



## Specification sheet

# Gaseous Fuel Generator Set

## GTA38 Engine Series

400 kW 50 Hz

500 kW - 690 kW 60 Hz

Non-regulated



### Description

This Cummins Inc. commercial Generator Set (GenSet) is a fully integrated power generation system providing optimum performance, reliability, and versatility for stationary standby and continuous power applications.

### Features

**Cummins Heavy-Duty Engine** - Rugged 4-cycle industrial spark-ignited engine delivers reliable power, low emissions, and quick 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, fault-clearing short-circuit capability, and class H insulation.

**Control System** - The PowerCommand® electronic control is standard equipment and provides total GenSet system integration, including automatic remote starting/stopping, precise voltage regulation, alarm and status message display, AmpSentry™ protective relay, output metering, and auto-shutdown at fault detection.

**Warranty and Service** - Backed by a one-year warranty and worldwide distributor network.

**National Fire Protection Association (NFPA)** - The GenSet accepts full rated load in a single step in accordance with NFPA 110 Type 10 (ten seconds) for Level 1 and Level 2 Emergency or Standby Power Supply Systems (EPSSs).

Model	Standby rating*		Continuous rating		Data sheet
	60Hz kW (kVa)	50 Hz kW (kVa)	60 Hz kW (kVa)	50 Hz kW (kVa)	
<b>C400N5C</b>				400 (500)	FR 60270
<b>C580N6</b>	580 (725)		500 (625)		FR 6871/FR 60270
<b>C635N6</b>	635 (793)				FR 6870
<b>C690N6</b>	690 (862)				FR 6875

\* Tested at 0.8 power factor (PF) per NFPA 110.

## GenSet Specifications

Voltage Regulation, No Load to Full Load	±1%
Random Voltage Variation	±1% (Three-phase only.)
Frequency Regulation	Isochronous
Random Frequency Variation	±0.5%
Radio Frequency Interference	Optional PMG excitation operates in compliance with BS800 and VDE level G and N. Addition of RFI protection kit allows operation per MIL-STD-461 and VDE level K.

## Engine Specifications

Base Engine	Cummins Model GTA38
Displacement	37.7 L (2301 in <sup>3</sup> )
Overspeed Limit	2100 rpm
Regenerative Power	19.7 kW (C500N6B model)
Cylinder Block Configuration	550 kW (C580N6, C635N6, C690N6 models)
Cranking Current	Cast iron with replaceable wet cylinder liners
Battery Charging Alternator	1400 CCA (cold soak at -18 °C (0 °F) or above)
Battery Type	43 amps
Starting Voltage	8D (x2)
Standard Cooling System	24-volt, negative ground
Lube Oil Filter Types	See derates on Engine Data Sheet
Total System Back Pressure Allowed	51 mm Hg (2 in. Hg)
Silencer Back Pressure (Factory Enclosed Units Only)	5.6 mm Hg (.22 in. Hg)

## Alternator Specifications

Design	Brushless, 4-pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	Direct-coupled by flexible disc
Insulation System	Class H per NEMA MG1-1.65 or better
Standard Temperature Rise *	125 °C
Exciter Type	Permanent Magnet Generator (PMG)
Phase Rotation	A (U), B (V), C (W)
Alternator Cooling	Direct-drive centrifugal blower

\* For UL 1004 ratings, refer to temperature rise at 120 °C or below, and ambient temperature up to 40 °C

## Amp Rating at Full-load Voltage

Full Load Voltage			120/240 (1 Ph)	120/208	127/220	139/240	220/380	240/416	254/440	277/480	347/600
<b>C400N5C/C580N6</b>	Cont.	<b>Amps</b>	N/A	1735	1640	1504	950	867	820	752	601
<b>C580N6</b>	Standby	<b>Amps</b>	N/A	2012	1903	1744	1102	1006	951	872	698
<b>C635N6</b>	Standby	<b>Amps</b>	N/A	2203	2083	1910	1206	1102	1042	955	764
<b>C690N6</b>	Standby	<b>Amps</b>	N/A	2394	2264	2075	1310	1197	1132	1037	830

## Fuel Consumption

Model		Fuel Type	Rated Load Fuel Consumption in Standard Cubic Feet per Hour (CFH)			
			1/4	1/2	3/4	Full
<b>C400N5C/C580N6</b>	Continuous	NG	3251	4396	5868	7250
<b>C580N6</b>	Standby	NG	3493	4617	6134	7627
<b>C635N6</b>	Standby	NG	4190	5217	6845	8772
<b>C690N6</b>	Standby	NG	4707	5632	7322	9384

Fuel inlet pressure at GenSet connection: 381 to 508 mm WC (15 to 20 in. WC)

# PowerCommand® 3.3 Control System



An integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing. Refer to document S-1570 for more detailed information on the control.

**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.

**Easily upgradeable** - PowerCommand® controls are designed with common control interfaces.

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

**Multi-language support** - English, Spanish, French (standard); other languages (optional).

## Operator Panel Features

### Operator/Display Panel

- Displays paralleling breaker status.
- 320 x 240 pixels graphic LED backlight LCD.
- Provides direct control of the paralleling breaker.
- Alphanumeric display with pushbuttons.
- Auto, manual, start, stop, fault reset, and lamp test/panel lamp switches.
- LED lamps indicating GenSet running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop.

### Paralleling Control Functions

- First Start Sensor System selects first genset to close to bus.
- Phase Lock Loop Synchronizer with voltage matching.
- Sync check relay.
- Isochronous kW and kVar load sharing.
- Load govern control for utility paralleling.
- Extended Paralleling (baseload/peak shave) Mode.
- Digital power transfer control, for use with a breaker pair to provide open transition, closed transition, ramping closed transition, peaking and base load functions.

### Other Control Features

- 150 watt anti-condensation heater.
- DC distribution panel.
- AC auxiliary distribution panel.

## Alternator Data

- Line-to-neutral and line-to-line AC volts.
- Three-phase AC current.
- Frequency.
- kW, kVar, and power factor kVa (three-phase and total).
- Winding temperature (optional).
- Bearing temperature (optional).

## Engine Data

- DC voltage and engine speed.
- Lube oil pressure and temperature.
- Coolant temperature.
- Comprehensive FAE data.

## Other Display Data

- GenSet model data.
- Start attempts, starts, running hours, kW hours.
- Load profile (operating hours at % load in 5% increments).
- Fault history – up to 32 events.
- Data logging and fault simulation (requires InPower™).
- Air cleaner restriction indication.
- Exhaust temperature in each cylinder.

## Standard Control Functions

### Digital Governing

- Temperature dynamic governing.
- Integrated digital electronic isochronous governing.

### Digital Voltage Regulation

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

### AmpSentry™ AC Protection

- AmpSentry™ protective relay.
- Over current and short circuit shutdown.
- Over current warning.
- Single and three-phase fault regulation.
- Low oil pressure warning and shutdown.
- High coolant temperature warning and shutdown.
- Low coolant level warning and shutdown.
- Low coolant temperature warning.
- Over and under voltage shutdown.
- Over and under frequency shutdown.
- Overload warning with alarm contact.
- Reverse power and reverse var shutdown.
- Field overload shutdown.
- Fuel-in-rupture-basin warning or shutdown.
- Full authority electronic engine protection.
- AMM arc flash provision

### Engine Protection

- Cranking lockout; overspeed shutdown; and battleshort.
- Sensor failure indication.
- Low fuel level warning or shutdown.
- Fail to start (overcrank) and fail to crank shutdown.
- Full authority electronic engine protection.
- Battery voltage monitoring, protection, and testing.

### Control Functions

- Data logging and cycle cranking.
- Load shed.
- Remote emergency stop.
- Time delay start and cooldown.
- Configurable inputs and outputs (20).
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.

## GenSet options and accessories

### Engine

- 240/480 V, 4000 W coolant heaters (2)
- 240 V, 300 W lube oil heater

### Alternator

- 80 °C rise
- 105 °C rise

### Fuel System

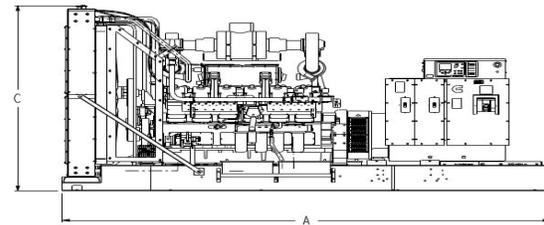
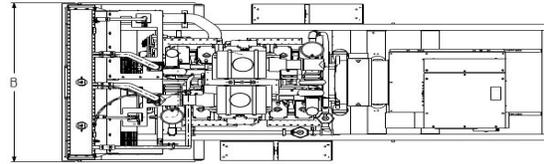
- Flexible fuel connector
- Fuel strainer

### Exhaust System

- GenSet mounted muffler (enclosure models, only)
- Catalyst available upon request

### Generator Set

- Batteries and battery charger
- Main line circuit breaker and spring isolators
- PowerCommand® Network Aux 101, 102 module
- Modbus® to BACnet™ Module
- Weather protective enclosure (F001) with silencer
- Level I and Level II enclosure w/silencer
- Audible alarm, remote drains, and remote annunciator panel
- 2-year standby and 5-year basic power warranty (model-specific)



This outline drawing is for reference only.

**Do not use for installation design.**

	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)
<b>All Models</b>	4756 (187)	2330 (92)	2721 (107)

NOTE: Consult drawings for applicable weights. Contact the factory for additional information. See enclosure Specification Sheet for enclosure dimensions.

## Codes and Standards

Codes or standards compliance may not be available with all model configurations - consult factory for availability.



CSA Group tests products under a formal process to ensure that they meet the safety and/or performance requirements of applicable standards. This GenSet is certified to: CSA 22.2 No. 100 Motors and Generators; CSA 22.2 No. 0.4-044 Bonding of Electrical Equipment; CSA 22.2 No. 14 Industrial Control Equipment; and CSA 22.2 No. 0 General Requirements - Canadian Electrical Code, Part II.



**This product has been manufactured under the controls established by a Bureau Veritas Certification approved management system that conforms with ISO 9001:2015.**

## 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 is in accordance with ISO 3046, AS 2789, DIN 6271, and BS 5514.

### **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) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271, and BS 5514.

**Warning:** Backfeed to a utility system can cause electrocution and/or property damage. Do not connect GenSets to any building electrical system except through an approved device or after the building main disconnect is open. Neutral connection must be bonded in accordance with National Electrical Code.

Specifications are subject to change without notice.



Cummins Sales and Service  
875 Lawrence Drive  
DePere, Wisconsin 54115

[www.power.cummins.com](http://www.power.cummins.com)