Diesel Generator set
KTA50 series engine

Power Generation

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.

CE	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.
ISO8528	This generator set has been designed to comply with ISO8528 regulation.
ISO 9001	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, 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	Datasheet	
	50Hz kVA (kW)	60Hz kW (kVA)	50Hz kVA (kW)	60Hz kW (kVA)	TA Luft – EU Stage	50Hz	60Hz
C1400 D5	1400 (1120)	N/A	1250 (1000)	N/A	N/A	DS44-CPGK	N/A
C1675 D5	1675 (1340)	N/A	1400 (1120)	N/A	N/A	DS46-CPGK	N/A
C1675 D5A	1675 (1340)	N/A	1500 (1200)	N/A	N/A	DS47-CPGK	N/A
C1250 D6	N/A	1270 (1588)	N/A	1120 (1400)	N/A	DS84-CPGK	N/A
C1500 D6	N/A	1545 (1931)	N/A	1286 (1608)	N/A	DS85-CPGK	N/A

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Generator Set Specifications

Genset Performance Class	ISO8528 G2
Voltage Regulation, No Load to Full Load	± 0.5%
Random Voltage Variation	± 0.5%
Frequency Regulation	Isochronous
Random Frequency Variation	±0.25%
EMC Compatibility	EN61000-6-4 / EN61000-6-2

Engine Specifications

Design	4 cycle, in line, turbo Charged and after-cooled
Bore	158.8 mm (6.25 in.)
Stroke	158.8 mm (6.25 in.)
Displacement	50 liter (3067in.3)
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-volt, 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	150°C
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	No load < 1.5%. Non distorting balanced linear load < 5%
Telephone Influence Factor (TIF)	TIF<50
Telephone Harmonic Factor (THF)	THF<2%

Available Voltages

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

* 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

Cooling
• Antifreeze 50/50 (Ethylene glycol)

Enclosure
• High-Cube 40ft Container

Alternator
• Alternator heater
• High humidity isolation
• Exciter voltage regulator (PMG)

Circuit Breaker
• 3 pole Main Circuit Breaker
• 4 pole Main Circuit Breaker

Warranty
• 2 years for Prime application
• 5 years for Standby application
• 10 years for Major components

Silencer
• 9 dB attenuation critical silencer
• 25 dB residential - delivered loose

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

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PowerCommand® 3.3 – Control System

Control system

The PowerCommand® 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)

Power Generation

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.
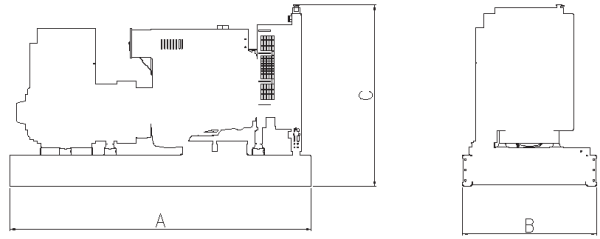
This outline drawing is to provide representative configuration details for Model series only.

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	9099	10075
C1675 D5	5690	2033	2330	10324	10626
C1675 D5A	5690	2033	2330	10324	10626
C1250 D6	5105	2000	2238	9009	10075
C1500 D6	5690	2033	2330	10024	10326

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

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