

DOCKETED

Docket Number:	25-OPT-02
Project Title:	Prairie Song Reliability Project
TN #:	264408
Document Title:	App 3-1 Air Quality Appendices
Description:	N/A
Filer:	Erin Phillips
Organization:	Dudek
Submitter Role:	Applicant Consultant
Submission Date:	6/20/2025 12:43:50 PM
Docketed Date:	6/20/2025

Section 3.1

Air Quality
Appendices

Appendix 3.1A

Air Quality and Greenhouse Gas Emissions Modeling
and Calculations
(provided via kiteworks)

Appendix 3.1 B

Ambient Air Quality Analyses Files
(provided via kiteworks)

Appendix 3.1C

Emergency Generator Specification

MDG250DF4 | 6.8 L | 250 kVA

MOBILE DIESEL GENERATOR SET

EPA Emissions Certification: Tier 4 Final

GENERAC | **MOBILE**

Standby Power Rating

220 kW, 275 kVA, 60 Hz

Prime Power Rating

200 kW, 250 kVA, 60 Hz



*Assembled in the USA using domestic and foreign parts



Picture show may not reflect actual configuration.

Codes and Standards

Generac Mobile products are designed to the following standards:



CSA



NATM



TIER 4 FINAL EMISSIONS



UL142, ULC-S601 CERTIFIED

Power When and Where You Need It

Generac Mobile generators are designed and engineered to power a variety of projects, in the most extreme environments. Gensets are configured to meet customer needs, including choice of containment, cold weather packages, trailer options, and more.

Generac Mobile generators are manufactured to deliver reliable power, when and where you need it.

STANDARD FEATURES**ENGINE SYSTEM**

- John Deere® 6068HFG06
- 6 Cylinder
- Variable-geometry Turbocharged (VGT) and Aftercooled
- 415 in³ (6.8 L) Displacement
- Power @ 1,800 RPM - hp (kW):
 - Prime: 295 (220)
 - Standby: 323 (241)
- Approved for use with Hydrotreated Vegetable Oil (HVO) Fuels Compliant with ASTM D975 or EN 15940
- Paper Element Air Filter
- Electronic Isochronous Governing
- Variable Speed Fan
- Spin On Cartridge Oil Filter
- Oil Drain Extension
- One Fuel/Water Separator-Filter
- One Fuel Filter
- One 12 V, 950 CCA, Wet Cell Battery

COOLING SYSTEM

- Capable of Operating at 108 °F (42 °C) Ambient (at Prime)
- 50/50 Coolant (50% Ethylene Glycol)
- Coolant Drain Extension

FUEL SYSTEM

- Single Wall Fuel Tank
- Fuel Tank Capacity — US Gal (L):
 - Total: 358 (1,355)
 - Usable: 343 (1,298)
- Maximum Runtime @ 75% Load: 33 Hr
- Def Tank Capacity – Gal (L):
 - Total: 34.5 (130.6)
 - Usable: 28.5 (107.9)
- Padlockable Fuel Cap

CONTROL SYSTEM

- Deep Sea Electronics® 7310 MkII Controller
- 3-Position Voltage Selection Switch
- 900 A Main Circuit Breaker (Mcb), Manual, with Shunt Trip
- Individual Convenience Receptacle Circuit Breakers
- Emergency Stop Switch
- Remote 2-Wire Start/Stop Contacts

ALTERNATOR SYSTEM

- 60 Hz Engine-Driven Alternator
- Standard Alternator
 - Brushless
 - 4 Pole
 - 2/3 Pitch
 - Class H Insulation
 - Corrosion Protection
- Deep Sea® DSEA109 Automatic Voltage Regulator
- Shunt Excitation System

POWER DISTRIBUTION

- Connection Lugs
- Convenience Receptacles
 - Two 120 V, 20 A, GFCI Duplex (NEMA 5-20R)
 - Three 120/240 V, 50 A, 3 Pole, 4 Wire Twist-lock (CS6369)

ENCLOSURE

- Aluminum, Sound Attenuated Enclosure, Insulated and Baffled
- UV and Fade Resistant, High Temperature Cured, White Polyester Powder Paint
- Central Lifting Point
- Control Panel Lights
- Interior Lights
- Fully Lockable Enclosure
- Multi Lingual Operating and Safety Decals
- Document Holder with Owner's Manual - Includes AC and DC Wiring Diagrams

TRAILER

- Hydraulic Surge Brakes
- 3 in. (76.2 mm) Pintle Ring, Adjustable
- Two 7,000 lb (3,175 kg) Axles
- Tires: 235/80, 17.5 in. Rim
- Heavy Duty Trailer Jack
- Safety Chains with Spring Loaded Safety Hooks
- Transportation Tie Downs
- Plug Adapter, Round 7 Spade (SAE J2863)
- DOT Approved Tail, Side, Brake, and Directional Lights

WARRANTY

- 2 year Limited or 2,000 Hours
 - Unlimited Hours Covered in First Year

MDG250DF4 | 6.8 L | 250 kVA

MOBILE DIESEL GENERATOR SET

EPA Emissions Certification: Tier 4 Final

GENERAC® | **MOBILE**

STANDARD FEATURES

CONTROL SYSTEM



Deep Sea Electronics CONTROLLER AND DISPLAY

- Model DSE7310 MKII
- 4 Line Back Lit LCD Text Display
- -40 to 158 °F (-40 to 70 °C) Operating Temperature Range
- Multiple Language Options
- Configurable Timers and Alarms
- Configurable Start/Stop Timers
- Configurable Maintenance Alarms
- Heated Display

PUSH BUTTONS FOR EASY OPERATION

- Manual or Auto Start
- Engine Start
- Engine Stop/Reset
- User Friendly Setup and Button Layout
- Five Key Menu Navigation
- Multiple Parameters are Monitored and Displayed Simultaneously for Full Visibility
- View Controller Parameters (Configuration, Firmware Version, Connections)

ELECTRICAL CONTROLS

- Lockable Control Box Door with Diagnostics Window
- Lockable Lug Box with Safety Switch
 - Trips Main Breaker when Door is Opened
 - Disables Voltage Regulator
- Output Ground Connection Lug Inside Lug Box
- Voltage Adjustment $\pm 10\%$

LCD ALARM INDICATION

- Generator Diagnostic Display
 - System kVA Output Display
 - Line Output and Frequency Display

- Alarm Types: Warning, Shutdown, Electrical Trip, Engine
- Alarm List – Warnings/Shutdowns; 250 Event History Log – Date/Time Stamped
 - Fuel Level: Warning – 15%; Shutdown – 5%
 - Overspeed Protection: Shutdown – 110%
 - Engine Diagnostic Warnings Communicated Through J1939 CANbus
 - Battery Voltage: Over – 15 VDC; Under – 11 VDC
 - Generator Over Voltage: Warning – 110%; Electrical Trip – 115%
 - Generator Under Voltage: Warning – 90%; Shutdown – 85%
 - Generator Over Frequency: Warning – 105%; Electrical Trip – 110%
 - Generator Under Frequency: Warning – 95%; Electrical Trip – 90%
- Auto Schedule
- Status

CONFIGURABLE OPTIONS*

ENGINE SYSTEM

- Positive Air Shutdown (PAS), Electronic
- Engine Oil Level Maintainer
- Oil Evacuation System - Requires Customer-sourced, Specialized Equipment to use for Oil Change

COLD WEATHER

- Engine Block Heater
- Two Heated Fuel Filters
- Oil Heater
- Crank Case Ventilation (CCV) System Heater
- Battery Heater
- 10 A Battery Charger
- 60/40 Coolant (60% Ethylene Glycol)

FUEL SYSTEM

- Double Wall Fuel Tank
 - 110% Containment Fuel and Engine Fluid (Oil, Coolant, and DEF)
 - UN31A Certification
 - UL142 / ULC-S601 Certification
- Fuel Tank Capacity— US Gal (L)
 - Total: 358 (1,355)
 - Usable: 343 (1,298)

- Runtime @ 75% Load: 33 hr
- Double Wall Fuel Tank, Extended Runtime
 - 110% Containment Fuel and Engine Fluid (Oil, Coolant, and DEF)
 - UN31A Certification
 - UL142 / ULC-S601 Certification
- Fuel Tank Capacity – US Gal (L)
 - Total: 513 (1,942)
 - Usable: 462 (1,749)
- Runtime @ 75% Load: 44 hr
- Fuel Leak Detection Sensor
- Auxiliary Fuel Tank Connection
 - 3-Way Fuel Valve

CONTROL SYSTEM

- 3-Position Voltage Selection Switch
- 4-Position Voltage Selection Switch
- Paralleling Capability
 - Deep Sea Electronics® 8610 MKII Controller
 - 800 A Main Circuit Breaker (MCB), Motorized
 - Mobile Switching Center (MSC) Cable Connections
- Telemetry
- Battery Disconnect Switch, Lockable

ALTERNATOR SYSTEM

- SUPERSTART® Alternator
- VFLEX (600 V) Alternator
- Permanent Magnet Generator (PMG) Excitation System

POWER DISTRIBUTION

- Camlocks—one Set, Female (US or Canada Color Code)
- Buck Transformer

ENCLOSURE

- Fire Extinguisher

TRAILER

- Skid Mount (Non-trailer)
- Electric Brakes
- 2 5/8 in. Ball Hitch
- Rear Jack Group
- Toolbox-Aluminum, 49x15x18.5 in (125x38x47 cm)
- Spare Tire
- Two 8,000 lb (3,628 kg) Axles (When Double Wall Fuel Tank, Extended Runtime is Selected)

MDG250DF4 | 6.8 L | 250 kVA

MOBILE DIESEL GENERATOR SET

EPA Emissions Certification: Tier 4 Final



RATING DEFINITIONS

Standby: Applicable to varying emergency load for the duration of a utility power outage.
Prime: Applicable to supplying power to a varying load in lieu of utility for an unlimited amount of running time.
*Consult factory for availability



APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General	
Make (Model)	John Deere (6068HFG06)
EPA Emissions Compliance	Tier 4 Final
After Treatment System	DOC and SCR
Cylinder #	6
Type	In-line
Displacement: in³ (L)	415 (6.8)
Bore: in (mm)	4.2 (106)
Stroke: in (mm)	5.0 (127.0)
Compression Ratio	16.7:1
Intake Air Method	Turbocharged & Aftercooled
Engine Governing	
Governor	Electronic
Frequency Regulation (Steady State)	2%
Lubrication System	
Oil Pump	Gear Driven
Oil Filter Type	Spin-On Cartridge, Full Flow
Engine Oil Capacity: qt (L)	34.3 (32.5)

Cooling System	
Cooling System Type	Pressurized Closed
Water Pump Type	Engine Belt Driven
Fan Type	Pusher
Fan Speed: RPM	Variable Speed Clutch
Fan Diameter: in (mm)	28 (710)
Cooling System Capacity – qt (L)	44 (42)

Fuel System	
Fuel Type	Ultra Low Sulfur Diesel
Fuel Specifications	EN 590 / ASTM D975
Fuel Filtering	Primary: 10
	Final: 2
Fuel Injection Pump – Make (Model)	Denso (HP6)
Fuel Pump Type	Engine Gear Driven
Injector Type	Electronic
Engine Type	Direct Injection High Pressure Common Rail
Fuel Supply Line Diameter – in (mm)	0.375 (9.5)
Fuel Return Line Diameter – in (mm)	0.375 (9.5)

Engine Electrical System	
System Voltage: VDC	12
Battery – CCA	950
Battery – V (Qty)	12 (1)
Ground Polarity	Negative (-)

APPLICATION AND ENGINEERING DATA (CONT.)

STANDARD ALTERNATOR SPECIFICATIONS

Make (Model)	Marathon Electric (431CSL6206)
Poles	4
Field Type	Rotating
Insulation Class – Rotor	Class H
Insulation Class – Stator	Class H
Total Harmonic Distortion (THD)	<5%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Shunt
Bearings	Double Shielded, Prelubricated
Coupling	Direct Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	AVR
Quantity of Sensed Phases	1
Regulation Accuracy (Steady State)	± 0.5%

SUPERSTART ALTERNATOR SPECIFICATIONS

Make (Model)	Marathon Electric (433CSL6216)
Poles	4
Field Type	Rotating
Insulation Class – Rotor	Class H
Insulation Class – Stator	Class H
Total Harmonic Distortion (THD)	<5%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Shunt
Bearings	Double Shielded, Prelubricated
Coupling	Direct Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	AVR
Quantity of Sensed Phases	1
Regulation Accuracy (Steady State)	± 0.5%

VFLEX ALTERNATOR SPECIFICATIONS

Make (Model)	Marathon Electric (432PSL6613)
Poles	4
Field Type	Rotating
Insulation Class – Rotor	Class H
Insulation Class – Stator	Class H
Total Harmonic Distortion (THD)	<5%
Telephone Interference Factor (TIF)	<50

Standard Excitation	Shunt
Bearings	Double Shielded, Prelubricated
Coupling	Direct Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	AVR
Quantity of Sensed Phases	1
Regulation Accuracy (Steady State)	± 0.5%

OPERATING DATA

POWER RATINGS

	Standard Alternator		SUPERSTART Alternator		VFLEX Alternator	
	Standby:	Prime:	Standby:	Prime:	Standby:	Prime:
	kW/kVA (A)	kW/kVA (A)	kW/kVA (A)	kW/kVA (A)	kW/kVA (A)	kW/kVA (A)
1-phase, 120/240 VAC @ 1.0 pf—zig zag*	165/165 (687)	165/165 (687)	165/165 (687)	165/165 (687)	90/90 (375)	90/90 (375)
3-phase, 208/120 VAC @ 0.8 pf-low wye	220/275 (771)	200/250 (694)	220/275 (771)	200/250 (694)	193/242 (670)	176/220 (610)
3-phase, 240/109 VAC @ 0.8 pf-delta**	220/275 (662)	200/250 (601)	220/275 (662)	200/250 (601)	220/275 (662)	200/250 (601)
3-phase, 480/277 VAC @ 0.8 pf-high wye	220/275 (334)	200/250 (301)	220/275 (334)	200/250 (301)	220/275 (334)	200/250 (301)
3-phase, 600/346 VAC @ 0.8 pf-high wye	N/A	N/A	N/A	N/A	220/275 (265)	200/250 (241)

*Alternator limited.

**Power ratings achieved through use of optional 4-position phase voltage selection switch.

FUEL AND DEF CONSUMPTION RATES

Prime Load	Fuel: gph (L/hr)	DEF: gph (L/hr)
25%	4.4 (16.7)	0.11 (0.42)
50%	7.2 (27.4)	0.23 (0.87)
75%	10.4 (39.3)	0.34 (1.29)
100%	13.9 (52.8)	0.45 (1.70)
110% (Standby)	15.2 (57.5)	0.51 (1.93)

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

Please consult a Generac Mobile Authorized Service Dealer for additional details. All performance ratings in accordance with BS5514, SAE J1228, SAE J1995, and DIN6271 standards.

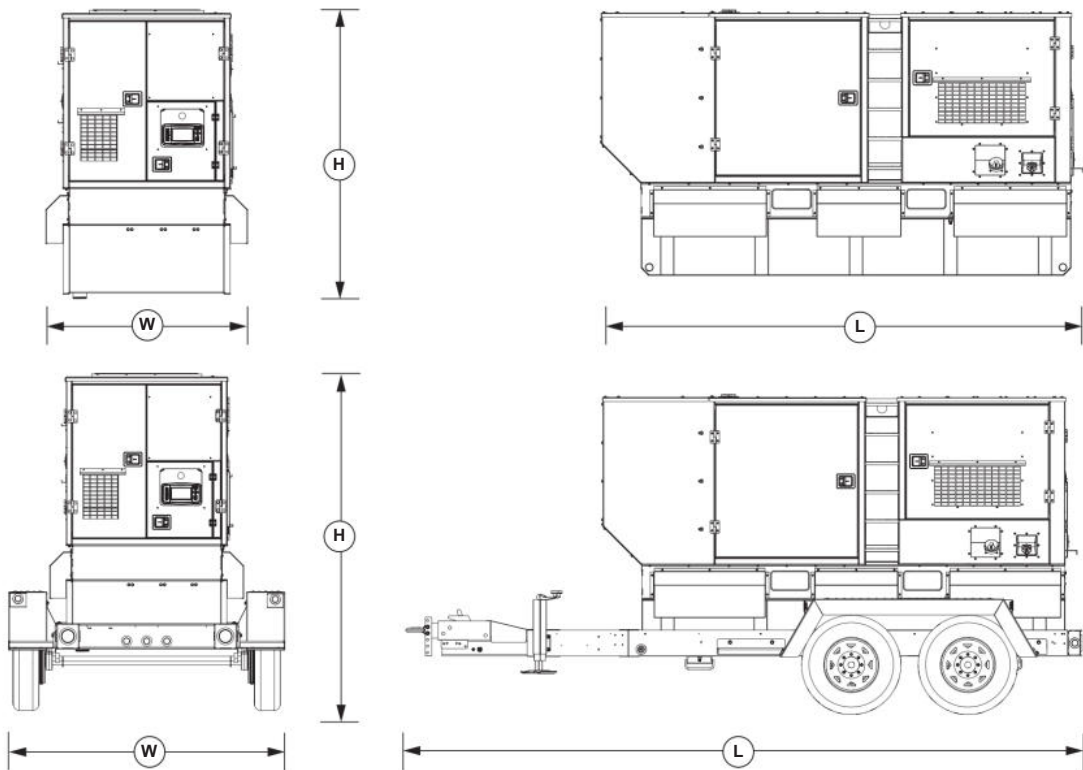
MDG250DF4 | 6.8 L | 250 kVA

MOBILE DIESEL GENERATOR SET

EPA Emissions Certification: Tier 4 Final



DIMENSIONS AND WEIGHTS*



	Runtime: hr*	Usable Fuel Capacity: Gal (L)	Dimensions – L×W×H: in (m)	Weight: lb (kg)
Skid	33	343 (1,298)	145 (3.7)×60 (1.5)×85 (2.1)	Dry: 6,898 (3,129) Operating: 9,411 (4,269)
Trailer	33	343 (1,298)	208 (5.3)×86 (2.2)×104 (2.6)	Dry: 8,863 (4,020) Operating: 11,376 (5,160)

*Runtime based on 75% of prime rated power

SOUND RATING

- 75 dB(A) @ 23 ft (7 m) @ 100% PRP

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC MOBILE DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Mobile Authorized Service Dealer for detailed installation drawings.

SD500 & MD500 | 18.1L | 500 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary - EPA Tier 4 Final

GENERAC INDUSTRIAL
ENERGY

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**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

SD500 & MD500 | 18.1L | 500 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary · EPA Tier 4 Final

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 (I²T 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 (I²T Function)
- High Voltage Limit
- Low Voltage Limit
- Maximum Power Limit
- $\pm 0.5\%$ 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

PARALLELING CONTROLS

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

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

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

SD500 & MD500 | 18.1L | 500 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary - EPA Tier 4 Final

CONFIGURABLE OPTIONS

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 2 Sound Attenuated
- Level 2 Sound Attenuated with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- IBC Seismic Certification/OSHDP 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

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

SD500 & MD500 | 18.1L | 500 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary - EPA Tier 4 Final

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 - in³ (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%

SD500 & MD500 | 18.1L | 500 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary - EPA Tier 4 Final

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)	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.				
127 (480)					

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 ₂ 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

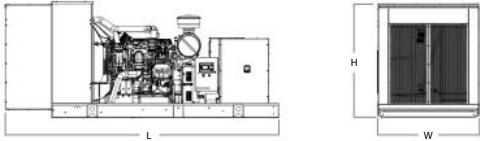
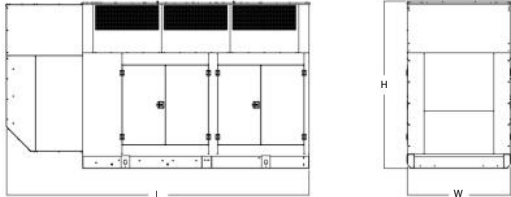
Prime — See Bulletin 10000018926

SD500 & MD500 | 18.1L | 500 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary - EPA Tier 4 Final

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 2 SOUND ATTENUATED ENCLOSURE		Weight - lbs (kg)	
Run Time Hours**	Usable Capacity Gal (L)	L x W x H - in (mm)		Enclosure Only	
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)		Steel 3,809 (1,728)	Aluminum 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

