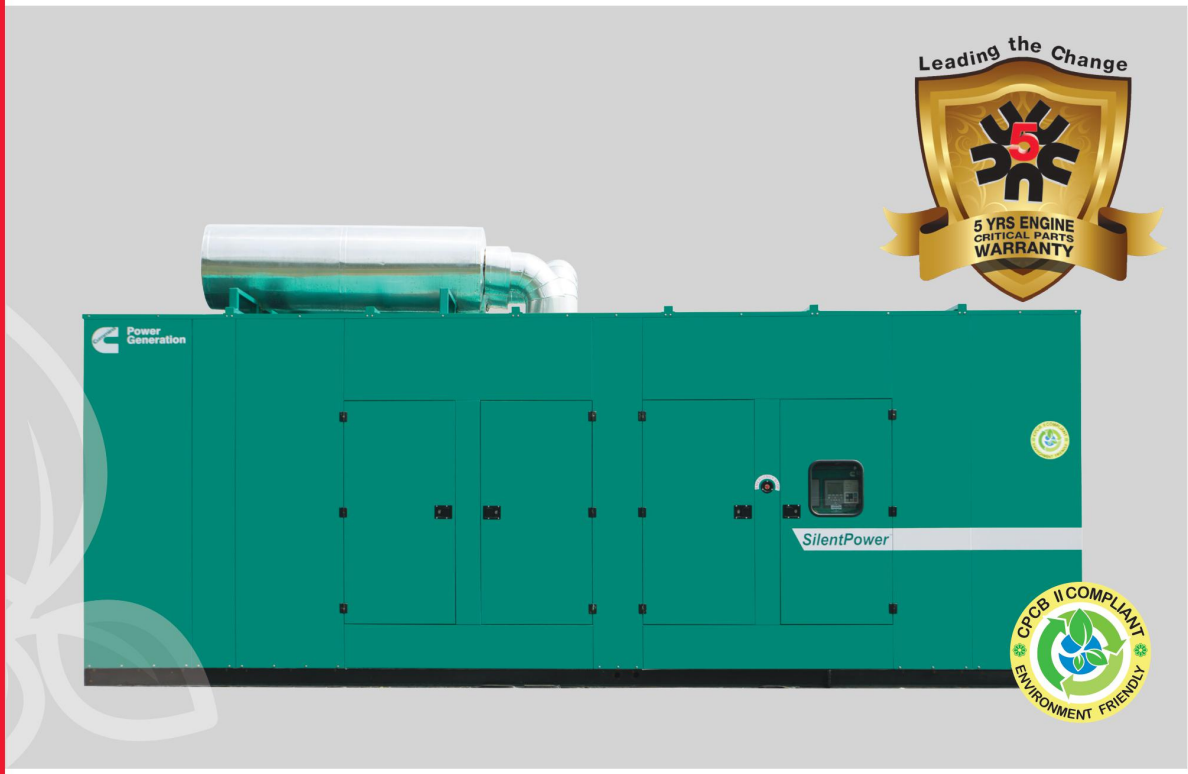
Power Generation

Diesel Generator Set

K38 Series

750-810 kVA, 600-648 kWe Prime

Specification Sheet



Reliable Technology And Unmatched Performance

- 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

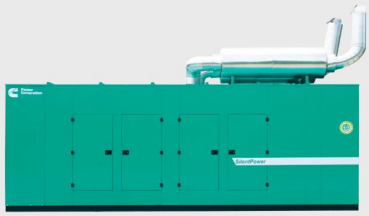
- Highly reliable and durable product
- All elements are designed to work together to maximize efficiency even at part loads, offering the advantage of lowest operating costs.
- 300 Hours/ 1 year service interval
- Industry acknowledged best-in-class comprehensive warranty on the entire package including 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 paper element type lube oil filters
- 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 HC alternator frames from Cummins Generator Technologies
- Brushless type, Screen protected, Separately 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 an integrated 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
- 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, Oil drain pump, Heat exchanger, No cool, Remote radiator
- **Control Panel:** Microprocessor / relay based AMF control panel, Battery charger, Auxiliary output relays and remote annunciators
- **Others:** Trolley mounted mobile sets

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
- Cap-on type enclosure with 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
- Provision of fuel line connection from day tank

Technical Data

Generator set specification		
Model	C750D5P	C810D5P
Duty	Prime	Prime
Power Rating kVA / kWe	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 Specification		
Make	Cummins	Cummins
Model	KTA38-G13	KTA38-G12
MoEF Certified Power (hp)	987	1069
Required Power for Rated kVA (hp)	891	960
Cooling	Liquid cooled (Distilled Water +DCA2)	Liquid cooled (Distilled Water +DCA2)
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)	132.4	138.94
Fuel consumption @100% load with radiator and fan* (litre/hr)	166.42	177.41
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
Lube oil consumption @ full load** (litre/hr)	0.24	0.26
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%*

***Oil consumption data is based on oil having specific gravity of 0.89 and meeting CH4 API categories*

#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.

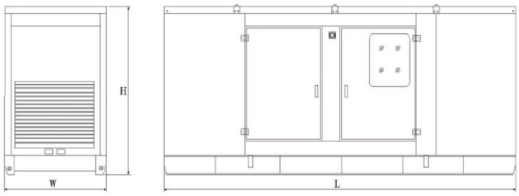
Conformance Standards

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

Typical Enclosed Genset Dimensions

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Wet Weight## (kg)	Standard Fuel tank Capacity (litre)
C750D5P	750	8000	2600	3000	11900	990
C810D5P	810	8000	2600	3000	11900	990

Approximate Weight



Authorised Representative

QNG Co., Ltd.

A : 1L Street No. 18B, Binh Hung Hoa A, Binh Tan, HCMC
T : 028.36363724 | F : 028.36363714 | www.qng.com.vn

Cummins Power Generation Offices

Bengaluru:	Tel.: (080) 2325 9161 / 63, 2325 9165 / 67 Fax: (080) 2325 9164
Chandigarh:	Tel.: (0172) 224 0371-73 Fax: (0172) 224 0372
Chennai:	Tel.: (044) 2446 8110 / 2446 8113 Fax: (044) 2491 1120
Gurgaon:	Tel.: (0124) 391 0900-01 Fax : (0124) 391 0916
Hyderabad:	Tel.: (040) 2340 9970 / 2340 9980 Fax. (040) 2340 9990
Jaipur:	Tel.: (0141) 236 4944 Fax: (0141) 403 8794
Kolkata:	Tel.: (033) 2287 8065 / 2287 2481 Fax: (033) 2290 3839
Lucknow:	Tel.: (0522) 230 5049 / 230 5059 Fax: (0522) 230 5035
Mohali:	Tel.: (0172) 224 0371 / 72 / 73 Fax: (0172) 224 0371 / 72 / 73
Vadodara:	Tel.: (0265) 233 0627 / 3053627 Fax: (0265) 234 0623

Visit our facebook page at :
Cummins Power Generation India

"Our energy working for you."

PGBU/004/K38 750-810 kVA/SA/KG/February 2016

Power Generation

Cummins India Limited
Power Generation Business Unit
Cummins India Office Campus
Tower-A, 6th Floor, S. No. 21,
Balewadi, Pune – 411 045 (India)
Email: cpgindia@cummins.com
www.cumminsindia.com