



Diesel generator set 6BTA series engine

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 and Prime Power Duty applications.

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

| Model | 3-Phase ratings | | | | Data sheets |
|----------------|-------------------|-------------------|-------------------|-------------------|-------------|
| | Standby rating | | Prime rating | | |
| | 50 Hz kVA (kW) | 60 Hz kW (kVA) | 50 Hz kVA (kW) | 60 Hz kW (kVA) | |
| C90 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 EN61000-6-4 / BS EN61000-6-2 |

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 ³) | |
| 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 | |
| Model name | C150 D5, C170 D5, C135 D6 | C90 D5, C110-D5 C80D6, C100 D6 |
| 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

| 50 Hz Line – Neutral/Line – Line | 60 Hz Line – Neutral/Line – Line |
|--|--|
| <ul style="list-style-type: none"> • 220/380 • 230/400 • 240/416 • 115/200 • 120/208 • 110/190 | <ul style="list-style-type: none"> • 115/200 • 120/208 • 127/220 • 139/240 • 220/380 • 230/400 • 240/416 • 255/440 • 277/480 • 110/190 |

Note: Some voltages may not be available on all models - consult factory for availability.

Generator set options and accessories

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

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

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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 lamp 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.

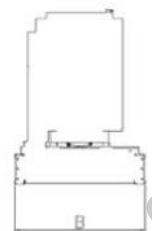
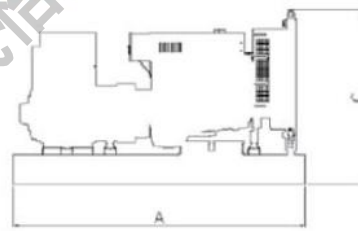
Prime Power (unlimited running time):

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 100% overload capability is available for limited time. (Equivalent to Prime Power in accordance with AS 2789, DIN 6271 and BS 5514). This rating is not applicable to all generator set models.

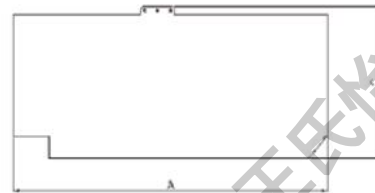
Base Load (Continuous) Power:

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 ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514). 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 | | | |
|---------|---------------------|---------------------|---------------------|----------------------|---------------------|---------------------|---------------------|----------------------|
| | Dim "A" mm (in.) | Dim "B" mm (in.) | Dim "C" mm (in.) | Dry wt.* kg (lbs) | Dim "A" mm (in.) | Dim "B" mm (in.) | Dim "C" mm (in.) | Dry wt.* 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) | 1244 (2737) | 3151 (125) | 1142 (45) | 1714 (68) | 1944 (4277) |
| C150 D5 | 2537 (99.9) | 1090 (42.9) | 1846 (72.7) | 1635 (3604.6) | 3460 (136.2) | 1090 (42.9) | 2387 (94) | 2390 (5269) |
| C170 D5 | 2537 (99.9) | 1090 (42.9) | 1846 (72.7) | 1635 (3604.6) | 3460 (136.2) | 1090 (42.9) | 2387 (94) | 2390 (5269) |
| C80 D6 | 2268 (90) | 1094 (44) | 1576 (63) | 1244 (2737) | 3151 (125) | 1142 (45) | 1714 (68) | 1944 (4277) |
| C100 D6 | 2268 (90) | 1094 (44) | 1576 (63) | 1244 (2737) | 3151 (125) | 1142 (45) | 1714 (68) | 1944 (4277) |
| C135 D6 | 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.

Codes and standards

| | | | |
|---|--|--|--|
|  | This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002. |  | 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. |

For more information contact your local Cummins distributor or visit www.szwsyc.cn

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