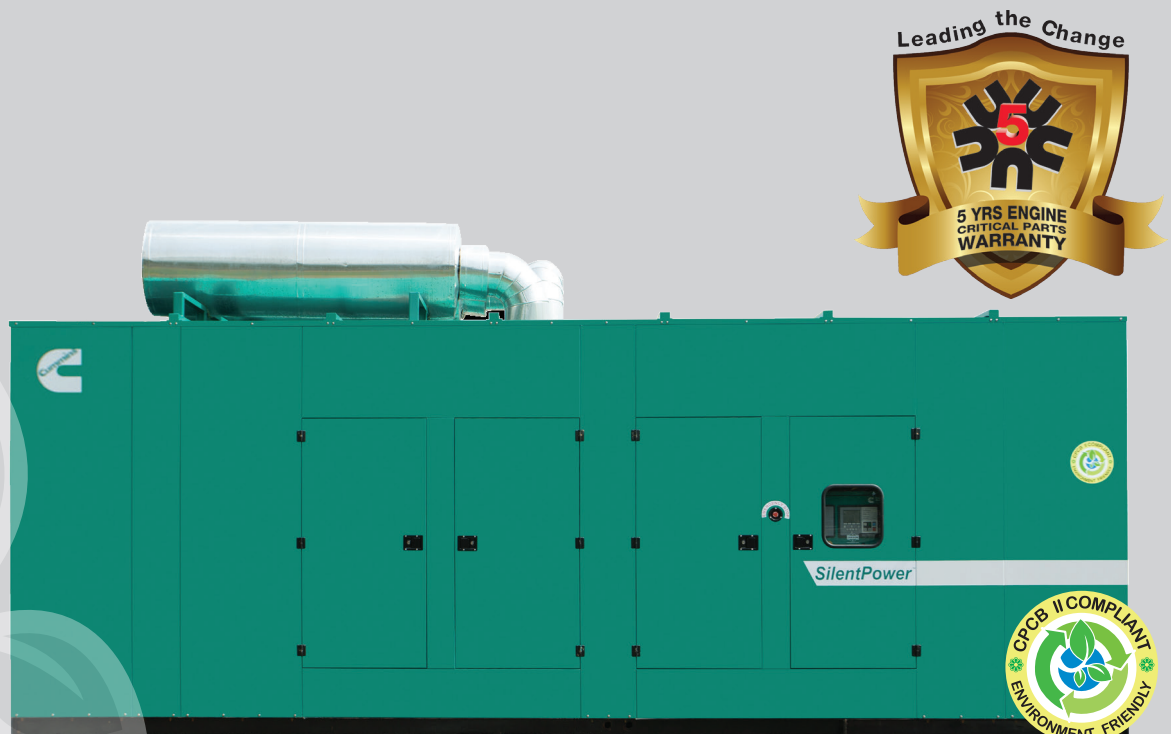




# Diesel Generator Set K38 Series

750-810 kVA, 600-648 kW Prime



Specification Sheet

## Latest Technology Product with Global Cummins® Platform

- The Cummins® K38 series heavy-duty engine and world class Stamford alternator powered diesel generator set
- Proven technology with mechanical simplicity of Cummins PT fuel system.
- Advanced in-cylinder technology and 2P2L Cooling system to meet latest emission norms without any after-treatment device
- Smart aesthetic and superior finish
- Compact in size with optimum power to weight ratio

## Environment Friendly Power

- Class defining technology engine is designed to meet stringent exhaust emission tests as per revised MoEF norms, thus offering environment friendly power.
- The Cummins® diesel generator sets are available with the lowest noise levels in its range

## Lowest Operating Cost and Comprehensive Warranty

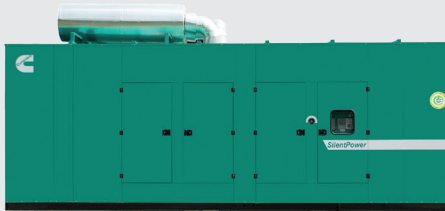
- Highly reliable and durable product
- All elements are designed to work together to maximize efficiency even at part loads, offering the advantage of lowest operating costs
- 500 Hours / 1 year service interval
- Industry acknowledged best-in-class comprehensive warranty on the entire package including rubber components

## Single Source Power Assurance

- All the major components – the engine, alternator, control system and canopy are designed, manufactured and tested by Cummins India.
- Best and Largest customer support network in India, capable of providing round-the-clock service and spares support
- All these things put together, Cummins® offers you SINGLE SOURCE POWER ASSURANCE

## Engine

- Cummins K38 series, 12 cylinder, Vee, 4 stroke, radiator cooled engine
- Highly stable and reliable design with square engine
- Well designed air handling system with
  - Dry type, Heavy duty, Replaceable paper element air cleaner with restriction indicator
  - Outboard aftercooling with 2 pump 2 loop system
  - Optimised turbocharger for increased altitude capabilities
- Best in class fuel economy with
  - PT fuel system with Electronic Step Timing Control (ESTC) injectors which smoothly stabilise engine speed under load with A1 class electronic governing
  - Dual fuel filter system: Pre filter including water separator and Water In Fuel (WIF) sensor and main filter
- Standard integral set-mounted radiator system, designed and tested for 50°C ambient temperature
- Full flow spin on lube oil filter
- Plate type lube oil cooler
- First fill of lube oil and coolant
- Electrical starter motor with soft start engagement feature
- Battery charging alternator
- 2 x 12 V DC batteries



## Alternator

- Stamford HC4 alternator frames from Cummins Generator Technologies
- Brushless type, Screen protected, Revolving field, Self excited alternator conforming to IS/IEC 60034-1
- PMG standard
- Better motor starting capability
- Best in class efficiency
- Compact design with sealed bearings for longer life and lesser maintenance
- Impregnation on all wound components for better mechanical strength

## Control Panel

Control panel is manufactured with 14/16 gauge CRCA sheet and is powder coated for weather-proof and long lasting finish. The control panel consists of the following parts:

- PowerCommand® 3.3 Controller
- Aluminum bus bars with suitable capacity with incoming/outgoing terminals
- Indicating lamps for 'Load ON' and 'Set Running'
- Instrument fuses duly wired and ferruled
- Air Circuit Breakers (ACBs) of suitable rating with overload and short circuit protections



### PowerCommand 3.3

#### Features

The PowerCommand® control system is a microprocessor based generator set monitoring, metering and control system with LCD display designed to meet the demands of today's engine driven generator sets

- Intuitive operator interface which includes LED backlit LCD display with tactile feel soft-switches & generator set status LED lamps
- Integrated digital electronic voltage regulator with configurable torque matching.
- Digital electronic governing with temperature compensation and smart starting
- SAE J1939 interface to Full Authority Electronic (FAE) engines
- Remote start-stop
- Engine Metering: Oil pressure, High/Low coolant temperature, Low coolant level, Oil temperature, Intake manifold temperature, Battery voltage, Engine speed
- AC Alternator metering: L-L Voltage and L-N Voltage, Current (1 and 3 phase), kW, kVAR, Power factor, kVA (three phase and total), and Frequency.
- Utility/AC bus Metering: L-L Voltage and L-N Voltage, Current (1 and 3 phase), kW, kVAR, Power factor, kVA (three phase and total), and Frequency.
- 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), Load govern control, Load demand control
- Data Logging: Genset model data, Engine hours, Control hours, Engine starts, Load profile, kWh and upto 32 recent fault codes
- Engine Protection: Low lube oil pressure, High/Low coolant temperature, Over speed, Battery Over/Under/Weak Volts, Fail to crank/start, Cranking lockout, Low fuel level, Sensor failure.
- AC Alternator Protection: AmpSentry protective relays for short circuit shutdown, Over/Under voltage, Over/Under frequency, Over current, Overload, Reverse power, Reverse VAr, Phase rotation and Loss of AC sensing.
- Utility/AC bus protection: Over/Under voltage, Under frequency and Phase rotation Sleep mode
- Paralleling protections
- Control Functions: Start-stop with configurable time delay, Real time clock for fault and event time stamping, Exerciser clock and time of day start/ stop, Configurable glow plug control, Configurable cycle cranking, Load shed/ dump as per configurable priority
- 12 and 24 Volt DC Operation
- Sleep Mode
- Programmable I/Os (4 inputs and 4 outputs), expandable with AUX101/102 modules
- Self-Configuring PCCNet network
- Modbus Interface (RS485 RTU)
- InPower Compatible (PC based service tool)
- Certifications - meets the requirement of relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards

## Silencer

- Hospital grade silencer suitably optimised to meet stringent noise emission standards laid down by MoEF / CPCB

## Mounting Arrangement

- Engine and alternator are mounted on a common MS fabricated base frame with AVM pads.

## Optional

- **Engine:** Coolant Heater, Lub Oil heater, Heat exchange, No cool.
- **Control Panel:**
  - PC3.3
  - Bargraph For PC3.3 Panel with kW, Power factor, Frequency, Current, Voltage
  - Remote HMI

### Acoustic Enclosure

- Specially designed to meet stringent MoEF/ CPCB norms of 75 dBA @ 1mtr at 75% load under free field conditions
- The acoustic enclosure is made of CRCA sheets in munsel green shade and a structural/ sheet metal base frame painted in black
- High quality noise absorbant and fire-retardant grade acoustic insulation material (Rockwool) complying to IS 8183
- Base lifting for easy handling at customer site
- Designed to have optimum serviceability

- Air inlet louvers specially designed to operate at rated load
- Made on special purpose CNC machines for consistency in quality and workmanship
- 11 tank pretreatment process and UV resistant powder coating of all parts to withstand extreme environment
- Use of special hardware for longer life
- Flush styling - no projections
- Fluid drains for lube oil and fuel
- Fuel filling arrangement inside the enclosure

## Technical Data

### Generator Set Specification

Model	C750D5P	C810D5P
Duty	Prime	Prime
Power Rating kVA / kW	750/600	810/648
No. of Phases	3	3
Output Voltage and Frequency (V and Hz)	415 V, 50 Hz	415 V, 50 Hz
Power Factor	0.8 (lagging)	0.8 (lagging)
Current (A)	1043	1126
RPM	1500	1500

### Engine Specifications

Make	Cummins®	Cummins®
Model	KTA38-G12	KTA38-G12
MoEF Certified Power (bhp)	1069	1069
Required Power for Rated kVA (bhp)	891	960
Cooling	Liquid cooled EG Compleat 50:50	Liquid cooled EG Compleat 50:50
Aspiration	Turbocharged Aftercooled	Turbocharged Aftercooled
No. of cylinders	12, Vee	12, Vee
Bore (mm) x Stroke (mm)	159 x 159	159 x 159
Compression ratio	16.7:1	16.7:1
Displacement (litre)	38	38
Fuel	High Speed Diesel	High Speed Diesel
Fuel consumption @75% load with radiator and fan* (litre/hr)	130.42	138.20
Fuel consumption @100% load with radiator and fan* (litre/hr)	165	175.87
Performance class of generator set	ISO 8528-5 G2	ISO 8528-5 G2
Starting system	24 V DC Electrical	24 V DC Electrical
Lube oil specification	CH4 15W40	CH4 15W40
Lube oil sump capacity, High-Low level (litre)	140 - 114	140 - 114
Total lubrication system capacity (litre)	155	155
Total coolant capacity (litre)	330	330
No. of banks x Exhaust pipe size (inch)	2 x 8	2 x 8
Total wet weight (Engine+Radiator)** (kg)	5800	5800
Length x Width x Height (Engine) (mm)	2269 x 1436 x 1764	2269 x 1436 x 1764
Mean piston speed (m/s)	7.95	7.95
Combustion air intake @100% load (±5%) (cfm)	2011	2103
Exhaust Temperature (°C)	520	521

### Alternator Specification

Make	Stamford (CGT)	Stamford (CGT)
Alternator frame	HCI634W	HCI634V
Enclosure	IP 23	IP 23
Voltage regulation (Max.)	±1%	±1%
Class of Insulation	H Class	H Class
Winding Pitch	2/3	2/3
Stator Winding	Double layer lap	Double layer lap
Rotor	Dynamically Balanced	Dynamically Balanced
Waveform distortion/ Total Harmonic Distortion	No load < 1.5 %, Non distorting balanced linear load < 5 %	No load < 1.5 %, Non distorting balanced linear load < 5 %
Maximum Unbalanced Load across phases#	less than or equal to 25%	less than or equal to 25%
Telephonic Harmonic factor	< 2%	< 2%

\* Fuel consumption data is based on diesel having specific gravity of 0.85 and conforming to IS:1460. Fuel consumption tolerance is +5%

# With the condition that none of the phases exceeds its rated current

### 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.

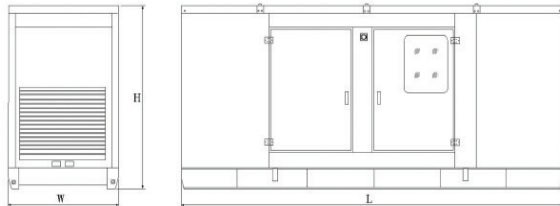
### Conformance Standards

- IS/IEC 60034-1     ■ ISO 8528     ■ ISO 9001
- IS 1460            ■ ISO 3046     ■ IS 13018

### Typical Enclosed Genset Dimensions

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Wet Weight <sup>##</sup> (kg)	Standard Fuel tank Capacity (litre)
C750D5P	750	8500	2500	2975	9253	990
C810D5P	810	8500	2500	2975	9253	990

<sup>##</sup> Approximate Weight



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