Specification sheet

Diesel Generator set
QST30 series engine
939 kVA - 1000 kVA 50 Hz
Data Center Continuous

Description
This Cummins® commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for stationary Standby, Prime Power, and Continuous duty 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.

Permanent Magnet Generator (PMG) - Offers enhanced motor starting and fault clearing short circuit capability.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuits capability, and class H insulation.

Cooling system – Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

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.

Enclosures - Optional weather-protective and sound-attenuated enclosures are available.

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

Motorized circuit breaker - Optional 3 or 4 pole motorized circuit breaker available.

<table>
<thead>
<tr>
<th>Model</th>
<th>50 Hz kVA (kW)</th>
<th>Data sheets</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1000 D5</td>
<td>939 (751)</td>
<td>DS42-CPGK-DC</td>
</tr>
<tr>
<td>C1100 D5</td>
<td>1000 (800)</td>
<td>DS38-CPGK-DC</td>
</tr>
</tbody>
</table>
Generator set specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor regulation class</td>
<td>ISO 8528-5 Part 1</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>EMS compatibility</td>
<td>EN61000-6-4/EN 61000-6-2</td>
</tr>
</tbody>
</table>

Engine specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>4 cycle, in-line, turbocharged and charge air-cooled - C1100 D5</td>
</tr>
<tr>
<td></td>
<td>4 cycle, in-line, turbocharged and after-cooled – C1000 D5</td>
</tr>
<tr>
<td>Bore</td>
<td>140 mm (5.51 in.)</td>
</tr>
<tr>
<td>Stroke</td>
<td>165.1 mm (6.5 in.)</td>
</tr>
<tr>
<td>Displacement</td>
<td>30.5 L (1860 in³)</td>
</tr>
<tr>
<td>Cylinder block</td>
<td>Cast iron, 50° V 12 cylinder</td>
</tr>
<tr>
<td>Battery capacity</td>
<td>1280 amps at ambient temperature 32 °F (0 °C)</td>
</tr>
<tr>
<td>Battery charging alternator</td>
<td>35 amps</td>
</tr>
<tr>
<td>Starting voltage</td>
<td>24 volt, negative ground</td>
</tr>
<tr>
<td>Fuel system</td>
<td>Direct injection</td>
</tr>
<tr>
<td>Fuel filter</td>
<td>Spin on fuel filters with water separator</td>
</tr>
<tr>
<td>Air cleaner type</td>
<td>Dry replaceable element with restriction indicator</td>
</tr>
<tr>
<td>Lube oil filter type(s)</td>
<td>Four spin-on full flow, two bypass oil filters</td>
</tr>
<tr>
<td>Standard cooling system</td>
<td>104 °F (40 °C) ambient radiator</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>2/3 pitch</td>
</tr>
<tr>
<td>Rotor</td>
<td>Direct coupled by flexible disc</td>
</tr>
<tr>
<td>Insulation system</td>
<td>Class H</td>
</tr>
<tr>
<td>Standard temperature rise</td>
<td>125 °C standby</td>
</tr>
<tr>
<td>Exciter type</td>
<td>Permanent Magnet Generator (PMG)</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>No load &lt; 1.5%. Non distorting balanced linear load &lt; 5%</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; 2%</td>
</tr>
</tbody>
</table>

Available voltages

**50 Hz line – neutral / line - line**

- 127/220
- 220/380
- 230/400
- 240/416
- 255/440

Generator set options

**Engine**

- Heavy duty air filter
- Water jacket heater 220/240 V

**Alternator**

- Alternator heater
- Exciter voltage regulator (PMG)

**Cooling**

- Antifreeze 50/50 (Ethylene glycol)
- Optional 50 °C cooling radiator

**Circuit breaker**

- 3 or 4 pole manual circuit breaker
- 3 or 4 pole motorized circuit breaker
- Aux contacts and trip alarm

**Control panel**

- PowerCommand 3.3
- PowerCommand 3.3 MLD
- Shutdown audible alarm
- Shunt trip – 24 VDC

**Enclosure**

- 20 ft container (C1000 D5/C900 D6)

**Warranty**

- 2 years for Prime application
- 5 years for Standby application
- 10 years for major components

**Silencer**

- 9 dB attenuation industrial silencer
- 25 dB residential delivered loose

*Note: Some options may not be available on all models - consult factory for availability.*
PowerCommand 3.3 – control system

The PowerCommand 3.3 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, UKCA 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 – 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
- 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
- Over speed 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)

Masterless Load Demand (MLD)
- Load dependent start/stop of multi-generator system
- Predictive load input
- Run hour equalization

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This outline drawing is to provide representative configuration details for Model series only. See respective model data sheet for specific model outline drawing number. Do not use for installation design.

<table>
<thead>
<tr>
<th>Model</th>
<th>Dim “A” mm</th>
<th>Dim “B” mm</th>
<th>Dim “C” mm</th>
<th>Set weight* dry kg</th>
<th>Set weight* wet kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1000 D5</td>
<td>4302</td>
<td>1702</td>
<td>2139</td>
<td>6304</td>
<td>6520</td>
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<tr>
<td>C1100 D5</td>
<td>4417</td>
<td>2000</td>
<td>2387</td>
<td>6934</td>
<td>7144</td>
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</tbody>
</table>

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

**Codes and standards**

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

- **ISO 9001**
  
  This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.

- **CE**
  
  The CE marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.

- **UKCA**
  
  The UKCA marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.

- **2000/14/EC**
  
  All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.

- **ISO 8528**
  
  This generator set has been designed to comply with ISO 8528 standards.