**Standard Genset Features**

**Single Source Responsibility**
Design, manufacture and testing of engine, alternator, control system and complete generating set are all produced by companies within the Cummins Group.

**International Integrity**
Assurance and strength of a worldwide major corporation backing the product.

**Global Backing**
24 hour spares and service availability in 72 countries.

**Single Source Warranty**
Total product guaranteed by Cummins Power Generation.

**Packaged Units**
Integrated unit with control panel, starting system and other accessories.

**Cummins Engine**
- Heavy duty 4 cycle water cooled engine
- MCM700/SSM558 full authority electronic management
- Woodward PROACT actuator to drive throttle valve
- CENSE engine monitoring system

**Ready Filled**
Every set comes filled with lube oil.

**Alternator**
- Brushless, self-exciting machine
- Close voltage regulation
- Rotor and exciter impregnated with oil and acid resisting resin
- 12 lead reconnectable
- Exceptional short circuit capability
- Low waveform distortion with non linear loads

**Ratings**
All kW Power ratings based on a 35°C ambient temperature reference. Refer to factory for deration for temperatures above 35°C and for operation in island mode.

<table>
<thead>
<tr>
<th>Model</th>
<th>50 Hz kWe</th>
<th>60 Hz kWe</th>
<th>rpm</th>
<th>Pressure bar (G)</th>
<th>Model</th>
<th>50 Hz kWe</th>
<th>60 Hz kWe</th>
<th>rpm</th>
<th>Pressure bar (G)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1160 GQKA</td>
<td>1160</td>
<td>1438</td>
<td>1500</td>
<td>16</td>
<td>950 GQKA</td>
<td>950</td>
<td>1154</td>
<td>1200</td>
<td>16</td>
</tr>
<tr>
<td>1400 GQKA</td>
<td>1400</td>
<td>1730</td>
<td>1800</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*@ 0.8pf

**Control System**
- PCS PowerCommand Supervisor
- Microprocessor control
- Integrated voltage regulation
- Superior alternator and genset protection system
- Totally reliable and proven system
- HMI (touch screen)
- PLC

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**Gas Engine Powered Generating Sets**

1160 kWe 50 Hz
950-1400 kWe 60 Hz

QSK60G Series Engines

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**A Single Source for all Power System Solutions**
## Specifications

### Generator Set Performance

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage Regulation</strong></td>
<td>Maintains voltage output to within ±1.0%. At any power factor between 0.8 lagging and unity. At any variations from No load to Full load. At any variations from Cold to Hot. At speed droop variations up to 4.5%.</td>
</tr>
<tr>
<td><strong>Frequency Regulation</strong></td>
<td>Isochronous under varying loads from no load to 100% full load.</td>
</tr>
<tr>
<td><strong>Random Frequency Variation</strong></td>
<td>Will not exceed ±0.25% of its mean value for constant loads – no load to full load.</td>
</tr>
<tr>
<td><strong>Waveform</strong></td>
<td>Total harmonic distortion open circuit voltage waveform in the order of 1.5%. Three-phase balanced load in the order of 5.0%.</td>
</tr>
<tr>
<td><strong>Telephone Influence Factor (TIF)</strong></td>
<td>TIF better than 50. THF to BS4999 Part 40 better than 2%.</td>
</tr>
</tbody>
</table>

### Engine

- Cummins QSK60G spark ignited lean burn gas combustion engines. 16-cylinder, V form.
- **Type**: Water cooled, four cycle, turbo charged and aftercooled.
- **Construction**: Four valves per cylinder, forged steel crankshaft and connecting rods, cast iron block, replaceable wet liners.
- **Fuel System**: Safety shutdown solenoid valve, pressure regulator valve, manual shut-off valve, dust filter. Flexible fuel line.
- **Control**: Fully integrated controls and monitoring including fuel system, ignition system and governing. MCM700 provides engine protection, control and governing. SSM558 caters for fuel and ignition protection and control. CENSE provides detailed engine monitoring.
- **Starting**: Electric start system through single electric starter motor.
- **Ignition**: Individual coil on plug arrangement.
- **Cooling**: Separate LT and HT cooling circuits. Coolant heater, water circulating pump and thermostat. Engine driven water pumps.

### Alternator

- **Type**: Brushless, single bearing, revolving field, 4-pole, drip proof, screen protected. Class H insulation (LV), Class F insulation (MV & HV). Enclosed to minimum IP22 as standard. IC 01 cooling system. Fully interconnected damper winding. AC exciter and rotating rectifier unit.
- **Epoxy coated stator winding.**
- **Exciter**: Triple dipped in moisture, oil and acid resisting polyester varnish and coated with anti-tracking varnish. PMG self-exciting. Output windings with 2/3 pitch for improved harmonics and paralleling ability. Engine and alternator coupled via a flexible coupling.

### Chassis

- **Fabricated and welded steel chassis**
- **Spring anti-vibration mountings supplied loose**
- **Finish**: Etch undercoated and finished in high gloss durable green

### Compliance Standards

- To BS4999/5000 pt 99, VDE 0530, UTE5100, NEMA MG1-22, CEMA, IEC 34, CSA A22.2, AS1359, BSS5514, ISO 3046 and ISO 8528

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**Specifications May Change Without Notice**
Control System
GCP System
Configuration

Fully Integrated System
- PC based HMI (touchscreen)
- PowerCommand Supervisor™
- PLC based auxiliary control
- A.C. auxiliaries enclosure
- D.C. engine interface enclosure

Stand-alone or Parallel Operation
- Single or multi-set isolated bus operation
- Single set base load utility paralleling
- Isolated bus paralleling control
- Base load utility paralleling control

H.M.I. (Touchscreen)
- Micro-processor based graphic interface (touchscreen)
- Layered menus for ease of operation

System Screen
- Plant status
- Electrical data
- Mechanical data
- Test
- Access to other screens

Plant Screens

Other Screens
- Systems Data (restricted access)
- Engineers Data (restricted access)
  – all MCM700 data
- Fault Management Screens
  – reports and logs faults
  – summary/historical data
  – real time recording of faults
Control System

PowerCommand® Supervisor
Control with AmpSentry™ Protection

- Integrated automatic voltage regulator. Speed/load bias to MCM700
- AmpSentry Protection guards the electrical integrity of the alternator and power system from the effects of overcurrent, over/under voltage, under frequency and overload conditions
- Control components designed to withstand the vibration levels typical in generator sets

Standard Control Description
- Analog % of current meter (amps)
- Analog AC frequency meter
- Analog AC voltage meter
- Analog % of load meter (kW)
- Digital display panel
- Emergency stop switch
- Menu switch
- Panel backlighting
- Reset switch
- Run-Off-Auto switch
- Sealed front panel, gasketed door
- Self diagnostics
- Separate customer interconnection box
- Voltmeter/Ammeter phase selector switch

Standard Performance Data
AC Alternator Data
- Current by Phase
- Kilowatts
- Kilowatt Hours
- Power Factor
- Voltage Line to Line
- Voltage Line to Neutral

Engine Data
- Battery Voltage (for electric start option)
- Coolant Temperature
- Engine Running Hours
- Engine Starts counter
- Oil Pressure
- RPM
- Oil Temperature

EMC Compliance
The PCS control system meets EMC Shield Regulations.

Standard Protection Functions

- Analogue Sender Failure
- High DC Voltage
- EEPROM Failure
- Low DC Voltage
- Over Current

- Phase Rotation
- CB Fail to Close
- Live Bus
- Up to Four Customer Fault Inputs
- Weak Battery (electric start option)

Shutdowns
- EEPROM Failure
- Loss of Excitation
- Reverse Power
- Fail to Synchronise
- Magnetic Pickup Failure
- Underfrequency
- Overcurrent
- Overspeed
- Short Circuit
- Low AC Voltage
- High/Low AC Voltage

Voltage Regulation
±0.5% with PowerCommand fitted.

PLC Auxiliary Control
- Communication handling procedures
- Protocol interfaces
- Control of plant auxiliaries

AC Auxiliaries Enclosure
- Incoming auxiliary a.c. supply for set
- Control/monitors/protects generator set a.c. systems not located in the GCP

DC Engine Interface Enclosure
- Interfaces between GCP and genset

Other Items
- Battery charger and batteries for GCP

Specifications May Change Without Notice
COP rating in accordance with ISO 8528 and BS5514 at a maximum aspiration air temperature of 35°C, a maximum altitude of 500 metres above sea level and with the generator sets operating in parallel with the utility. No overload available.

For detailed technical data on the various engine versions available refer to the specific data sheet.
Optional Items

**Generator Set Options**

**Engine**
- Heavy duty air cleaner
- Sump drain pump
- Oil and water drain taps
- Automatic sump oil make-up valve
- Flexible engine connections
- CE Compliance (guarding)
- Exhaust temperature monitoring
- Tool kit
- 2/3rds TA Luft
- 24V electric starting
- Dual pneumatic/electric starting
- Air starting module

**Alternator**
- 380-440 V, 3.3 kV, 6.3-6.6 kV, 11 kV-50 Hz
- 380-690V, 4.16 kV, 13.8 kV-60 Hz
- Left or right hand cable access
- 105°C rise alternator (LV machines only, standard on MV and HV)

**Fuel System**
- Gas flow meter
- Pressure regulating valves
- Flexible connecting pipe

**Cooling**
- 30°C ambient radiator
- 40°C ambient radiator
- Heat exchanger cooling (project specific)
- External electric pumps for engine cooling circuits complete with thermostats (project specific)

**Heat Recovery**
- Water jacket heat exchangers
- Exhaust gas heat exchangers
- Exhaust gas boilers

**Exhaust System**
- Industrial type silencer
- Residential type silencer
- Length of flexible exhaust and bellows

**Generator Set**
- Weather protecting ISO style containers
- Silenced ISO style containers, 85 dB(A) at 1 metre

**Miscellaneous**
- Flexible water, oil and air connections
- Duplex (running change) lubricating oil filters
- Crankcase breather filter

**Control Panel**
- 3 or 4 pole circuit breaker (separate enclosures)
- CE Compliance
- Remote monitoring capabilities
- System control (master) panel

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**Dimensions and Weights**

<table>
<thead>
<tr>
<th>Dimensions and Weights (mm) (Approx.)</th>
<th>Set Weight kg Dry</th>
<th>Set Weight kg Wet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without bed mounted radiator</td>
<td>4890 2240 2074</td>
<td>– 15500</td>
</tr>
</tbody>
</table>

Dimensions and weights are for guidance only. Do not use for installation design. Ask for certified drawings on your specific application. Specifications may change without notice.

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See your distributor for more information.