

SG500 | 25.8L | 500 kW
INDUSTRIAL SPARK-IGNITED GENERATOR SET
EPA Certified Stationary Emergency

GENERAC® | **INDUSTRIAL
POWER**

DEMAND RESPONSE READY

Standby Power Rating

500 kW, 625 kVA, 60 Hz

Demand Response Rating

500 kW, 625 kVA, 60 Hz

Prime Power Rating*

450 kW, 563 kVA, 60 Hz



*Assembled in the USA using domestic and foreign parts

*EPA Certified Prime ratings are not available in the US or its Territories

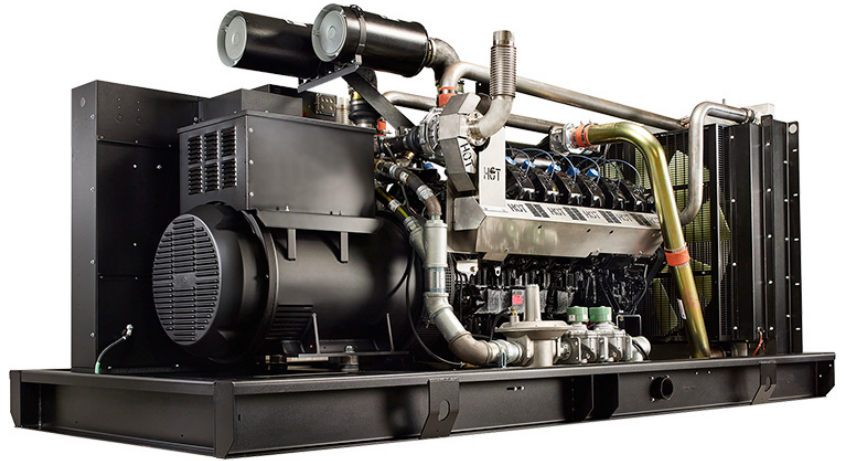


Image used for illustration purposes only

Codes and Standards

Generac products are designed to the following standards:



UL2200, UL508, UL489, CSA C22.2



CSA 22.2



BS5514 and DIN 6271



SAE J1349



NFPA 37, 70, 99, 110



NEC700, 701, 702, 708



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.

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STANDARD FEATURES

DEMAND RESPONSE READY

ENGINE SYSTEM

- Oil Drain Extension
- Heavy Duty Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Ship Loose Catalyst Silencer (Open Set Only)

Fuel System

- Fuel Line - NPT Connection
- Primary and Secondary Fuel Shutoff

Cooling System

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

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
- Full Load Capacity Alternator

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)
- Catalyst Silencer Mounted in the Discharge Hood (Enclosed Only)

ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuation Enclosures)
- Gasketed Doors
- Stamped Air-Intake Louvers
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat™ - Textured Polyester Powder Coat Paint

CONTROL SYSTEM



Digital H Control Panel- Dual 4x20 Display

Program Functions

- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable Logic Controller
- RS-232/485 Communications
- 3-Phase Sensing Digital Voltage Regulator
- 2-Wire Start Capability
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)

- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus® Protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground
- 16 Channel Remote Trending
- 0.2 msec High Speed Remote Trending
- Alarm Information Automatically Annunciated on the Display

Full System Status Display

- Power Output (kW)
- Power Factor
- kW Hours, Total and Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level

- Engine Speed
- Battery Voltage
- Frequency

Alarms and Warnings

- Oil Pressure
- Coolant Temperature
- Coolant Level
- Low Fuel Pressure Alarm
- Engine Overspeed
- Battery Voltage
- Alarms and Warnings Time and Date Stamped
- Snap Shots of Key Operation Parameters During Alarms and Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

CONFIGURABLE OPTIONS

DEMAND RESPONSE READY

ENGINE SYSTEM

- Engine Coolant Heater
- Oil Heater
- Air Filter Restriction Indicator
- Stone Guard (Open Set Only)
- Fan and Belt Guards

ELECTRICAL SYSTEM

- 10A UL Battery Charger
- Battery Warmer

FUEL SYSTEM

- Flex Fuel Line

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- 3rd Main Line Circuit Breaker

- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

GENERATOR SET

- Demand Response Rating
- GenLink® Communications Software (English Only)
- Extended Factory Testing
- 12 Position Load Center
- 100DB Alarm Horn
- 120V GFCI and 240V Outlet

ENCLOSURE

- Standard Enclosure
- Level 1 Sound Attenuation
- Level 2 Sound Attenuation
- Level 2 Sound Attenuation with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- AC/DC Enclosure Lighting Kit
- Door Alarm Switch
- Enclosure Ambient Heaters
- Up to 200 MPH Wind Load Rating*

CONTROL SYSTEM

- NFPA 110 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Oil Temperature 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 Run Relay
- Ground Fault Indication and Protection Functions
- Damper Alarm Contacts

WARRANTY

- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant Heater Ball Valves
- Fluid Containment Pan

CONTROL SYSTEM

- Spare Inputs (x4) / Outputs (x4)
- Battery Disconnect Switch

GENERATOR SET

- Special Testing
- Battery Box
- IBC Seismic Certification

*Consult factory for availability

APPLICATION AND ENGINEERING DATA

DEMAND RESPONSE READY

ENGINE SPECIFICATIONS

General	
Make	Generac
Cylinder #	12
Type	V12
Displacement - L (Cu In)	25.8 (1,574.4)
Bore - mm (in)	132 (5.19)
Stroke - mm (in)	160 (6.30)
Compression Ratio	10:1
Intake Air Method	Turbocharged/Aftercooled
Number of Main Bearings	7
Connecting Rods	Alloy Steel
Cylinder Head	Cast Iron - OHV
Cylinder Liners	Cast Alloy Steel
Ignition	Electronic
Piston Type	Aluminum Alloy
Crankshaft Type	Forged Alloy Steel
Lifter Type	Solid
Intake Valve Material	High Temp Alloy Steel
Exhaust Valve Material	High Temp Alloy Steel
Hardened Valve Seats	High Temp Alloy Steel
Engine Governing	
Governor	Electronic
Frequency Regulation (Steady State)	± 0.25%
Lubrication System	
Oil Pump Type	Gear
Oil Filter Type	Twin Full-flow with Intercooler
Crankcase Capacity - L (qts)	90 (95)

Cooling System	
Cooling System Type	Pressurized Closed Recovery
Water Pump Flow - gal/min (l/min)	225 (851.7)
Fan Type	Pusher
Fan Speed (rpm)	1,640
Fan Diameter - mm (in)	117.6 (44)
Fuel System	
Fuel Type	Natural Gas
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard (Dual)
Operating Fuel Pressure	11" - 14" H ₂ O or 7" - 11" H ₂ O
Engine Electrical System	
System Voltage	24 VDC
Battery Charger Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	(2) - 12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	WEG	Standard Excitation	Permanent Magnet
Poles	4	Bearings	Single Sealed
Field Type	Revolving	Coupling	Direct, Flexible Disc
Insulation Class - Rotor	H	Prototype Short Circuit Test	Yes
Insulation Class - Stator	H	Voltage Regulator Type	Full Digital
Total Harmonic Distortion	<3%	Number of Sensed Phases	All
Telephone Interference Factor (TIF)	<50	Regulation Accuracy (Steady State)	± 0.25%

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OPERATING DATA

DEMAND RESPONSE READY

POWER RATINGS

	Standby/Demand Response				Prime
Three-Phase 120/208 VAC @0.8pf	500 kW	Amps: 1,735	450 kW	Amps: 1,561	
Three-Phase 120/240 VAC @0.8pf	500 kW	Amps: 1,504	450 kW	Amps: 1,353	
Three-Phase 277/480 VAC @0.8pf	500 kW	Amps: 752	450 kW	Amps: 677	
Three-Phase 346/600 VAC @0.8pf	500 kW	Amps: 601	450 kW	Amps: 541	

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip

480 VAC								208/240 VAC							
Alternator	kW	10%	15%	20%	25%	30%	35%	Alternator	kW	10%	15%	20%	25%	30%	35%
Standard	500	457	686	914	1,143	1,371	1,600	Standard	500	429	643	857	1,071	1,286	1,500
Upsize 1	642	471	707	943	1,179	1,414	1,650	Upsize 1	689	543	814	1,086	1,357	1,629	1,900
Upsize 2	832	757	1,136	1,514	1,893	2,271	2,650	Upsize 2	723	571	857	1,143	1,429	1,714	2,000

FUEL CONSUMPTION RATES*†

Natural Gas – ft³/hr (m³/hr)

Percent Load	Standby	Prime
25%	2,250 (72.2)	2,295 (64.9)
50%	3,600 (101.9)	3,240 (91.7)
75%	4,740 (134.2)	4,266 (120.7)
100%	5,820 (164.8)	5,238 (148.3)

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

COOLING†

		Standby	Prime
Air Flow (Inlet Air Combustion and Radiator)	ft³/min (m³/min)	31,400 (889)	31,400 (889)
Coolant Flow per Minute	gal/min (l/min)	225 (851.7)	225 (851.7)
Coolant System Capacity	gal (l)	20.5 (77.6)	20.5 (77.6)
Heat Rejection to Coolant	BTU/hr	1,170,000	1,053,000
Max. Operating Ambient Temp	°F (°C)	104 (40)	104 (40)
Max Operating Ambient Temperature (Before Derate)	see Bulletin No. 0199270SSD		
Maximum Radiator Backpressure	in H ₂ O	0.5	0.5

COMBUSTION AIR REQUIREMENTS

	Standby	Prime
Flow at Rated Power cfm (m³/min)	942 (26.6)	848 (23.9)

ENGINE

EXHAUST

		Standby	Prime			Standby	Prime
Rated Engine Speed	rpm	1,800	1,800	Exhaust Flow (Rated Output)	cfm (m³/min)	3,207 (90.8)	2,886 (81.7)
Horsepower at Rated kW**	hp	670	603	Max. Allowable Backpressure	inHg (Kpa)	0.75 (2.54)	0.75 (2.54)
Piston Speed	ft/min	1,893	1,893	Exhaust Temp (Rated Output)	°F (°C)	1,265 (685)	1,138 (616)
BMEP	psi	207.1	186.4				

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

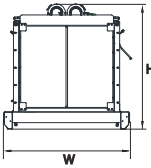
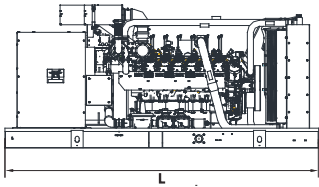
Standby - See Bulletin 0187500SSB

Demand Response- See Bulletin 10000018250

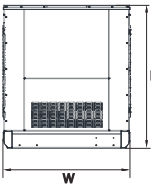
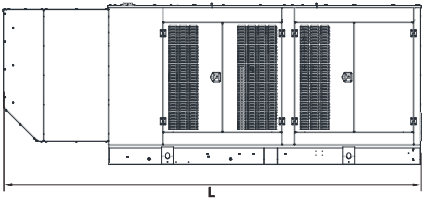
Prime - See Bulletin 0187510SSB

DIMENSIONS AND WEIGHTS*

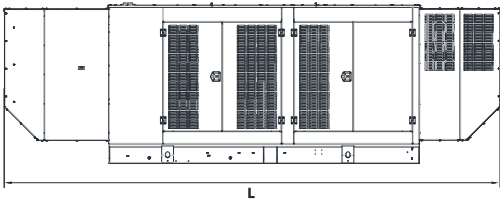
DEMAND RESPONSE READY



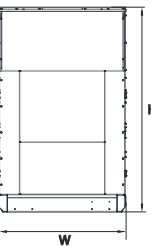
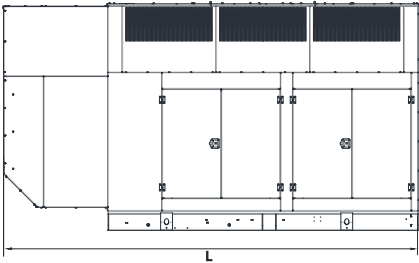
OPEN SET (Includes Exhaust Flex)	
L x W x H in (mm)	154.4 (3,923) x 71 (1,803) x 70.6 (1,794)
Weight lbs (kg)	9,739 (4,417)



STANDARD ENCLOSURE	
L x W x H in (mm)	207.4 (5,268) x 70.9 (1,800) x 80 (2,032)
Weight lbs (kg)	Steel: 11,929 (5,410) Aluminum: 10,841 (4,917)



LEVEL 1 ACOUSTIC ENCLOSURE	
L x W x H in (mm)	247.5 (6,285) x 70.9 (1,800) x 80 (2,032)
Weight lbs (kg)	Steel: 12,936 (5,867) Aluminum: 11,274 (5,113)



LEVEL 2 ACOUSTIC ENCLOSURE	
L x W x H in (mm)	207.4 (5,268) x 70.9 (1,800) x 114 (2,899)
Weight lbs (kg)	Steel: 13,274 (6,020) Aluminum: 11,419 (5,179)

LEVEL 2 ACOUSTIC ENCLOSURE W/MOTORIZED DAMPERS	
L x W x H in (mm)	207.4 (5,268) x 70.9 (1,800) x 121.3 (3,082)
Weight lbs (kg)	Steel: 13,658 (6,195) Aluminum: 11,565 (5,249)

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.