



# Diesel generator set KTA50 series engine

1000 kVA - 1675 kVA 50 Hz  
1120 kW - 1545 kW 60 Hz



## Description

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

## Features

**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-circuits capability, and class F or H insulation.

**Control system** - Standard PowerCommand® electronic control provides total system integration including remote start/stop, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown.

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

**Enclosures** - Optional weather-protective and sound-attenuated enclosures are available.

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

Model	Standby rating		Prime rating		Emissions compliance TA Luft – EU Stage	Data sheets	
	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)		50 Hz	60 Hz
<b>C1400 D5</b>	1400 (1120)		1250 (1000)			DS44-CPGK	
<b>C1675 D5</b>	1675 (1340)		1400 (1120)			DS46-CPGK	
<b>C1675 D5A</b>	1675 (1340)		1500 (1200)			DS47-CPGK	
<b>C1250 D6</b>		1270 (1588)		1120 (1400)			DS84-CPGK
<b>C1500 D6</b>		1545 (1931)		1286 (1608)			DS85-CPGK

## Generator set specifications

Governor regulation class	ISO 8528 compliant
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMC compatibility	BS EN61000-6-4 / BS EN61000-6-2

## Engine specifications

Design	4 cycle, V-block, turbocharged and after-cooled
Bore	158.8 mm (6.25 in.)
Stroke	158.8 mm (6.25 in.)
Displacement	50 L (3067 in <sup>3</sup> )
Cylinder block engine	Sixteen-cylinder vee formation, direct injection, four-cycle diesel
Battery capacity	1800 amps at ambient temperature 32 °F (0 °C)
Battery charging alternator	55 amps
Starting voltage	24 Volts, negative ground
Fuel system	Direct injection
Fuel filter	Dual spin on paper element fuel filters with standard water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Spin-on paper element full flow and bypass lube oil filters
Standard cooling system	104 °F (40 °C) ambient radiator

## Alternator specifications

Design	Brushless, 4 pole, drip proof revolving field
Stator	2/3 pitch
Rotor	Direct coupled by flexible disc
Insulation system	Class H
Standard temperature rise	
Exciter type	Permanent Magnet Generator (PMG)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform Total Harmonic Distortion (THDV)	No load < 1.5%. Non distorting balanced linear load < 5%
Telephone Influence Factor (TIF)	< 50% per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	No load < 1.5%. Non distorting balanced linear load < 5%

## Available voltages

50 Hz Line – Neutral/Line – Line		60 Hz Line – Neutral/Line – Line	
• 220/380*	• 1905/3300	• 219/380	• 2400/4160
• 230/400	• 3640/6300	• 254/440	• 7200/12470
• 240/415	• 3810/6600	• 277/480	• 7620/13200
• 254/440	• 6350/11000	• 347/600	• 7970/13800

\*Derate may be applicable at this voltage. Please consult the factory for details.

## Generator set options

### Engine

- Heavy duty air filter
- Water jacket heater 220/240 V
- Oil sampling valve
- UK built engine and alternator

### Enclosure

- High-cube 40ft container

### Alternator

- Alternator heater
- High humidity isolation
- Exciter voltage regulator (PMG)
- Hardened Bearing Cartridge

### Control panel

- 3 pole main circuit breaker
- 4 pole main circuit breaker

### Warranty

- 5 years for Standby application
- 2 years for Prime application

### Silencer

- 9 dB attenuation critical silencer
- 25 dB residential – delivered loose

### Cooling

- Antifreeze 50/50 (Ethylene glycol)

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

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## PowerCommand 3.3 control system



The PowerCommand 3.3 control system is an integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing.

**AmpSentry** – Includes integral AmpSentry protection, which provides a full range of alternator protection functions that are matched to the alternator provided.

**Power management** – Control function provides battery monitoring and testing features and smart starting control system.

**Advanced control methodology** – Three phase sensing, full wave rectified voltage regulation, with a PWM output for stable operation with all load types.

**Communications interface** – Control comes standard with PCCNet and Modbus interface.

**Regulation compliant** – Prototype tested: UL, CSA and CE compliant.

**Service** – InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

**Reliable design** – The control system is designed for reliable operation in harsh environment.

### Multi-language support

### Operator panel features

**Operator panel features** – The operator panel, in addition to the alternator, displays the Utility/AC Bus data.

### Operator/display functions

- 320 x 240 pixels graphic LED backlight LCD
- Auto, manual, start, stop, fault reset and lamp test/panel lamp switches
- Alpha-numeric display with pushbuttons
- LED lamps indicating genset running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop

### Paralleling control functions

- Digital frequency synchronization and voltage matching
- Isochronous kW and kVar load sharing controls
- Droop kW and kVar control
- Sync check
- Extended paralleling (peak shave/base load)
- Digital power transfer control (AMF) provides load transfer operation in open or closed transition or soft (ramping) transfer mode

### Alternator data

- Line-to-Neutral and Line-to-Line AC volts
- 3-phase AC current
- Frequency
- kW, kVar, power factor kVA (three phase and total)

### Engine data

- DC voltage
- Engine speed
- Lube oil pressure and temperature
- Coolant temperature
- Comprehensive FAE data (where applicable)

### Other data

- Genset model data
- Start attempts, starts, running hours, kW hours
- Load profile (operating hours at % load in 5% increments)
- Fault history
- Data logging and fault simulation (requires InPower)

### Standard control functions

#### Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

#### Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase, 4-wire Line-to-Line sensing
- Configurable torque matching

#### AmpSentry AC protection

- AmpSentry protective relay
- Over current and short circuit shutdown
- Over current warning
- Single and three phase fault regulation
- Over and under voltage shutdown
- Over and under frequency shutdown
- Overload warning with alarm contact
- Reverse power and reverse Var shutdown
- Field overload

#### Engine protection

- Battery voltage monitoring, protection and testing
- Over speed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (over crank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown
- Full authority electronic engine protection

#### Control functions

- Time delay start and cool down
- Real time clock for fault and event time stamping
- Exerciser clock and time of day start/stop
- Data logging
- Cycle cranking
- Load shed
- Configurable inputs and outputs (4)
- Remote emergency stop

#### Options

- Auxiliary output relays (2)

**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):**

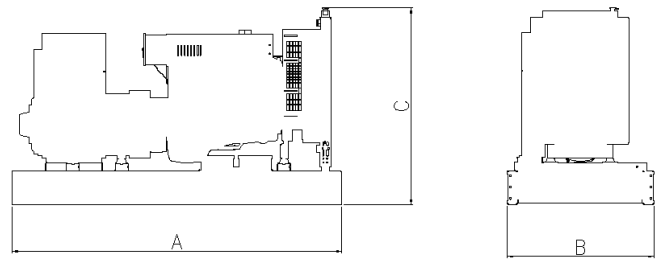
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

**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 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)	Dim 'B' (mm)	Dim 'C' (mm)	Set weight* dry (kg)	Set weight* wet (kg)
C1400 D5	5105	2000	2238	9190	9613
C1675 D5	5811	2033	2330	10348	10967
C1675 D5A	5811	2033	2330	10348	10967
C1250 D6	5105	2000	2238	9190	9613
C1500 D6	5811	2033	2330	10348	10967

\* 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 [power.cummins.com](http://power.cummins.com)

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