

# SD500 | 15.2L | 500 kW

## INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

### Standby Power Rating

500 kW, 625 kVA, 60 Hz

### Prime Power Rating\*

450 kW, 563 kVA, 60 Hz



\*Assembled in the USA using domestic and foreign parts

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

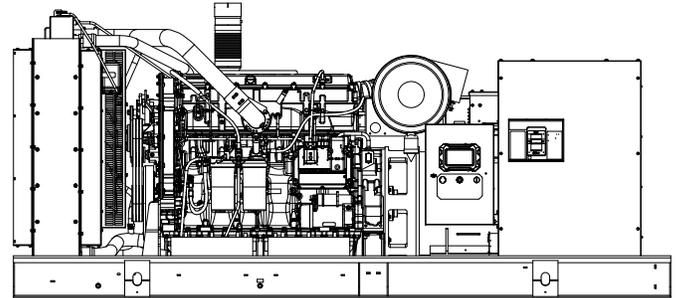


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## Codes and Standards

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



UL2200, UL6200, UL1236, UL489, UL142



CSA C22.2, ULC S601



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

### ENGINE SYSTEM

- Oil Drain Extension
- Heavy Duty Air Cleaner
- Level 1 Fan and Belt Guards (Open Set Only)
- Stainless Steel Flexible Exhaust Connection
- Critical Silencer (Enclosed Units Only)
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)

### FUEL SYSTEM

- Primary Fuel Filter

### 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
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Amortisseur Winding
- Permanent Magnet Excitation
- Sealed Bearing
- Full Load Capacity Alternator
- Protective Thermal Switch

### GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping (Enclosed Units Only)
- Standard Factory Testing
- 2 Year Limited Warranty (Standby 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
- 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 (If Selected)

- UL 142/ULC S601 Tank
- Double Wall
- Vents
- Sloped Top
- Sloped Bottom
- Factory Pressure Tested (2 psi)
- Rupture Basin Alarm
- Fuel Level
- Check Valve in Supply and Return Lines
- RhinoCoat™ - Textured Polyester Powder Coat Paint

## CONTROL SYSTEM



### Power Zone® Pro Sync Controller

- 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 Properly 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

**CONFIGURABLE OPTIONS**

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**ENGINE SYSTEM**

- Engine Coolant Heater
- Oil Heater
- Level 1 Fan and Belt Guards (Enclosed Units Only)
- Radiator Stone Guard (Open Set Only)

**FUEL SYSTEM**

- NPT Flexible Fuel Line

**ELECTRICAL SYSTEM**

- 10A UL Listed Battery Charger
- Battery Warmer

**ALTERNATOR SYSTEM**

- Alternator Upsizing
- Anti-Condensation Heater

**CIRCUIT BREAKER OPTIONS**

- Main Line Circuit Breaker
- 2<sup>nd</sup> Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

**GENERATOR SET**

- 12 Position Load Center
- Extended Factory Testing

**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
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC/DC Enclosure Lighting Kit
- Enclosure Heater

**CONTROL SYSTEM**

- NFPA 110 Level 1 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Oil Temperature Indication and Alarm
- Ground Fault Annunciator
- 10A Engine Run Relay
- 120V GFCI and 240V Outlets
- Oil Temperature Indication and 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
- Damper Alarm Contacts (with Motorized Dampers Only)
- 100 dBA Alarm Horn

**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

**ENGINEERED OPTIONS**

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**ENGINE SYSTEM**

- Fluid Containment Pan
- Coolant Heater Ball Valves

**ALTERNATOR SYSTEM**

- 3<sup>rd</sup> Breaker Systems

**CONTROL SYSTEM**

- Spare Inputs (x4) / Outputs (x4)
- Battery Disconnect Switch

**GENERATOR SET**

- Special Testing
- Battery Box

**ENCLOSURE**

- Door Open Alarm Horn

**FUEL TANKS**

- Overfill Protection Valve
- UL 2085 Tank
- Stainless Steel Tank
- Special Fuel Tanks
- Vent Extensions
- 5 Gallon Spill Containment Box
- Dealer Supplied AHJ Requirements

**APPLICATION AND ENGINEERING DATA**

**ENGINE SPECIFICATIONS**

**General**

Make	Perkins
EPA Emissions Compliance	Stationary Emergency
EPA Emission Reference	See Emission Data Sheet
Cylinder #	6
Type	In-Line
Displacement - in <sup>3</sup> (L)	927.56 (15.2)
Bore - in (mm)	5.39 (137)
Stroke - in (mm)	6.73 (171)
Compression Ratio	16.0:1
Intake Air Method	Turbocharged/Intercooled
Cylinder Head Type	4-Valve
Piston Type	Aluminum
Crankshaft 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
Crankcase Capacity - qt (L)	47.55 (45)

**Cooling System**

Cooling System Type	Closed Recovery
Water Pump Type	Centrifugal Type, Belt-Driven
Fan Type	Pusher
Fan Speed - RPM	1,658
Fan Diameter - in (mm)	36.5 (927)

**Fuel System**

Fuel Type	Ultra Low Sulfur Diesel #2
Carburetor	ASTM
Fuel Filtering (Microns)	10 Primary and 2 Secondary
Fuel Inject Pump Make	Electronic
Injector Type	MEUI
Engine Type	Pre-Combustion
Fuel Supply Line - in (mm)	0.5 (12.7) NPT
Fuel Return Line - in (mm)	0.5 (12.7) NPT

**Engine Electrical System**

System Voltage	24 VDC
Battery Charger Alternator	Standard
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	<3%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Permanent Magnet
Bearings	Single 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)	±0.25%

**OPERATING DATA**

**POWER RATINGS — DIESEL**

		Standby
Three-Phase 120/208 VAC @0.8pf	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
Three-Phase 346/600 VAC @0.8pf	500 kW	Amps: 601

**MOTOR STARTING CAPABILITIES (SKVA)**

skVA vs. Voltage Dip			
277/480 VAC	30%	208/240 VAC	30%
K0500124Y23	1,050	K0600124Y23	1,120
K0600124Y23	1,560	K0792124Y23	2,130
K0832124Y23	2,800	K0832124Y23	2,090

**FUEL CONSUMPTION RATES\***

Fuel Pump Lift- ft (m)	Diesel - gph (Lph)	
	Percent Load	Standby
12 (3.7)	25%	9.6 (36.3)
	50%	18.45 (69.8)
Total Fuel Pump Flow (Combustion + Return) - gph (Lph)	75%	24.9 (94.25)
121 (457)	100%	31.1 (117.7)

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

**COOLING**

		Standby
Coolant Flow	gpm (Lpm)	114.1 (432)
Coolant System Capacity	gal (L)	15.5 (586)
Heat Rejection to Coolant	BTU/hr (kW)	648,307 (190)
Maximum Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Operating Ambient Temperature (Before Derate)	See Bulletin No. 0199280SSD	
Air Flow (Fan Air Flow Across Radiator)	cfm (m³/min)	30,582 (866)
Maximum Additional Radiator Backpressure	in H <sub>2</sub> O (kPa)	0.5 (0.12)

**COMBUSTION AIR REQUIREMENTS**

	Standby
Flow at Rated Power cfm — (m³/min)	1,483 (42)

**ENGINE**

		Standby
Rated Engine Speed	rpm	1,800
Horsepower at Rated kW**	hp	755
Piston Speed	ft/min (m/min)	2,020 (616)
BMEP	psi (kPa)	358 (2,468)

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

**EXHAUST**

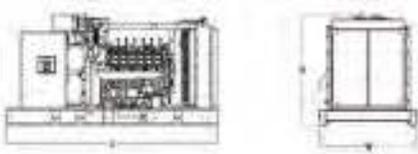
		Standby
Exhaust Flow (Rated Output)	cfm (m³/min)	3,955 (112)
Maximum Allowable Back Pressure (Post Silencer)	inHg (kPa)	2.01 (6.8)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	1,022 (550)

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 ISO3046, BS5514, ISO8528, and DIN6271 standards.

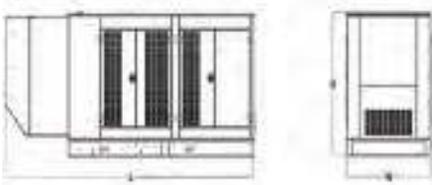
**DIMENSIONS AND WEIGHTS\***

**OPEN SET**



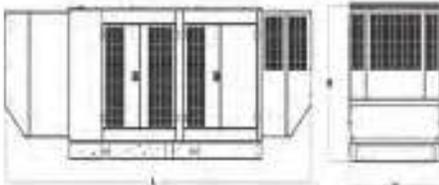
Run Time Hours**	Usable Capacity Gal (L)	L x W x H - in (mm)		Weight - lbs (kg)	
				Steel	Aluminum
No Tank	—	154.4 (3,923)	71.0 (1,803)	67.3 (1,709)	8,393 - 10,580 (3,807 - 4,799)
10	334 (1,264)	158.5 (4,025)	71.0 (1,803)	81.3 (2,065)	10,068 - 12,255 (4,567 - 5,559)
31	1,001 (3,789)	158.5 (4,025)	71.0 (1,803)	103.3 (2,623)	10,993 - 13,180 (4,986 - 5,978)
31	1,001 (3,789)	228.0 (5,791)	71.0 (1,803)	92.3 (2,344)	11,543 - 13,730 (5,236 - 6,228)
62	2,002 (7,578)	290.0 (7,366)	71.0 (1,803)	103.3 (2,623)	13,243 - 15,430 (6,007 - 6,936)

**WEATHER PROTECTED ENCLOSURE**



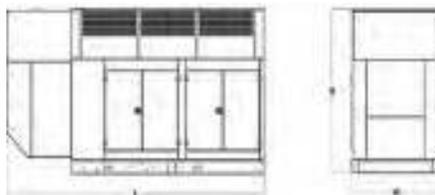
Run Time Hours**	Usable Capacity Gal (L)	L x W x H - in (mm)		Weight - lbs (kg) Enclosure Only	
				Steel	Aluminum
No Tank	—	207.4 (5,268)	70.9 (1,800)	79.9 (2,031)	
10	334 (1,264)	207.4 (5,268)	70.9 (1,800)	93.9 (2,387)	
31	1,001 (3,789)	207.4 (5,268)	70.9 (1,800)	115.9 (2,945)	2,238 (1,015)
31	1,001 (3,789)	228.0 (5,791)	70.9 (1,800)	104.9 (2,666)	
62	2,002 (7,578)	290.0 (7,366)	70.9 (1,800)	115.9 (2,945)	

**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
No Tank	—	247.5 (6,285)	70.9 (1,800)	80.0 (2,032)	
10	334 (1,264)	247.5 (6,285)	70.9 (1,800)	94.0 (2,388)	
31	1,001 (3,789)	247.5 (6,285)	70.9 (1,800)	116.0 (2,946)	3,243 (1,471)
31	1,001 (3,789)	247.5 (6,285)	70.9 (1,800)	105.0 (2,667)	
62	2,002 (7,578)	290.0 (7,366)	70.9 (1,800)	116.0 (2,946)	

**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
No Tank	—	207.4 (5,268)	70.9 (1,800)	114.1 (2,899)	
10	334 (1,264)	207.4 (5,268)	70.9 (1,800)	128.1 (3,255)	
31	1,001 (3,789)	207.4 (5,268)	70.9 (1,800)	150.1 (3,813)	3,580 (1,624)
31	1,001 (3,789)	228.0 (5,791)	70.9 (1,800)	139.1 (3,534)	
62	2,002 (7,578)	290.0 (7,366)	70.9 (1,800)	150.1 (3,813)	

\*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.