

# Diesel generator set K38 series



## Specification sheet

600-808 kWe, 750-1010 kVA Prime



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### Reliable and durable

Cummins® **'K 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 'K38 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® **'K series'** diesel engine generating sets are a truly cost effective solution to long term power need backed by industry best 2 years / 5000hrs warranty for the entire generating set.

### Cummins advantage

Special features of Cummins® **'K 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 'K series' direct injection, water cooled engine, 12 cylinder, 4 stroke, rated at 1500 RPM, conforming to ISO 3046 / BS 5514 has the following specifications:

- Cummins PT fuel pump
- Cummins STC injectors (for 1010 kVA rating)
- 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
- Flexible coupling for double bearing alternator
- Starting motor – Electric, Battery charging alternator
- Electronic control panel
- Cummins Electronic Governor (EFC)
- Engine protections (trip)
  - High water temperature
  - Low lube oil pressure
  - Overspeed
  - Low coolant oil level (alarm)
- First fill lube oil



**Alternator:** Stamford brushless AC alternator

- Separately excited, self-regulated
- Class 'H' insulation
- Salient pole revolving field
- Single / double bearing
- Automatic voltage regulator
- 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

**PowerCommand™ Genset Controls**

The PowerCommand™ 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 on PCC 2100/ 3100 for solo/ paralleling applications
- 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™ Paralleling Genset Controls**

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

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PGBU/CIL/005/K38 750-1010 kVA/Powerica/February 2009/Qty.



## Technical Data

### Generator set specifications

Model	CP 750 D5 P	CP 800 D5 P	CP 1010 D5 P
Prime Power Rating kVA	750	800	1010
Output Voltage and Frequency	415 Volts, 50 Hz	415 Volts, 50 Hz	415 Volts, 50 Hz
Power Factor	0.8 (lag)	0.8 (lag)	0.8 (lag)
No. of phases	3 phase	3 phase	3 phase

### Engine specifications

Make	Cummins	Cummins	Cummins
Model	KTA 38 G2-I	KTA 38 G3-I	KTA 38 G5
No. of cylinders	12 'Vee'	12 'Vee'	12 'Vee'
Aspiration	Turbocharged-Aftercooled	Turbocharged-Aftercooled	Turbocharged-Aftercooled
Bore and Stroke	159 mm x 159 mm	159 mm x 159 mm	159 mm x 159 mm
Displacement	37.8 ltrs	37.8 ltrs	37.8 ltrs
Output - Prime	890 bhp (664 kWm)	950 bhp (709 kWm)	1180 bhp (880 kWm)
Fuel consumption @ 75% load with Radiator & Fan	121.4 ltr/hr	128.8 ltr/hr	153.3 ltr/hr
Fuel consumption @ 100% load with Radiator & Fan	159.3 ltr/hr	169.2 ltr/hr	203.8 ltr/hr
Lube oil consumption @ full load	0.18 ltr/hr	0.19 ltr/hr	0.24 ltr/hr
Total wet weight ( engine + radiator)	4910 kg	4910 kg	6000 kg
Length x Width x Height (engine)	2000 x 1620 x 2360 mm	2000 x 1620 x 2360 mm	2265 x 1400 x 1658 mm
Compression Ratio	15.5 : 1	15.5 : 1	13.9:1
Piston Speed	7.95 m/s	7.95 m/s	7.95 m/s
Governor / Class	Electronic / A1	Electronic / A1	Electronic / A1
Lubricating oil sytem capacity	118 ltrs	118 ltrs	145 ltrs
Coolant capacity (engine + radiator)	300 ltrs	300 ltrs	260 ltrs
Combustion air intake @ 100% load (+/- 5%)	54.7 m <sup>3</sup> /min	56.3 m <sup>3</sup> /min	66.9 m <sup>3</sup> /min
Fan air flow across radiator	1359.2 m <sup>3</sup> /min	1359.2 m <sup>3</sup> /min	1431.3 m <sup>3</sup> /min
Exhaust Temperature	476 °C	481 °C	500 °C
Battery Capacity / Rating	180 AH, 4 X 12 V	180 AH, 4 X 12 V	180 AH, 4 X 12 V

### Alternator specifications

Make	Stamford	Stamford	Stamford
Frame size / Model No.	HC6W	HC6Y	HC6Y
Voltage Regulation	± 0.5%	± 0.5%	± 0.5%
Insulation	Class H	Class H	Class H
Standard Enclosure	IP 23	IP 23	IP 23
Winding Pitch	2 / 3 Pitch	2 / 3 Pitch	2 / 3 Pitch
Stator Winding	Double layer lap	Double layer lap	Double layer lap
Rotor	Dynamically balanced	Dynamically balanced	Dynamically balanced
Wave form distortion	No load < 1.8 %, no distorting / balanced linear load < 5 %	No load < 1.8 %, no distorting / balanced linear load < 5 %	No load < 1.8 %, no distorting / balanced linear load < 5 %
Telephone interference Factor	Better than 50	Better than 50	Better than 50
Total Harmonic Factor	Better than 2%	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 Generator Set dimensions

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Weight (kgs.) (Dry)
<b>CP 750 D5 P</b>	750 kVA	4710	1500	2233	7900
<b>CP 800 D5 P</b>	800 kVA	4710	1500	2233	7900
<b>CP 1010 D5 P</b>	1010 kVA	5660	2205	2686	9700 (with PCC)



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