

**DEMAND RESPONSE READY**

**Standby Power Rating**

450 kW, 562 kVA, 60 Hz

**Demand Response Rating**

450 kW, 562 kVA, 60 Hz

**Prime Power Rating**

405 kW, 506 kVA, 60 Hz

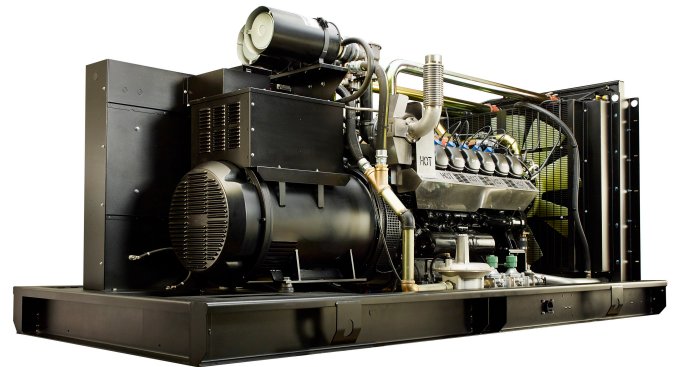
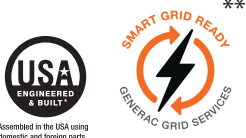


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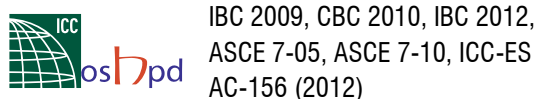
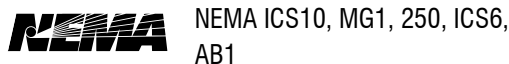
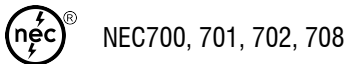
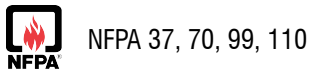
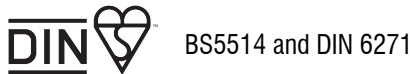
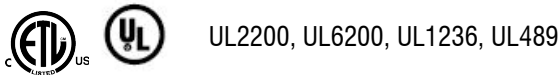


\*Assembled in the USA using domestic and foreign parts

\*\*Offered on units sold in the U.S. and Canada

**Codes and Standards**

**Not all codes and standards apply to all configurations. Contact factory for details.**



**Powering Ahead**

Generac provides 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 they can be found 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 for 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 owners 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 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
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Critical Silencer

**FUEL SYSTEM**

- NPT Fuel Connection on Frame
- 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

**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

**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 and Demand Response Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)
- Silencer Mounted in the Discharge Hood (Enclosed Units Only)

**ALTERNATOR SYSTEM**

- UL2200 GENprotect™
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Permanent Magnet Excitation
- Sealed Bearing
- Amortisseur Winding
- Full Load Capacity Alternator

**CONTROL SYSTEM**



**Power Zone® Pro Sync Controller**

**Program Functions**

- NFPA 110 Level 1 Compliant
- Engine Protective Functions
- Alternator Protective Functions
- Digital Engine Governor Control
- Digital Voltage Regulator
- Multiple Programmable Inputs and Outputs
- Remote Display Capability
- Remote Communication via Modbus® RTU, Modbus TCP/IP, and Ethernet 10/100
- Alarm and Event Logging with Real Time Stamping
- Expandable Analog and Digital Inputs and Outputs

- Remote Wireless Software Update Capable
- BMS and Remote Telemetry
- Built-In Programmable Logic Eliminates the Need for External Controllers Under Most Conditions
- Ethernet Based Communications Between Generators
- Programmable I/O Channel Properties
- Built-In Diagnostics
- Arc Flash Maintenance Mode (When Correctly Equipped)

**Alarms and Warnings**

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

**7 Inch Color Touch Screen Display**

- Resistive Color Touch Screen
- Sunlight Readable (1400 NITS)
- Easily Identifiable Icons
- Multi-Lingual
- On Screen Editable Parameters
- Key Function Monitoring
- Three Phase Voltage, Amperage, kW, kVA, and kVAR
- Selectable Line to Line or Line to Neutral Measurements
- Frequency
- Engine Speed
- Engine Coolant Temperature
- Engine Oil Pressure
- Engine Oil Temperature
- Battery Voltage
- Hourmeter
- Warning and Alarm Indication
- Diagnostics
- Maintenance Events/Information

**PARALLELING CONTROLS**

- Auto-Synchronization Process
- Isochronous Load Sharing
- Reverse Power Protection

- Maximum Power Protection
- Electrically Operated, Mechanically Held Paralleling Switch
- Sync Check System
- Independent On-Board Paralleling

- Optional Programmable Logic Full Auto Back-Up Controls (PLS)
- Shunt Trip and Auxiliary Contact

# MG450 | 21.9L | 450 kW

## INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency and Non-Emergency

### CONFIGURABLE OPTIONS

### DEMAND RESPONSE READY

#### ENGINE SYSTEM

- Baseframe Cover/Rodent Guard
- Oil Heater
- Air Filter Restriction Indicator
- Radiator Stone Guard (Open Set Only)
- Level 1 Fan and Belt Guards (Enclosed Units Only)

#### FUEL SYSTEM

- NPT Flexible Fuel Line

#### ELECTRICAL SYSTEM

- 10A UL Listed Battery Charger
- Battery Warmer

#### ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical Coating

#### CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- Electronic Trip Breakers

#### GENERATOR SET

- Demand Response Rating
- Extended Factory Testing
- 12 Position Load Center

#### ENCLOSURE

- Weather Protected Enclosure
- Level 1 Sound Attenuated
- Level 2 Sound Attenuated
- Level 2 Sound Attenuated with Motorized Dampers
- Level 3 Sound Attenuated (Steel Only)
- Steel Enclosure
- Aluminum Enclosure
- Damper Alarm (with Motorized Dampers Only)
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC/DC Enclosure Lighting Kit
- Enclosure Heaters (with Motorized Dampers Only)
- Door Open Alarm Switch

#### CONTROL SYSTEM

- 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)
- 10A Engine Run Relay
- Ground Fault Annunciator
- 100 dB Alarm
- 120V GFCI and 240V Outlets

#### 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

#### ENGINE SYSTEM

- Coolant Heater Ball Valves
- Fluid Containment Pans

#### CONTROL SYSTEM

- Battery Disconnect Switch

#### GENERATOR SET

- Special Testing
- Battery Box

**APPLICATION AND ENGINEERING DATA**

**DEMAND RESPONSE READY**

**ENGINE SPECIFICATIONS**

**General**

Make	Generac
Cylinder #	12
Type	V12
Displacement - in <sup>3</sup> (L)	1,336.4 (21.9)
Bore: in (mm)	5.03 (128)
Stroke: in (mm)	5.6 (142)
Compression Ratio	10.0:1
Intake Air Method	Turbocharged/Aftercooled
Number of Main Bearings	7
Connecting Rods	Steel Alloy
Cylinder Head	Cast Iron
Cylinder Liners	Cast Steel Alloy
Ignition	Electronic
Piston Type	Cast Aluminum Alloy
Crankshaft Type	Steel
Lifter Type	Solid
Intake Valve Material	High Temperature Steel Alloy
Exhaust Valve Material	High Temperature Steel Alloy
Hardened Valve Seats	Proprietary Alloy

**Engine Governing**

Governor	Electronic
Frequency Regulation (Steady State)	±0.25%

**Lubrication System**

Oil Pump Type	Gear
Oil Filter Type	Full-Flow Spin-On Cartridge
Engine Oil Capacity with Filter: qt (L)	31.7 (30)

**Cooling System**

Cooling System Type	Pressurized Closed Recovery
Fan Type	Pusher
Fan Speed (RPM)	1,404
Fan Diameter - in (mm)	44 (1,118)

**Fuel System**

Fuel type	Natural Gas
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shutoff Solenoid	Standard
Operating Fuel Pressure - in H <sub>2</sub> O (kPa)	11 - 14 (2.7 - 3.5)
Optional Operating Fuel Pressure - in H <sub>2</sub> O (kPa)	7 - 11 (1.7 - 2.7)

\*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. (Contact Factory for Details)

**Engine Electrical System**

System Voltage	24 VDC
Battery Charger Alternator	57 A
Battery Size	See Battery Index 0161970SBY
Battery Voltage	(2) -12 VDC
Ground Polarity	Negative

**ALTERNATOR SPECIFICATIONS**

Standard Model	K0500124Y23
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<52

Standard Excitation	Permanent Magnet
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%

EPA Certified Stationary Emergency and Non-Emergency

**OPERATING DATA**

**DEMAND RESPONSE READY**

**POWER RATINGS**

	Standby/Demand Response		Prime	
Three-Phase 277/480 VAC @0.8pf	450 kW/563 kVA	Amps: 677	405 kW/506 kVA	Amps: 610
Three-Phase 346/600 VAC @0.8pf	450 kW/563 kVA	Amps: 542	405 kW/506 kVA	Amps: 488

**MOTOR STARTING CAPABILITIES (skVA)**

skVA vs. Voltage Dip

277/480 VAC	30%
K0500124Y23	1,020
K0600124Y23	1,560

**FUEL CONSUMPTION RATES\***

Natural Gas – scfh (m<sup>3</sup>/hr)

Percent Load	Standby/Demand Response	Prime
25%	1,800 (51.0)	1,740 (49.3)
50%	2,880 (81.6)	2,640 (74.8)
75%	3,960 (112.1)	3,600 (101.9)
100%	5,040 (142.7)	4,620 (130.8)

\*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/Demand Response	Prime
Air Flow (Fan Air Flow Across Radiator)	cfm (m <sup>3</sup> /min)	28,004 (793)	28,004 (793)
Coolant Flow	gpm (Lpm)	211 (799)	211 (799)
Coolant System Capacity	gal (L)	15.5 (58.7)	15.5 (58.7)
Maximum Operating Ambient Temperature	°F (°C)	122 (50)	122 (50)
Maximum Operating Ambient Temperature (Before Derate)		See Bulletin No. 0199270SSD	See Bulletin No. 0199270SSD
Maximum Additional Radiator Backpressure	in H <sub>2</sub> O (kPa)	0.5 (0.12)	0.5 (0.12)

**COMBUSTION AIR REQUIREMENTS**

	Standby/Demand Response	Prime
Flow at rated power cfm - (m <sup>3</sup> /min)	801 (22.7)	733 (20.8)

**ENGINE**

		Standby/Demand Response	Prime
Rated Engine Speed	RPM	1,800	1,800
Horsepower at Rated kW**	hp	656	590
Piston Speed	ft/min (m/min)	1,680 (512)	1,680 (512)
BMEP	psi (kPa)	216 (1,489)	194 (1,340)

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

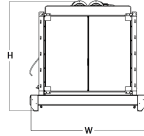
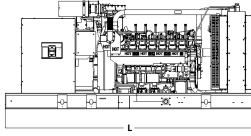
**EXHAUST**

		Standby/Demand Response	Prime
Exhaust Flow (Rated Output)	cfm (m <sup>3</sup> /min)	2,685 (76.0)	2,385 (67.5)
Maximum Allowable Backpressure (Post Silencer)	inHG (kPa)	0.75 (2.54)	0.75 (2.54)
Exhaust Temperature (Rated Output)	°F (°C)	1,350 (732)	1,297 (703)

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 • Demand Response - See Bulletin 10000018250 • Prime - See Bulletin 0187510SSB

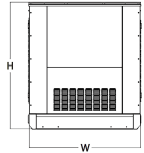
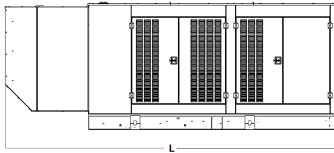
**DIMENSIONS AND WEIGHTS\***

**DEMAND RESPONSE READY**



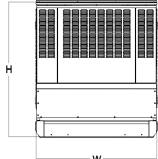
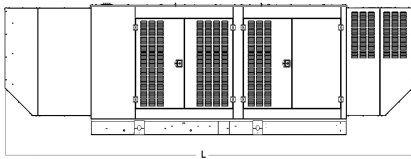
**OPEN SET**

L x W x H - in (mm) 154.4 (3,922) x 71.0 (1,803) x 66.5 (1,689)  
 Weight - lbs (kg) 8,257 - 8,650 (3,745 - 3,923)



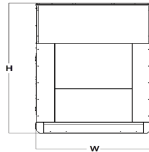
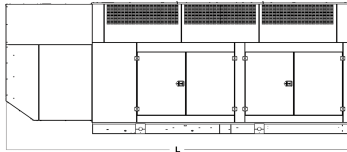
**WEATHER PROTECTED ENCLOSURE**

L x W x H - in (mm) 207.4 (5,268) x 71.0 (1,803) x 80.0 (2,032)  
 Weight - lbs (kg) Steel: 10,055 - 10,840 (4,560 - 4,916)  
 Aluminum: 9,357 - 9,753 (4,244 - 4,423)



**LEVEL 1 SOUND ATTENUATED ENCLOSURE**

L x W x H - in (mm) 247.5 (6,287) x 71.0 (1,803) x 80.0 (2,032)  
 Weight - lbs (kg) Steel: 11,155 - 11,847 (5,059 - 5,373)  
 Aluminum: 9,788 - 10,185 (4,439 - 4,619)



**LEVEL 2 SOUND ATTENUATED ENCLOSURE**

L x W x H - in (mm) 207.4 (5,268) x 71.0 (1,803) x 114.1 (2,898)  
 Weight - lbs (kg) Steel: 10,836 - 12,185 (4,914 - 5,526)  
 Aluminum: 8,963 - 10,330 (4,065 - 4,685)

**LEVEL 3 SOUND ATTENUATED ENCLOSURE**

L x W x H - in (mm) 232.0 (5,893) x 76.9 (1,953) x 129.2 (3,282)  
 Weight - lbs (kg) 13,224 - 14,285 (5,997 - 6,478)

\* 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