Specification sheet

Diesel Generator set QSK60-G23 engine

2500 kVA 50Hz

Data Center Power



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 Power (DCP) - 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 sets.

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

Model	50 Hz kVA (kW)
C2500D5 (QSK-60-G23)	2500 (2000)

Permanent magnet generator (PMG) – Offers enhanced motor starting and fault clearing short circuit capability.

Alternator - Offers P80 Alternator with better motor starting capability with low reactance windings or 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. Remote Radiator or Heat Exchanger Cooling Options are also available.

Warranty - Cummins® 'QSK60 series' diesel engine generating sets are a truly cost effective solution to long term power need backed by industry best comprehensive warranty of 2 years/ 5000 running hours or 30 months from the date of manufacturing. (whichever is earlier), for the entire generating set.

Generator set specifications

Governor regulations class	ISO 8528 G2 Class
Voltage regulation no load to full load	± 0.5%
Random Voltage Variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMC Capability	EN61000-6-2:2005 EN61000-6-4 :2007

Engine specifications

Design	4 cycle. V- block. turbo charged, after cooled
Bore	159 mm (6.25 Inch)
Stroke	190 mm (7.48 Inch)
Displacement	60.2 L (3673 cubic Inch Displacement)
Cylinder block engine	16 cylinder 60 deg V format Direct Inj, 4 cycle diesel
Starting voltage	24 volts – ve Ground
Fuel System	Direct Injection
Fuel Filter	Paper Element type Filters with water seperator
Air Cleaner type	Dry Replaceable element
Lube Oil Filter	Standard Paper elememnt Lube oil filters

Alternator specifications

Design	Brushless, 4 Pole drip proof revolving field
Rotor	Flexible Coupling
Insulation system	Class H for LV and Class F for HV
Excitor Type	PMG(Permanent Magnet Generator)
Phase rotations	A(U) B(V) C(W)
Alternator cooling	Direct drive centrifugal blower fan
AC Waveform total Harmonics Distortion	No Load 1.5% Non distorting balanced linear load<3%
Telephonic influence factor (TIF)	<50% as per NEMA MG1-22.43
Total harmonic factor (THF)	No load <1.5% Non distorting balanced linear load < 5%

Available voltages
50 Hz line – neutral / line - line
240/415
1905/3300
3810/6600
6350/11000
* Please Consult factory for option details.



PowerCommand® PC 3.3 with MLD

An integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing. Refer to document S-1570 for more detailed information on the control.

AmpSentry™ - Includes integral ArnpSentry™ 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 – Controlcomes 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.

Easily upgradeable – PowerCommand controls are designed with common control interfaces.

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

Multi-language support

Operator panel features

Operator/ Display Functions

- Displays paralleling breaker status
- Provides direct control of the paralleling breaker
- 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

- First Start Sensor System selects first genset to close to bus
- Phase Lock Loop Synchronizer with voltage matching
- Sync check relay
- Isochronous kW and kVar load sharing
- Load govern control for utility paralleling
- Extended Paralleling (baseload/peak shave) Mode
- Digital power transfer control, for use with a breaker pair to provide open transition, closed transition, ramping closed transition, peaking and base load functions

MLD features

- Load dependent start/stop
- Run hour equalization
- Built-in Logic
- Single point MLD setting
- System monitoring
- Master-less
- Single point remote start
- Predictive Load input
- Dedicated screens

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

- 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 shutdown

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 (overcrank) 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

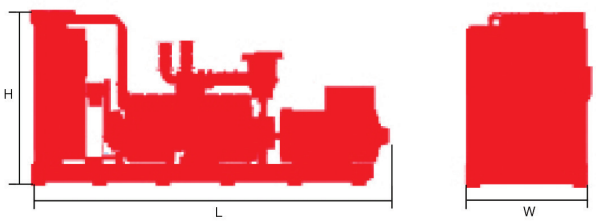
Options

- Auxiliary output relays (2)

Typical Diesel Genset Dimensions*

Genset Model	RatingRating (kVA)	Length (mm)	Width (mm)	Height (mm)	Weight (kgs.) (Wet)	Std. Fuel Tank Capacity (Ltrs - External)
C2500 D5 QSK-60-G23 Open Set	2500 kVA	7108	2512	3403	24709	990

- The dimensions are subject to change - Please consult factory for correct sizes



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.

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

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