

Diesel generator set B series

with user friendly PCC 0301 genset controller



Specification sheet

60-112 kW_e, 75-140 kVA Prime

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Latest technology product : Value for money

The **Cummins**® 'B series' engine powered diesel generating 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 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 smaller and lighter than any other DG set in its 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 its range and are CPCB certified for emissions and noise 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 MOEF norms without sacrificing fuel efficiency at normal operating loads.

Unmatched warranty

The **Cummins**® 'B series' DG sets are backed by the industry acknowledged 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 manufactured by Cummins India. This integral approach means each element of a generating set is designed to work in harmony from the start. A high quality product, complemented by the largest customer support network in India, 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 BS 5514 / ISO 3046.

The scope of supply includes:

- Electrical starter motor 12V DC
- Battery charging alternator
- MICO fuel system with mechanical governor
- Dual spin-on fuel filter
- Turbocharger
- Residential silencer
- Dry type air cleaner
- Shut-off coil with safeties for LLOP/HWT
- Flywheel and flywheel housing
- First fill of lube oil and coolant
- Electronic governor for 140 kVA

Alternator: Synchronous alternator of Stamford make suitable for continuous operation at 1500 RPM, 415 Volts, 0.8 pf (lag) suitable for 50 Hz, 3 phase, 4 wire system, conforming to BS 5000 / IS 4722. 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
- Permissible overload of 10% for one hour in 12 hours of operation

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 a weather-proof and long lasting finish. The control panel consists of the following common parts:

- Aluminum busbars of suitable capacity with incoming and outgoing termination
- Current transformers
- Indicating lamps for "Load On" and "Set Running"
- Instrument fuses duly wired and ferruled
- MCCB of suitable rating with overload and short circuit protection
- PowerCommand® Controller

PowerCommand® genset controller: Genset controller for true power system reliability, flexibility, and ease of use.

Genset controller: (For 75-125 KVA) Cummins **PowerCommand™ PCC 0301 control** is a microprocessor based generator set monitoring and control system mounted in the Genset Control Panel. 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.



The controller with Keyswitch / Autostart functionality has a Multifunction Meter which displays the below mentioned parameters :

- Voltage
- Water temperature
- kVA
- Current
- Oil pressure
- kW
- Frequency

Control system: The standard control system includes all the functions necessary to locally or remotely start and stop and protect the generator set.

- **Key switch** – OFF and MANUAL/AUTO - In the OFF mode, the generator set is immediately shut down (if running) and cannot be started. It also resets any faults. In this mode, all power is removed from the control and its outputs. In MANUAL/AUTO mode, the control is powered. The manual start pushbutton and remote start input become enabled.
- **Manual start button** – This button will initiate a genset start sequence when the control is in MANUAL/AUTO mode. This button is locked out when the engine is running.

- **LED indicating lamps** – The control includes LED lamp indication for the following functions:

1. Fail to start
2. Overspeed, underspeed
3. Low oil pressure

- **LCD engine hour counter** – The control includes an LCD engine hour counter. The counter will increment whenever the engine is running.

Functions : Control / Protection

Control	Protection
Remote Start – When in MANUAL/AUTO mode the control accepts a ground signal from remote devices to automatically start the generator set.	- Overspeed shutdown
Engine Starting – The control system supports automatic engine starting, which includes solid state outputs for starter control, and fuel solenoid control. The start disconnect is achieved by monitoring main alternator output frequency.	- Low lube oil Pressure shutdown - High engine water temperature shutdown
Starting Sequence – In the MANUAL/AUTO mode, the crank cycle is repeated up to 3 times, if starting is still unsuccessful a Fail to Start fault is generated. If the engine starts, the crank cycle is terminated at a crank disconnect frequency of 20 Hz.	- Underspeed shutdown - Fail to start, shutdown after 3 Attempts - Battery charging alternator fail warning

Genset controller: (For 140 KVA)

Cummins **PowerCommand® PCC 1301** is a microprocessor based integrated generator set monitoring, metering, protection and control system with built-in torque matched Volts/Hz overload control.

Single control for all genset functions:

- Digital governing
- Digital voltage control
- Engine control
- Operator interface
- Protection
- Advanced control functions



Standard features of genset controller:

Engine		
Metering	Protection	
- RPM	- Low lube oil pressure	- Fail to crank
- Battery voltage	- High water temp.	- Fail to start
- Lube oil pressure	- High /low DC voltage	- Sensor failure
- Coolant temp.	- Weak battery	
- Running hours	- Overspeed	
Alternator		
Metering	Protection	
- 3 phase voltage (L-L and L-N)	- Under voltage	- Field overload
- 3 phase current	- Over voltage	
- Frequency	- Over current	
- kVA	- Under/ over-frequency	
	- Loss of sensing	
Others		
- Battle switch function		
- Delay start/ stop		
- Configurable cranking cycle		
- Sleep mode time		

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Accessories shown are not part of standard equipment
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Acoustic enclosure:

The acoustic enclosure is made of 1.6/ 2 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 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
- Single 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 environments

- 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

Others:

- Fuel tank suitable for 8 hours of operation

Optionals

- Heavy duty air cleaner
- Microprocessor / relay based AMF control panel
- Trolley mounted mobile sets
- Cold starting kit
- Electronic governor
- Lube oil heater

**Technical data
Generator set specifications**

Model	C 75 D5 P / C 82.5 D5 P	C 100 D5 P	C 125 D5 P	C 140 D5 P
Prime Power Rating kVA / kW	75 kVA /60 kW / 82.5 kVA / 66 kW	100 kVA /80 kW	125 kVA /100 kW	140 kVA /112 kW
Current (Amps)	104 / 115	139	174	195
No. of Phases	3 Phase	3 Phase	3 Phase	3 Phase
Power Factor	0.8 (lag)	0.8 (lag)	0.8 (lag)	0.8 (lag)

Engine specifications

Make	Cummins	Cummins	Cummins	Cummins
Model	6BT5.9G1	6BTA5.9G1-I	6BTA5.9G2-I	6BTAA 5.9G1-I
BHP	105	124	154	170
Cooling	Water Cooled	Water Cooled	Water Cooled	Water Cooled
Aspiration	Turbocharged	Turbocharged Aftercooled	Turbocharged Aftercooled	Turbocharged Charged Air Cooled
No. of Cylinders	6	6	6	6
RPM	1500	1500	1500	1500
Bore (mm) x Stroke (mm)	102 x 120	102 x 120	102 x 120	102 x 120
Compression Ratio	17.6:1	17.6:1	17.6:1	17.6:1
Displacement (Ltrs.)	5.88	5.88	5.88	5.88
Fuel	HSD	HSD	HSD	HSD
Fuel Consumption (Ltr/hr) @ 75% Load with Radiator & Fan	14.3	16.9	20.8	22.9
Governor	Mechanical	Mechanical	Mechanical	Electronic
Starting System	12 V Electrical	12 V Electrical	12 V Electrical	12 V Electrical
Lube oil Specification	CF4 15W40	CF4 15W40	CF4 15W40	CF4 15W40
Lube oil Sump Capacity (Ltrs.)	14.3	14.3	14.3	14.3
Lube oil consumption (LPH)	0.04 / 0.047	0.026	0.03	0.04
Total Coolant Capacity (Ltrs.)	22	24.5	24.5	24.5
Exhaust Pipe Size (mm)	100	100	100	100
Battery Capacity / Rating	150 AH 12 V	150 AH 12 V	150 AH 12 V	150 AH 12 V

Alternator specifications

Voltage	380 / 415	380 / 415	380 / 415	380 / 415
RPM / Frequency	1500 / 50 Hz	1500 / 50 Hz	1500 / 50 Hz	1500 / 50 Hz
Enclosure	IP 23	IP 23	IP 23	IP 23
Voltage Regulation (max)	+/- 1%	+/- 1%	+/- 1%	+/- 1%
Class of Insulation	H Class	H Class	H Class	H Class
Recommended Cable size x Runs (Al Armoured 3 1/2 core)	95 x 1	120 x 1	185 x 1 or 95 x 2	240 x 1 or 120 x 2

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Conformance standards

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

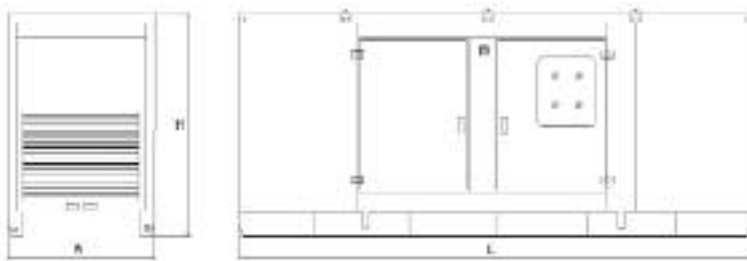
Rating definition

- Prime power rating is applicable for supplying continuous electric power (at variable load) in lieu of commercially purchased power.
- Prime power is available for an unlimited number of hours per year in a variable load application.

- 10% overload is available for 1 hour in every 12 hours of operation.
- Rating definition is as per ISO 3046 / 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 CF4 API categories
- Fuel consumption tolerance is +5%

Typical enclosed genset dimensions*

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)
C 75 D5 P / C 82.5 D5 P	75 kVA / 82.5 kVA	3850	1150	1700
C 100 D5 P	100 kVA	4000	1150	1700
C 125 D5 P	125 kVA	4000	1150	1700
C 140 D5 P	140 kVA	4000	1150	1700



Typical diesel genset dimensions

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Weight (kgs.) (Dry)
C 75 D5 P / C 82.5 D5 P	75 kVA / 82.5 kVA	2100	950	1420	1250
C 100 D5 P	100 kVA	2230	950	1430	1350
C 125 D5 P	125 kVA	2230	950	1430	1350
C 140 D5 P	140 kVA	2350	950	1450	1400

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*Dimensions of the enclosure are excluding the silencer
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