

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

GENERAC® | INDUSTRIAL POWER

STANDBY POWER RATING

500 kW, 625 kVA, 60 Hz

PRIME POWER RATING*

450 kW, 563 kVA, 60 Hz



*Built in the USA using domestic and foreign parts

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

**Certain options or customization may not hold certification valid

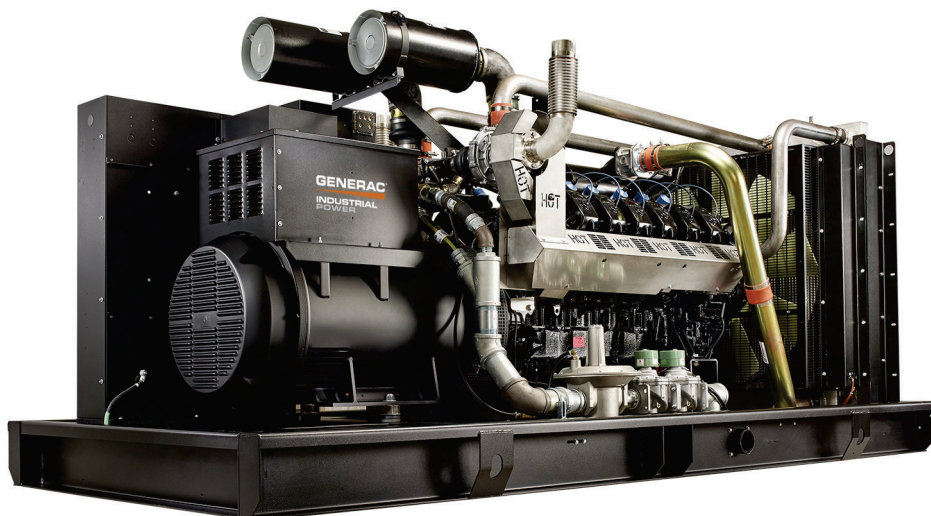


Image used for illustration purposes only

CODES AND STANDARDS

Generac products are designed to the following standards:



UL2200, UL508, UL142, UL498



NFPA 37, 70, 99, 110



NEC 700, 701, 702, 708



ISO 3046, 7637, 8528, 9001



NEMA ICS10, MG1, 250, ICS6, AB1



ANSI C62.41

POWERING AHEAD

For over 50 years, Generac has led the industry with innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the Standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generator. We choose only engines that Have already been proven in heavy-duty industrial application under adverse conditions.

Generac is committed to ensuring out customer's service support continues after their generator purchase.

STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel flexible exhaust connection
- Factory Filled Oil & Coolant
- Radiator Duct Adapter (open set only)
- Critical Exhaust Silencer

Fuel System

- Flexible 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

Engine Electrical System

- Battery charging alternator
- Battery cables
- Battery tray
- Rubber-booted engine electrical connections
- Solenoid activated starter motor

ALTERNATOR SYSTEM

- UL2200 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 Warranty (Prime rated units)
- 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 (L1 & L2)
- Gasketed doors
- Stamped air-intake louvers
- Air discharge hoods for radiator-upward pointing
- Stainless steel lift off door hinges
- Stainless steel lockable handles
- Rhino Coat™ - Textured polyester powder coat

CONTROL SYSTEM



Control Panel

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- Low Fuel Pressure Indication
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run

- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- 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
- 15 channel data logging
- 0.2 msec high speed data logging
- Alarm information automatically comes up on the display

Alarms

- Oil Pressure (Pre-programmable Low Pressure Shutdown)
- Coolant Temperature (Pre-programmed High Temp Shutdown)
- Coolant Level (Pre-programmed Low Level Shutdown)
- Low Fuel Pressure Alarm
- Engine Speed (Pre-programmed Over speed Shutdown)
- Battery Voltage Warning
- Alarms & warnings time and date stamped
- Alarms & warnings for transient and steady state conditions
- Snap shots of key operation parameters during alarms & warnings
- Alarms and warnings spelled out (no alarm codes)

CONFIGURABLE OPTIONS

ENGINE SYSTEM

- General
- Engine Block Heater
 - Oil Heater
 - Air Filter Restriction indicator
 - Stone Guard (Open Set Only)

ELECTRICAL SYSTEM

- 10A UL battery charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical coating

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- 3rd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breaker

GENERATOR SET

- Gen-Link Communications Software (English Only)
- Extended Factory Testing
- 8 Position Load Center
- Convenience Outlets
- 2 Year Extended Warranty
- 5 Year Warranty
- 5 Year Extended Warranty
- 7 Year Extended Warranty
- 10 Year Extended Warranty

ENCLOSURE

- Standard Enclosure
- Level 1 Sound Attenuation
- Level 2 Sound Attenuation
- Steel Enclosure
- Aluminum Enclosure
- 150 MPH Wind Kit
- AC/DC Enclosure Lighting Kit
- Door Alarm Switch

CONTROL SYSTEM

- NFPA 110 Compliant
- Remote Relay Board (8 or 16)
- Oil Temperature Sender with Indication 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 Communications
- Remote Communication - Ethernet
- 10A Run Relay
- Ground Fault Indication and Protection Functions

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant heater ball valves
- Fluid containment pans

CONTROL SYSTEM

- Spare inputs (x4) / outputs (x4) - H Panel Only
- Battery Disconnect Switch

GENERATOR SET

- Special Testing
- Battery Box

ENCLOSURE

- Motorized Dampers
- Intrusion Ambient Heaters

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

Prime - Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. A 10% overload capacity is available for 1 out of every 12 hours. The Prime Power option is only available on International applications. Power ratings in accordance with ISO 8528-1, Second Edition.

*Built in the USA using domestic and foreign parts
*EPA Certified Prime ratings are not available in the US or its Territories

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Generac
Cylinder #	12
Type	90° V
Displacement - L (cu In)	25.8 (1574)
Bore - mm (in)	132 (5.20)
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)	90L (95)

Cooling System

Cooling System Type	Pressurized Closed Recovery
Water Pump Flow -gal/min (l/min)	253.6 (960)
Fan Type	Pusher
Fan Speed (rpm)	1680
Fan Diameter mm (in)	117.6 (44)
Coolant Heater Wattage	2500
Coolant Heater Standard Voltage	240 V

Fuel System

Fuel Type	Natural Gas
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard (Dual)
Operating Fuel Pressure	7" - 11" H ₂ O

Engine Electrical System

System Voltage	24 VDC
Battery Charging Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	(2)12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	WEG
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<3%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Permanent Magnet
Bearings	Single Sealed
Coupling	Direct, Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	3
Regulation Accuracy (Steady State)	±0.25%

OPERATING DATA

POWER RATINGS

	Standby		Prime	
Three-Phase 120/208 VAC @0.8pf	500 kW	Amps: 1735	450 kW	Amps: 1561
Three-Phase 120/240 VAC @0.8pf	500 kW	Amps: 1504	450 kW	Amps: 1353
Three-Phase 277/480 VAC @0.8pf	500 kW	Amps: 752	450 kW	Amps: 677
Three-Phase 347/600 VAC @0.8pf	500 kW	Amps: 601	450 kW	Amps: 541

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip

480VAC								208/240VAC							
Alternator	kW	10%	15%	20%	25%	30%	35%	Alternator	kW	10%	15%	20%	25%	30%	35%
Standard	500	457	686	914	1143	1371	1600	Standard	500	429	643	857	1071	1286	1500
Upsize 1	642	471	707	943	1179	1414	1650	Upsize 1	689	543	814	1086	1357	1629	1900
Upsize 2	832	757	1136	1514	1893	2271	2650	Upsize 2	723	571	857	1143	1429	1714	2000

FUEL CONSUMPTION RATES**

Natural Gas - ft³/hr (m³/hr)

Percent Load	Standby	Prime
25%	2320 (66)	2088 (59.4)
50%	3550 (101)	3195 (90.9)
75%	4780 (135)	4302 (121.5)
100%	6000 (170)	5400 (153)

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

COOLING†

		Standby	Prime
Air Flow (inlet air combustion and radiator)	ft ³ /min(m ³ /min)	31,400 (889)	31,400 (889)
Coolant Flow per Minute	gal/min (l/min)	264 (999)	264 (999)
Coolant System Capacity	gal (l)	25 (95)	25 (95)
Heat Rejection to Coolant	BTU/hr	1,380,000	1,242,000
Max. Operating Ambient Temperature (before derate)	°F (°C)	104 (40)	104 (40)
Maximum Radiator Backpressure	in H ₂ O	0.50	0.50

COMBUSTION AIR REQUIREMENT

	Standby	Prime
Flow at Rated Power cfm (m ³ /min)	938 (26)†	844.2 (23.4)†

ENGINE

		Standby	Prime
Rated Engine Speed	rpm	1800	1800
Horsepower at Rated kW**	hp	809	809
Piston Speed	ft/min	1893	1893
BMEP	psi	226	226

EXHAUST†

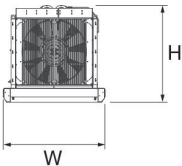
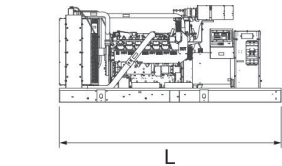
		Standby	Prime
Exhaust Flow (Rated Output)	cfm (m ³ /min)	3400 (96)	3400 (96)
Max. Backpressure (Post Silencer)	in Hg (Kpa)	0.75	0.75
Exhaust Temp (Rated Output - post silencer)	°F (°C)	1300 (704)	1300 (704)

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

† Calculated values

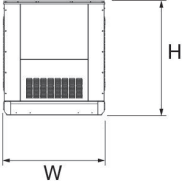
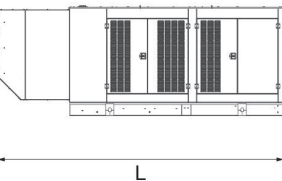
Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical sit conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.

DIMENSIONS AND WEIGHTS*



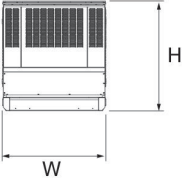
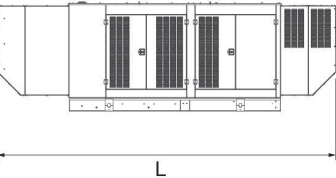
OPEN SET (Includes Exhaust Flex)

L x W x H in (mm)	154.4 (3923) x 71 (1803) x 67 (1702)
Weight lbs (kg)	9274 (4206)



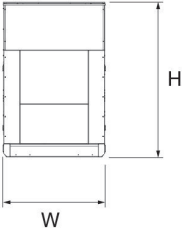
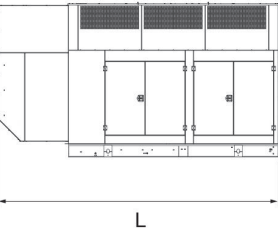
STANDARD ENCLOSURE

L x W x H in (mm)	207.4 (5268) x 71 (1803) x 80 (2032)
Weight lbs (kg)	Steel: 11463 (5199) Aluminum: 10376 (4706)



LEVEL 1 ACOUSTIC ENCLOSURE

L x W x H in (mm)	247.5 (6285) x 71 (1803) x 80 (2032)
Weight lbs (kg)	Steel: 12470 (5656) Aluminum: 10800 (4902)



LEVEL 2 ACOUSTIC ENCLOSURE

L x W x H in (mm)	207.4 (5268) x 71 (1803) x 114 (2899)
Weight lbs (kg)	Steel: 12808 (5809) Aluminum: 10954 (4968)

*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.