

# Diesel Generator Set

## K19 Series

500 kVA, 400 kWe Prime



Specification Sheet

### Reliable Technology and Unmatched Performance

- The Cummins® K19 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 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 the SINGLE SOURCE POWER ASSURANCE

## Engine

- Cummins® K19 series, 6 cylinder, In-line, 4 stroke, radiator cooled engine
- Highly stable and reliable design with square engine
- Well designed air handling system with
  - Dry type, replaceable paper element air cleaner with restriction indicator
  - Optimised turbocharger for increased altitude capabilities
  - Air to air aftercooling
- Best in class fuel economy with
  - PT fuel system with Electronic Step Timing Control (ESTC) injectors which smoothly stabilise engine speed under load with 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
- 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 HC alternator frame from Cummins Generator Technologies
- Brushless Type, Screen protected, Revolving field, Self excited Alternator conforming to IS/IEC 60034-1
- 3 Phase reconnectable winding with 12 terminals brought out for connection
- 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® 1.2 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
- MCCB of suitable rating with overload and short circuit protections

## PowerCommand® 1.2 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
- Digital AVR for shunt or PMG excitation with 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, Coolant temperature, Battery voltage, Engine speed
- AC Alternator metering: L-L Voltage and L-N Voltage, Current (1 and 3 phase), Volt-Amperes (phase and total) and Frequency.
- Engine protection: Low lube oil pressure, High/Low coolant temperature, Over speed, Battery Over/Under/Weak Volts, Fail to crank/start, Sensor failure.
- AC Alternator protection: Over/Under voltage, Over/Under frequency, Over current, Short circuit and Loss of AC sensing.
- Data logging: Engine hours, Control hours, Engine starts and upto 10 recent fault codes
- Configurable glow plug control
- Configurable cycle cranking
- 12 and 24 Volt DC operation
- Sleep mode
- Programmable I/Os (4 inputs and 2 outputs), expandable with AUX101/102 modules
- 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.
- Base frame with integral fuel tank is provided with drain plug, air vent, inlet and outlet connection, level indicator and provision for cleaning

## Optional

- **Engine:** Coolant heater, Heat exchanger, No cool, Remote radiator
- **Alternator:** PMG
- **Control Panel:** PC3.3, Microprocessor / relay based AMF control panel

### 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	C500D5P
Duty	Prime
Power Rating kVA / kW <sub>e</sub>	500/400
No. of Phases	3
Output Voltage and Frequency (V and Hz)	415 V, 50 Hz
Power Factor	0.8 (lagging)
Current (A)	695
RPM	1500

#### Engine Specification

Make	Cummins®
Model	KTAA19-G10
MoEF Certified Power (bhp)	587
Required Power for Rated kVA (bhp)	587
Cooling	Liquid Cooled (EG Compleat 50:50)
Aspiration	Turbocharged, Charge air Cooled
No. of cylinders	6, In-line
Bore(mm) x Stroke(mm)	159 x 159
Compression ratio	16.7:1
Displacement(litre)	19
Fuel	High Speed Diesel
Fuel consumption @75% load with radiator and fan*(litre/hr)	79.83
Fuel consumption @100% load with radiator and fan*(litre/hr)	103.64
Performance class of genset	ISO 8528-5 G2
Starting system	24 V DC Electrical
Lube oil specification	CH4 15W40
Lube oil sump capacity, High-Low level (litre)	38-32
Total lubrication system capacity (litre)	50
Total coolant capacity (litre)	85
Exhaust pipe size (inch)	10
Total wet weight (Engine+Radiator) (Kg)**	2300
Length x Width x Height (Engine) (mm)	1744 x 916 x 1402
Mean piston speed (m/s)	7.95
Combustion air intake @100% load (±5%) (cfm)	1278
Exhaust Temperature (°C)	464

#### Alternator specification

Make	Stamford (CGT)
Alternator frame	HCI544D
Enclosure	IP 23
Voltage regulation (Max.)	±1%
Class of Insulation	H Class
Winding Pitch	2/3
Stator Winding	Double layer lap
Rotor	Dynamically Balanced
Waveform distortion/ Total Harmonic Distortion	No load < 1.5 %, Non distorting balanced linear load < 5 %
Maximum Unbalanced Load across phases#	less than or equal to 25%
Telephonic Harmonic factor	< 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.

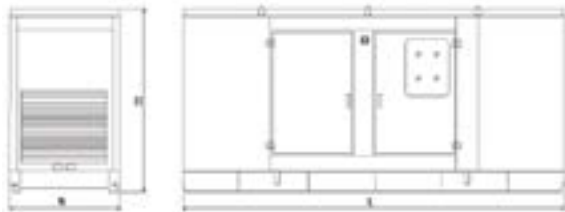
### Conformance Standards

- IS/IEC 60034-1     ■ 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 <sup>##</sup> (kg)	Standard Fuel tank Capacity (litre)
C500D5P	500	6000	2000	2250	7600	690

<sup>##</sup>Approximate weight



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