

# SD500 | 18.1L | 500 kW

## INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary · EPA Tier 4 Final

### Standby Power Rating

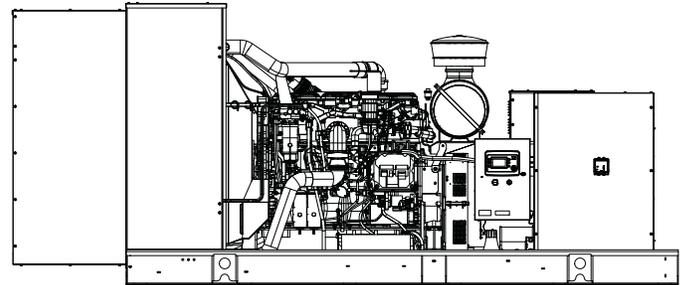
500 kW, 625 kVA, 60 Hz

### Prime Power Rating\*

456 kW, 570 kVA, 60 Hz



\*Assembled in the USA using domestic and foreign parts



## Codes and Standards

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



UL2200, UL6200, UL1236, UL489,  
UL142, UL S601C



BS5514 and DIN 6271



SAE J1349



NFPA 37, 70, 99, 110



NEC700, 701, 702, 708



NEMA ICS10, MG1, 250, ICS6,  
AB1



ANSI C62.41

## Powering Ahead

For over 60 years, Generac has provided innovative design and superior manufacturing.

Generac provides superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally for the most reliable engines to power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

## STANDARD FEATURES

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### ENGINE SYSTEM

- Oil Drain Extension
- Heavy Duty Air Cleaner
- Fan Guard
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)

### FUEL SYSTEM

- Padlockable External DEF Fill Cap
- Two Fuel Filters and a Fuel/Water Separator

### COOLING SYSTEM

- 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™
- 12 Leads (3-Phase, Non-600V)
- Class H Insulation Material
- 2/3 Pitch
- Amortisseur Winding
- Permanent Magnet Excitation
- Sealed Bearings
- Full Load Capacity Alternator
- Main Line Circuit Breaker

### GENERATOR SET

- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- 2 Year Limited Warranty (Standby and Demand Response Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)
- Standard Factory Testing

### ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuated 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

### FUEL TANKS

- UL 142
- Double Wall
- Vents
- Factory Pressure Tested (2 psi)
- Rupture Basin Alarm
- Fuel Level Sender
- Stainless Steel Hardware
- Fuel Line Hose
- Electronic Fuel Level

## 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)

#### 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

#### 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

#### 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

- UL 6200
- 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

- Engine Coolant Heater with Isolation Ball Valves
- Oil Heater
- Fuel Filter Heater
- Crankcase Ventilation Heater

### ELECTRICAL SYSTEM

- 20A UL Listed Battery Charger
- Battery Warmer

### ALTERNATOR SYSTEM

- Alternator Upsizing

### CIRCUIT BREAKER OPTIONS

- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

### GENERATOR SET

- Extended Factory Testing (3-Phase Only)
- 12 Position Load Center

### ENCLOSURE

- Level 0 Sound Attenuated
- Level 1 Sound Attenuated
- Level 2 Sound Attenuated
- Level 2 Sound Attenuated with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- IBC Seismic Certification/OSHPD Preapproval
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC Enclosure Lighting Kit
- Enclosure Heaters (Motorized Dampers Only)

### 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
- Damper Alarm Contacts (Motorized Dampers Only)
- 100 dB Alarm Horn
- 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

### FUEL TANKS (Size on Last Page)

- Mechanical Fuel Level
- External Fill and Vents Tank

## ENGINEERED OPTIONS

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### ENGINE SYSTEM

- Fluid Containment Pan

### CONTROL SYSTEM

- Battery Disconnect Switch

### GENERATOR SET

- Special Testing

### ENCLOSURE

- Door Open Alarm Horn

### TANKS

- Overfill Protection Valve
- UL2085 Tank
- Stainless Steel Tank
- Special Fuel Tanks
- Vent Extensions
- 5 Gallon Spill Containment Box
- Dealer Supplied AHJ Requirements

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### APPLICATION AND ENGINEERING DATA

#### ENGINE SPECIFICATIONS

##### General

Make (Model)	Perkins (2806F-E18TAG1)
EPA Emissions Compliance	Tier 4 Final
After-Treatment System	EGR, DOC, SCR, and DPF
Cylinder #	6
Type	In-line
Displacement - in <sup>3</sup> (L)	1,104 (18.1)
Bore - in (mm)	5.7 (145)
Stroke - in (mm)	7.2 (183)
Compression Ratio	16.0:1
Intake Air Method	Turbocharged/Aftercooled

##### Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	±0.75%

##### Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Spin-On Cartridge
Crankcase Capacity - qt (L)	78.2 (74.0)

##### Cooling System

Cooling System Type	Water Cooled
Water Pump Type	Engine Gear Driven
Fan Type	Pusher
Fan Speed	Variable Speed Clutch
Fan Diameter - in (mm)	46 (1,168)

##### Fuel System

Fuel Type	Ultra Low Sulfur Diesel
Fuel Specifications	ASTM D975 D2
Fuel Filtering (Microns)	Primary: 10 Final: 4
Fuel Pump Type	Engine Gear Driven Lift Pump
Injector Type	Electronically Controlled Unit Injector (MEUI)

##### Engine Electrical System

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

#### ALTERNATOR SPECIFICATIONS

Standard Model	K0552124N27
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5% (3-Phase)
Telephone Interference Factor (TIF)	<50

Standard Excitation	Permanent Magnet
Bearings	Sealed Cartridge
Coupling	Direct via Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.5%

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### OPERATING DATA

#### POWER RATINGS

		Standby
Three-Phase 120/208 VAC @0.8p	500 kW	Amps: 1,735
Three-Phase 120/240 VAC @0.8pf	500 kW	Amps: 1,504
Three-Phase 277/480 VAC @0.8pf	500 kW	Amps: 752

#### MOTOR STARTING CAPABILITIES (SKVA)

skVA vs. Voltage Dip			
277/480 VAC	30%	120/208 VAC	30%
K0552124N27	1475	G/D0500124N27	1110
K0600124N27	1780	G/D0528124N27	1340

#### FUEL CONSUMPTION RATES\*

Fuel Pump Lift- ft (m)	Diesel - gph (Lph)			% Load DEF	gph (Lph)
9.8 (3)	Percent Load	Standby	Prime	100	1.3 (4.9)
Total Fuel Pump Flow (Combustion + Return) - gph (Lph) 127 (480)	25%	12.3 (46.4)	-	91.2	1.2 (4.5)
	50%	19.7 (74.9)	-	75	1.0 (3.8)
	70%	26.1 (99.0)	-	70	0.9 (3.4)
	75%	27.8 (105.3)	-	50	0.7 (2.6)
	91.2%	-	33.0 (124.9)	25	0.4 (1.5)
	100%	36.5(138.3)	-		

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

#### COOLING

		Standby
Coolant Flow	gpm (Lpm)	97.7 (370)
Coolant System Capacity	gal (L)	16.7 (63.2)
Heat Rejection to Coolant	BTU/hr (kW)	966,495 (283)
Inlet Air	scfm (m³/min)	26132 (740)
Maximum Radiator Backpressure	in H <sub>2</sub> O (kPa)	2.57 (0.64)

#### COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power cfm — (m³/min)	1,338 (37.9)

#### ENGINE

		Standby
Rated Engine Speed	rpm	1,800
Horsepower at Rated kW**	hp	744
Piston Speed	ft/min (m/min)	2,160 (658.3)
BMEP	psi (kPa)	296.5 (2044.4)

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

#### EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m³/min)	935 (26.5)
Maximum Allowable Backpressure (Post Silencer)	inHg (kPa)	0.6 (2.0)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	836.0 (446.7)

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.

Please contact a Generac Power Systems Industrial Ottomotores CAT® Dealer for additional details. All performance ratings in accordance with BS5514 and DIN6271 standards.

Standby — See Bulletin 10000018933

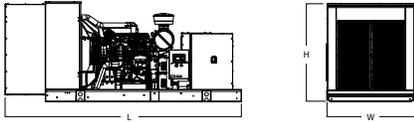
Prime — See Bulletin 10000018926

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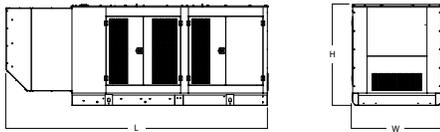
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**DIMENSIONS AND WEIGHTS\***



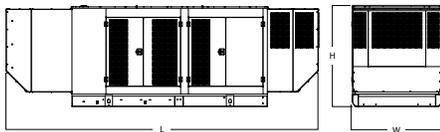
**OPEN SET**

Run Time Hours**	Usable Capacity Gal (L)	L x W x H - in (mm)	Weight - lbs (kg)
26.9	703 (2,661)	188.5 (4,790) x 71.0 (1,803) x 116.8 (2,967)	Contact Factory



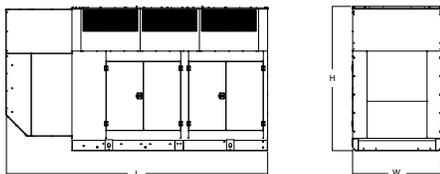
**LEVEL 0 SOUND ATTENUATED ENCLOSURE**

Run Time Hours**	Usable Capacity Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only	
			Steel	Aluminum
26.9	703 (2,661)	207.5 (5,270) x 71.0 (1,803) x 115.9 (2,944)	2,467 (1,119)	1,380 (626)



**LEVEL 1 SOUND ATTENUATED ENCLOSURE**

Run Time Hours**	Usable Capacity Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only	
			Steel	Aluminum
26.9	703 (2,661)	247.5 (6,287) x 71.0 (1,803) x 115.7 (2,940)	3,472 (1,575)	1,812 (822)



**LEVEL 2 SOUND ATTENUATED ENCLOSURE**

Run Time Hours**	Usable Capacity Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only	
			Steel	Aluminum
26.9	703 (2,661)	207.4 (5,268) x 71.0 (1,803) x 157.2 (3,992) Height without louvers: 149.9 (3807)	3,809 (1,728)	1,955 (887)

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

\*\* Runtime is calculated at 70% Emergency Standby Power (ESP).

**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