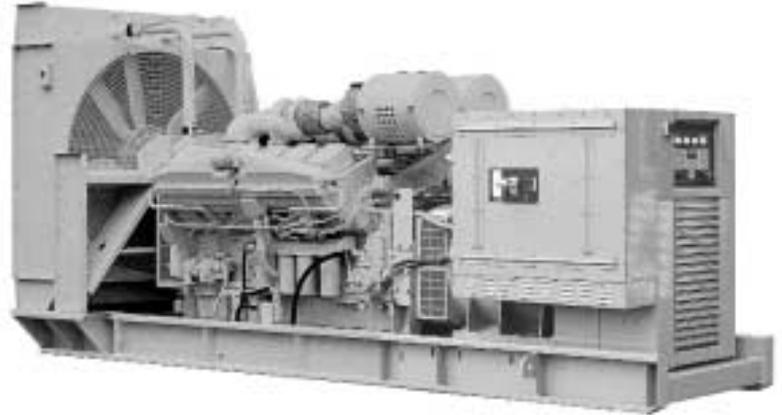




Diesel Powered Generating Sets 748 kW - 906 kW 50 Hz KTA38 Series Engines



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 Self-Contained Units

Integrated unit with built-in anti-vibration system, control panel, starting system and provision for base fuel tank and other accessories

Cummins Engine

- Heavy duty 4 cycle water cooled engine
- Electronic governor control

Cooling System

- 40°C cooling package (50°C option)

Ready Filled

Every set comes filled with lube oil and anti-freeze

Alternator

- Brushless Group made 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
- Permanent magnet exciter and MX321 AVR as standard

Ratings

All kW Power ratings based on a 40°C ambient temperature reference. No derating necessary up to 40°C

Chassis

Built-in anti-vibration system
Bonded rubber units fitted as standard eliminates need for rubber mats or spring mountings

Standard PCL 'Power Control' System

- CE compliant
- Full AC instrumentation
- Emergency stop button

- Safety shutdowns
- Key or Remote starting

Optional PCC PowerCommand Control System

- Microprocessor control
- Integrates governor and voltage regulation systems
- Superior alternator and genset protection system
- Accurate battery monitoring system




Quality Assurance
Registered Firm Certificate Number FM509 in accordance with:
BS EN ISO 9001
Quality Assurance Schedule 3420/1



Cummins Power Generation, Cummins Engines and Newage Alternators are all part of the same group

50 Hz Ratings						
New Model Prime	1999 Model Prime	Prime kW (kVA)	New Model Standby	1999 Model Standby	Standby kW (kVA)	Engine Model
748 DFJC	CP900-5	748 (936)	832 DFJC	CS1000-5	832 (1040)	KTA38G3
815 DFJD	CP1000-5	815 (1019)	906 DFJD	CS1100-5	906 (1132)	KTA38G5

A Single Source for *all* Power System Solutions

Specifications

Generator Set Performance

Voltage Regulation

Maintains voltage output to within $\pm 0.5\%$.
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%.

Frequency Regulation

Isochronous under varying loads from no load to 100% full load.

Random Frequency Variation

Will not exceed $\pm 0.25\%$ of its mean value for constant loads – no load to full load.

Waveform

Total harmonic distortion open circuit voltage waveform in the order of 1.5%. Three-phase balanced load in the order of 3.5%.

Engine

Cummins KTA38G3, G5, G6 and G7, twelve-cylinder vee formation, direct injection diesel engines.

Type

Water cooled, turbocharged and aftercooled.

Construction

Four valves per cylinder, forged steel crankshaft and connecting rods, cast iron block with replaceable wet liners.

Starting

24 volt negative earth, battery charging 35 amp alternator. Cranking current 890 amps at 0°C.

Alternator

Type

Brushless, single bearing, revolving field, 4-pole, drip proof, screen protected. Class H insulation.
Enclosed to IP22 (NEMA 1) standard. IC 01 cooling system.
Fully interconnected damper winding. AC exciter and rotating rectifier unit. Epoxy coated stator winding.
Rotor and exciter impregnated with tropical grade insulating oil and acid resisting polyester resin. Dynamically balanced rotor to BS5625 grade 12.5.
Sealed for life bearings.
Layer wound mechanically wedged rotor.

Compliance Standards

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

Telephone Influence Factor (TIF)

TIF better than 50.
THF to BS4999 Part 40 better than 2%.

Alternator Temperature Rise

Class H insulation. Temperature rise up to 125°C permitted.

Radio Interference

In compliance with BS800 and VDE levels G and N.

Fuel System

24 volt fail safe fuel actuator, dual spin-on paper element filters, Cummins PT fuel injection system with integral electronic governor. Dual flexible fuel lines and connectors.

Filters

Dry element air filters with restriction indicator and spin-on paper element full flow and by pass lube oil filters and corrosion resistor filter.

Cooling

40°C radiator as standard with 50°C ambient as option. Oil cooler.

Exciter

Triple dipped in moisture, oil and acid resisting polyester varnish and coated with anti-tracking varnish.
Sealed solid state automatic voltage regulator – self-exciting, self-regulating.
Output windings with 2/3 pitch for improved harmonics and parallelling ability.
Close coupled engine/alternator for perfect alignment.

Permanent magnet exciter with MX321 AVR fitted as standard.

Chassis

Fabricated and welded steel chassis
Built-in anti-vibration mountings
Optional sub-base fuel tank with eight hour capacity, dual flexible fuel lines, dial type fuel gauge and drain bung

Finish

Etch undercoated and finished in high gloss durable green

General

Complete set of operating and instruction manuals

Generator Set Options

Engine

- Heavy duty air cleaners
- Coolant heater and thermostat
- Fuel water separator
- Lead acid batteries, cable and fitted tray
- NiCad batteries
- Sump drain pump
- Oil and water drain taps
- CE Compliance (guarding)
- Exhaust temperature monitoring (PCC only)
- Tool kit
- Compliance to TA Luft

Cooling

- 50°C ambient radiator
- Remote radiator cooling (built to order)
- Oil temperature indication

Alternator

- Anti-Condensation heater
- Thermistors

Exhaust System

- Industrial type silencer
- Residential type silencer
- Length of flexible exhaust and bellows

Fuel System

- Sub-base tanks
- Hand fuel transfer pump
- Automatic fuel transfer pump
- Free-standing 450, 900 and 1350 litre fuel tanks with stand
- Fuel tank level switch
- High fuel level warning
- Low fuel level warning
- Low fuel level shutdown

Generator Set

- Weather protective enclosures
- Silenced enclosures

Control Panel

- See separate list on Control Panel page
- 3 or 4 pole circuit breaker
- Battery charger 5 amp or 10 amp
- CE Compliance PCL and PCC systems
- Cable entrance box

Power Control System

PCL – Power Control System – Fitted as standard

- Choice of manual/key start or remote/automatic system
- Set mounted control panel on anti-vibration mounts
- Integrated circuit breaker (optional)

Standard Specification

- Three ammeters 72 mm scale
- Voltmeter and selector switch
- Frequency (Hz) and RPM meter
- Hours run meter
- Oil pressure gauge
- Engine temperature gauge
- Battery condition meter
- Emergency stop shutdown pushbutton
- Dual scale indication
- Starting module (Manual or Remote)
- High engine temperature protection shutdown
- Low oil pressure protection shutdown
- Loss of coolant alarm and shutdown
- Overspeed/over frequency alarm and shutdown
- Underspeed/under frequency alarm and shutdown
- Status and fault conditions display by LED illumination
- Remote emergency stop connections

Manual System PCL-001

- Key switch off/manual start positions
- Manual start pushbutton

Remote/Auto Start System PCL-002 (option)

- Key switch off/auto and manual position
- Manual start pushbutton
- Fail to start LED indication
- Run on timer
- 3 attempts to start (adjustable) in auto mode
- Set will automatically start in event of receiving an external signal



PCL/Power Control – standard configuration PCL-001

Circuit Breaker

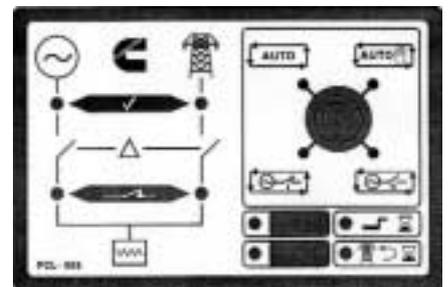
- Either 3 or 4 pole optional moulded case circuit breakers can be fitted. Located adjacent to the control panel the breaker is complete with magnetic and thermal trips for plant protection against overload and short circuit conditions. Removable gland plate covers provide top or bottom cable entry and a removable door over the circuit breaker provides accessibility to load terminals. Extended load connections off the circuit breaker can be provided either as pads for lugged cables or cable connectors for bare (unlugged) cables up to 1250 ampere capacity

Optional Features to either Manual or Remote PCL System

- 5 or 10 Amp wall mounted battery chargers
- Audible alarm - fitted or loose
- Volts adjustment control
- Low fuel level alarm and/or shutdown
- Overload current protection
- Common fault contact
- Annunciator units - 5 or 10 warnings
- Under/Over volts shutdown
- CE compliance
- Low battery volts alarm
- Earth fault
- kW meter
- PF meter
- Oil temperature gauge
- 2 stage low oil pressure warning
- 2 stage high temperature warning
- High oil temperature warning or shutdown
- Remote Only:
 - Ready to accept load indicator
 - System energised indicator
 - Selector switch not-in-auto position indicator

Automatic – Mains Failure System PCL-005

- Module supplied loose or fitted in wall mounting cubicle
- Works in conjunction with System PCL-002
- Adjustable voltage sensing on all three phases
- Provides signal to generator to start
- Provides signal to changeover switchgear
- Key control switch. Auto ON (2) RUN (2)
- Test positions permit RUN ON or off load
- LED indication for mains/power status
- Timers for mains fail, return time, warming time



System PCL-005

PowerCommand System

Optional PowerCommand® Control with AmpSentry™ Protection

- Integrated automatic voltage regulator and engine speed governor
- 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)
- Cycle cranking control
- Digital display panel
- Emergency stop switch
- Idle mode control
- Menu switch
- Panel backlighting
- Remote starting
- 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
- Coolant Temperature
- Engine Running Hours
- Engine Starts counter
- Oil Pressure
- RPM



PCC PowerCommand Control – standard configuration with optional contactor buttons shown

Standard Protection Functions

Warnings

- High Coolant Temperature
- High DC Voltage
- Low Coolant Temperature
- Low DC Voltage
- Low Fuel – Day Tank
- Low Oil Pressure
- Over Current
- Oil Pressure Sender Fault
- Temperature Sender Fault
- Overload Load Shed Contacts
- Temperature Sender Fault
- Up to Four Customer Fault Inputs
- Weak Battery

Shutdowns

- Emergency Stop
- Fail to Crank
- High AC Voltage
- Low Coolant Level (option for alarm only)
- Low Oil Pressure
- Magnetic Pickup Failure
- Overcrank
- Overcurrent
- Overspeed
- Short Circuit
- Underfrequency

Optional PowerCommand Digital Paralleling

Cummins PowerCommand Digital Paralleling Systems are available for isolated prime power, emergency standby, or interruptible applications including utility (main) paralleling applications. PowerCommand Digital Paralleling Systems are unique in that they use fully integrated microprocessor-based controls for all system control functions.

These systems include an extensive array of standard control and digital display features that eliminate the need for discrete component devices such as voltage regulator, governor, and protective relays. The PowerCommand Digital Paralleling Control also eliminates the need for separate paralleling control devices such as synchronizers and load sharing controls.



Circuit breaker can be fitted either side of generator set.

Technical Data

Generating Sets – 50 Hz

Set output	380-415 V 50 Hz	380-415 V 50 Hz
Prime at 40°C ambient	748 kWe 936 kVA	815 kWe 1019 kVA
1999 Set Model (Prime)	CP900-5	CP1000-5
New Model (Prime)	748 DFJC	815 DFJD
Standby at 40°C ambient	832 kWe 1040 kVA	906 kWe 1132 kVA
1999 Set Model (Standby)	CS1000-5	CS1100-5
New Model (Standby)	832 DFJC	906 DFJD
Engine Make	Cummins	Cummins
Model	KTA38G3	KTA38G5
Cylinders	Twelve	Twelve
Engine build	Vee	Vee
Governor / Class	Electronic / A1	Electronic / A1
Aspiration and cooling	Turbo Aftercooled	Turbo Aftercooled
Bore and stroke	159 mm x 159 mm	159 mm x 159 mm
Compression ratio	13.9:1	13.9:1
Cubic capacity	37.8 Litres	37.8 Litres
Starting / Min °C	Unaided	Unaided / 7°C
Battery capacity	254 A/hr	254 A/hr
Nett Engine output – Prime	786 kWm	860 kWm
Nett at flywheel – Standby	875 kWm	950 kWm
Maximum load acceptance single step (cold)	500 kWe	451 kWe
Speed	1500 rpm	1500 rpm
Alternator voltage regulation	±0.5%	±0.5%
Alternator insulation class	H	H
Single load step to NFPA110 para 5.13.2.6	100%	100%
Fuel consumption (Prime) 100% load	194 l/hr	209 l/hr
Fuel consumption (Standby) 100% load	215 l/hr	228 l/hr
Lubrication oil capacity	135 Litres	135 Litres
Base fuel tank capacity – open set	1700 Litres	1700 Litres
Coolant capacity – radiator and engine	290 Litres	290 Litres
Exhaust temp – full load prime	507°C	499°C
Exhaust gas flow – full load prime	9932 m³/hr	10983 m³/hr
Exhaust gas back pressure max	76 mm Hg	76 mm Hg
Air flow – radiator (40°C ambient)	13.8 m³/s	15 m³/s
Pusher fan head (duct allowance) 40°C	13 mm Wg	13 mm Wg
Air intake – engine	3603 m³/hr	4104 m³/hr
Air flow – radiator (50°C ambient)	13.8 m³/s	22.3 m³/s
Pusher fan head (duct allowance) 50°C	13 mm Wg	13 mm Wg
Total heat radiated to ambient	164 kW	163 kW
Engine derating – altitude	4% per 300 m above 1525 m	4% per 300 m above 1525 m
Engine derating – temperature	2% per 11°C above 40°C	2% per 11°C above 40°C
Weight wet with tank	9740 kg	10130 kg

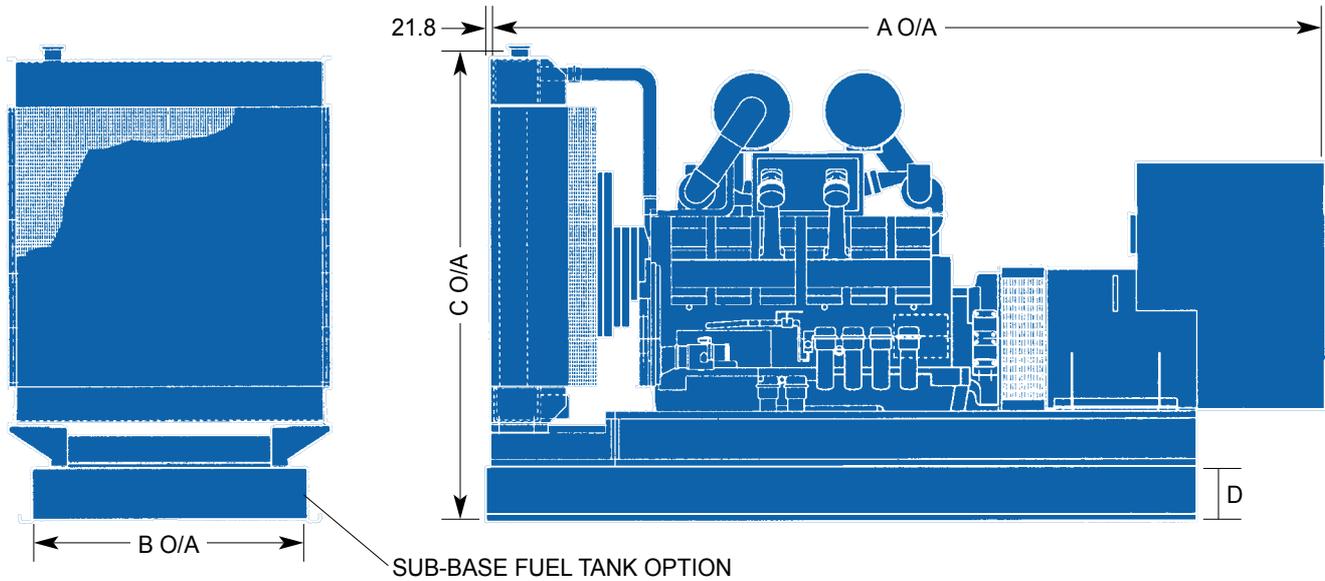
In accordance with ISO 8528, BS5514.

Prime: Continuous running at variable load for unlimited periods with 10% overload available for 1 hour in any 12 hour period.

Standby: Continuous running at variable load for duration of an emergency.

Note: Sets with PowerCommand control system fitted add 250 kg to weight.

Dimensions and Weights



200 Model	Engine	1999 Model	Dimensions and Weights (cm/kg)				50 Hz Weight kg	Tank capacity Litres	Tank Weight kg (dry)
			A	B	C	D			
DFJC	KTA38G3	CP900-5	457	179	254	30	7640	1700	800
DFJD	KTA38G5	CP1000-5	457	179	254	30	7640	1700	800

Floor mounted circuit breaker and load terminal cubicle (for use above 1250 amps)			
Capacity amps	Width mm	Depth mm	Height mm
1600	1000	1050	1500
2000	1000	1050	1500
2500	1000	1050	1500
3200	1000	1050	1500

Weights are dry **without** sub-base tank. Add 250 kg when PowerCommand panel is fitted.
 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.



See your distributor for more information.

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