
Standard cooling system	Remote radiator cooling connections

Aftertreatment specifications

Model	CA542
Emissions certification	Tier4F certified
Duct diameter	1372 mm (54 in)
Duct quantity	2
Components included	Insulated aftertreatment ducts, saddle supports for aftertreatment, control panel, DEF tank, heater with ILB, harness from control panel to engine and AFT, lifting tool. Assembly required at site.

Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Two bearing, flexible coupling
Insulation system	Class H on low voltage and medium, Class F on high voltage
Standard temperature rise	125 °C Standby at 40 °C ambient
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)	< 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

• 380	• 480	• 4160	• 13200
• 440	• 600	• 12470	• 13800

Note: Consult factory for other voltages.

Generator set options and accessories

Engine

- 208/240/480 V coolant heater for ambient above 4.5 °C (40 °F) - 10,000 W max
- 208/240/480 V coolant heater for ambient below 4.5 °C (40 °F) - 12,840 W max

Control panel

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

Alternator

- 80 °C rise
- 105 °C rise
- 125 °C rise
- 150 °C rise
- 120/240 V 300 W anti-condensation heater
- Temperature sensor - RTDs, 2/phase
- Temperature sensor - alternator bearing RTD
- Differential current transformers

Cooling system

- Remote radiator
- High ambient cooling system (ship loose)
- Enhanced high ambient cooling system (ship loose)

Aftertreatment system

- DEF lines
- DEF freeze protection kit
- SCR w/heater and DPF configuration

Generator set

- Battery
- Battery rack with 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
- Redundant electrical starters and best battery diode system
- Closed crank ventilation system
- Oil sampling valve
- Propylene glycol coolant
- 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 lead times. Please consult with the Custom Applications Group to understand feasibility.

PowerCommand 3.3 – 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

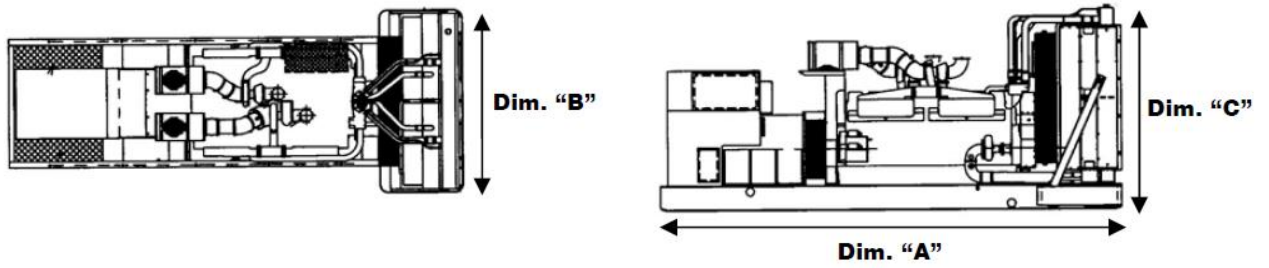
- Battery voltage monitoring, protection and testing
- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (over crank) shutdown
- Fail to crank shutdown
- 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

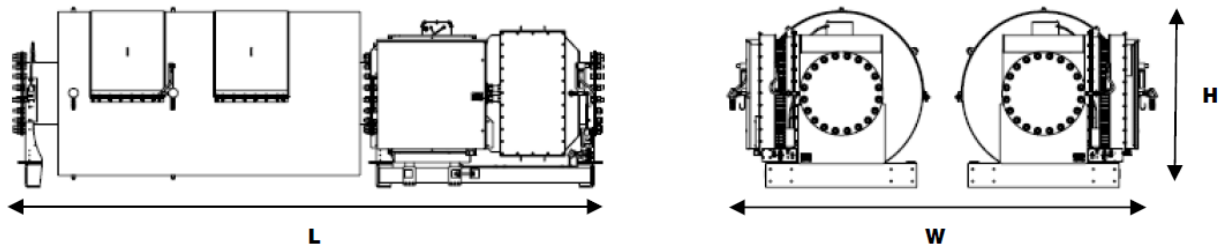
- Auxiliary output relays (2)



Generator set weights and dimensions

Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Set weight* dry kg (lbs)	Set weight* wet kg (lbs)
DQLH	7138 (281)	2750 (108)	3387 (133)	22865 (50408)	236432 (52122)

* With standard features and P80X alternator. See outline drawings for other configurations.
 Note: Dimension and weights are subject to change. See submittal data for exact details.








Aftertreatment weights and dimensions

Aftertreatment model number*	Genset model	L (Length) mm (in.)	W (minimum Width) mm (in.)	H (Height) mm (in.)	Weight of aftertreatment system (lbs)
CA542	DQLH	5005 (197)	3582 (141)	1497 (58.9)	12734

* Due to multiple configurations of the CA542 model, maximum weight of the model is shown.
 Note: Dimension and weights are subject to change. See submittal data for exact details.

Codes and standards

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

	<p>The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.</p>		<p>The generator set is available listed to UL 2200 for all 60 Hz low voltage models, 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.</p>
	<p>All low and medium voltage models are CSA certified to product class 4215-01.</p>	<p>U.S. EPA</p>	<p>Engine certified to US EPA Nonroad 40CFR1039 and Stationary (Emergency and Non-Emergency) US EPA NSPS, 60CFR Subpart IIII Tier4 Emissions Standards.</p>
	<p>The Aftertreatment System bears the ETL Listed Mark as proof of conformity to NFPA 79, UL 61010C-1, and CSA 22.2 No. 61010-1-12.</p>		
	<p>This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.</p>	<p>International Building Code</p>	<p>The genset package is certified for seismic application in accordance with the following International Building Code: IBC2015.</p>

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.

For more information contact your local Cummins distributor or visit power.cummins.com

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