

**DEMAND RESPONSE READY**

**Standby Power Rating**

400 kW, 500 kVA, 60 Hz

**Demand Response Rating**

400 kW, 500 kVA, 60 Hz

**Prime Power Rating\***

360 kW, 450 kVA, 60 Hz

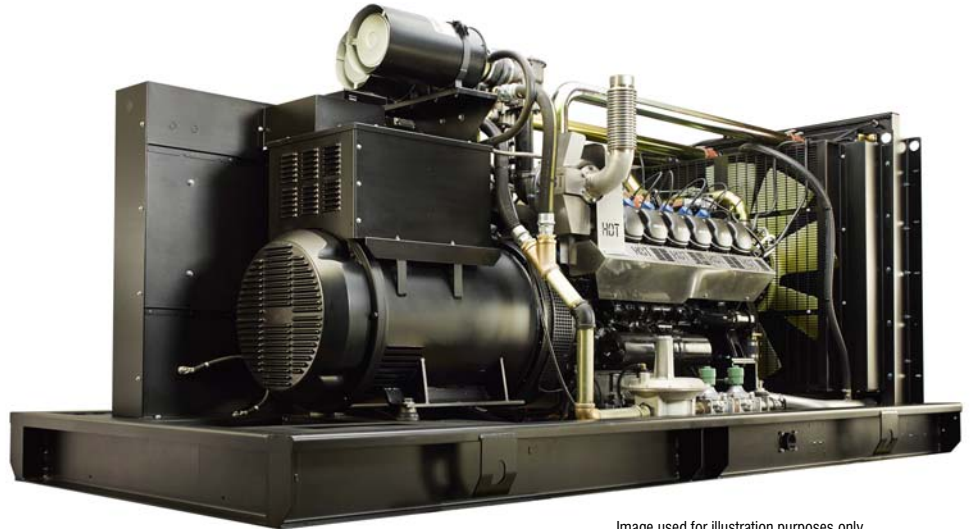


Image used for illustration purposes only



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

**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**

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 Extension
- Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Critical Exhaust Silencer

**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
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited 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 (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)

EPA Certified Stationary Emergency

## 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

### ALTERNATOR SYSTEM

- Alternator Upsizing
- 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

- Demand Response Rating
- 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
- Door Alarm Switch

### 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 (Standby Gensets Only)

- 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

### ALTERNATOR SYSTEM

- 3rd Breaker System

### CONTROL SYSTEM

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

### GENERATOR SET

- Special Testing
- Battery Box

\* Consult factory for availability

# SG400 | 21.9L | 400 kW

## INDUSTRIAL SPARK-IGNITED GENERATOR SET

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### APPLICATION AND ENGINEERING DATA

**DEMAND RESPONSE READY**

#### ENGINE SPECIFICATIONS

##### General

Make	Generac
Cylinder #	12
Type	V12
Displacement - L (Cu In)	21.9 (1,336.42)
Bore - mm (in)	128 (5.03)
Stroke - mm (in)	142 (5.6)
Compression Ratio	10.0:1
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)	30 (31.7)

##### Cooling System

Cooling System Type	Pressurized Closed Recovery
Fan Type	Pusher
Fan Speed (rpm)	1,404
Fan Diameter - mm (in)	1,117.6 (44)

##### Fuel System

Fuel Type	Natural Gas
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard (Dual)
Operating Fuel Pressure in H <sub>2</sub> O	11 - 15
Optional Operating Fuel Pressure in H <sub>2</sub> O	7 - 11

##### 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	Generac 520 mm
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 Excitation
Bearings	Sealed Ball
Coupling	Direct Via Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

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**OPERATING DATA**

**DEMAND RESPONSE READY**

**POWER RATINGS**

	Standby/Demand Response	
Three-Phase 120/208 VAC @0.8pf	400 kW	Amps: 1,389
Three-Phase 120/240 VAC @0.8pf	400 kW	Amps: 1,204
Three-Phase 277/480 VAC @0.8pf	400 kW	Amps: 602
Three-Phase 346/600 VAC @0.8pf	400 kW	Amps: 481

**STARTING CAPABILITIES (sKVA)**

sKVA vs. Voltage Dip

277/480 VAC								208/240 VAC							
Alternator	kW	10%	15%	20%	25%	30%	35%	Alternator	kW	10%	15%	20%	25%	30%	35%
Standard	400	387	581	775	968	1,162	1,356	Standard	400	345	570	835	1,100	1,450	1,710
Upsize 1	555	457	686	914	1,143	1,371	1,600	Upsize 1	559	429	643	857	1,071	1,286	1,500
Upsize 2	642	471	707	943	1,179	1,414	1,650	Upsize 2	-	-	-	-	-	-	-

**FUEL CONSUMPTION RATES\***

Natural Gas – ft<sup>3</sup>/hr (m<sup>3</sup>/hr)

Percent Load	Standby
25%	1,856 (52.6)
50%	2,845 (80.5)
75%	3,833 (108.5)
100%	4,823 (136.6)

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

**COOLING**

		Standby
Air Flow (Inlet Air Combustion and Radiator)	ft <sup>3</sup> /min (m <sup>3</sup> /min)	25,100 (711)
Coolant Flow per Minute	gal/min (l/min)	211 (800)
Coolant System Capacity	gal (l)	23 (87)
Heat Rejection to Coolant	BTU/hr	1,102,122
Max. Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Operating Ambient Temperature (Before Derate)	See Bulletin No. 0199270SSD	
Maximum Radiator Backpressure	in H <sub>2</sub> O (kPa)	0.5 (0.12)

**COMBUSTION AIR REQUIREMENTS**

	Standby
Flow at Rated Power cfm (m <sup>3</sup> /min)	750 (21)

**ENGINE**

**EXHAUST**

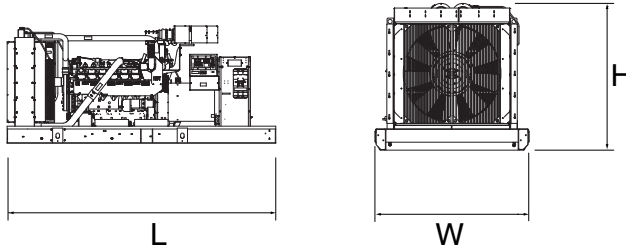
Standby			Standby		
Rated Engine Speed	rpm	1,800	Exhaust Flow (Rated Output)	cfm (m <sup>3</sup> /min)	2,720 (77)
Horsepower at Rated kW**	hp	636	Maximum Exhaust Backpressure	inHg (kPa)	0.75 (2.54)
Piston Speed	ft/min	1,680	Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	1,350 (732)
BMEP	psi	209.1			

\*\* 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

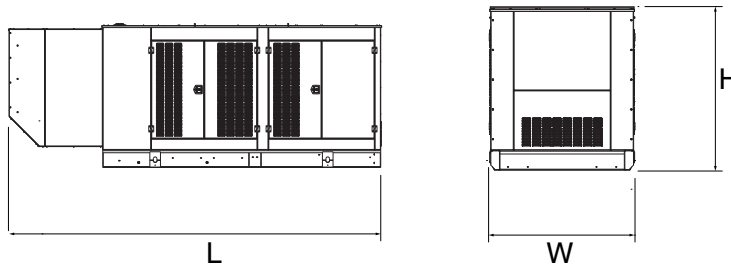
**DIMENSIONS AND WEIGHTS\***

**DEMAND RESPONSE READY**



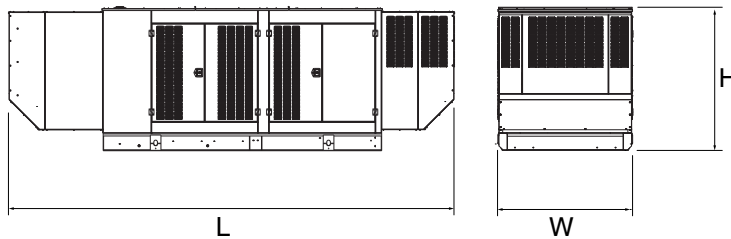
**OPEN SET (Includes Exhaust Flex)**

L x W x H in (mm)	154.4 (3,923) x 71 (1,803) x 67 (1,702)
Weight lbs (kg)	8,429 (3,823)



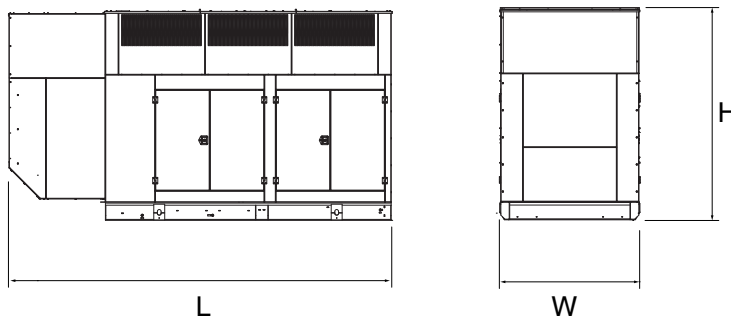
**STANDARD ENCLOSURE**

L x W x H in (mm)	207.4 (5,268) x 71 (1,803) x 80 (2,032)
Weight lbs (kg)	Steel: 10,428 (4,730) Aluminum: 9,298 (4,171)



**LEVEL 1 ACOUSTIC ENCLOSURE**

L x W x H in (mm)	247.5 (6,285) x 71 (1,803) x 80 (2,032)
Weight lbs (kg)	Steel: 11,211 (5,085) Aluminum: 9,720 (4,409)



**LEVEL 2 ACOUSTIC ENCLOSURE**

L x W x H in (mm)	207.4 (5,268) x 71 (1,803) x 114 (2,899)
Weight lbs (kg)	Steel: 11,759 (5,333) Aluminum: 9,951 (4,513)

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

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

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.