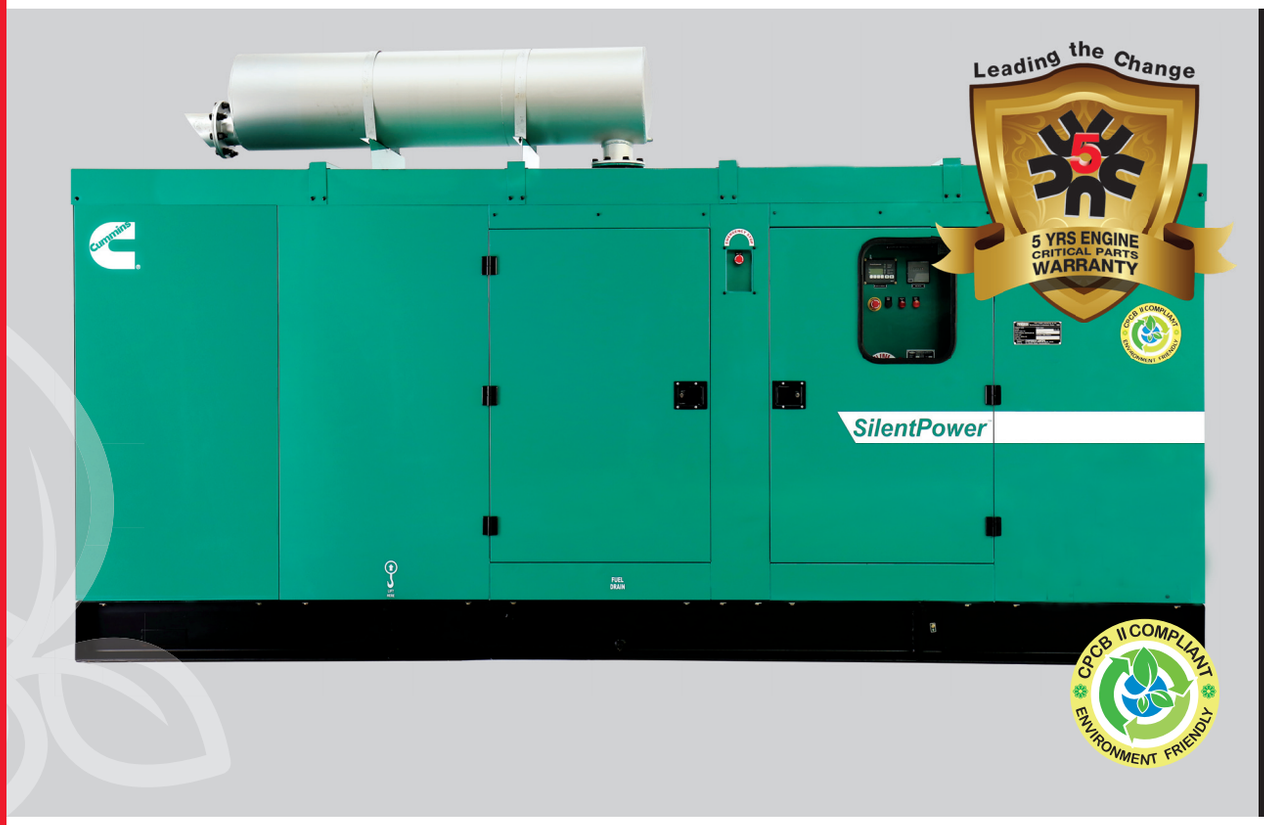
Diesel Generator Set

K19 Series

600/625 kVA, 480/500 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
- 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 HE800FG 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
- Standard integral set-mounted radiator system, designed and tested for 50°C ambient temperature
- Venturi combo Spin On 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® 3.3 Controller
- Aluminum bus bars with suitable capacity with incoming/ outgoing terminals
- Instrument fuses duly wired and ferruled
- Air Circuit Breakers (ACBs)/Moulded Case Circuit Breaker (MCCB) 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
- Remote Start-Stop
- Engine Metering: Oil pressure, High coolant temperature, Low coolant level, Battery voltage, Engine speed and hours.
- 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), 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.
- 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
- **Alternator:** PMG
- **Control Panel:** Microprocessor / relay based AMF control panel
- **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 Munsell 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 Specifications		
Model	C600D5P	C625D5P
Duty	Prime	Prime
Power Rating kVA / kWe	600/480	625/500
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)	835	870
RPM	1500	1500
Engine Specifications		
Make	Cummins®	Cummins®
Model	KTAA19-G12	KTAA19-G13
MoEF Certified Power (bhp)	713	739
Required Power for Rated kVA (bhp)	708	734
Cooling	Liquid Cooled (EG Compleat 50:50)	Liquid Cooled (EG Compleat 50:50)
Aspiration	Turbocharged, Charge air Cooled	Turbocharged, Charge air Cooled
No. of cylinders	6, In-line	6, In-line
Bore(mm) x Stroke(mm)	159 x 159	159 x 159
Compression ratio	14.3:1	14.3:1
Displacement(litre)	19	19
Fuel	High Speed Diesel	High Speed Diesel
Fuel consumption @75% load with radiator and fan*(litre/hr)	98.38	102.28
Fuel consumption @100% load with radiator and fan*(litre/hr)	125.5	129.74
Performance class of genset	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)	38-32	38-32
Total coolant capacity (litre)	90	90
Exhaust pipe size (inch)	10	10
Total wet weight (Engine+Radiator) (Kg)##	2500	2500
Length x Width x Height (Engine) (mm)	1830 x 964 x 1514	1830 x 964 x 1514
Mean piston speed (m/s)	7.95	7.95
Combustion air intake @100% load (±5%) (cfm)	1458	1496
Exhaust Temperature (°C)	527	527
Alternator specification		
Make	Stamford (CGT)	Stamford (CGT)
Alternator frame	HCI544E	HCI544F
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.

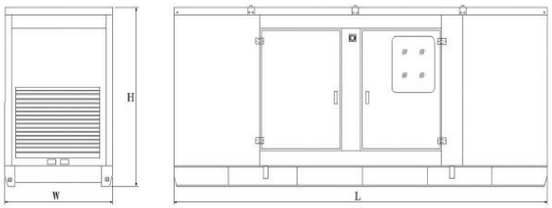
Conformance Standards

- IS/IEC 60034-1
- 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)
C600D5P	600	6500	2000	2800	9029	832
C625D5P	625	6500	2000	2800	9029	832

##Approximate weight



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