Specification sheet

# Diesel Generator Set
# B Series

80-100 kWe, 100-125 kVA Prime


## Reliable technology product: Value for money

The Cummins® 'B series' engine powered diesel generator sets offer the best fuel economy, best warranty terms and lowest cost of maintenance thereby proving to be the most economical power solution. With the superior designed engine and world class Cummins Generator Technologies (Stamford) make alternator, the gensets come equipped with Cummins corporate genset controller for ease of use and monitoring generator performance.

## Silent, compact and light weight

The Cummins® 'B series' DG sets are compact and lighter than any other DG set in it's class, thus giving you the advantage of optimising your valuable space.

## Environment friendly power

The Cummins® 'B series' base DG sets are available with the lowest noise levels in it's range and are CPCB certified for emissions compliance, thus offering you environment friendly power.

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

## Unmatched warranty

The Cummins® 'B series' DG sets are backed by the industry aknowledged best-in-class comprehensive warranty on the entire package including rubber components.

## Lowest operating costs

All elements of the Cummins® 'B series' DG sets are designed from the start to work together to maximize efficiency, even at part loads, thus offering you the advantage of lowest operating costs.

## Single source power assurance

The rugged and reliable Cummins® 'B series' DG sets are unique, because all the major components – the engine, alternator, control system and canopy are designed, manufactured and tested by Cummins India. This, complemented by the largest customer support network in India, capable of providing round-the-clock service and spares support, offers you *SINGLE SOURCE POWER ASSURANCE* from the world leaders in power generation.

## Standard scope

**Engine:** Cummins® 'B series' diesel generating sets, powered by Cummins® 'B series' engines, are rated at 1500 RPM and conform to ISO 8528 specifications. The engines are radiator cooled, four stroke and multi-cylinder, conforming to ISO 3046.

The scope of supply includes:
- Electrical starter motor 12V DC
- Battery charging alternator
- Bosch fuel system with mechanical governor, A1 Class - Spin-on lube oil filter
- Spin-on dual fuel filter with water seperator
- Turbocharger
- Charge air cooler
- Standard integral set-mounted radiator system, designed and tested for 50°C ambient temperature
- Silencer (Hospital grade)
- Dry type air cleaner
- Shut-off coil
- Flywheel and flywheel housing
- First fill of lube oil and coolant
- Safety for low lube oil pressure
- Safety for high water temperature
- Permissible overload of 10% for one hour in 12 hours of operation

**Alternator:** Stamford alternator from Cummins Generator Technologies, suitable for operation at 1500 RPM, 415 Volts, 0.8 pf (lag) suitable for 50 Hz, 3 phase, 4 wire system, conforming to IS/IEC 60034-1. The Alternator is brushless type, screen protected, revolving field, self excited, self regulated through an AVR. The alternator has the following features:

- ± 1.0 % Voltage regulation (max) in static conditions
- IP: 23 protection with insulation class H

**Mounting arrangement:** Engine and alternator are mounted on a common MS fabricated base frame with AVM pads.

**Control Panel:** The 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:

- PS0500 Controller
- Aluminum bus bars with suitable capacity with in/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

## PS0500 Genset controller

Cummins PowerStart™ PS0500 control is a microprocessor based generator set monitoring and control system. The control provides a simple operator interface to the generator set, manual and remote start/ stop control, shutdown fault indication, and an LCD hour counter. The integration of all functions into a single control system provides enhanced reliability and performance compared to conventional generator set control systems. This control has been designed and tested to meet harsh environment in which gensets are typically applied.

Features, Functions, protections

- 16 character x 2 line alphanumeric LCD display with LED backlight
- Operator interface
- Provide a record of most recent fault conditions. Fault history stored in the control non volatile memory
- Provide Alternator Data
  - Voltage (1 ph or 3 ph line to line and line to neutral voltage)
  - Current (1 ph or 3 ph)
  - kVA (3 ph and total)
  - Frequency
- Provide Engine Data
  - Starting battery voltage
  - Engine running hours
  - Engine Temp.
  - Engine oil pressure
- Control includes provision for Service adjustment and calibration of DG control functions
  - Voltage, frequency selection
  - Configurable input and output set up
  - Meter calibration
- Engine controls
  - PowerStart operates on 12 VDC batteries
  - Auto start mode accepts a ground signal from remote devices to automatically start the DG set. The remote start will also wake up the control system from sleep mode.
  - Engine Starting – The control system supports automatic engine starting, Primary and back up start disconnects are achieved by battery charging alternator feedback or main alternator output frequency.
  - Controller provide configurable time delay of 0-300 secs to start after remote start signal and time delay of 0-600 secs prior to shutdown after stop signal.
  - Sleep mode increase battery life. Configurable current settings from low to minimize current draw when genset is not working.
- Engine Protective functions includes
  - Configurable alarm output
  - Emergency stop: Annunciated whenever an emergency stop signal is received by the control.
  - Low lube oil pressure warning and Shutdown
  - High engine water temp warning / Shutdown
  - Low coolant temp warning
  - Sensor failure indication
  - Low  and high battery voltage warning
  - Weak battery warning
  - Fail to start shut down
  - Cracking lockout: Control will not allow the starter to engage or to crank the running engine.
  - Cyclic cranking: Configurable for the number of starting cycle (1 to 7) and duration of crank and rest periods.
- Alternator Protective functions includes
  - High  and Low AC voltage shut down
  - Under and Over frequency shutdown / warning
  - Loss of sensing voltage input shut down

## Acoustic enclosure:

The acoustic enclosure is made of 1.6 mm thick CRCA sheets in Munsel green shade and a structural/ sheet metal base frame painted in black. The walls of the enclosure are insulated with fire retardant foam so as to comply with the 75 dBA at 1 mtr sound levels specified by Ministry of Environment & Forest.

The enclosure has the following features:

- Specially designed to meet stringent MOEF/ CPCB norms of 75 dBA @ 1mtr at 75% load under free field conditions
- Two point 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
- Powder coated for long lasting service life and superior finish
- With UV resistant powder coating, can withstand extreme environment
- Use of special hardware for longer life
- Insulation material meets exacting IS 8183 specifications for better sound attenuation
- Flush styling - no projections
- Fluid drains for lube oil and fuel
- Fuel filling point inside the enclosure

**Others:**

- Fuel tank suitable for 8 hours of operation

**Optionals**

- Microprocessor / relay based AMF control panel
- Trolley mounted mobile sets
- Coolant heater
- Electronic governor
- Oilß drain pump
- PMG

# Technical data

## Generator set specifications

| Model | C100 D5P | C125 D5P |
|---|---|---|
| Prime Power Rating kVA / kW | 100 /80 | 125 /100 |
| Current (Amps) | 139 | 174 |
| No. of Phases | 3 Phase | 3 Phase |
| Power Factor | 0.8 (lag) | 0.8 (lag) |

## Engine specifications

| Make | Cummins | Cummins |
|---|---|---|
| Model | 6BTAA5.9-G13 | 6BTAA5.9-G13 |
| BHP | 159 | 159 |
| Cooling | Liquid Cooled (EG Compleat 50:50) | Liquid Cooled (EG Compleat 50:50) |
| Aspiration | Turbocharged<br>Charge air cooled | Turbocharged<br>Charge air cooled |
| No. of Cylinders | 6 | 6 |
| RPM | 1500 | 1500 |
| Bore (mm) x Stroke (mm) | 102 x 120 | 102 x 120 |
| Compression Ratio | 16.5:1 | 16.5:1 |
| Displacement (Ltrs.) | 5.9 | 5.9 |
| Fuel | HSD | HSD |
| Fuel Consumption (Ltr/hr) @ 75% Load with Radiator & Fan | 18.4 | 22.4 |
| Governor | Mechanical | Mechanical |
| Starting System | 12 V DC Electrical | 12 V DC Electrical |
| Lube oil Specification | CI4+ 15W40 | CI4+ 15W40 |
| Lube oil Sump Capacity (Ltrs.) | 19 | 19 |
| Lube oil consumption (LPH) | 0.024 | 0.024 |
| Total Coolant Capacity (Ltrs.) | 26 | 26 |
| Exhaust Pipe Size (inch) | 4 | 4 |

## Alternator specifications

| Make | CGT (Stamford) | CGT (Stamford) |
|---|---|---|
| Enclosure | IP 23 | IP 23 |
| Voltage regulation (Max.) | ±1% | ±1% |
| Class of Insulation | H Class | H Class |
| Frequency/RPM | 50 Hz/ 1500 RPM | 50 Hz/ 1500 RPM |
| Frame Size | UCI274C | UCI274V |
| Voltage | 415 V | 415 V |

# Conformance standards

IS / IEC60034-1, IS 1460, ISO 8528, ISO 3046. IS13018

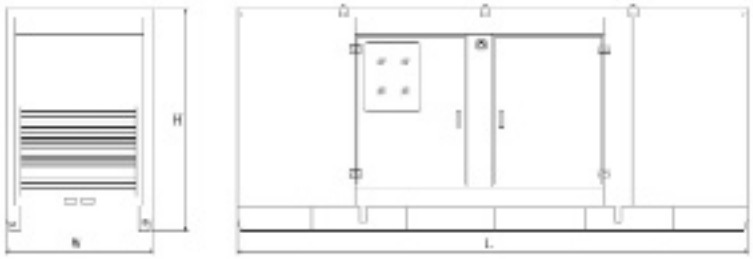
## Rating definitions

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528.

- 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 CI4+ API categories
- Fuel consumption tolerance is +5%

## Typical enclosed genset dimensions*

| Genset Model | Rating (kVA) | Length (mm) | Width (mm) | Height (mm) | Weight (kgs.) (Wet) |
|---|---|---|---|---|---|
| C100 D5P | 100 kVA | 4000 | 1150 | 1850 | 2200 |
| C125 D5P | 125 kVA | 4000 | 1150 | 1850 | 2200 |





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