

# SB600/MB600

## Industrial Bi-Fuel Diesel Generator Set

EPA Compliant Stationary Emergency

Standby Power Rating  
**600 kW 750 kVA 60 Hz**

Prime Power Rating\*  
**540 kW 675 kVA 60 Hz**

\*EPA Certified Prime ratings are not available in the U.S. or its Territories



\*Built in the USA using domestic and foreign parts

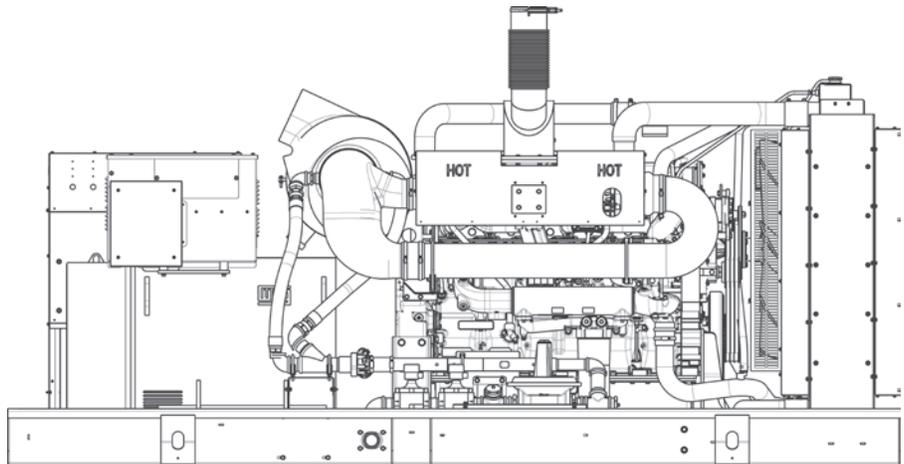


Image used for illustration purposes only

### features

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.
- **TEST CRITERIA:**
  - ✓ PROTOTYPE TESTED
  - ✓ SYSTEM TORSIONAL TESTED
  - ✓ ELECTRO-MAGNETIC INTERFERENCE
  - ✓ NEMA MG1 EVALUATION
  - ✓ MOTOR STARTING ABILITY
  - ✓ SHORT CIRCUIT TESTING
  - ✓ UL 2200 COMPLIANCE AVAILABLE
- **POWERMANAGER® DIGITAL CONTROL PLATFORM.** The PowerManager® Digital Control Platform (PM-DCP) is a powerful control system built around a 32-bit, industrial microprocessor. Standard factory programming controls the entire engine / generator system, while allowing the PM-DCP, with its onboard PLC, to be customized to meet any application requirement. The system is available on bi-fuel installations as well as Modular Paralleling Systems (MPS).
- **BI-FUEL** provides low cost, low volume fuel storage and operation along with a significant reduction in fuel costs.
- **SINGLE SOURCE SERVICE RESPONSE** from Generac's dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component. You are never on your own when you own a GENERAC POWER SYSTEM.
- **ECONOMICAL POWER.** Microprocessor controlled bi-fuel diesel engine starts on diesel fuel and provides power from an air/natural gas mixture ignited by diesel injection and continuously monitored by the on board control.
- **LONGER ENGINE LIFE.** Generac heavy-duty diesels provide long and reliable operating life.
- **GENERAC TRANSFER SWITCHES, SWITCHGEAR AND ACCESSORIES.** Long life and reliability is synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems, accessories, switchgear and controls for total system compatibility.

### primary codes and standards



American National Standards Institute

## SB600/MB600

### Standard Features

#### ENGINE SYSTEM

##### General

- Oil Drain
- Air Cleaner
- Fan Guard
- Stainless Steel flexible exhaust connection
- Critical Exhaust Silencer
- Factory Filled Oil
- Engine Block Heater

##### Fuel System

- Primary and Secondary Fuel Shutoff
- Primary and Secondary Fuel Filters

##### Cooling System

- Closed Coolant Recovery System
- UV/Ozone resistant hoses
- Factory-installed Radiator
- 50/50 Ethylene glycol antifreeze

##### Engine Electrical System

- Battery charging alternator
- Battery Cables
- Battery Tray
- Solenoid activated starter motor
- Rubber-booted engine electrical connections

#### ALTERNATOR SYSTEM

- Class H insulation material
- 2/3 Pitch
- Skewed Stator
- Permanent Magnet Excitation
- Sealed Bearings
- 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 only)
- Standard Factory Testing
- 2 Year 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 (Level 1 & 2)
- Gasketed doors
- Stamped air-intake louvers
- Upward pointing radiator discharge hood
- Stainless steel lift off door hinges
- Stainless steel lockable handles
- Rhino Coat™ - Textured polyester powder coat

#### TANKS (if selected)

- UL 142
- ULC S-601 Tank
- Double Wall
- Vents
- Sloped Top
- Sloped Bottom
- Factory Pressure Tested (2 psi)
- Rupture basin alarm
- Electric Fuel Level
- Check valve in supply and return lines
- Rhino Coat™ - Textured polyester powder coat tank
- Stainless Steel Hardware

#### CONTROL SYSTEM

##### Control Panel

- Digital G-200 Paralleling Control Panel - Touchscreen
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Low Fuel Pressure Indication
- 2-Wire Start Compatible
- 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
- 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)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance algorithm
- Sealed Boards
- Password parameter adjustment protection
- Single point ground
- 15 channel data logging
- 0.2 msec high speed data logging
- Alarm information automatically comes up on the display

##### Alarms

- Oil Pressure (Pre-programmable Low Pressure Shutdown)
- Coolant Temperature (Pre-programmed High Temp Shutdown)
- Coolant Level (Pre-programmed Low Level Shutdown)
- Low Fuel Pressure Alarm
- Engine Speed (Pre-programmed Over speed Shutdown)
- Battery Voltage Warning
- Alarms & warnings time and date stamped
- Alarms & warnings for transient and steady state conditions
- Snap shots of key operation parameters during alarms & warnings
- Alarms and warnings spelled out (no alarm codes)

#### PARALLELING CONTROLS (MB600)

- 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 control (pls)
- MODBUS Protocol

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## Configurable Options

### ENGINE SYSTEM

- General
- Air Filter Restriction Indicator
- Stone Guard (Open Set Only)
- Flexible Fuel Line - NPT Connection
- Engine Electrical System
- 10A battery charger

### ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater

### GENERATOR SET

- Gen-Link Communications Software (English Only)
- Extended Factory Testing
- IBC Seismic Certification

### CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker (SB600 Only)
- Shunt Trip and Auxiliary Contact (SB600 Only)
- Electronic Trip Breakers

### ENCLOSURE

- Standard Enclosure
- Level 1 Sound Attenuation
- Level 2 Sound Attenuation
- Steel Enclosure
- Aluminum Enclosure
- 180 MPH Wind Certification
- 12 VDC Enclosure Lighting Kits
- 120 VAC Enclosure Lighting Kits
- Combined AC/DC Lighting Kits

### TANKS (Size on last page)

- Electrical Fuel Level
- Mechanical Fuel Level
- 334 Gal (1264 L) Usable Capacity
- 1001 Gal (3789 L) Usable Capacity
- 2002 Gal (7578 L) Usable Capacity
- 8" Fuel Fill Extension
- 13" Fuel Fill Extension
- 19" Fuel Fill Extension

### CONTROL SYSTEM

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> 21-Light Remote Annunciator</li> <li><input type="checkbox"/> Remote Relay Panel (8 or 16)</li> <li><input type="checkbox"/> Oil Temperature Sender with Indication / Alarm</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Remote E-Stop (Break Glass-Type, Surface Mount)</li> <li><input type="checkbox"/> Remote E-Stop (Red Mushroom-Type, Surface Mount)</li> <li><input type="checkbox"/> Remote E-Stop (Red Mushroom-Type, Flush Mount)</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Remote Communication - Modem</li> <li><input type="checkbox"/> 10A Run Relay</li> <li><input type="checkbox"/> Ground fault indication and protection functions</li> <li><input type="checkbox"/> PLS Full Auto Back-Up for PM-SC</li> </ul> |
|--|--|--|

## Engineered Options

### ENGINE SYSTEM

- Fluid containment pans

### ALTERNATOR SYSTEM

- 2nd Breaker Systems (MB600 Only)
- 3rd Breaker Systems (SB600 Only)

### GENERATOR SET

- Special Testing
- Battery Box

### ENCLOSURE

- Motorized Dampers
- Door Alarm Switch

### CONTROL SYSTEM

- Battery Disconnect Switch

### TANKS

- Overfill protection valve
- UL2085 Tank
- Stainless Steel Tank
- Special Fuel Tanks (Ex: MIDEQ and FL DEP/DERM requirements)
- Vent Extensions

## Rating Definition

**Standby** – Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

**Prime** – Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. A 10% overload capacity is available for 1 out of every 12 hours. The Prime Power option is only available on International applications.

Power ratings in accordance with ISO 8528-1, Second Edition dated 2005-06-01, definitions for Prime Power (PRP) and Emergency Standby Power (ESP).

**ENGINE SPECIFICATIONS**
**General**

Make	Perkins
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	6
Type	In-Line
Displacement - L	18.13
Bore - mm (in)	145 (5.71)
Stroke - mm (in)	183 (7.20)
Compression Ratio	14.5:1
Intake Air Method	Turbocharged/Aftercooled
Cylinder Head Type	4 Valve
Piston Type	Aluminum
Connecting Rod Type	I-Beam Section

**Engine Governing**

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	± 0.25%

**Lubrication System**

Oil Pump Type	Gear
Oil Filter Type	Full-Flow Cartridge
Crankcase Capacity - L (Gal)	60 (15.8)

**Cooling System**

Cooling System Type	Closed Recovery
Water Pump	Centrifugal Type, Belt-Driven
Fan Type	Pusher
Fan Speed (rpm)	1439
Fan Diameter mm (in)	965 (38)
Coolant Heater Standard Wattage	1500
Coolant Heater Standard Voltage	120 VAC

**Fuel System**

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	Primary 10 - Secondary 2
Fuel Injection	Electronic
Fuel Pump Type	Engine Driven Gear
Injector Type	MEUI
Engine Type	Pre-Combustion
Fuel Supply Line - mm (in)	12.7 (½" NPT)
Fuel Return Line - mm (in)	12.7 (½" NPT)

**Engine Electrical System**

System Voltage	24 VDC
Battery Charging Alternator	70 Amps at 24V
Battery Size	See Battery Index 0161970SBY
Battery Group	8D
Battery Voltage	(2) - 12 VDC
Ground Polarity	Negative

**HOW DOES A BI-FUEL ENGINE WORK?**

The diesel engine is equipped with a metering system that feeds natural gas into the incoming air supply. The standard diesel injection system is used and the injector sprays diesel fuel into the cylinder at the correct time. The diesel fuel ignites and thus ignites the natural gas charge. Total power is derived from a combination of natural gas and diesel. The ratio of natural gas to diesel fuel is a function of several factors, including load and intake air temperature. The higher thermal efficiency of diesel engines and the lower cost of natural gas, along with low emission levels, combine to make the bi-fuel engine a very economical choice.

**ALTERNATOR SPECIFICATIONS**

Standard Model	WEG
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	< 3%
Telephone Interference Factor (TIF)	< 50
Standard Excitation	Permanent Magnet
Bearings	Single Sealed Cartridge
Coupling	Direct, Flexible Disc
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	± 1%

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# operating data (60 Hz)

## POWER RATINGS (kW)

Three-Phase 120/208 VAC @0.8pf	600 kW	Amps: 2081
Three-Phase 120/240 VAC @0.8pf	600 kW	Amps: 1804
Three-Phase 277/480 VAC @0.8pf	600 kW	Amps: 903
Three-Phase 346/600 VAC @0.8pf	600 kW	Amps: 723

## 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	600	743	1114	1486	1857	2229	2600	Standard	600	543	814	1086	1357	1629	1900
Upsize 1	832	757	1136	1514	1893	2271	2650	Upsize 1	723	571	857	1143	1429	1714	2000

## FUEL CONSUMPTION RATES\*

Fuel Pump Lift - ft (m)	12 (3.7)
Total Fuel Pump Flow (Combustion + Return)	121 gph

Percent Load	Diesel Only gph (lph) **
25%	18.4 (69.7)
50%	28.2 (88.7)
75%	35.6 (124.8)
100%	41.4 (156.7)

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

\*\* Natural Gas substitution may vary based on the application and load conditions. Please consult factory for additional details on fuel consumption.

## COOLING

		Standby
Coolant Flow per Minute	gpm (lpm)	114.1 (432)
Heat Rejection to Coolant	BTU/hr	1,589,760
Inlet Air	cfm (m <sup>3</sup> /min)	30,088 (852)
Max. Operating Radiator Air Temp	°F (°C)	122 (50)
Coolant System Capacity	gal (L)	13 (49)
Maximum Additional Radiator Backpressure	in H <sub>2</sub> O	0.5

## COMBUSTION AIR REQUIREMENTS

		Standby
Flow at Rated Power	cfm (m <sup>3</sup> /min)	1836 (52)

## ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	909
Piston Speed	ft/min	2161.4
BMEP	psi	361

## EXHAUST

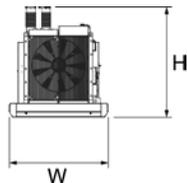
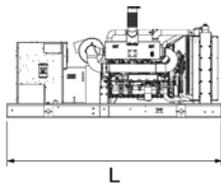
		Standby
Exhaust Flow (Rated Output)	cfm (m <sup>3</sup> /min)	5085 (144)
Max. Backpressure (Post Turbo)	inHg (Kpa)	2.13 (6.9)
Exhaust Temp (Rated Output - post silencer)	°F (°C)	1155 (624)
Exhaust Outlet Size (Open Set)	mm (in)	Dual 152 (6)

\*\* 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.

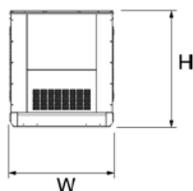
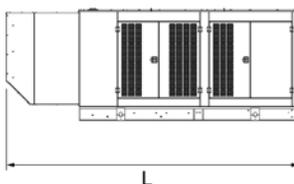
**SB600/MB600**

**enclosure configurations, dimensions, and weights\***



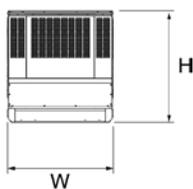
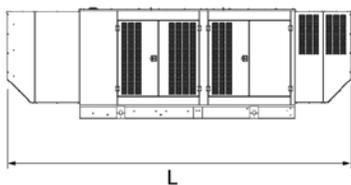
**OPEN SET**

RUN TIME HOURS**	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Tank & Open Set	
NO TANK	-	154.4 (3923) x 71 (1803) x 67 (1702)	10,710 (4868)	
10	334 (1264.3)	158.5 (4026) x 71 (1803) x 81 (2057)	12,385 (5628)	
32	1001 (3789.2)	158.5 (4026) x 71 (1803) x 103 (2616)	13,310 (6047)	
32	1001 (3790)	228 (5791) x 71 (1803) x 92 (2337)	13,960 (6297)	
64	2002 (7578.4)	290 (7366) x 71 (1803) x 103 (2616)	15,560 (7098)	



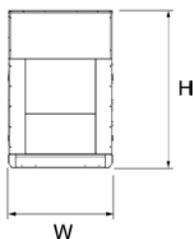
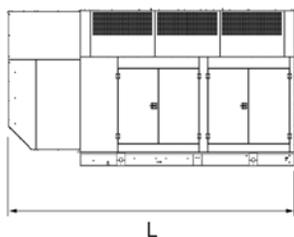
**STANDARD ENCLOSURE**

RUN TIME HOURS**	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	207.4 (5268) x 71 (1803) x 80 (2032)	1999 (907)	869 (394)
10	334 (1264.3)	207.4 (5268) x 71 (1803) x 94 (2388)		
32	1001 (3789.2)	207.4 (5268) x 71 (1803) x 116 (2946)		
32	1001 (3790)	228 (5791) x 71 (1803) x 105 (2667)		
64	2002 (7578.4)	290 (7366) x 71 (1803) x 116 (2946)		



**LEVEL 1 ACOUSTIC ENCLOSURE**

RUN TIME HOURS**	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	247.5 (6285) x 71 (1803) x 80 (2032)	2782 (1262)	1291 (586)
10	334 (1264.3)	247.5 (6285) x 71 (1803) x 94 (2388)		
32	1001 (3789.2)	247.5 (6285) x 71 (1803) x 116 (2946)		
32	1001 (3790)	247.5 (6285) x 71 (1803) x 105 (2667)		
64	2002 (7578.4)	290 (7366) x 71 (1803) x 116 (2946)		



**LEVEL 2 ACOUSTIC ENCLOSURE**

RUN TIME HOURS**	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only	
			Steel	Aluminum
NO TANK	-	207.4 (5268) x 71 (1803) x 114 (2899)	3330 (1510)	1522 (692)
10	334 (1264.3)	207.4 (5268) x 71 (1803) x 128 (3251)		
32	1001 (3789.2)	207.4 (5268) x 71 (1803) x 150 (3810)		
32	1001 (3790)	228 (5791) x 71 (1803) x 139 (3531)		
64	2002 (7578.4)	290 (7366) x 71 (1803) x 150 (3810)		

\*All measurements are approximate and for estimation purposes only. Sound dBA can be found on the sound data sheet. Enclosure Only weight is added to Tank & Open Set weight to determine total weight.

\*\*Diesel only. Bi-fuel mode will extend run time hours.

<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.