Diesel generator set QSK95 series engine

3125 kVA - 3350 kVA 50 Hz
Data Center Continuous
Emissions regulated

Description
Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for Data Center 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 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.

<table>
<thead>
<tr>
<th>Model</th>
<th>50 Hz kVA (kW)</th>
<th>Emissions compliance EPA and TA Luft</th>
<th>Data sheets 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3500 D5e</td>
<td>3125 (2500)</td>
<td>2g TA Luft Tier 2</td>
<td>NAD-5830-DC NAD-5938-DC</td>
</tr>
<tr>
<td>C3750 D5e</td>
<td>3350 (2680)</td>
<td>Tier 2</td>
<td>NAD-5986-DC</td>
</tr>
</tbody>
</table>

Note: All ratings include radiator fan losses.
Generator set specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor regulation class</td>
<td>ISO 8528 Part 1 Class G3</td>
</tr>
<tr>
<td>Voltage regulation, no load to full load</td>
<td>± 0.5%</td>
</tr>
<tr>
<td>Random voltage variation</td>
<td>± 0.5%</td>
</tr>
<tr>
<td>Frequency regulation</td>
<td>Isochronous</td>
</tr>
<tr>
<td>Random frequency variation</td>
<td>± 0.25%</td>
</tr>
<tr>
<td>EMC compatibility</td>
<td>Emissions to EN61000-6-4 Immunity to EN61000-6-2</td>
</tr>
</tbody>
</table>

Engine specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore</td>
<td>190 mm (7.48 in.)</td>
</tr>
<tr>
<td>Stroke</td>
<td>210 mm (8.27 in.)</td>
</tr>
<tr>
<td>Displacement</td>
<td>95.3 litres (5815 in³)</td>
</tr>
<tr>
<td>Configuration</td>
<td>Cast iron, V 16 cylinder</td>
</tr>
<tr>
<td>Battery capacity</td>
<td>6 x 1400 amps minimum at ambient temperature of -18 °C (0 °F)</td>
</tr>
<tr>
<td>Battery charging alternator</td>
<td>140 amps</td>
</tr>
<tr>
<td>Starting voltage</td>
<td>24 volt, negative ground</td>
</tr>
<tr>
<td>Fuel system</td>
<td>Cummins modular common rail system</td>
</tr>
<tr>
<td>Fuel filter</td>
<td>On engine triple element, 5 micron primary filtration with water separators, 3 micron/2 micron (filter in filter design) secondary filtration</td>
</tr>
<tr>
<td>Fuel transfer pump</td>
<td>Electronic variable speed priming and lift pump</td>
</tr>
<tr>
<td>Breather</td>
<td>Cummins impactor breather system</td>
</tr>
<tr>
<td>Air cleaner type</td>
<td>Unhoused dry replaceable element</td>
</tr>
<tr>
<td>Lube oil filter type(s)</td>
<td>Spin-on combination full flow filter and bypass filters</td>
</tr>
<tr>
<td>Standard cooling system</td>
<td>High ambient cooling system (ship loose)</td>
</tr>
</tbody>
</table>

Alternator specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Brushless, 4 pole, drip proof, revolving field</td>
</tr>
<tr>
<td>Stator</td>
<td>Optimal</td>
</tr>
<tr>
<td>Rotor</td>
<td>Two bearing, flexible coupling</td>
</tr>
<tr>
<td>Insulation system</td>
<td>Class H on low voltage and medium, Class F on high voltage</td>
</tr>
<tr>
<td>Standard temperature rise</td>
<td>125 °C Standby/105 °C Prime</td>
</tr>
<tr>
<td>Exciter type</td>
<td>Optimal</td>
</tr>
<tr>
<td>Phase rotation</td>
<td>A (U), B (V), C (W)</td>
</tr>
<tr>
<td>Alternator cooling</td>
<td>Direct drive centrifugal blower fan</td>
</tr>
<tr>
<td>AC waveform Total Harmonic Distortion (THDV)</td>
<td>&lt; 5% no load to full linear load, &lt; 3% for any single harmonic</td>
</tr>
<tr>
<td>Telephone Influence Factor (TIF)</td>
<td>&lt; 50 per NEMA MG1-22.43</td>
</tr>
<tr>
<td>Telephone Harmonic Factor (THF)</td>
<td>&lt; 3</td>
</tr>
<tr>
<td>Anti-condensation heater</td>
<td>1400 watt</td>
</tr>
</tbody>
</table>

Available voltages

- 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

- 400 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
- Eliminator oil filter system
- 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

Control panel

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

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Generator set options and accessories (continued)

Generator set
- Battery
- Battery charger
- LV and MV entrance box
- Spring isolators
- Factory witness tests
- IBC, OSHPD, IEEE seismic 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.

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.

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

Digital voltage regulation
- Integrated digital electronic voltage regulator
- 3-phase, 4-wire Line-to-Line sensing
- Configurable torque matching

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Standard control functions (continued)

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

Do not use for installation design
This outline drawing is for reference only. See PowerSuite library for specific model outline drawing number.

<table>
<thead>
<tr>
<th>Model</th>
<th>Dim “A”* mm (in.)</th>
<th>Dim “B”* mm (in.)</th>
<th>Dim “C”* mm (in.)</th>
<th>Set weight* dry kg (lbs)</th>
<th>Set weight* wet kg (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3500 D5e</td>
<td>7902 (311)</td>
<td>3028 (119)</td>
<td>3663 (144)</td>
<td>29526 (65092)</td>
<td>31194 (68771)</td>
</tr>
<tr>
<td>C3750 D5e</td>
<td>7902 (311)</td>
<td>3028 (119)</td>
<td>3663 (144)</td>
<td>29526 (65092)</td>
<td>31194 (68771)</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>CE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 9001</td>
<td>This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.</td>
<td>CE</td>
<td>This generator set is available with CE certification.</td>
</tr>
<tr>
<td>ISO 8528</td>
<td>All models are CSA certified to product class 4215-01.</td>
<td>ISO8528</td>
<td>This generator set has been designed to comply with ISO8528 regulation.</td>
</tr>
<tr>
<td>U.S. EPA</td>
<td>Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards, 40 CFR 60 subpart III Tier 2 exhaust emission levels.</td>
<td>ISO8528</td>
<td>The engine used in this generator set complies with TA Luft Standards of 2g/nm³ (4.8g/bhp-hr) NOx at Prime rating corrected to 5% oxygen content and measured in accordance with ISO 8178.</td>
</tr>
</tbody>
</table>

**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.