Specification sheet

Diesel generator set QSK78 series engine

2750kVA - 3000kVA 50 Hz

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

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 F or H insulation.

Cooling system - Optional remote mounted cooling system, designed and tested for rated ambient temperatures, offers maximum flexibility for facility design requirements.

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.

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

ISO8528-5 G3 Capable - refer to factory for site and configuration specific transient performance classification

	Standby rating	Prime rating	Continuous rating	Emissions compliance		
Model	50 Hz kVA (kW)	50 Hz kVA (kW)	50 Hz kVA (kW)	EPA and TA LUFT	Controller	Data sheets
C2750 D5e	2750 (2200)	2500 (2000)	2000 (1600)	Tier 2 and 2g TA LUFT	3.3	EMERD-5843 EMERD-5844
C3000 D5e	3000 (2400)	2750 (2200)	2100 (1680)	Tier 2 and 2g TA LUFT	3.3	EMERD-5845 EMERD-5846

Generator set specifications

Governor regulation	ISO 8528-5 part 1
Steady state voltage regulation, no load to full load	± 0.25%
Steady state frequency variation	± 0.25%
Frequency regulation	Isochronous
EMC compatibility	Radiated emissions to BS EN 61000-6.3 Conducted immunity to BS EN 61000-6.2

Engine specifications

Design	4 cycle, V, turbo charged and low temperature after-cooled
Bore	170
Stroke	190
Displacement	77.6 L (4735 in^3)
Cylinder block	Cast iron, 18 cylinder
Battery capacity	2200 amps minimum at ambient temperature of -18°C to 0°C (0°F to 32°F)
Battery charging alternator	55 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)	Four spin-on, combination full flow and bypass filters
Cooling system	104 ºF (40 ºC) ambient

Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	2 bearing, flexible coupling
Insulation system	Class H on low and medium voltage, Class F on high voltage
Standard temperature rise	150 °C standby
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	No load < 1.5%. Non distorting balanced linear load < 3%
Telephone influence factor (TIF)	< 50 per NEMA MG1-22.43
Telephone harmonic factor (THF)	< 2%

Available voltages

50 Hz line-neutral/line-line

- 220/380
- 230/400
- 240/415
- 254/440
- 1905/3300
- 3810/6600
- 6350/11000

Note: Consult factory for other voltages.

Generator set options

Engine

- Water jacket heater 220/240 V
- Centiinel
- Eliminator
- Pre-lube system
- Engine starter 24VDC motor redundant

Alternator

- Alternator heater
- High humidity isolation
- Exciter voltage regulator (PMG)
- Temperature sensor – RTDs
- Temperature sensor – alternator bearing RTD
- Differential current transformers
- Exciter voltage regulator (PMG)
- 80 ºC – 150 ºC temperature rise

Generator set

- Vibration isolators
- Batteries
- Battery charger

Control panel

- PowerCommand 3.3
- Paralleling
- Multiple language support
- 240 V control anti-condensation

Exhaust system

- Industrial silencer
- Residential silencer
- In-line or side entry options
- Accessories

Warranty

- 10 years for major components
- 5 years for standby application
- 2 years for prime application

Cooling system

- Cooling System Environmental Finish (Matrix Core)
- 50 ºC (122 ºF) radiator
- Remote radiator
- Slip fit connection
- Flanged (ASA) connection

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

PowerCommand 3.3® – control system

Control system

The PowerCommand® 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

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

Standard control functions (continued)

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)

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):

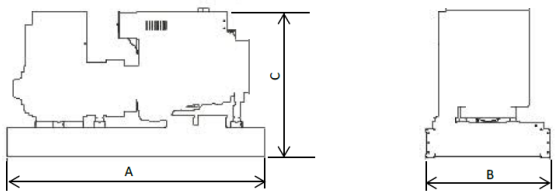
Applicable for supplying power to a constant electrical load for limited hours. Limited time running power (LTP) is in accordance with ISO 8528.

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 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

Weight and dimensions

Model	Dim "A" mm	Dim "B" mm	Dim "C" mm	Set weight* dry kg	Set weight* wet kg
C2750 D5e	5670	2989	3197	17715	18311
C3000D5e	5670	2989	3197	17994	18590

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

Certifications

Registered To 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.
		ISO 8528	This generator set has been designed to comply with ISO 8528 standards.

For more information contact your local Cummins distributor or visit power.cummins.com

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