Specification sheet

Diesel generator set QSK78 series engine
1950 kW - 2500 kW 60 Hz

Description
Cummins Power Generation commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby, prime power and continuous duty 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 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

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 and enhanced integral set-mounted radiator systems, designed and tested for rated ambient temperatures to simplify the 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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Standby rating</th>
<th>Prime rating</th>
<th>Continuous rating</th>
<th>Data sheets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DQLC</td>
<td>2500 (3125)</td>
<td>2335 (2920)</td>
<td>1950 (2438)</td>
<td>D-3337</td>
</tr>
</tbody>
</table>
**Generator set specifications**

<table>
<thead>
<tr>
<th>Governor regulation class</th>
<th>± 0.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady state voltage regulation, no load to full load</td>
<td>± 0.5%</td>
</tr>
<tr>
<td>Frequency regulation</td>
<td>Isochronous</td>
</tr>
<tr>
<td>Steady state frequency band</td>
<td>± 0.5%</td>
</tr>
<tr>
<td>Radio frequency emissions compliance</td>
<td>BS EN 61000-6-2:2001 immunity-industrial</td>
</tr>
<tr>
<td>Immunity frequency emissions compliance</td>
<td>IEC 801.2 through IEC 801.5; MIL STD 461C, Part 9</td>
</tr>
</tbody>
</table>

**Engine specifications**

- **Bore**: 170.0 mm (6.69 in)
- **Stroke**: 190.0 mm (7.48 in)
- **Displacement**: 77.6 litres (4735 in³)
- **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**: 40 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
- **Lube oil filter type(s)**: Six spin-on, combination full flow filter and bypass filters
- **Standard cooling system**: High ambient cooling system

**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**: 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**

<table>
<thead>
<tr>
<th>60 Hz line-neutral/line-line</th>
</tr>
</thead>
<tbody>
<tr>
<td>380</td>
</tr>
<tr>
<td>440</td>
</tr>
</tbody>
</table>

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 air temperature (ship loose)
- Enhanced high ambient air temperature (ship loose)

**Exhaust system**
- Residential grade exhaust silencer
- Critical grade exhaust silencer

**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

Note: Some options may not be available on all models - consult factory for availability.
Control system PCC3201

**PowerCommand control** is an integrated generator set control system providing governing, voltage regulation, engine protection and operator interface functions. Major features include:
- Integral AmpSentry™ Protective Relay providing a full range of alternator protection functions that are matched to the alternator provided.
- Battery monitoring and testing features and smart starting control system.
- Three phase sensing, full wave rectified voltage regulation system, with a PWM output for stable operation with all load types.
- Control suitable for operation in ambient temperatures from -40 °C to +70 °C (-40 °F to +158 °F) and altitudes to 5000 meters (13,000 feet).
- Prototype tested; UL, CSA, and CE compliant.
- InPower™ PC-based service tool available for detailed diagnostics.
- Optional Echelon® LonWorks® network interface.

**Operator/display panel**
- Off/manual/auto mode switch
- Manual run/stop switch
- Panel lamp test switch
- Emergency stop switch
- Exercise switch
- Alpha-numeric display with pushbutton access for viewing engine and alternator data and providing setup, controls and adjustments
- LED lamps indicating not in auto, common warning, common shutdown, remote start
- Configurable for local language

**Engine protection**
- Overspeed shut down
- Low oil pressure warning and shut down
- High coolant temperature warning and shut down
- High oil temperature warning
- Low coolant level warning or shut down
- Low coolant temperature warning
- High and low battery voltage warning
- Weak battery warning
- Dead battery shut down
- Fail to start (overcrank) shut down
- Fail to crank shut down
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication

**Engine data**
- DC voltage
- Lube oil pressure
- Coolant temperature
- Lube oil temperature
- Engine speed
- Engine ECM data

**AmpSentry AC protection**
- Over current and short-circuit shut down
- Over current warning
- Single and three phase fault regulation
- Over and under voltage shut down
- Over and under frequency shut down
- Overload warning with alarm contact
- Reverse power and reverse Var shut down

**Alternator data**
- Line-to-line and line-to-neutral AC volts
- Three phase AC current
- Frequency
- Total and individual phase power factor, kW and kVAR
- Bus voltage and frequency (with paralleling options)

**Other data**
- Genset model data
- Start attempts, starts, running hours
- kW hours (total and since reset)
- Fault history
- Load profile (accessible with InPower)

**Governing**
- Digital electronic isochronous governor
- Temperature dynamic governing
- Smart idle speed mode

**Voltage regulation**
- Digital PWM electronic voltage regulation
- Three phase line-to-neutral sensing
- Single and three phase fault regulation
- Configurable torque matching

**Control functions**
- Data logging on faults
- Fault simulation (requires InPower)
- Time delay start and cooldown
- Cycle cranking
- Configurable customer outputs (4)
- Configurable network inputs (8) and outputs (16) (with optional network)
- Remote emergency stop

**Paralleling (Option)**
- Active digital phase lock loop synchronizer
- Isochronous kW and kVAR load sharing controls
- kW import/export and kVAR/PF control for utility (mains) paralleling

**Options**
- Thermostatically controlled space heater
- Key-type mode switch
- Ground fault module
- Auxiliary relays (3)
- Echelon LonWorks® interface
- Modion Gateway to convert to Modbus (loose)
- PowerCommand iWatch web server for remote monitoring and alarm notification (loose)
- Digital input and output module(s) (loose)
- Remote annunciator (loose)
- Paralleling
- Power transfer control

For further detail see document S-1444.
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

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

<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>DQLC</td>
<td>7138 (281)</td>
<td>2750 (108.3)</td>
<td>3387 (133.3)</td>
<td>23313 (51289)</td>
<td>24090 (53109)</td>
</tr>
</tbody>
</table>

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

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.