Specification sheet

Diesel Generator set QSK60 series engine

1400 kVA-2500 kVA 50 Hz Emissions regulated

Description

Cummins Power Generation commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby and prime 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® 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.

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

	Standby rating	Prime rating	Continuous rating	Emissions compliance	Data sheets
Model	50 Hz kVA (kW)	50 Hz kVA (kW)	50 Hz kVA (kW)	TA Luft - EPA	50 Hz
DQKAH	2000 (1600)	1825 (1460)	1400 (1120)	2g TA Luft – EPA Tier 2	D-3529
DQKAG	2250 (1800)	2000 (1600)	1600 (1280)	2g TA Luft – EPA Tier 2	D-3530
DQKAJ	2500 (2000)	2000 (1600)		2g TA Luft – EPA Tier 2	D-3531

Generator set specifications

Governor regulation class	ISO 8528 Part 1 Class G3
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
Radio frequency emissions compliance	IEC 801.2 through IEC 801.5; MIL STD 461C, Part 9

Engine specifications

Bore	158.8 mm (6.25 in)
Stroke	190 mm (7.48 in)
Displacement	60.2 litres (3673 in^3)
Configuration	Cast iron, V 16 cylinder
Battery capacity	2200 amps minimum at ambient temperature of 0 °C (32 °F)
Battery charging alternator	55 amps
Starting voltage	24 volt, negative ground
Fuel system	Cummins' Modular Common Rail System
Fuel filter	Two stage spin-on fuel filter and water separator system. Stage 1 has a three element 7 micron filter and Stage 2 has a three element 3 micron filter.
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Four 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	Single bearing, flexible disc
Insulation system	Class H on low and medium voltage, Class F on high voltage
Standard temperature rise	125 °C standby / 105 °C prime
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

60 Hz line-neutral/line-line	50 Hz line-neutral/line-line			
	• 220/380	• 230/400	• 240/415	• 254/440
	• 1905/3300	• 3637/6300	• 3810/6600	• 6350/11000

Note: Consult factory for other voltages.

Generator set options and accessories

Engine
- ☐ 208/240/480 V thermo-statically controlled coolant heater for ambient above and below 4.5 °C(40 °F)
- ☐ Dual 120/208/240/480 V 300 W lube oil heaters
- ☐ Heavy duty air cleaner
- ☐ Triplex fuel filter

Alternator
- ☐ 80 °C rise
- ☐ 105 °C rise
- ☐ 125 °C rise
- ☐ 150 °C rise
- ☐ 120/240 V 300 W anti-condensation heater

Control panel
- ☐ PowerCommand 3.3
- ☐ Multiple language support
- ☐ 120/240 V 100 W control anti-condensation heater
- ☐ Exhaust pyrometer
- ☐ Ground fault indication
- ☐ Remote annunciator panel
- ☐ Paralleling relay package
- ☐ Shutdown alarm relay package
- ☐ Audible engine shutdown alarm
- ☐ AC output analog meters (bargraph

Exhaust system
- ☐ Industrial grade exhaust silencer
- ☐ Residential grade exhaust silencer
- ☐ Critical grade exhaust silencer
- ☐ Exhaust packages

Cooling system
- ☐ Remote cooling
- ☐ Enhanced high ambient temperature (50 °C)

Generator set
- ☐ Battery
- ☐ Battery charger
- ☐ Bottom entry chute
- ☐ Circuit breaker – skid mounted up to 3000 Amp
- ☐ Circuit breaker auxiliary and trip contacts
- ☐ IBC and OSHPD seismic certification
- ☐ In-skid AVM
- ☐ LV and MV entrance box
- ☐ Manual language – English, French and Spanish
- ☐ Spring isolators

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

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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.

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 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 (4)
- Remote emergency stop

Options
- Auxiliary output relays (2)

Ratings definitions

Emergency standby power (ESP):

Applicable for supplying power 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. 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.

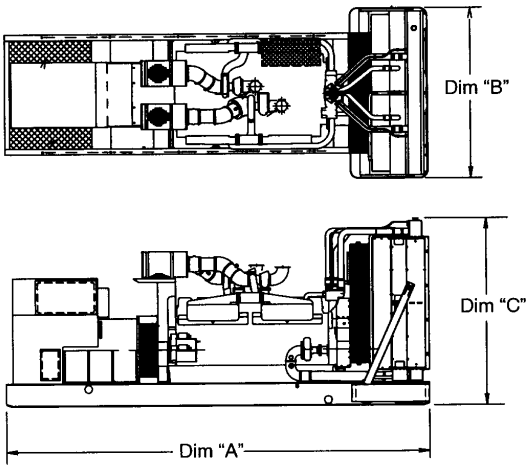
Prime power (PRP):

Applicable for supplying power to varying electrical loads 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.

No sustained overload capability is available at this rating.



This outline drawing is for reference only. See respective model data sheet 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)
DQKAH	6759 (266.1)	2479 (97.6)	3096 (121.9)	16182 (35675)	16882 (37218)
DQKAG	6759 (266.1)	2479 (97.6)	3096 (121.9)	16826 (37095)	17526 (38638)
DQKAJ	6759 (266.1)	2479 (97.6)	3096 (121.9)	17837 (39323)	18537 (40867)

* 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	This generator set is available with CE certification..
PTS	The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins Power Generation products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.	**2000/14/EC**	All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.
CSA	All low voltage models are CSA certified to product class 4215-01.	**ISO8528**	This generator set has been designed to comply with ISO8528 regulation.

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.

North America
1400 73rd Avenue N.E.
Minneapolis, MN 55432
USA

Phone 763 574 5000
Fax 763 574 5298

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S-1645 (6/12)

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