

# Diesel Generator Set

## KTA50 Series Engine

### EPA Emissions

900-1500kW 60Hz  
1000-1290kW 50Hz



Optional Features Shown

## Description

This Cummins Power Generation 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.

This generator set is 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 requirements of NFPA 110 for Level 1 systems.



All low voltage models are CSA certified to product class 4215-01.



The generator set is available Listed to UL2200, Stationary Engine Generator Assemblies. The PowerCommand control is Listed to UL508 - Category NITW7 for U.S. and Canadian usage. Circuit breaker assemblies are UL489 Listed for 100% continuous operation and also UL869A Listed Service Equipment.

## Features

- **Emissions Compliance** - Some 60 Hz models comply with EPA emissions requirements for stationary applications. Some 60 Hz models comply with EPA TPEM requirements for mobile applications.
- **Cummins® Heavy-Duty Engine** - Rugged 4-cycle industrial diesel delivers reliable power, low emissions, and fast response to load changes.
- **Permanent Magnet Generator (PMG)** - 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, fault clearing short-circuit capability, and class F or H insulation.
- **Control System** - The PowerCommand™ electronic control is standard equipment and provides total genset system integration, including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown at fault detection, and NFPA 110 compliance.
- **Cooling System** - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.
- **Structural Steel Skid Base** - Robust skid base supports the engine, alternator, and radiator.
- **Warranty and Service** - Backed by a comprehensive warranty and worldwide distributor network.

Model	Standby Rating		Prime Power Ratings		Continuous Ratings		Data Sheets	
	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz	50 Hz
DFLB	1100 (1375)		900 (1125)				D-3251	
DFLC	1250 (1563)	1120 (1400)	1100 (1375)	1000 (1250)			D-3252	D-3253
DFLE	1500 (1875)	1290 (1613)	1250 (1563)	1100 (1375)			D-3234	D-3237

### Generator Set Specifications

Governor Regulation Class	ISO8528 Part 1 Class G3
Voltage Regulation, No Load to Full Load	± 0.5%
Random Voltage Variation	± 0.5%
Frequency Regulation	Isochronous
Random Frequency Variation	± 0.25%
Radio Frequency Emissions Compliance	IEC 801.2 through IEC 801.5; MIL STD 461C, Part 9

### Engine Specifications

Design	4 cycle, V-block, turbocharged and low temperature after-cooled
Bore	158.8 mm (6.25 in.)
Stroke	158.8 mm (6.25 in.)
Displacement	50.3 litres (3067 in <sup>3</sup> )
Cylinder Block	Cast iron, 60°V 16 cylinder
Battery Capacity	1800 amps minimum at ambient temperature of 32°F (0°C)
Battery Charging Alternator	55 amps
Starting Voltage	24 volt, negative ground
Fuel System	Direct injection: number 2 diesel fuel
Fuel Filter	Dual element, 10 micron filtration, spin on fuel filters with water separator
Air Cleaner Type	Dry replaceable element
Lube Oil Filter Type(s)	Four spin-on, combination full flow and bypass filters
Standard Cooling System	104°F (40° C) ambient radiator

### Alternator Specifications

Design	Brushless, 4 pole, revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible disc
Insulation System	Class H
Standard Temperature Rise	150° C Standby
Exciter Type	PMG (Permanent Magnet Generator)
Phase Rotation	A (U), B (V), C (W)
Alternator Cooling	Direct drive centrifugal blower fan
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

60 Hz Line – Neutral / Line - Line		50 Hz Line – Neutral / Line – Line	
<input type="checkbox"/> 220/380	<input type="checkbox"/> 277/480	<input type="checkbox"/> 220/380	<input type="checkbox"/> 254/440
<input type="checkbox"/> 255/440	<input type="checkbox"/> 347/600	<input type="checkbox"/> 230/400	<input type="checkbox"/> 1905/3300
	<input type="checkbox"/> 2400/4160	<input type="checkbox"/> 240/415	


**Note: Consult factory for other voltages.**

### Generator Set Options

<b>Engine</b> <input type="checkbox"/> 208/240/480V Thermostatically controlled coolant heaters for ambients above 4.5°C (40°F) <input type="checkbox"/> 208/240/480V Thermostatically controlled coolant heaters for ambients below 4.5°C (40°F) <input type="checkbox"/> Bypass oil filter <input type="checkbox"/> Dual 120V, 300W lube oil heaters <input type="checkbox"/> Dual 208/240V, 300W lube oil heaters <input type="checkbox"/> Dual 480V, 300W lube oil heaters <input type="checkbox"/> Heavy duty air cleaners with service indicator	<b>Control Panel</b> <input type="checkbox"/> 120/240V, 100 Watt control anti-condensation space heater <input type="checkbox"/> Paralleling configuration <input type="checkbox"/> Remote fault signal package <input type="checkbox"/> Run relay package <input type="checkbox"/> Exhaust pyrometer <input type="checkbox"/> Fuel-pressure gauge <input type="checkbox"/> Ground fault indication  <b>Alternator</b> <input type="checkbox"/> 80°C rise alternator <input type="checkbox"/> 105°C rise alternator <input type="checkbox"/> 125°C rise alternator <input type="checkbox"/> 120/240V, 300 Watt anti-condensation heater  <b>Exhaust System</b> <input type="checkbox"/> Industrial-grade exhaust silencer <input type="checkbox"/> Residential-grade exhaust silencer <input type="checkbox"/> Critical-grade exhaust silencer <input type="checkbox"/> Exhaust packages	<b>Cooling System</b> <input type="checkbox"/> Radiator, 50°C ambient <input type="checkbox"/> Remote radiator cooling <input type="checkbox"/> Heat exchanger cooling  <b>Generator Set</b> <input type="checkbox"/> AC entrance box <input type="checkbox"/> Batteries <input type="checkbox"/> Battery charger <input type="checkbox"/> Circuit breaker – set mounted <input type="checkbox"/> Disconnect switch – set mounted <input type="checkbox"/> Paralleling accessories <input type="checkbox"/> PowerCommand® Network <input type="checkbox"/> Remote annunciator panel <input type="checkbox"/> Spring isolators <input type="checkbox"/> 2 year warranty <input type="checkbox"/> 5 year warranty <input type="checkbox"/> 10 year major components warranty
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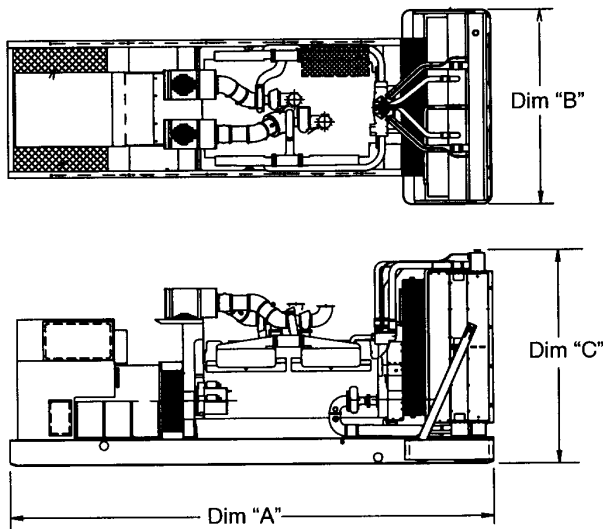
**Note: Some options may not be available on all models, consult factory for availability.**

## Control System

	<p><b>PowerCommand Control with AmpSentry™ Protection</b></p> <ul style="list-style-type: none"> <li>The PowerCommand Control is an integrated generator set control system providing governing, voltage regulation, engine protection, and operator interface functions.</li> <li>PowerCommand Controls include integral AmpSentry protection. AmpSentry provides a full range of alternator protection functions that are matched to the alternator provided.</li> <li>Controls provided include Battery monitoring and testing features, and Smart-Starting control system.</li> <li>InPower PC-based service tool available for detailed diagnostics.</li> <li>Available with Echelon LonWorks™ network interface.</li> <li>NEMA 3R enclosure.</li> <li>Suitable for operation in ambient temperatures from -40C to +70C, and altitudes to 13,000 feet (5000 meters).</li> <li>Prototype tested; UL, CSA, and CE compliant.</li> </ul>	
<p><b>AmpSentry AC Protection</b></p> <ul style="list-style-type: none"> <li>Overcurrent and short circuit shutdown</li> <li>Overcurrent warning</li> <li>Single &amp; 3-phase fault regulation</li> <li>Over and under voltage shutdown</li> <li>Over and under frequency shutdown</li> <li>Overload warning with alarm contact</li> <li>Reverse power and reverse Var shutdown</li> <li>Excitation fault</li> </ul>	<p><b>Engine Protection</b></p> <ul style="list-style-type: none"> <li>Overspeed shutdown</li> <li>Low oil pressure warning and shutdown</li> <li>High coolant temperature warning and shutdown</li> <li>High oil temperature warning (optional)</li> <li>Low coolant level warning or shutdown</li> <li>Low coolant temperature warning</li> <li>High and low battery voltage warning</li> <li>Weak battery warning</li> <li>Dead battery shutdown</li> <li>Fail to start (overcrank) shutdown</li> <li>Fail to crank shutdown</li> <li>Redundant start disconnect</li> <li>Cranking lockout</li> <li>Sensor failure indication</li> </ul>	<p><b>Operator Interface</b></p> <ul style="list-style-type: none"> <li>OFF/MANUAL/AUTO mode switch</li> <li>MANUAL RUN/STOP switch</li> <li>Panel lamp test switch</li> <li>Emergency Stop switch</li> <li>Alpha-numeric display with pushbutton access, for viewing engine and alternator data and providing setup, controls, and adjustments</li> <li>LED lamps indicating genset running, not in auto, common warning, common shutdown</li> <li>(5) configurable LED lamps</li> <li>LED Bargraph AC data display (optional)</li> </ul>
<p><b>Alternator Data</b></p> <ul style="list-style-type: none"> <li>Line-to-line and line-to-neutral AC volts</li> <li>3-phase AC current</li> <li>Frequency</li> <li>Total and individual phase kW and kVA</li> </ul>	<p><b>Engine Data</b></p> <ul style="list-style-type: none"> <li>DC voltage</li> <li>Lube oil pressure</li> <li>Coolant temperature</li> <li>Lube oil temperature (optional)</li> </ul>	<p><b>Other Data</b></p> <ul style="list-style-type: none"> <li>Genset model data</li> <li>Start attempts, starts, running hours</li> <li>KW hours (total and since reset)</li> <li>Fault history</li> <li>Load profile (hours less than 30% and hours more than 90% load)</li> <li>System data display (optional with network and other PowerCommand gensets or transfer switches)</li> </ul>
<p><b>Governing</b></p> <ul style="list-style-type: none"> <li>Integrated digital electronic isochronous governor</li> <li>Temperature dynamic governing</li> <li>Smart idle speed mode</li> <li>Glow plug control (some models)</li> </ul>	<p><b>Voltage Regulation</b></p> <ul style="list-style-type: none"> <li>Integrated digital electronic voltage regulator</li> <li>3-phase line to neutral sensing</li> <li>PMG (Optional)</li> <li>Single and three phase fault regulation</li> <li>Configurable torque matching</li> </ul>	<p><b>Control Functions</b></p> <ul style="list-style-type: none"> <li>Data logging on faults</li> <li>Fault simulation (requires InPower)</li> <li>Time delay start and cooldown</li> <li>Cycle cranking</li> <li>(4) Configurable customer inputs</li> <li>(4) Configurable customer outputs</li> <li>(8) Configurable network inputs and (16) outputs (with optional network)</li> </ul>
<p><b>Options</b></p>		
<ul style="list-style-type: none"> <li><input type="checkbox"/> Power Transfer Control</li> <li><input type="checkbox"/> Analog AC Meter Display</li> <li><input type="checkbox"/> Thermostatically Controlled Space Heater</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Key-type mode switch</li> <li><input type="checkbox"/> Ground fault module</li> <li><input type="checkbox"/> Engine oil temperature</li> <li><input type="checkbox"/> Auxilliary Relays (3)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Echelon LonWorks interface</li> <li><input type="checkbox"/> Digital input and output module(s) (loose)</li> <li><input type="checkbox"/> Remote annunciator (loose)</li> </ul>

## Ratings Definitions

Standby:	Prime (Unlimited Running Time):	Base Load (Continuous):
Applicable for supplying emergency power for the duration of normal power interruption. No sustained overload capability is available for this rating. This rating is applicable to installations served by a reliable normal utility source. This rating is only applicable to variable loads with an average load factor of 80 percent of the standby rating for a maximum of 200 hours of operation per year and a maximum of 25 hours per year at 100% of its standby rating. The standby rating is only applicable to emergency and standby applications where the generator set serves as the back up to the normal utility source. No sustained utility parallel operation is permitted with this rating. (Equivalent to Fuel Stop Power in accordance with ISO3046, AS2789, DIN6271 and BS5514). Nominally Rated.	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.	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.



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	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Dim "D" mm (in.)	Set Weight* dry kg (lbs)	Set Weight* wet kg (lbs)	w/Tank Dry weight kg (lbs)	w/Tank Wet weight kg (lbs)
DFLB	5652 (223)	1894 (75)	2515 (99)		9573 (21105)	9924 (21877)		
DFLC	5652 (223)	2274 (90)	2383 (94)		9719 (21247)	10053 (22162)		
DFLE	5652 (223)	2274 (90)	2514 (99)		10350 (22817)	10788 (23784)		

\*Note: Weights represent a set with standard features. See outline drawings for weights of other configurations. Dim "D" available only on models with sub-base fuel tank option.



See your distributor for more information.

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**Important:** Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.