



# Diesel Generator Set

6BTA series engine



## > Specification Sheet

90 kVA—170 kVA 50 Hz

80 kW—135 kW 60 Hz

### Description

This Cummins® commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for stationary standby, prime power, and continuous duty applications.



This generator set is designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO9002.



The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins Power Generation products bearing the PTS symbol meet the prototype test requirement of NFPA 110 for Level 1 systems.



This generator set is available with CE certification.

### Features

**Heavy-Duty Engine** - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

**Optional Excitation Boost System (EBS)** - Offers enhanced motor starting and fault clearing short circuit capability.

**Alternator** - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

**Control system** - PowerStart control, microprocessor-based generator set monitoring and control system provides a simple operator interface to the generator set, manual and remote stop/start control and shutdown fault indication.

**Cooling system** - Standard radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirement for rejected heat.

**Enclosures** - weather-protective and sound-attenuated enclosure.

**Warranty** - Backed by a comprehensive warrant and worldwide distributor network.

### 3-Phase Ratings

Model	Standby Rating		Prime Rating		Datasheet
	50Hz kVA (kW)	60Hz kVA (kW)	50Hz kVA (kW)	60Hz kVA (kW)	
C190 D5	90 (72)		82 (65)		DS380-CPGK
C110 D5	110 (88)		100 (80)		DS381-CPGK
C150 D5	150 (120)		136 (109)		EMERD-5835
C170 D5	170 (136)		155 (124)		EMERD-5836
C80 D6		80 (100)		73 (91)	DS382-CPGK
C100 D6		100 (125)		91 (114)	DS383-CPGK
C135 D6		135 (169)		123 (153)	EMERD-5834



### Generator Set Specifications

Governor Regulation class	ISO 8528 G2
Voltage Regulation, No Load to Full Load	± 1%
Random Voltage Variation	± 1%
Frequency Regulation	Isochronous
Random Frequency Variation	± 0.75%
Radio frequency emissions compliance	BS EN 61000-6-4 / BS EN 61000-6-2

### Engine Specifications

Design	4-cycle, in-line, 6-cylinder, turbocharged and charge air cooled, diesel	
Bore	102 mm (4.02 in.)	
Stroke	120 mm (4.72 in.)	
Displacement	5.9 liter (360 in <sup>3</sup> )	
Cylinder Block	Cast iron, 6 cylinder	
Battery charging alternator	55 amps	
Starting voltage	12 volt, 55 amp negative ground	
Standard cooling system	122 °F (50 °C) ambient radiator	
<b>Model name</b>	<b>C150 D5, C170 D5, C135 D6</b>	<b>C90 D5, C110 D5, C80 D6, C100 D6</b>
Fuel System	Rotary type Bosch pump	Direct injection
Fuel Filter	Ventury combo Stratapore filter	Spin on
Air Cleaner Type	Heavy duty	Normal duty
Lube Oil Filter Type(s)	Ventury combo Stratapore filter	Spin-on full flow filter

### Alternator Specifications

Design	Brushless, single bearing, revolving field
Stator	2/3 pitch winding
Rotor	Single bearing, flexible disc coupling
Insulation System	Class H
Standard Temperature Rise	Standby 50 Hz—163 °C/27 °C ambient Standby 60 Hz—150 °C/40 °C ambient
Exciter Type	Self excited
Phase Rotation	A (U), B(V), C(W)
Alternator Cooling	Direct drive centrifugal fan
AC Waveform Total Harmonic Distortion (THDV)	No load < 1.8%. Non distorting balanced linear load < 5%
Telephone Influence Factor (TIF)	< 50% per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	< 2%

### Available Voltages

50Hz Line – Neutral / Line – Line		60Hz Line – Neutral / Line – Line	
•220/380	•115/200	•115/200	•230/400
•230/400	•120/208	•120/208	•240/416
•240/416	•110/190	•127/220	•255/440
		•139/240	•277/480

### Generator Set Options and Accessories

- Sound attenuated canopy
- PC3.3
- Excited voltage regulator (PMG)
- Mains operated battery charger
- Coolant heater, 240V
- Low temp rise alternator
- Double wall fuel tank
- Alternator heater
- Earth fault relay
- Residential silencer, industrial silencer
- Main generator heater
- Shunt trip
- Literature language

\*Note: Some options may not be available on all models – consult factory for availability.

## Control system

### Generator set control PowerCommand® 1.2 –

The PowerCommand® 1.2 control is a microprocessor based generator set monitoring control system. The control provides a simple operator interface to the generator set, digital voltage regulation, digital engine speed governing, start/stop control and protective functions.

- The PowerCommand® 1.2 control is suitable for use on a wide range of generator sets in non-paralleling applications.
- The PowerCommand® control can be configured for any frequency, voltage and power configuration from 120 to 600 VAC for 50 Hz or 60 Hz operation.
- Power for the control is derived from the generator set starting batteries. The control functions over a voltage range from 8 VDC to 35 VDC.
- A larger HMI reduces setup time, provides more information per screen, enhanced navigation and serviceability.

- Includes all functions to locally or remotely start and stop, and protect the generator set.

-Control switch—RUN/OFF/AUTO

-OFF mode—the generator set is shut down and cannot be started, as well as reset faults

-RUN mode—the generator set will execute its start sequence

-AUTO mode—the generator set can be started with a start signal from a remote device

**Status Indications**—The control has a lamp driver for external fault/status indication. Functions include:

- The lamp flashes during preheat (when used) and while the generator set is starting
- READY TO LOAD—flashing until the set is at rated voltage and frequency, then on continuously
- Fault conditions are displayed by flashing a two-digit fault code number

**LED indicating lamps**—Includes LED indicating lamps for the following functions:

- Remote start
- Warning
- Shutdown
- Auto
- Run
- Remote emergency stop switch input. Immediate shut down of the generator set on operation.

## Major features

- 12 or 24 VDC battery operation
- Digital engine speed governing to provide isochronous frequency regulation
- Digital voltage regulation full wave rectified single phase (line to line) sensing
- Generator set monitoring monitors status of all critical engine and alternator conditions functions
- Engine starting includes relay drivers for start and fuel shut off (FSO)
- Configurable inputs and outputs—two discrete inputs and two dry contact relay outputs
- Generator set monitoring displays status of all critical engine and alternator generator set functions
- Smart starting control system—integrated fuel ramping to limit black smoke and frequency overshoot
- Advanced serviceability using InPower™, a PC-based software service tool

## Base engine protection

- Low oil pressure shutdown
- High engine temperature shutdown
- Under speed/sensor fail shutdown
- Fail to start
- Battery charging alternator fail warning

## HMI220 operator interface

- Back-lit graphics 128 x 128 LCD display
- English text and symbolic overlay
- Multiple language LCD screens
- Dedicated manual/off/auto function switches with mode LEDs and configurable access code (key switch)
- Control set-up without PC-based tool (InPower)
- UL508 recognized/CSA certified/CE compliant
- Multiple HMIs per generator set (one local and one remote)
- Plug and play operation





## Ratings Definitions

### Emergency Standby Power (ESP):

Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

### Limited-Time running Power (LTP):

Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

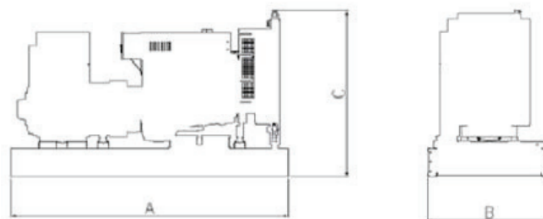
### Prime Power (PRP):

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.

### Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power

### OPEN



### ENCLOSED



This outline drawing is to provide representative configuration details for Model series only.

See respective model data sheet for specific model outline drawing number.

Do not use for installation design.

Model	Open				Enclosed			
	Dim "A" mm	Dim "B" mm	Dim "C" mm	Set weight* dry kg (lbs)	Dim "A" mm	Dim "B" mm	Dim "C" mm	Set weight* dry kg (lbs)
<b>C90 D5</b>	2268 (90)	1094 (44)	1576 (63)	1244 (2737)	3151 (125)	1142 (45)	1714 (68)	1944 (4277)
<b>C110 D5</b>	2268 (90)	1094 (44)	1576 (63)	1244 (2737)	3151 (125)	1142 (45)	1714 (68)	1944 (4277)
<b>C150 D5</b>	2537 (99.9)	1090 (42.9)	1846 (72.7)	1635 (3604.6)	3460 (136.2)	1090 (42.9)	2387 (94)	2390 (5269)
<b>C170 D5</b>	2537 (99.9)	1090 (42.9)	1846 (72.7)	1635 (3604.6)	3460 (136.2)	1090 (42.9)	2387 (94)	2390 (5269)
<b>C80 D6</b>	2268 (90)	1094 (44)	1576 (63)	1244 (2737)	3151 (125)	1142 (45)	1714 (68)	1944 (4277)
<b>C100 D6</b>	2268 (90)	1094 (44)	1576 (63)	1244 (2737)	2151 (125)	1142 (45)	1714 (68)	1944 (4277)
<b>C135 D6</b>	2537 (99.9)	1090 (42.9)	1846 (72.7)	1635 (3604.6)	3460 (136.2)	1090 (42.9)	2387 (94)	2390 (5269)

\*Note: Weights represent a set with standard features. See outline drawings for weights of other configurations.

Dale Power Solutions Ltd reserves the right to make changes in specification without notice or liability. All information is subject to Dale Power Solutions Ltd own data & is considered accurate at time of publishing.

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