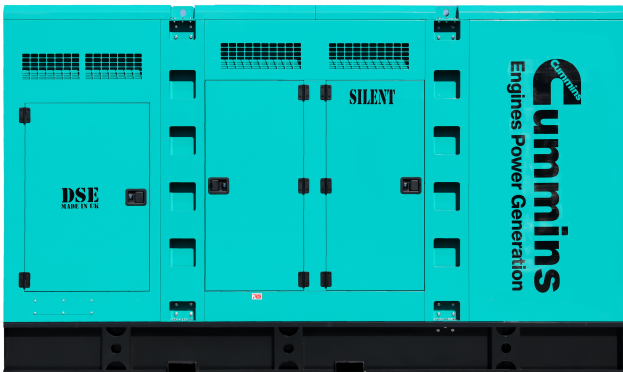




Diesel generator set

6BTAA5.9-G2 series engine

170 kVA @ 50Hz



Description

Cummins Power Generation generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby applications.

Features

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

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 - The PowerCommand® 2.3 electronic control is standard equipment and provides total generator set system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

Cooling system - Standard cooling package provides reliable running at up to 50 °C (122 °F) ambient temperature.

Enclosures - The aesthetically appealing enclosure incorporates special designs that deliver one of the quietest generators of its kind. Aluminum material plus durable powder coat paint provides the best anti-corrosion performance. The generator set enclosure has been designed to withstand 180 MPH wind loads in accordance with ASCE7-10. The design has hinged doors to provide easy access for service and maintenance.

Fuel tanks - Dual wall sub-base fuel tanks are offered as optional features, providing economical and flexible solutions to meet extensive code requirements on diesel fuel tanks.

NFPA - The generator set accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor and dealer network.

Prime					
Standby 50 Hz			50 Hz		Data sheets
Model	kW	kVA	kW	kVA	
6BTAA5.9-G2	136	170	124	155	NAD-6212-EN

Generator set specifications

Governor regulation class	ISO 8528 Part 1 Class G3
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	± 0.50%
Radio frequency emissions compliance	FCC code title 47 part 15 class A and B

Engine specifications

Design	Turbocharged and charge air cooled
Bore	102 mm
Stroke	120 mm
Displacement	5.9 liters
Cylinder block	Cast iron, in-line 6 cylinder
Battery capacity	100 amps per battery at ambient temperature of 0 °C
Tank Capacity (lt)	180 lt
Oil Capacity (lt)	16.4 lt
Coolant Capacity (lt)	18.5 lt
Standard cooling system	High ambient radiator
Rated speed	1500 rpm

Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Direct coupled, flexible disc
Insulation system	Class H per NEMA MG1-1.65
Standard temperature rise	120 °C (248 °F) standby
Exciter type	Torque match (shunt) with PMG as option
Alternator cooling	Direct drive centrifugal blower
AC waveform total harmonic distortion	< 5% no load to full linear load, < 3% for any single harmonic
Telephone influence factor (TIF)	< 50 per NEMA MG1-22.43
Telephone harmonic factor (THF)	<3%

Available voltages

3-phase	
• 400 / 230 V	• 380 / 220 V

Generator set options

Fuel tanks Basic fuel tanks Regional fuel tanks Engine Engine air cleaner – normal or heavy duty Shut down – low oil pressure Extension – oil drain Engine oil heater Alternator 120 °C temperature rise alternator 105 °C temperature rise alternator PMG excitation 80% or 100% rated LSI circuit breakers Battery charger	Reconnectable full 1 phase output alternator Control AC output analog meters Stop switch – emergency Auxiliary output relays (2) Auxiliary configurable signal inputs (8) and relay outputs (8) Electrical One, two or three circuit breaker configurations 80% rated circuit breakers	Enclosure Aluminum enclosure Sound Level 1 or Level 2, sandstone or green color Aluminum weather protective enclosure with muffler installed, green color Cooling system Shutdown – low coolant level Warning – low coolant level Extension – coolant drain Coolant heater options: ○ <4 °C (40 °F) – cold weather ○ <-18 °C (0 °F) – extreme cold	Exhaust system Exhaust connector NPT Exhaust muffler mounted Generator set application Base barrier – elevated genset Radiator outlet duct adapter Warranty Base warranty – 2 year/500 hours, standby
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Generator set accessories

Coolant heater Battery heater kit Engine oil heater Remote control displays Auxiliary output relays (2) Auxiliary configurable signal inputs (8) and relay outputs (8) Annunciator – RS485 Audible alarm	Remote monitoring device – PowerCommand® 500/550 Battery charger – stand-alone, 12V Circuit breakers Enclosure Sound Level 1 to Sound Level 2 upgrade kit Base barrier – elevated generator set Mufflers – industrial, residential or critical Alternator PMG excitation Alternator heater
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DEEP SEA ELECTRONICS PLC DSE6020 MKII Operator

DeepSea Electronics ® Control - An integrated generator set control system providing voltage regulation, engine protection and operator interface.

Control - Provides battery monitoring and testing features and smart-starting control system.

InPower™ – PC-based service tool available for detailed diagnostics. Network interface (standard) to

PCCNet RS485

devices such as remote annunciator for NFPA 110 applications.

Control boards - Potted for environmental protection.

Ambient operation - Suitable for operation in ambient temperatures from -40°C to +70°C and altitudes to 13,000 feet (5,000 meters).

AC Protection

- AmpSentry protective relay
- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- Field overload
- Overload warning
- Reverse kW shutdown
- Reverse VAR shutdown
- Short circuit protection
- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- High, low and weak battery voltage warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Emergency stop
- Fuel-in-rupture-basin warning or shutdown

Operator/display panel

- Manual off switch
- 320 x 240 Pixels graphic LED backlight LCD with push button access for viewing engine and alternator data and providing setup, controls, and adjustments (English, Spanish, or French).
- LED lamps indicating genset running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -20°C to +70°C

Alternator data

- Line-to-line and Line-to-neutral AC volts
- 3-phase AC current
- Frequency

• kVa, kW, power factor

- DC voltage
- Lube oil pressure

• Coolant temperature

- Generator set model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface

- Data logging and fault simulation (requires InPower™ service tool)

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase line-to-line sensing
- Configurable torque matching
- Fault current regulation under single or three phase fault conditions

Control functions

- Time delay start and cooldown
- Cycle cranking
- PCCNet interface
- (2) Configurable inputs
- (2) Configurable outputs
- Remote emergency stop
- Automatic transfer switch (ATS) control
- Generator set exercise, field adjustable
- Auxiliary output relays (2)
- Remote annunciator with (3) configurable inputs and (1) configurable outputs
- PMG alternator excitation
- PowerCommand 500/550 for remote monitoring and alarm notification (accessory)
- Auxiliary, configurable signal inputs (8) and configurable relay outputs (8)
- AC output analog meters (bargraph)
- Color-coded graphical display of:
 - 3-phase AC voltage
 - 3-phase current
 - Frequency
 - kVa

Remote operator panel

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.

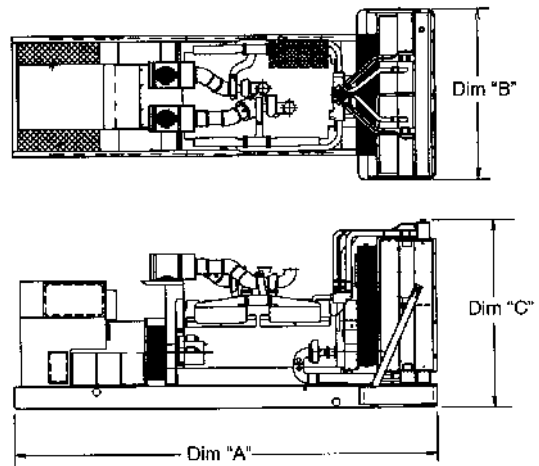
Prime power (PRP):

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 (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.



This outline drawing is for reference only. See respective model data sheet for specific model outline drawing number.

Do not use for installation design

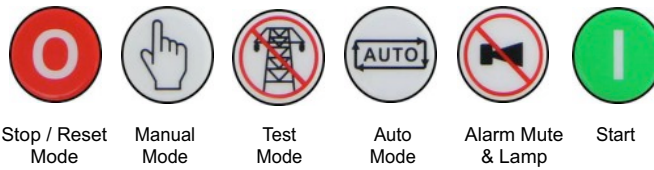
Model	Dim "A" mm	Dim "B" mm	Dim "C" mm	Set Weight* kg
Cannopy Set				
6BTAA5.9-G2	3100	1130	1600	1730

Fuel Cons. Prime With %100 Load (lt/hr) 30 lt
Fuel Cons. Prime With %50 Load (lt/hr) 15 lt
Fuel Cons. Prime With %25 Load (lt/hr) 7.5lt

6BTAA5.9-G2

* Weights above are average. Actual weight varies with product configuration.

DEEP SEA ELECTRONICS PLC DSE6020 MKII Operator



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