

# SG500 | 33.9L | 625 kVA

## INDUSTRIAL SPARK-IGNITED GENERATOR SET

Generac International Products

**DEMAND RESPONSE READY**

### Standby Power Rating - SG500

625 kVA, 500 kW, 50 Hz

### Demand Response Rating

625 kVA, 500 kW, 50 Hz

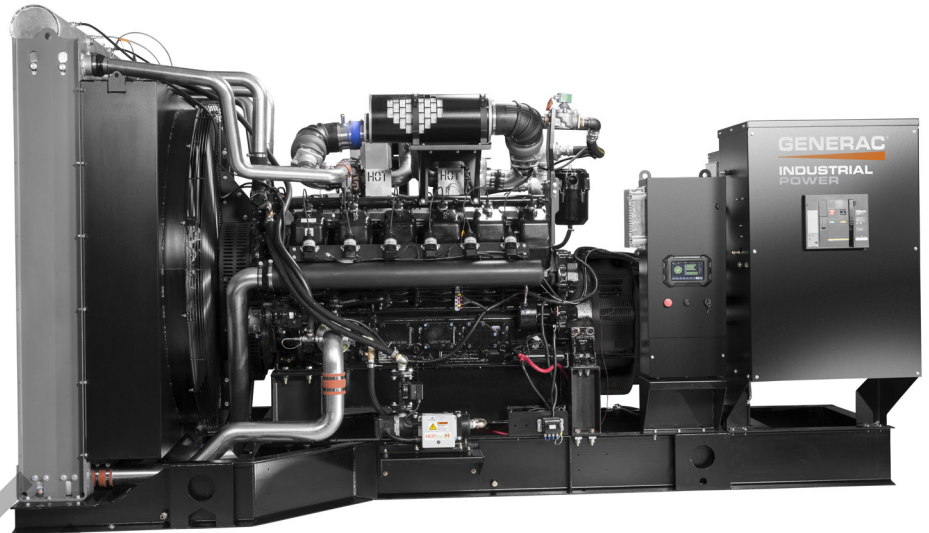


Image used for illustration purposes only



## Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.



BS5514 and DIN 6271



SAE J1349



ISO 3046, 7637, 8528, 9001



NEMA ICS10, MG1, 250, ICS6, AB1



ANSI C62.41

## Powering Ahead

Generac ensures superior quality by designing and manufacturing most of its generator components, such as alternators, enclosures, control systems and communications software. Generac also makes its own spark-ignited engines, and you'll find them on every Generac gaseous-fueled generator. We engineer and manufacture them from the block up — all at our facilities throughout Wisconsin. Applying natural gas and LP-fueled engines to generators requires advanced engineering expertise to ensure reliability, durability and necessary performance. By designing specifically for these dry, hotter-burning fuels, the engines last longer and require less maintenance. Building our own engines also means we control every step of the supply chain and delivery process, so you benefit from single-source responsibility.

Plus, Generac Industrial Power's distribution network provides all parts and service so you don't have to deal with third-party suppliers. It all leads to a positive owner experience and higher confidence level. Generac spark-ignited engines give you more options in commercial and industrial generator applications as well as extended run time from utility-supplied natural gas.

## STANDARD FEATURES

## DEMAND RESPONSE READY

### ENGINE SYSTEM

- Oil Drain System
- Heavy Duty Air Cleaner
- Level 1 Fan and Belt Guards (Open Set Only)
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Critical Silencer/Catalyst
- Coolant Heater Ball Valves
- Oil Temperature Sender with Indication Alarm

### Fuel System

- NPT Fuel Connection on Frame
- Primary and Secondary Fuel Shutoff

### Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze

### Engine Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

### ALTERNATOR SYSTEM

- GENprotect™
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Permanent Magnet Excitation
- Sealed Bearings
- Amortisseur Winding
- Temperature Rise < (120 °C)

### GENERATOR SET

- Spring Isolators Under Frame
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby or Demand Response Rated Units)
- Ready to Accept Full Load in <10 Seconds

### ENCLOSURE (If Selected)

- Structural Steel Sub-Base
- Sub-Base Lifting Eyes
- Enamel Finish
- Zinc Plated Fasteners
- Zinc Plated Cast Aluminum Keylock Door Handles
- Heavy Duty Stainless Steel Hinges with Removable Brass Pins
- Modular Construction
- Rhino Coat™ Textured Polyester Powder Coat Paint

## CONTROL SYSTEM



### Power Zone® Pro Sync Controller

#### Program Functions

- NFPA 110 Level 1 Compliant
- Engine Protective Functions
- Alternator Protective Functions
- Digital Engine Governor Control
- Digital Voltage Regulator
- Multiple Programmable Inputs and Outputs
- Remote Display Capability
- Remote Communication via Modbus® RTU, Modbus TCP/IP, and Ethernet 10/100
- Alarm and Event Logging with Real Time Stamping
- Expandable Analog and Digital Inputs and Outputs

- Remote Wireless Software Update Capable
- Wi-Fi®, Bluetooth®, BMS and Remote Telemetry
- Built-In Programmable Logic Eliminates the Need for External Controllers Under Most Conditions
- Ethernet Based Communications Between Generators
- Programmable I/O Channel Properties
- Built-In Diagnostics
- On-Board Manual Storage

#### Protections

- Low Oil Pressure
- Low Coolant Level
- High/Low Coolant Temperature
- Sensor Failure
- Oil Temperature
- Over/Under Speed
- Over/Under Voltage
- Over/Under Frequency
- Over/Under Current
- Over Load
- High/Low Battery Voltage
- Battery Charger Current
- Phase to Phase and Phase to Neutral Short Circuits (I<sup>2</sup>T Algorithm)

### 7 Inch Color Touch Screen Display

- Resistive Color Touch Screen
- Sunlight Readable (1400 NITS)
- Easily Identifiable Icons
- Multi-Lingual
- On Screen Editable Parameters
- Key Function Monitoring
- Three Phase Voltage, Amperage, kW, kVA, and kVAr
- Selectable Line to Line or Line to Neutral Measurements
- Frequency
- Engine Speed
- Engine Coolant Temperature
- Engine Oil Pressure
- Engine Oil Temperature
- Battery Voltage
- Hourmeter
- Warning and Alarm Indication
- Diagnostics
- Maintenance Events/Information

**CONFIGURABLE OPTIONS**

**DEMAND RESPONSE READY**

**ENGINE SYSTEM**

- Engine Coolant Heater
- Oil Heater
- Level 1 Fan and Belt Guards (Enclosed Units Only)
- Two Stage Air Cleaner
- Air Filter Restriction Indicator
- Radiator Stone Guard (Open Set Only)
- Shipped Loose Catalyst Silencer (Enclosed Units Only)

**ELECTRICAL SYSTEM**

- Battery Warmer

**FUEL SYSTEM**

- NPT Flexible Fuel Line

**ALTERNATOR SYSTEM**

- Alternator Upsizing
- Anti-Condensation Heater

**CIRCUIT BREAKER OPTIONS**

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breaker

**GENERATOR SET**

- Spring Vibration Isolator
- Extended Factory Testing

**ENCLOSURE**

- Weather Protected Standard Enclosure
- Level 1 Sound Attenuated
- Level 2 Sound Attenuated
- Steel Enclosure
- Aluminum Enclosure
- AC Enclosure Lighting Kit
- Up to 322 KPH Wind Load Rating (Contact Factory for Availability)

**CONTROL SYSTEM**

- 21-Light Remote Annunciator
- Oil Temperature Indicator with Alarm
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- Remote Communication - Modem
- 10A Engine Run Relay
- Ground Fault Annunciator
- 100 dB Alarm Horn

**ENGINEERED OPTIONS**

**CONTROL SYSTEM**

- Additional Spare Inputs/Outputs
- Battery Disconnect Switch

**ALTERNATOR SYSTEM**

- 3rd Main Line Circuit Breakers
- 4th Main Line Circuit Breakers
- Unit Mounted Load Banks

**ENCLOSURE**

- Door Open Alarm Horn

**GENERATOR SET**

- Special Testing
- Battery Boxes

**APPLICATION AND ENGINEERING DATA**

**DEMAND RESPONSE READY**

**ENGINE SPECIFICATIONS**

General

Make	Generac
Cylinder #	12
Type	V
Displacement - L (in <sup>3</sup> )	33.9 (2,068)
Bore - mm (in)	150 (5.9)
Stroke - mm (in)	160 (6.3)
Compression Ratio	10.0:1
Intake Air Method	Turbocharged/Aftercooled
Number of Main Bearings	7
Connecting Rods	12
Cylinder Head Type	4 Valve
Cylinder Liners	Yes
Ignition	Electronic
Piston Type	Cast Aluminum Alloy
Crankshaft Type	Chromium Molybdenum Steel
Lifter Type	Solid
Intake Valve Material	Proprietary Alloy
Exhaust Valve Material	Proprietary Alloy
Hardened Valve Seats	Proprietary Alloy

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear Driven
Oil Filter Type	Full Flow Spin-On Cartridge
Crankcase Capacity - L (qt)	120 (127)

Cooling System

Cooling System Type	Forced Circulation by Centrifugal Pump
Fan Type	Pusher
Fan Speed - RPM	900
Fan Diameter - mm (in)	1,626 (64)

Fuel System

Fuel Type	Natural Gas
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard
Operating Fuel Pressure - kPa (in H <sub>2</sub> O)	3.5 - 5.0 (14 - 20)

Engine Electrical System

System Voltage	24 VDC
Battery Charging Alternator	Yes
Battery Size	See Battery Index 0161970SBY
Battery Voltage	(4) - 12 VDC
Ground Polarity	Negative

**ALTERNATOR SPECIFICATIONS**

Standard Model	R0584124Y22
Poles	4
Field Type	Rotating
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Permanent Magnet
Bearings	Single Sealed
Coupling	Direct via Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.5%

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**OPERATING DATA**

**DEMAND RESPONSE READY**

**POWER RATINGS - NATURAL GAS**

Standby		
Three-Phase 231/400 VAC @0.8pf	625 kVA/500 kW	Amps: 903

**MOTOR STARTING CAPABILITIES (skVA)**

skVA vs. Voltage Dip	
231/400 VAC	20%
R0584124Y22	1,440
R0728124Y22	1,840

**FUEL CONSUMPTION RATES\***

Natural Gas – m <sup>3</sup> /hr (scfh)	
Percent Load	Standby
25%	44 (1,568)
50%	83 (2,919)
75%	120 (4,238)
100%	163 (5,740)

\* Fuel supply installation must accommodate fuel consumption rates at 100% load.

**COOLING**

Standby		
Air Flow (Fan Air Flow Across Radiator) - Open Set	m <sup>3</sup> /min (scfm)	778.7 (27,500)
Coolant Flow	Lpm (gpm)	916 (242)
Coolant System Capacity	L (gal)	208 (55)
Maximum Operating Ambient Temperature	°C (°F)	50 (122)
Maximum Operating Ambient Temperature (Before Derate)	See Bulletin No. 019927ASSD	
Maximum Additional Radiator Backpressure	kPa (in H <sub>2</sub> O)	0.12 (0.5)

**COMBUSTION AIR REQUIREMENTS**

Standby	
Flow at Rated Power - m <sup>3</sup> /min (scfm)	30 (1,030)

**ENGINE**

Standby		
Rated Engine Speed	RPM	1,500
Horsepower at Rated kW**	hp	732
Piston Speed	m/min (ft/min)	480 (1,575)
BMEP	kPa (psi)	1,621 (235)

**EXHAUST**

Standby		
Exhaust Flow (Rated Output)	m <sup>3</sup> /min (cfm)	107 (3,787)
Maximum Allowable Backpressure (Post Silencer)	kPa (inHg)	6.7 (2.0)
Exhaust Temperature (Rated Output)	°C (°F)	602 (1,116)

\*\* Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

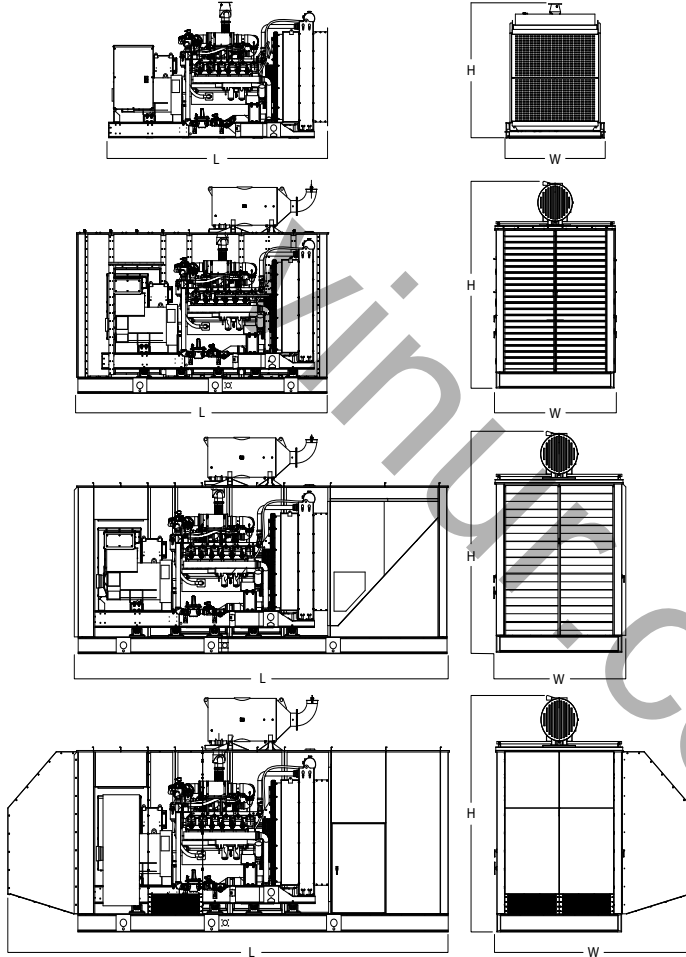
Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.

Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.

Standby - See Bulletin 0187500SSB

**DIMENSIONS AND WEIGHTS\***

**DEMAND RESPONSE READY**



**OPEN SET**

L x W x H - mm (in)	4,528 (178.3) x 2,098 (82.6) x 2,801 (110.3)
Weight - kg (lbs)	6,510 - 6,724 (14,352 - 14,824)

**WEATHER PROTECTED ENCLOSURE**

L x W x H - mm (in)	5,131 (202.0) x 2,489 (98.0) x 3,980 (156.7)
Weight - kg (lbs)	Steel: 8,188 - 8,402 (18,051 - 18,523) Aluminum: 7,811 - 8,025 (17,220 - 17,692)

**LEVEL 1 SOUND ATTENUATED ENCLOSURE**

L x W x H - mm (in)	7,293 (287.0) x 2,438 (96.0) x 3,980 (156.7)
Weight - kg (lbs)	Steel: 8,188 - 8,402 (18,051 - 18,523) Aluminum: 7,811 - 8,025 (17,220 - 17,692)

**LEVEL 2 SOUND ATTENUATED ENCLOSURE**

L x W x H - mm (in)	8,636 (340.0) x 3,845 (151.4) x 3,980 (156.7)
Weight - kg (lbs)	Steel: 10,388 - 10,602 (22,902 - 23,373) Aluminum: 8,906 - 9,120 (19,634 - 20,106)

\* All measurements are approximate and for estimation purposes only.

<b>YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER</b>

Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.