



## Specification sheet

# Diesel Generator Set V28 Series

480-500 kWe, 600-625 kVA Prime



### Lowest life cycle cost

'V28 series' design features has made Cummins® diesel generator sets, the standard for comparison of operating economy, reliability and long life. When all cost factors like initial purchase, fuel, lube oil, maintenance etc. are considered, the bottom line will show that this Cummins® 'V28 series' will deliver the lowest life cycle cost.

### Heavy duty, durable and emission compliant

Cummins® 'V28 series' diesel engine comes with heavy duty features, a optimum size camshaft, optimized turbo-matching, premium injectors and is yet compact in size with a optimum power to weight ratio making it the obvious choice for your long-term power needs.

This genset powered by the reliable Cummins® 'V28 series' diesel engine meets stringent exhaust emission tests as per CPCB norms without sacrificing fuel efficiency at normal operating loads.

### Silent Power

Cummins® 600-625 kVA enclosures are designed so as to have optimum performance and serviceability over the complete operating range. The enclosures are compact and are designed for ease in maintenance. The powder coated enclosures are manufactured on latest CNC machines to ensure superior finish and durability.



### Single source power assurance

Design, manufacture and testing of engine, alternator and other accessories is done by Cummins India/ Channel partners (Powerica Limited) for optimum performance and is backed by a countrywide product support network with a single source responsibility for the entire package.

### Standard scope

**Engine:** Cummins® 'V28' series direct injection, water cooled engine, 12 cylinder, Vee, 4 stroke, rated at 1500 RPM, conforming to ISO 3046 / BS 5514 has the following specifications:

- Cummins PT fuel pump
- Cummins heavy duty injectors
- Holset turbocharger, pulse tuned exhaust manifold, stainless steel exhaust flexible connections
- Radiator or heat exchanger, coolant inhibitor,
- Shell and tube type lube oil cooler
- 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 bearing alternator
- Starting motor – Electric, battery charging alternator
- First fill lube oil

### Alternator: Stamford brushless alternator

- Self-excited, self regulated
- Class 'H' insulation
- Salient pole revolving field
- Single bearing
- Digital automatic voltage regulator

### Accessories:

- Silencer suitably optimized to meet stringent sound emission standards laid down by MOEF / CPCB
- Base rail with integral fuel tank is provided with drain plug, air vent, inlet and outlet connection, level indicator, manhole etc.
- Integral fuel tank of 926 litres capacity
- 2 x 12 V dry, uncharged batteries with connecting leads and terminals

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**Control panel:** Powder coated control panel manufactured with 14 / 16 gauge CRCA sheet provides:

- MCCB /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

**PowerCom® controller:** A Cummins manufactured microprocessor based genset controller for metering, monitoring, protecting and electronic governing of the engine.



#### **PowerCom® features:**

- Engine electronic governing
- Genset metering parameters like lube oil pressure, coolant temperature, engine speed (rpm), run hours, DC voltage, intake manifold temperature (wherever applicable), 3 phase volts and 3 phase amperes, frequency, kW, kVA, power factor
- Engine protection for low lube oil pressure, high coolant temperature (alarm and shutdown)
- Alternator protection parameters like under voltage, over voltage, over frequency, over current, under frequency (alarm and shutdown)
- Relay drivers for remote annunciations
- Cyclic cranking
- Auto/ manual start/ stop
- Alternator trim adjustment from the front key pad
- Model specific calibration from the front key pad
- Speed bias or raise/ lower inputs are provided for paralleling
- Remote monitoring capability through separate interface modules
- 6 configurable discrete outputs
- 2 configurable discrete inputs
- Smooth transition to rated speed
- Smart start algorithm
- Housed in a NEMA 3R/IP 53 non-metallic enclosure
- Operates within a wide temperature range (0-60 degrees C) and humidity up to 95%

#### **Acoustic enclosure:**



- Specially designed to meet stringent MOEF/ CPCB norms of 75 dBA @ 1mtr at 75% load under free field conditions
- Designed to have optimum serviceability
- Air inlet louvers specially designed to operate at rated load even at 50 deg C air inlet temp.
- Made on special purpose CNC machines for consistency in quality and workmanship
- Powder coated for long lasting service life and superior finish
- With UV resistant powder coating, can withstand extreme environment
- Use of stainless steel hardware
- Insulation material meets exacting IS 8183 specs for better attenuation

#### **Optionals**

**Engine:** Heavy duty air cleaner, lube oil / coolant heater with thermostatic switch

**Alternator:** Thermistors, PMG excitation, space heater

**Control panel:** "PowerCommand® Control Panel (PC 3.3)" for microprocessor based governing, regulation, metering, monitoring and auto synchronising control system. AMF control panel, battery charger, remote/ auto start panel, auto/ manual synchronizing panel and audio/ visual annunciation for faults.

**Others:** Mobile sets with canopy

## Technical data

### Generator set specifications

Model	CP600 D5 P	CP625 D5 P
Prime Power Rating kVA	600	625
Output Voltage and Frequency	415 Volts, 50 Hz	415 Volts, 50 Hz
Power Factor	0.8 (lag)	0.8 (lag)
No. of phases	3 phase	3 phase

### Engine specifications

Make	Cummins	Cummins
Model	VTA 28 G3-I	VTA 28 G5-I
No. of cylinders	12 'Vee'	12 'Vee'
Aspiration	Turbocharged-Aftercooled	Turbocharged-Aftercooled
Bore x Stroke	140 mm x 152 mm	140 mm x 152 mm
Displacement	28 ltrs	28 ltrs
Output - Prime	530 kWm	560 kWm
Fuel consumption @ 75% load with Radiator & Fan	96.3 ltr/hr	98.6 ltr/hr
Fuel consumption @ 100% load with Radiator & Fan	123.9 ltr/hr	131 ltr/hr
Typical lube oil consumption @ 100% load	0.15 ltr/hr	0.15 ltr/hr
Total wet weight ( engine + radiator and fan)	3354 kg	3354 kg
Length x Width x Height (engine)	2240 x 1265 x 1820 mm	2240 x 1265 x 1820 mm
Compression Ratio	14.1 : 1	13.5:1
Piston Speed	7.6 m/s	7.6 m/s
Governor / Class	Electronic / A1	Electronic / A1
Lubricating oil sytem capacity	95 ltrs	95 ltrs
Coolant capacity (engine + radiator)	190 ltrs	190 ltrs
Combustion air intake @ 100% load (+/- 5%)	42.5 m <sup>3</sup> /min	46.1 m <sup>3</sup> /min
Fan air flow across radiator	1133 m <sup>3</sup> /min	1198.13 m <sup>3</sup> /min
Exhaust Temperature	453 °C	457 °C

### Alternator specifications

Make	Stamford	Stamford
Frame size / Model No.	HC5E	HC5F
Voltage Regulation	± 1.0%	± 1.0%
Insulation	Class H	Class H
Standard Enclosure	IP 23	IP 23
Winding Pitch	2 / 3 Pitch	2 / 3 Pitch
Stator Winding	Double layer lap	Double layer lap
Rotor	Dynamically balanced	Dynamically balanced
Wave form distortion	No load < 1.5%, non distorting balanced linear load < 5 %	No load < 1.5 %, non distorting balanced linear load < 5 %
Telephone Interference Factor	Better than 50	Better than 50
Total Harmonic Factor	Better than 2%	Better than 2%

### Conformance standards

IS 4722, BS 5000, IS 1460, ISO 8528, BS 5514, ISO 3046

### Rating definitions

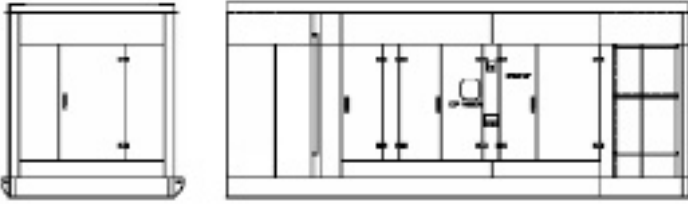
Prime Power (PRP):

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 CH4 API categories
- Fuel consumption tolerance is +5%

## Typical enclosed genset dimensions\*

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Weight (kgs.) (Dry)	Std. Fuel Tank Capacity (Ltrs)
CP600 D5 P	600 kVA	7000	2500	2925	10500	926
CP625 D5 P	625 kVA	7000	2500	2925	10500	926



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