

**SG045 | 4.5 L | 45 kW**

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary

**GENERAC<sup>®</sup> INDUSTRIAL ENERGY**

### Standby Power Rating

45 kW, 56 kVA, 60 Hz



\*Assembled in the USA using domestic and foreign parts



Image used for illustration purposes only

## Codes and Standards

Generac products are designed to the following standards:



UL2200, UL1236, UL489



CSA C22.2



BS5514 and DIN 6271



SAE J1349



NFPA 37, 70, 99, 110



NEC700, 701, 702, 708



NEMA ICS10, MG1, 250, ICS6, AB1



ANSI C62.41



IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-16, ICC-ES

## Powering a Smarter World

For over 65 years, Generac has been at the forefront of power generation, pioneering innovative solutions and unparalleled manufacturing excellence. At the heart of our reputation for superior quality lies our commitment to meticulously designing and manufacturing key components of our generators—ranging from alternators and enclosures to base tanks, control systems, and cutting-edge communications software.

Generac's gensets stand out for their unparalleled versatility and reliability. Engineered to offer a wide range of options and configurations, they are tailored to meet the unique demands of virtually any application, seamlessly adapting to its complexity. Our commitment to reliability drives us to globally source only the most dependable engines, selected through stringent criteria for optimal performance under the toughest industrial conditions.

Beyond the sale, Generac's dedication to our customers extends to comprehensive service support, for peace of mind and reliability long after your purchase. Our commitment is to not only provide state-of-the-art power solutions but also enduring success and satisfaction of our customers through ongoing support and service excellence.

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## STANDARD FEATURES

### ENGINE SYSTEM

- Oil Drain Extension
- Heavy Duty Air Cleaner
- Level 1 Fan and Belt Guards
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Critical Silencer
- Oil Temperature Sender with Alarm
- Air Filter Restriction Sensor

### FUEL SYSTEM

- NPT Fuel Connection on Frame
- Primary and Secondary Fuel Shutoff
- Fuel Inlet Pressure Sensor

### COOLING SYSTEM

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

## CONTROL SYSTEM

### DSE G8601 CONTROLLER



### KEY FEATURES

- Advanced PLC Functionality
- Multi-Purpose PIDs
- Virtual Inputs
- On-Screen Mimic (SLDs)
- Multiple Application Support
- Multi-Level Pin Protected Front Panel Editor
- Integral LCD Display Heater
- Enhanced High-Resolution 240 x 128 Pixel Display
- Single Generator Control
- Latest ECU/ECM Support
- Touch Screen Panel PC Support
- Zero Sequence Voltage Protection
- Integral Gasket (IP65 protection)

### GOVERNOR FUNCTIONALITY

- Speed Control through ECM Integration
- Soft Start Ramping (Multiple Steps)

### QUALIFICATION TESTING

- Life Test in Environmental Chamber
- Temperature Rating -22 °F to +122 °F (-30 °C to +50 °C)
- Vibration Tested and Protected

### 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
- Brushless Excitation
- Sealed Bearing
- 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

### ENCLOSURE (If Selected)

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

### STANDARD PROTECTIONS

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

### CONTROL PANEL

- Auto/Off/Manual
- Indication Through Display Screen
- Audible Alarm and Silence
- Not in Auto Indication

### VOLTAGE REGULATION

- Digital Control
- Three-Phase Sensing
- Negative Power Limit
- Loss of Sensing Protection
- Fault Protection (I<sup>2</sup>T Function)
- High Voltage Limit
- Low Voltage Limit
- Maximum Power Limit
- ±0.5% Voltage Regulation

### CONNECTIONS (ACTUAL I/O MAY VARY DUE TO CONFIGURATION)

- 4 Analog Inputs
- 12 Digital Inputs
- 9 Active Low Digital Outputs

### CUSTOMER PORTS

- Ethernet
- 2 RS-485
- 2 USB
- CANBus

### CODES AND STANDARDS

- CE
- NFPA 110 Capable

### MORE FEATURES

- Built-in Governor
- Digital AVR Support
- Multiple Language Support
- Three-Phase Generator Sensing and Protection
- Three-Phase Bus Sensing
- Generator Current, Protection and Power Monitoring
- Configurable Timers
- Integrated SNMP
- Data Logging
- PC Configuration
- DSENet® (Expansion Support)
- Flexible I/O (Inputs/Outputs)
- Automatic and Front Panel Breaker Control
- Power-Save Mode

## CONFIGURABLE OPTIONS

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### ENGINE SYSTEM

- Fluid Containment Pan
- Engine Coolant Heater with Shutoff Valves
- Oil Heater
- Radiator Duct Adapter (Open Set Only)
- Crankcase Ventilation Heater (Recommended at Operating Temperatures of 0° F)

### FUEL SYSTEM

- NPT Flexible Fuel Line
- 2-Stage Air Cleaner

### ELECTRICAL SYSTEM

- 10A UL Battery Charger
- Battery Warmer

### ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical Coating

### CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2<sup>nd</sup> Main Line Circuit Breaker
- 3<sup>rd</sup> Main Line Circuit Breaker
- Shunt Trip and Single Alarm
- Electronic Trip Breakers

### GENERATOR SET

- Extended Factory Testing
- 8 Position Load Center
- Pad Vibration Isolators
- Spring Vibration Isolators

### ENCLOSURE

- Weather Protected Enclosure
- Level 1 Sound Attenuated
- Level 2 Sound Attenuated
- Level 2 Sound Attenuated with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- Enclosure LED Lighting Kit
- Enclosure Heaters (with Motorized Dampers Only)
- Door Open Alarm Horn

### CONTROL SYSTEM

- NFPA 110 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- 10A Engine Run Relay
- Ground Fault Annunciator
- 120V GFCI Outlets
- 100 dB Alarm Horn
- Damper Alarm Contacts (with Motorized Dampers Only)
- Spare Inputs/Outputs

### WARRANTY (STANDBY GENSETS ONLY)

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

## ENGINEERED OPTIONS

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### CONTROL SYSTEM

- Battery Disconnect Switch

### GENERATOR SET

- Special Testing
- Battery Box

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**GENERAC<sup>®</sup> INDUSTRIAL ENERGY****APPLICATION AND ENGINEERING DATA****ENGINE SPECIFICATIONS**

## General

Make	Generac
Cylinder #	4
Type	In-Line
Displacement - in <sup>3</sup> (L)	270.4 (4.43)
Bore - in (mm)	4.5 (114.3)
Stroke - in (mm)	4.25 (107.95)
Compression Ratio	9.94:1
Intake Air Method	Naturally Aspirated
Number of Main Bearings	5
Connecting Rods	Forged Steel, Fractured Split, Bushingless
Cylinder Head	Cast Iron
Cylinder Liners	Cast Iron
Ignition	Coil Near Plug Solid State Inductive
Piston Type	Cast Aluminum Flat Top
Crankshaft Type	Forged Steel
Lifter Type	Hydraulic
Intake Valve Material	Stainless Steel
Exhaust Valve Material	Stainless Steel
Hardened Valve Seats	High Steel Iron Alloy

## Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	± 0.25

## Lubrication System

Oil Pump	Gear Driven
Oil Filter Type	Full-Flow Spin-On Cartridge
Crankcase Capacity: qt (L)	21 (20)

## Cooling System

Cooling System Type	Pressurized Closed
Fan Type	Pusher
Fan Speed (rpm)	2,100
Fan Diameter - in (mm)	20 (508)

## Fuel System

Fuel Type	Natural Gas, LP Vapor
Fuel Control	Electronic
Fuel Shutoff	Dual
Operating Fuel Pressure (NG) - in H <sub>2</sub> O (kPa)	5 - 14 (1.2 - 3.5)
Operating Fuel Pressure (LP) - in H <sub>2</sub> O (kPa)	7 - 14 (1.7 - 3.5)

\*When designing the external fuel system, assume a 20% safety factor to the upper and lower limit of the specified fuel pressure range to account for site variation and measurement at the generator test port. Refer to Generac Document 10000046207, latest rev., for proper gas supply design guidelines, or contact factory for details.

## Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative (-)

**ALTERNATOR SPECIFICATIONS**

Standard Model	K0045124Y21
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion (THD)	<5% (3-Phase)
Telephone Interference Factor (TIF)	<50

Standard Excitation	Synchronous Brushless
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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**GENERAC<sup>®</sup> INDUSTRIAL ENERGY****OPERATING DATA****POWER RATINGS**

		Standby
Single-Phase 120/240 VAC @1.0pf	45 kW/45 kVA	Amps: 188
Three-Phase 120/208 VAC @0.8pf	45 kW/56 kVA	Amps: 156
Three-Phase 120/240 VAC @0.8pf	45 kW/56 kVA	Amps: 135
Three-Phase 277/480 VAC @0.8pf	45 kW/56 kVA	Amps: 68

**STARTING CAPABILITIES (skVA)**

skVA vs. Voltage Dip			
277/480 VAC	30%	208/240 VAC	30%
K0050124Y21	98	K0050124Y21	75
K0060124Y21	124	K0060124Y21	95

**FUEL CONSUMPTION RATES\***

Natural Gas – scfh (m <sup>3</sup> /hr)		LP Vapor – scfh (m <sup>3</sup> /hr)	
Percent Load	Standby	Percent Load	Standby
25%	195 (5.5)	25%	102 (2.9)
50%	322 (9.1)	50%	147 (4.2)
75%	427 (12.1)	75%	184 (5.2)
100%	554 (15.7)	100%	228 (6.5)

\*1.5X maximum site rated fuel consumption should be used for gas supply design practices. Refer to Generac 10000046207, latest rev., for more information or contact factory for details.

**COOLING**

		Standby
Air Flow (Fan Air Flow Across Radiator) - Open Set	cfm (m <sup>3</sup> /min)	3,511 (99.4)
Coolant Flow	gpm (Lpm)	37.7 (142.7)
Coolant System Capacity	gal (L)	3 (11.4)
Maximum Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Operating Ambient Temperature (Before Derate)	See Bulletin No. 0199270SSD	
Maximum Additional 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)	90.3 (2.6)

**ENGINE**

		Standby
Rated Engine Speed	RPM	1,800
Horsepower at Rated kW**	hp	69
Piston Speed	ft/min (m/min)	1,275 (389)
BMEP	psi (kPa)	113 (778)

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

**EXHAUST**

	Standby
Exhaust Flow (Rated Output)	scfm (m <sup>3</sup> /min)
Maximum Allowable Back Pressure (Post Silencer)	in g (kPa)
Exhaust Temperature (Rated Output)	°F (°C)

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 BS5514 and DIN6271 standards.

Standby - See Bulletin 0187500SSB

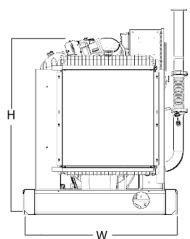
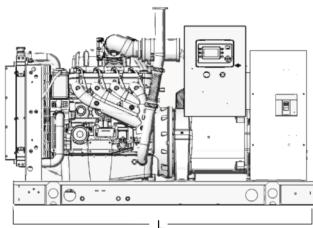
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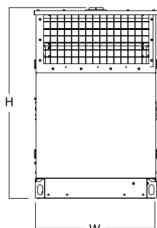
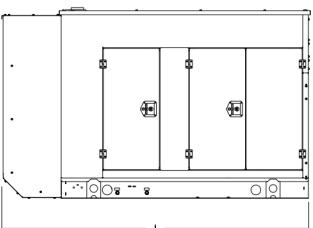
**GENERAC<sup>®</sup> INDUSTRIAL ENERGY**

## DIMENSIONS AND WEIGHTS\*



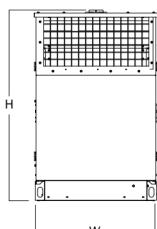
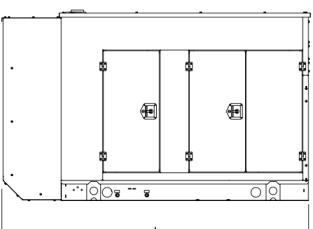
### OPEN SET

L x W x H - in (mm)	78.0 (1,982) x 37.3 (946) x 44.4 (1,128)
Weight - lbs (kg)	1,675 - 1,748 (760 - 793)



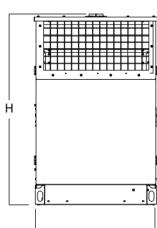
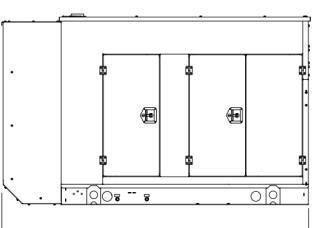
### WEATHER PROTECTED ENCLOSURE

L x W x H - in (mm)	94.8 (2,408) x 38.0 (965) x 57.5 (1,461)
Weight - lbs (kg)	Steel: 2,160 - 2,233 (980 - 1,013) Aluminum: 1,894 - 1,965 (859 - 891)



### LEVEL 1 SOUND ATTENUATED ENCLOSURE

L x W x H - in (mm)	94.8 (2,408) x 38.0 (965) x 57.5 (1,461)
Weight - lbs (kg)	Steel: 2,258 - 2,329 (1,024 - 1,056) Aluminum: 1,987 - 2,061 (901 - 935)



### LEVEL 2 SOUND ATTENUATED ENCLOSURE

L x W x H - in (mm)	94.8 (2,408) x 38.0 (965) x 57.5 (1,461)
Weight - lbs (kg)	Steel: 2,341 - 2,414 (1,062 - 1,095) Aluminum: 2,071 - 2,144 (939 - 972)

\* 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.