SG450 | 21.9L | 450 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency

Standby Power Rating
450 kW, 563 kVA, 60 Hz

Prime Power Rating*
405 kW, 506 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

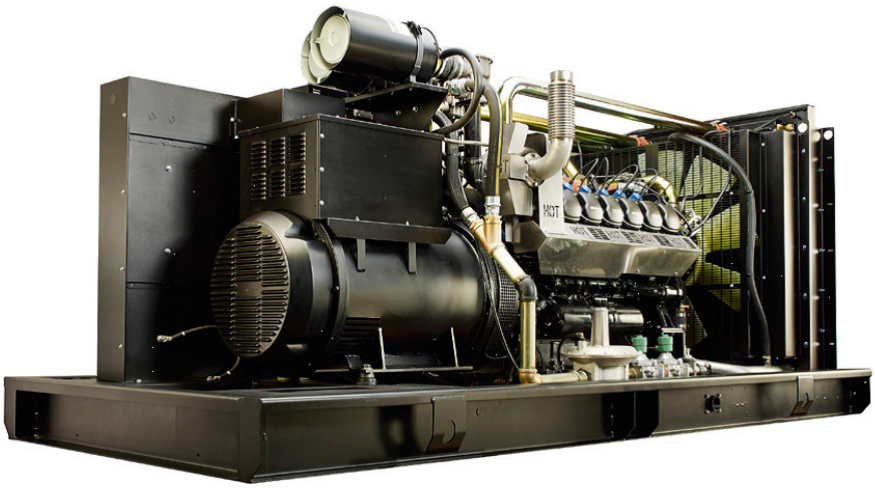

Image used for illustration purposes only

Codes and Standards

Generac products are designed to the following standards:

UL2200, UL508, UL489

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

IBC 2009, CBC 2010, IBC 2012,
ASCE 7-05, ASCE 7-10,
ICC-ES AC-156 (2012)

Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.perior quality by designing and manufacturing most of its generator components, including alternators, enclosures, control systems and communications software.

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

There's one place you'll find a Generac liquid-cooled spark ignited generator engine. In a Generac industrial generator. We engineer it, manufacture it and install it in our factory. Applying natural gas and LP-fueled engines to generators takes advanced engineering expertise to ensure reliability, durability and necessary performance. By using materials designed for dryer, hotter burning fuel, 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 we can give you the best lead times in the industry. Plus, Generac Industrial Power dealers provide all parts and service, without dealing with third-party suppliers. It all leads to a positive owner experience and higher confidence level. The Generac brand of spark-ignited engines gives you more options in commercial and industrial standby applications, as well as a number of performance benefits, including:

- Extended run time from utility fed natural gas
- Lower total ownership costs (capital, fuel & maintenance) compared to diesels
- Environmentally friendly exhaust emissions
- High power density & optimized rpm options

Generac is committed to ensuring our customers' service support continues after their generator purchase.

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INDUSTRIAL SPARK-IGNITED GENERATOR SET

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STANDARD OPTIONS

ENGINE SYSTEM

- Oil Drain Extension
- Heavy Duty Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil & Coolant
- Radiator Duct Adapter (Open Set Only)
- Critical Exhaust Silencer (Enclosed 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 Bearing
- 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 (Enclosed Units)
- Standard Factory Testing
- 2 Year Limited Warranty (Standby 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 (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
- 0.2msec High Speed Remote Trending
- Alarm Information Automatically Annunciated on the Display

Full System Status Display

- 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

Alarms and Warnings

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

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INDUSTRIAL SPARK-IGNITED GENERATOR SET

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CONFIGURABLE OPTIONS

ENGINE SYSTEM

- ○ Engine Coolant Heater with Ball Valves
- ○ Flexible Fuel Line - NPT Connection
- ○ Oil Heater
- ○ Air Filter Restriction Indicator
- ○ Stone Guard (Open Set Only)
- ○ Fan and Belt Guards

ELECTRICAL SYSTEM

- ○ 10A UL Battery Charger
- ○ Battery Warmer

ALTERNATOR SYSTEM

- ○ Anti-Condensation Heater
- ○ Tropical Coating

CIRCUIT BREAKER OPTIONS

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

GENERATOR SET

- ○ GenLink® Communications Software (English Only)
- ○ Extended Factory Testing (3-Phase Only)
- ○ 12 Position Load Center
- ○ Vapor Recovery Heater

ENCLOSURE

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

CONTROL SYSTEM

- ○ NFPA 110 Compliant 21-Light Remote Annunciator
- ○ Remote Relay Assembly (8 or 16)
- ○ Oil Temperature Sender 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
- ○ 120V GFCI and 240V Outlet
- ○ 100 DB Alarm Horn

WARRANTY

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

ENGINEERED OPTIONS

ENGINE SYSTEM

- ○ Fluid Containment Pan

ALTERNATOR SYSTEM

- ○ 3rd Breaker System

CONTROL SYSTEM

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

GENERATOR SET

- ○ Special Testing
- ○ Battery Box

GENERATOR SET

- ○ Door Alarm Switch

RATING DEFINITIONS

Standby - See Bulletin 0187500SSB

Prime - See Bulletin 0187510SSB

* Consult factory for availability

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INDUSTRIAL SPARK-IGNITED GENERATOR SET

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APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Generac
Cylinder #	12
Type	V-12
Displacement - L (Cu In)	21.9 (1336.42)
Bore - mm (in)	128 (5.03)
Stroke - mm (in)	142 (5.6)
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	Altronic CD200D
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)	30 (31.7)

Cooling System

Cooling System Type	Pressurized Closed Recovery
Water Pump Flow - gal/min (l/min)	211 (800)
Fan Type	Pusher
Fan Speed (rpm)	1404
Fan Diameter - mm (in)	1117.6 (40)

Fuel System

Fuel Type	Natural Gas
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard (Dual)
Operating Fuel Pressure (Standard)	11" - 14" H_2O
Operating Fuel Pressure (Optional)	7" - 11" H_2O

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
Poles	4
Field Type	Revolving
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, Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

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OPERATING DATA

POWER RATINGS

		Standby		Prime
Three-Phase 120/208 VAC @0.8pf	450 kW	Amps: 1561	405 kW	Amps: 1405
Three-Phase 120/240 VAC @0.8pf	450 kW	Amps: 1353	405 kW	Amps: 1218
Three-Phase 277/480 VAC @0.8pf	450 kW	Amps: 677	405 kW	Amps: 609
Three-Phase 346/600 VAC @0.8pf	450 kW	Amps: 541	405 kW	Amps: 487

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	1143	1371	1600	Standard	500	429	643	857	1071	1286	1500

FUEL CONSUMPTION RATES*

Natural Gas – ft^3/hr (m^3/hr)

Percent Load	Standby	Prime
25%	2088 (59)	1879 (53)
50%	3200 (91)	2880 (82)
75%	4310 (122)	3879 (110)
100%	5420 (153)	4878 (138)

* 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)	25,100 (711)	25,100 (711)
Coolant Flow per Minute	gal/min (l/min)	211 (800)	211 (800)
Coolant System Capacity	gal (l)	23 (87)	23 (87)
Heat Rejection to Coolant	BTU/hr	1,240,000	1,116,000
Maximum Radiator Backpressure	in H_2O	0.5	0.5

COMBUSTION AIR REQUIREMENTS

	Standby	Prime
Flow at Rated Power cfm (m^3/min)	844 (23.6)	760 (21.2)

ENGINE

		Standby	Prime
Rated Engine Speed	rpm	1800	1800
Horsepower at Rated kW**	hp	718	646
Piston Speed	ft/min	1680	1680
BMEP	psi	236	212

EXHAUST

		Standby	Prime
Exhaust Flow (Rated Output)	cfm (m^3/min)	3060 (87)	2754 (78)
Maximum Exhaust Backpressure	inHg (kPa)	0.75 (2.5)	0.75 (2.5)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	1326 (719)	1193 (647)

** 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.

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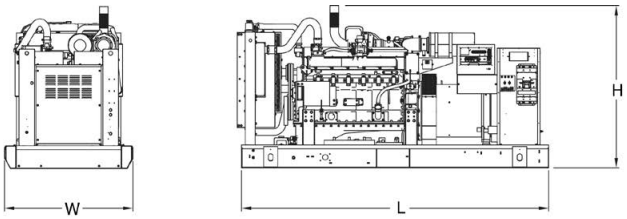
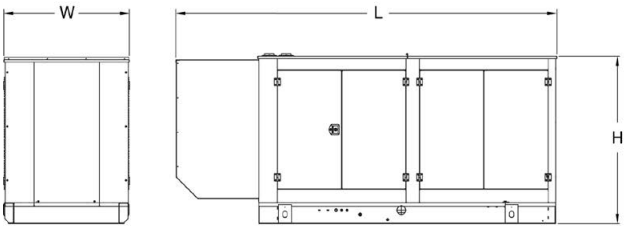
DIMENSIONS AND WEIGHTS*



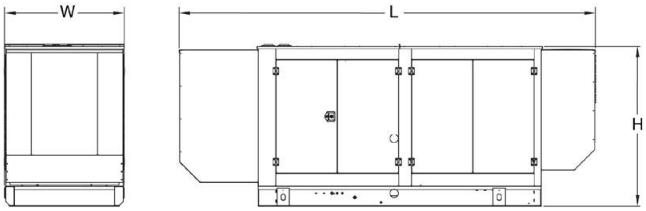
OPEN SET (Includes Exhaust Flex)

L x W x H in (mm)	154.4 (3923) x 71 (1803) x 67 (1702)
Weight lbs (kg)	8274 (3753)



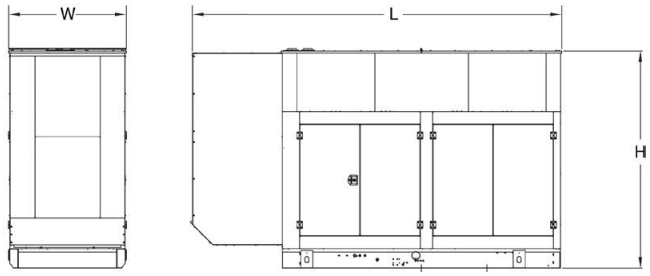
STANDARD ENCLOSURE

L x W x H in (mm)	207.4 (5268) x 71 (1803) x 80 (2032)
Weight lbs (kg)	Steel: 10463 (4746) Aluminum: 9376 (4253)



LEVEL 1 ACOUSTIC ENCLOSURE

L x W x H in (mm)	247.5 (6285) x 71 (1803) x 80 (2032)
Weight lbs (kg)	Steel: 11470 (5203) Aluminum: 9808 (4449)



LEVEL 2 ACOUSTIC ENCLOSURE

L x W x H in (mm)	207.4 (5268) x 71 (1803) x 114 (2899)
Weight lbs (kg)	Steel: 11808 (5356) Aluminum: 9954 (4515)

* 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.

SPEC SHEET

Generac Power Systems, Inc. | P.O.Box 8 | Waukesha, WI 53189
P: (262) 544-4811

Part No. 10000012700
Rev. B 03/16/17