

# Diesel generator set K50 series



## Specification sheet

1000-1200 kWe, 1250-1500 kVA Prime



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## Reliable and durable

Cummins® 'K50 series' diesel engine with strong regrindable crankshaft, high strength connecting rod, low pressure fuel lines, STC (Step Timing Controls) injectors and high volume coolant system make 'K50 series' generating sets, more reliable and durable. Engines have clocked millions of hours, operating on some of the world's most demanding conditions. Current engines are upgraded with new technologies for better performance and economy. The ultimate proof of superior performance and reliability is the fact that Cummins® entities worldwide source these engines from Cummins India for their markets.

## Unmatched warranty

Cummins® 'K50 series' diesel engine generating sets are a truly cost effective solution to long term power need backed by industry best 2 years / 5000 hrs warranty for the entire generating set.

## Cummins advantage

Special features of Cummins® 'K50 series' engines like STC (Step Timing Controls) injectors, low temperature aftercooler, square combustion chamber, optimised turbocharging and precision heavy duty camshaft make these engines the ultimate in exceptional fuel efficiency all across the operating range.

## Single source power assurance

Design, manufacture and testing of engine, alternator, enclosure and other accessories is done by Cummins India/ Channel partners (Powerica Limited) for that optimum performance integrity and is backed by countrywide product support network with single source responsibility for the entire package.

## Standard scope

**Engine:** Cummins® 'K50 series' direct injection, water cooled engine, 16 cylinder, 4 stroke, rated at 1500 RPM, conforming to ISO 3046 / BS 5514 has the following specifications:

- Cummins PT fuel pump
- Cummins heavy duty STC injectors
- Holset turbocharger, pulse tuned exhaust manifold, stainless steel exhaust flexible connections
- Radiator or heat exchanger, coolant inhibitor,
- Plate type lube oil cooler
- Outboard aftercoolers
- Full flow paper element filters - fuel, lube oil and by-pass
- Dry type replaceable paper element air cleaner with restriction indicator
- Flywheel housing & flywheel to suit single / double bearing alternator
- Holset flexible coupling for double bearing alternator
- Starting motor – Electric, battery charging alternator
- Cummins PowerCommand® microprocessor based genset controller
- First fill lube oil



## PowerCommand® genset controls - PCC 2100

The PowerCommand® 2100 control, is a micro processor based generator set monitoring, metering, protection and control system. It offers advanced levels of functions for reliability and optimum genset performance. An extensive array of integrated standard control and digital display features eliminate the need for discrete component devices such as the voltage regulator, governor control and protective relays. The control system has easy servicing capabilities that allow system parameters to be interrogated, monitored and adjusted with a PC.

### Features:

- Digital governing
- Digital voltage regulation
- AmpSentry™ protection for true alternator O/C protection
- Analog/ bargraph/ digital AC output metering
- Battery monitoring system to sense and warn against a weak battery condition
- Digital alarm and status message display
- Genset monitoring : Displays status of all critical engine and generator set functions
- Smart starting control system : Integrated fuel ramping to limit black smoke and frequency overshoot
- Advanced serviceability
- PowerCommand® network capability (optional)

## PowerCommand® 3100 paralleling genset controls (optional)

In addition to the features described above, the PowerCommand® control with digital paralleling features eliminates the need for separate paralleling control devices such as synchronizers and load sharing controls, and KVAR / power factor controls. Besides this, features like synchronizing\*, including import/export controls for paralleling with an infinite (utility/mains) bus and the ability to control the load on the generator set when paralleled with utility or mains are also built into the PowerCommand® control.

\* For utility synchronizing applications, please contact your local Cummins® distributor.



PCC 2100



PCC 3100

**Alternator:** Stamford brushless alternator

- Separately excited, self-regulated
- Class 'H' insulation
- Salient pole revolving field
- Single / double bearing
- PMG standard

### Accessories:

- Silencer suitably optimized to reduce noise
- Sturdy base rail
- 990 ltrs. free standing fuel tank.
- 4 x 12 V dry, uncharged batteries with connecting leads and terminals

**Control panel:** Powder coated control panel manufactured with 14 / 16 gauge CRCA sheet and provides:

- ACB of suitable rating with overload and short circuit protection
- Voltmeter and ammeter with selector switch
- KW / PF meters
- Frequency meter
- KWh meter
- Indicating lamps for "Load On" and "Set Running"
- Current transformers
- Aluminium busbars of suitable capacity with incoming and outgoing terminations
- Instrument fuses duly wired and ferruled

## Optionals

**Engine:** Heavy duty air cleaner, lube oil / coolant heater with thermostatic switch

**Alternator:** Space heater, RTDs, BTDs

**Control panel:** AMF control panel, battery charger, remote/ auto start panel, auto/ manual synchronizing panel, audio/ visual annunciation for faults

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PGBU/CIL/005/K50 1250-1500 kVA/Powerica/February 2009/Qty.



## Technical data

### Generator set specifications

Model	CP 1250 D5 P	CP 1500 D5 P
Prime Power Rating kVA	1250	1500
Output Voltage and Frequency	415 Volts, 50 Hz	415 Volts, 50 Hz
Power Factor	0.8 (lag)	0.8 (lag)
No. of phases	3 phase	3 phase

### Engine specifications

Make	Cummins	Cummins
Model	KTA 50 G3	KTA 50 G8-I
No. of cylinders	16 'Vee'	16 'Vee'
Aspiration	Turbocharged-Aftercooled	Turbocharged-Aftercooled
Bore x Stroke	159 mm x 159 mm	159 mm x 159 mm
Displacement	50.3 ltrs	50.3 ltrs
Output - Prime	1470 bhp (1097 kWm)	1735 bhp (1294 kWm)
Fuel consumption @ 75% load with Radiator & Fan	190.8 ltr/hr	231 ltr/hr
Fuel consumption @ 100% load	251.8 ltr/hr	301.7 ltr/hr
Typical oil consumption @ 100% load	0.3 ltr/hr	0.35 ltr/hr
Total wet weight (engine + radiator)	6824 kg	7205 kg
Length x Width x Height (engine)	2978 x 2080 x 1780 mm	2978 x 2080 x 1780 mm
Compression Ratio	13.9 : 1	14.9:1
Piston Speed	7.95 m/s	7.95 m/s
Governor / Class	Electronic / A1	Electronic / A1
Lubricating oil sytem capacity	177 ltrs	177 ltrs
Coolant capacity (engine + radiator)	440 ltrs	510 ltrs
Combustion air intake @ 100% load (+/- 5%)	81.6 m <sup>3</sup> /min	95.5 m <sup>3</sup> /min
Fan air flow across radiator	27357 ltrs/sec	28400 ltrs/sec
Exhaust Temperature	529 °C	481 °C
Battery Capacity / Rating	180 AH, 4 X 12 V	180 AH, 4 X 12 V

### Alternator specifications

Make	Stamford	Stamford
Frame size / Model No.	HCK6Z	P1734C
Voltage Regulation	± 0.5%	± 0.5%
Insulation	Class H	Class H
Standard Enclosure	IP 23	IP 23
Winding Pitch	2 / 3 Pitch	2 / 3 Pitch
Stator Winding	Double layer lap	Double layer lap
Rotor	Dynamically balanced	Dynamically balanced
Wave form distortion	No load < 1.8 %, non distorting balanced linear load < 5 %	No load < 1.8 %, non distorting balanced linear load < 5 %
Telephone Interference Factor	Better than 50	Better than 50
Total Harmonic Factor	Better than 2%	Better than 2%

### Conformance standards

IS 4722, BS 5000, IS 1460, ISO 8528, BS 5514, ISO 3046

### Rating definitions

#### 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.

- Fuel consumption data is based on diesel having specific gravity of 0.85 and conforming to IS:1460
- Oil consumption data is based on oil having specific gravity of 0.89 and meeting CF4 API categories
- Fuel consumption tolerance is +5%

#### 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.

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## Typical diesel genset dimensions

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Weight (kgs.) (Dry)
<b>CP 1250 D5 P</b>	1250 kVA	6165	2235	2877	10800
<b>CP 1500 D5 P</b>	1500 kVA	6090	2075	2850	12250



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