

Diesel Generator Set

6BTA Series Engine



> PRELIMINARY Specification Sheet

90 kVA – 110 kVA 50Hz

80 kW – 100 kW 60Hz

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Description

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



This generator set is available with CE certification

2000/14/EC

All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006

ISO 8528

This generator set has been designed to comply with ISO 8528 regulation



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

Features

Cummins® Heavy-Duty Engine - Rugged 4-cycle industrial diesel delivers reliable power and fast response to load changes.

Alternator - Low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuits capability, and class H insulation.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Control system - The PowerCommand® electronic control is standard equipment and provides total genset system integration, including auto remote start/stop, alarm and status message display.

Enclosures - Optional sound attenuated enclosures are available.

Warranty - Backed by a comprehensive warranty and Worldwide distributor network.

3-Phase Ratings

Model	Standby Rating		Prime Rating		Data Sheet
	50 Hz kVA(kW)	60 Hz kW (kVA)	50 Hz kVA(kW)	60 Hz kW (kVA)	
C90 D5	90(72)	N/A	82(65)	N/A	DS352-CPGK
C110 D5	110(88)	N/A	100(80)	N/A	DS353-CPGK
C80 D6	N/A	80(100)	N/A	73(91)	DS354-CPGK
C100 D6	N/A	100(125)	N/A	91(114)	DS346-CPGK

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	+/- 0.25%
Radio Frequency Emissions Compliance	BA EN 61000-6-4 /BS EN 61000-6-2

Engine Specifications

Design	4 cycle, in-line, Turbo Charged and After cooled
Bore	102 mm (4.02 in.)
Stroke	120 mm (4.72 in.)
Displacement	5.9 litre (360 in.3)
Cylinder Block	Cast Iron, 6 Cylinder
Battery Capacity	120 AH
Battery Charging Alternator	55 AH
Starting Voltage	12 volt, 55 Amp negative ground
Fuel System	Direct Injection
Fuel Filter	Spin on fuel filters with water separator
Air Cleaner Type	Dry replaceable element with restriction indicator
Lube Oil Filter Type(s)	Spin on full flow filter
Standard Cooling System	122°F (50°C) ambient radiator

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 50Hz - 163°C @ 27°C ambient Standby , 60Hz - 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

50 Hz Line – Neutral / Line - Line		60 Hz Line – Neutral / Line – Line		
• 220/380	• 110/190	• 115/200	• 139/240	• 240 / 416
• 230/400	• 115/200	• 120 / 208	• 220 / 380	• 255 / 440
• 240/415	• 120/208	• 127 / 220	• 230 / 400	• 277 / 480

* Note: Some Voltages may not be available on all models - Consult factory for availability .

Generator Set Options

• Sound attenuated canopy	• Coolant Heater 240V	• Alternator heater
• Mains Operated Battery Charger	• Battery	• Exciter voltage regulator (PMG)
• Double Walled Fuel tank (CIRIA 535)	• Heavy Duty Air Filter	• Low Temp Rise Alternator
• Residential Silencer - Open Genset	• AUX101 Output Module	• Earth Fault Relay
	• HMI114 AC Bar graph	• Shunt Trip

* Note: Some options may not be available on all models - Consult factory for availability.

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The PowerCommand®

1.2 - Generator Set Control

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 generator set 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.

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 & alternator generator set functions.
- Smart Starting Control System: Integrated fuel ramping to limit black smoke & frequency overshoot.
- Advanced serviceability - using InPower™, a PC-based software service tool.

Control System

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 & cannot be started; as well as resets 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.

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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;

- Not in Auto
- Remote Start
- Warning
- Shutdown
- Auto
- Run
- Remote Emergency Stop Switch Input. Immediate shut down of the generator set on operation.

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 LED's and configurable access code (key switch).
- Control Set-Up without PC-based tool (InPower).
- UL508 Recognized / CSA Certified / CE Compliant
- Multiple HMI's Per Genset (one local and one remote)
- Plug and Play operation.



Ratings Definitions

Standby:

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.

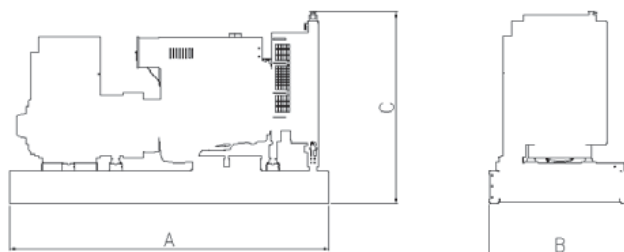
Prime (Unlimited Running Time):

Applicable for supplying power in lieu of commercially purchased power. Prime power is the maximum power available at a variable load for an unlimited number of hours. A 10% overload capability is available for limited time. (Equivalent to Prime Power in accordance with ISO8528 and Overload Power in accordance with ISO3046, AS2789, DIN6271, and BS5514). This rating is not applicable to all generator set models.

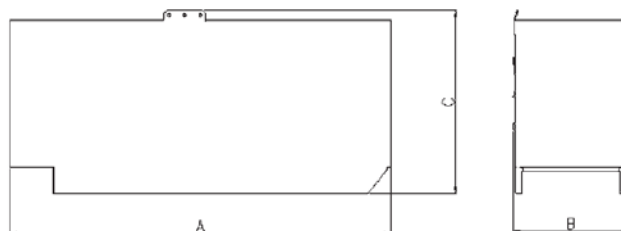
Base Load (Continuous):

Applicable for supplying power continuously to a constant load up to the full output rating for unlimited hours. No sustained overload capability is available for this rating. Consult authorized distributor for rating. (Equivalent to Continuous Power in accordance with ISO8528, ISO3046, AS2789, DIN6271, and BS5514). This rating is not applicable to all generator set models.

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.

Weights and Dimensions

Model	Open				Enclosed			
	A	B	C	Dry Wt.	A	B	C	Dry Wt.
	mm(in)	mm(in)	mm(in)	(kg/lbs)	mm(in)	mm(in)	mm(in)	(kg/lbs)
C90 D5	2268(90)	1094(44)	1576(63)	1244(2737)	3151(125)	1142(45)	1714(68)	1944(4277)
C110 D5	2268(90)	1094(44)	1576(63)	1263(2779)	3151(125)	1142(45)	1714(68)	1963(4319)
C80 D6	2268(90)	1094(44)	1576(63)	1263(2779)	3151(125)	1142(45)	1714(68)	1963(4319)
C100 D6	2268(90)	1094(44)	1576(63)	1287(2832)	3151(125)	1142(45)	1714(68)	1987(4372)

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

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