Standby Power Rating
450 kW, 562 kVA, 60 Hz

Demand Response Rating
450 kW, 562 kVA, 60 Hz

Prime Power Rating
360 kW, 450 kVA, 60 Hz

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

UL2200, UL6200, UL1236, UL489
CSA C22.2, B149
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

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.
M450 | 21.9L | 450 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET
EPA Certified Stationary Emergency and Non-Emergency

STANDARD FEATURES

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

ALTERNATOR SYSTEM
- UL2200 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

CONTROL SYSTEM
- Remote Wireless Software Update Capable
- Wi-Fi, Bluetooth, 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

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

 electric System
- Remote Wireless Software Update Capable
- Wi-Fi, Bluetooth, 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

Protections
- 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 (I²T Algorithm)

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

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

Demand Response Ready
- 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)

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

7 Inch Color Touch Screen Display
- Resitive 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
- 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
**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

**ENGINEERED OPTIONS**

**ENGINE SYSTEM**
- Coolant Heater Ball Valves
- Fluid Containment Pans

**CONTROL SYSTEM**
- Battery Disconnect Switch

**GENERATOR SET**
- Demand Response Rating
- Extended Factory Testing (3-Phase Only)
- 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 (Motorized Dampers Only)
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC/DC Enclosure Lighting Kit
- Enclosure Heaters
- 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 Horn
- 120V GFCI and 240V Outlets

**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

**DEMAND RESPONSE READY**

**ENGINEERED OPTIONS**

**ENGINE SYSTEM**
- Coolant Heater Ball Valves
- Fluid Containment Pans

**CONTROL SYSTEM**
- Battery Disconnect Switch
**ENGINE SPECIFICATIONS**

<table>
<thead>
<tr>
<th>General</th>
<th>Cooling System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make: Generac</td>
<td>Cooling System Type: Pressurized Closed Recovery</td>
</tr>
<tr>
<td>Cylinder #: 12</td>
<td>Fan Type: Pusher</td>
</tr>
<tr>
<td>Type: V12</td>
<td>Fan Speed - RPM: 1,404</td>
</tr>
<tr>
<td>Displacement - ln³ (L): 1,336.4 (21.9)</td>
<td>Fan Diameter - in (mm): 44 (1,118)</td>
</tr>
<tr>
<td>Bore - in (mm): 5.03 (128)</td>
<td></td>
</tr>
<tr>
<td>Stroke - in (mm): 5.6 (142)</td>
<td></td>
</tr>
<tr>
<td>Compression Ratio: 10.0:1</td>
<td></td>
</tr>
<tr>
<td>Intake Air Method: Turbocharged/Aftercooled</td>
<td></td>
</tr>
<tr>
<td>Number of Main Bearings: 7</td>
<td></td>
</tr>
<tr>
<td>Connecting Rods: Steel Alloy</td>
<td></td>
</tr>
<tr>
<td>Cylinder Head: Cast Iron</td>
<td></td>
</tr>
<tr>
<td>Cylinder Liners: Cast Steel Alloy</td>
<td></td>
</tr>
<tr>
<td>Ignition: Electronic</td>
<td></td>
</tr>
<tr>
<td>Piston Type: Cast Aluminum Alloy</td>
<td></td>
</tr>
<tr>
<td>Crankshaft Type: Steel</td>
<td></td>
</tr>
<tr>
<td>Lifter Type: Solid</td>
<td></td>
</tr>
<tr>
<td>Intake Valve Material: High Temp Steel Alloy</td>
<td></td>
</tr>
<tr>
<td>Exhaust Valve Material: High Temp Steel Alloy</td>
<td></td>
</tr>
<tr>
<td>Hardened Valve Seats: Proprietary Alloy</td>
<td></td>
</tr>
<tr>
<td>Engine Governing</td>
<td></td>
</tr>
<tr>
<td>Governor: Electronic</td>
<td>Frequency Regulation (Steady State): ±0.25%</td>
</tr>
<tr>
<td>Frequency Regulation (Steady State): ±0.25%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lubrication System</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Pump Type: Gear</td>
<td></td>
</tr>
<tr>
<td>Oil Filter Type: Full-Flow Spin-On Cartridge</td>
<td></td>
</tr>
<tr>
<td>Crankcase Capacity - qt (L): 31.7 (30)</td>
<td></td>
</tr>
</tbody>
</table>

**ALTERNATOR SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Standard Model K0500124Y23</th>
<th>Standard Excitation: Permanent Magnet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poles: 4</td>
<td>Bearings: Sealed Ball</td>
</tr>
<tr>
<td>Field Type: Revolving</td>
<td>Coupling: Direct via Flexible Disc</td>
</tr>
<tr>
<td>Insulation Class - Rotor: H</td>
<td>Prototype Short Circuit Test: Yes</td>
</tr>
<tr>
<td>Insulation Class - Stator: H</td>
<td>Voltage Regulator Type: Full Digital</td>
</tr>
<tr>
<td>Total Harmonic Distortion: &lt;.5% (3-Phase)</td>
<td>Number of Sensed Phases: All</td>
</tr>
<tr>
<td>Telephone Interference Factor (TIF): &lt;52</td>
<td>Regulation Accuracy (Steady State): ±0.25%</td>
</tr>
</tbody>
</table>
## OPERATING DATA

### POWER RATINGS

<table>
<thead>
<tr>
<th>Power Type</th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-Phase 277/480 VAC @ 0.8pf</td>
<td>450 kW/563 kVA</td>
<td>405 kW/506 kVA</td>
</tr>
<tr>
<td>Three-Phase 346/600 VAC @ 0.8pf</td>
<td>450 kW/563 kVA</td>
<td>405 kW/506 kVA</td>
</tr>
</tbody>
</table>

### MOTOR STARTING CAPABILITIES (skVA)

<table>
<thead>
<tr>
<th>Voltage Dip</th>
<th>k0500124Y23</th>
<th>k0600124Y23</th>
</tr>
</thead>
<tbody>
<tr>
<td>30%</td>
<td>1,020</td>
<td>1,560</td>
</tr>
</tbody>
</table>

### FUEL CONSUMPTION RATES*

<table>
<thead>
<tr>
<th>Percent Load</th>
<th>Natural Gas - scfh (m³/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>1,800 (51.0)</td>
</tr>
<tr>
<td>50%</td>
<td>2,880 (81.6)</td>
</tr>
<tr>
<td>75%</td>
<td>3,960 (112.1)</td>
</tr>
<tr>
<td>100%</td>
<td>5,040 (142.7)</td>
</tr>
</tbody>
</table>

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

### COOLING

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Flow (Fan Air Flow Across Radiator)</td>
<td>scfm (m³/min)</td>
<td>28,004 (793)</td>
</tr>
<tr>
<td>Coolant Flow</td>
<td>gpm (Lpm)</td>
<td>211 (799)</td>
</tr>
<tr>
<td>Coolant System Capacity</td>
<td>gal (L)</td>
<td>15.5 (58.7)</td>
</tr>
<tr>
<td>Maximum Operating Ambient Temperature °F (°C)</td>
<td>122 (50)</td>
<td>122 (50)</td>
</tr>
</tbody>
</table>

### COMBUSTION AIR REQUIREMENTS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow at Rated Power - scfm (m³/min)</td>
<td>801 (22.7)</td>
<td>733 (20.8)</td>
</tr>
</tbody>
</table>

### ENGINE

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Engine Speed RPM</td>
<td>1,800</td>
<td>1,800</td>
</tr>
<tr>
<td>Horsepower at Rated kW**</td>
<td>656</td>
<td>590</td>
</tr>
<tr>
<td>Piston Speed ft/min (m/min)</td>
<td>1,680 (512)</td>
<td>1,680 (512)</td>
</tr>
<tr>
<td>BMEP psi</td>
<td>216 (1,489)</td>
<td>194 (1,340)</td>
</tr>
</tbody>
</table>

### EXHAUST

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust Flow (Rated Output) scfm (m³/min)</td>
<td>2,685 (76.0)</td>
<td>2,385 (67.5)</td>
</tr>
<tr>
<td>Max. Backpressure (Post Silencer) inHg (kPa)</td>
<td>0.75 (2.54)</td>
<td>0.75 (2.54)</td>
</tr>
<tr>
<td>Exhaust Temp (Rated Output - Post Silencer) °F (°C)</td>
<td>1,350 (732)</td>
<td>1,297 (703)</td>
</tr>
</tbody>
</table>

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

Derate – 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 ISO3046, BS5514, ISO8528, and DIN6271 standards.

Standby - See Bulletin 0187500SSB
Demend Response - See Bulletin 10000018250
Prime - See Bulletin 0187510SSB
MG450 | 21.9L | 450 kW
INDUSTRIAL SPARK-IGNITED GENERATOR SET
EPA Certified Stationary Emergency and Non-Emergency

DIMENSIONS AND WEIGHTS*

<table>
<thead>
<tr>
<th>Enclosure Type</th>
<th>L x W x H - in (mm)</th>
<th>Weight - lbs (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN SET (Includes Exhaust Flex)</td>
<td>154.4 (3,922) x 71.0 (1,803) x 66.5 (1,689)</td>
<td>8,257 - 8,650 (3,745 - 3,923)</td>
</tr>
</tbody>
</table>
| WEATHER PROTECTED ENCLOSURE | 207.4 (5,266) x 71.0 (1,803) x 80.0 (2,032) | Steel: 10,055 - 10,840 (4,560 - 4,916) 
  Aluminum: 9,357 - 9,753 (4,244 - 4,423) |
| LEVEL 1 SOUND ATTENUATED ENCLOSURE | 247.5 (6,287) x 71.0 (1,803) x 80.0 (2,032) | Steel: 11,155 - 11,847 (5,059 - 5,373) 
  Aluminum: 9,788 - 10,185 (4,439 - 4,619) |
| LEVEL 2 SOUND ATTENUATED ENCLOSURE | 207.4 (5,268) x 71.0 (1,803) x 114.1 (2,898) | Steel: 10,836 - 12,185 (4,914 - 5,526) 
  Aluminum: 8,963 - 10,330 (4,065 - 4,685) |
| LEVEL 3 SOUND ATTENUATED ENCLOSURE | 232.0 (5,893) x 76.9 (1,953) x 129.2 (3,282) | 13,224 - 14,285 (5,997 - 6,478) |

* All measurements are approximate and for estimation purposes only.

** Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.**