Specification Sheet

Diesel Generator Set QSK95 Series Engine

2600 kVA-3750 kVA 50 Hz Emissions Regulated

Description

Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, fuel economy, reliability and versatility for stationary Standby, Prime and Continuous power 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 windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Control System - The PowerCommand® digital 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™ protective relay, output metering and auto-shutdown.

Cooling System - Standard and enhanced integral set-mounted radiator systems, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat. Also optional remote cooled configuration for non-factory supplied cooling systems.

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.

ISO8528-5 G3 Capable - refer to factory for site and configuration specific transient performance classification

	Standby Rating	Prime Rating	Continuous Rating	Emissions Compliance	Data Sheets
Model	50 Hz kVA (kW)	50 Hz kVA (kW)	50 Hz kVA (kW)	EPA	50 Hz
C3500 D5e	3500 (2800)	3125 (2500)	2600 (2080)	<2000 mg NOx Emitter*	NAD-5830-EN
C3500 D5e	3500 (2800)	3125 (2500)	2750 (2200)	Tier 2	NAD-5938-EN
C3750 D5e	3750 (3000)	3350 (2680)	3000 (2400)	Tier 2	NAD-5986-EN

*Engine designed to emit <2000 mg/Nm^3 @ 5% O_2 (<750 mg/Nm^3 NOx@ 15% O_2) NOx from 30% -100% load at standard conditions of 2C, 100 kPa, 30% RH and <7% FAME diesel fuel
Note: All ratings include radiator fan losses.

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Generator Set Specifications

Performance Class	Genset models have been tested in accordance with ISO 8528-5. Consult factory for transient performance information.
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
Electromagnetic Compatibility Performance	Emissions to EN 61000-6-2:2005 Immunity to EN 61000-6-4:2007+A1:2011 Complies with ICES-002

Engine Specifications

Bore	190 mm (7.48 in.)
Stroke	210 mm (8.27 in.)
Displacement	95.3 litres (5816 in^3)
Configuration	Cast iron, V 16 cylinder
Battery capacity	6 x 1400 amps minimum at ambient temperature of -18 °C (0 °F)
Battery charging alternator	140 amps
Starting voltage	24 volt, negative ground
Fuel system	Cummins modular common rail system
Fuel filter	On engine triple element, 5 micron primary filtration with water separators, 3 micron/2 micron (filter in filter design) secondary filtration.
Fuel transfer pump	Electronic variable speed priming and lift pump
Breather	Cummins impactor breather system
Air cleaner type	Unhoused dry replaceable element
Lube oil filter type(s)	Spin-on combination full flow filter and bypass filters
Standard cooling system	High ambient compact cooling system (ship loose) High ambient cooling system (ship loose)

Alternator Specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	Optimal
Rotor	Two bearing, flexible coupling
Insulation system	Class H on low and medium voltage, Class F on high voltage
Standard temperature rise	125 ºC Standby/105 ºC Prime
Exciter type	Optimal
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
Anti-condensation heater	1400 watt

Available Voltages

50 Hz Line – Neutral/Line – Line

• 220/380	• 254/440	• 3464/6000	• 5775/10000
• 230/400	• 400/690	• 3637/6300	• 6060/10500
• 240/415	• 1905/3300	• 3810/6600	• 6350/11000

Note: Consult factory for other voltages.

Generator Set Options and Accessories

Engine

- 480 V thermostatically controlled coolant heater for ambient above 4.5 °C (40 °F)
- Heavy duty air cleaner
- Redundant fuel filter
- Air starter
- Redundant electric starting
- Lube oil make up
- Coalescing breather filter

Alternator

- 80 °C rise
- 105 °C rise
- 125 °C rise
- 150 °C rise
- Differential current transformers

Cooling system

- Enhanced high ambient cooling system (ship loose)
- Remote cooled configuration
- High ambient compact cooling system (ship loose)
- High ambient cooling system (ship loose)

Generator Set Options and Accessories (continued)

Control Panel

- Multiple language support
- Ground fault indication
- Remote annunciator panel
- Paralleling and shutdown alarm relay package
- Floor mounted pedestal installed control panel

Generator Set

- Battery
- Battery charger
- LV and MV entrance box
- Spring isolators
- Factory witness tests
- IBC Certification
- HCAI Certification
- IEEE Certification

Warranty

- 3, 5, or 10 years for Standby including parts (labor and travel optional)
- 2 or 3 years for Prime including parts, labor and travel

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

PowerCommand 3.3 – Control System

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 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.

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 (Base Load/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.

Other Control Features

- 150 watt anti-condensation heater
- DC distribution panel
- AC auxiliary distribution panel

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)
- Winding temperature
- Bearing temperature

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)
- Air cleaner restriction indication
- Exhaust temperature in each cylinder

Standard Control Functions

Digital Governing

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Standard Control Functions (continued)

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 (20)
- Remote emergency stop

Ratings Definitions

Emergency Standby Power (ESP):

Applicable for supplying power continuously to varying electrical loads for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528 and ISO 3046-1, obtained and corrected in accordance with ISO 15550).

Limited-Time Running Power (LTP):

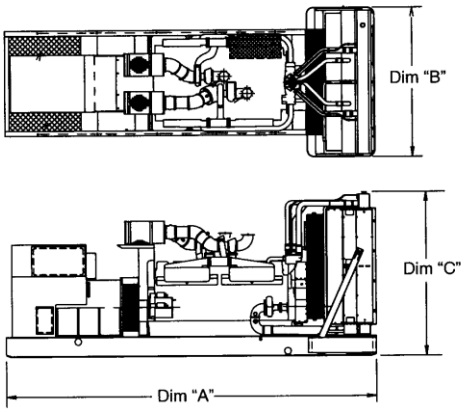
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

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 3046-1. Data shown above represents gross engine performance and capabilities as per ISO 3046-1, obtained and corrected in accordance with ISO 15550.

Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant load up to the full output rating for unlimited hours. No sustained overload capability is available for this rating. Consult authorized distributor for rating. (Equivalent to Continuous Power in accordance with ISO 8528 and ISO 3046-1, obtained and corrected in accordance with ISO 15550).



This outline drawing is for reference only. See PowerSuite library 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)
C3500 D5e	7902 (311)	3028 (119)	3663 (144)	29526 (65092)	31194 (68771)
C3750 D5e	7902 (311)	3028 (119)	3663 (144)	29526 (65092)	31194 (68771)

* Weights and dimensions represent a set with standard features and alternator frame P80X. See outline drawing for weights and dimensions of other configurations.

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Codes and Standards

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

ISO 9001 **ISO14001** **ISO 45001**	This product was manufactured in a facility whose quality management system is certified to ISO 9001 and its Health Safety Environmental Management Systems certified to ISO 14001 and ISO 45001.	CE	The CE marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.
	All genset models are available as CSA certified to CSA C22.2 No.100	UKCA	The UKCA marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.
		ISO 8528	This generator set has been designed to comply with ISO 8528 standards.
U.S. EPA	Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards, 40 CFR 60 subpart IIII Tier 2 exhaust emission levels.	**International Building Code**	The generator set package is available certified for seismic application in accordance with International Building Code.

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

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