M1066 SERIES

120-185 kW, 60 Hz @ 1800 RPM
155 kW, 50 Hz @ 1500 RPM

FEATURES AND BENEFITS

AFTERCOOLED FOR HIGH POWER DENSITY

Northern Lights pioneered the marinization of this engine, and still leads the way in Engineering quality. Case in point: the exclusive M1066 aftercooler. Because cooler air is more oxygenated than warm, it makes for better combustion. This aftercooler, along with electronically controlled fuel injection, give you more kW output.

ELECTRONIC SYSTEM PROFILER

"ESP" is a window to your set's real time operating condition. The ECU that controls the electronic fuel injection produces a SAE J1939 data stream of engine information that can be shown on an optional CAN Bus monitor panel.

SUPERIOR PMG GENERATOR ENDS

Northern Lights generator ends achieve ±0.5% voltage regulation. All have low temperature rise ratings that meet or exceed classification society requirements including ABS and Lloyds. All M1066 generator sets have Permanent Magnet Generators for 300% short circuit capability required for classed vessels.

COMMITTED TO PROVIDING COMPLETE SOLUTIONS

Northern Lights products are thoroughly factory tested and go through a complete quality control program to ensure your total satisfaction Our design philosophy allows us to provide comprehensive solutions to your power production needs. Because engine room space is always at a premium, we offer Low-Profile generator sets that save valuable inches where you need it most. Our line of options and accessories are designed to integrate into a total power system specifically built for your vessel. PTO's, sound enclosures and custom panels are among the options that make your power system as unique as your boat.

COMPONENT SPECIFIC FEATURES

ENGINE BLOCK

- Six cylinder, four cycle, in-line, liquid cooled, overhead valve, marine diesels based on heavy-duty industrial engine blocks
- Balanced, forged crankshaft with induction hardened journals and rolled fillets for long life
- Replaceable, wet cylinder liners for long life and low rebuild costs
- Bimetallic valves with chrome stems and rotators
- Replaceable valve seats and guides
- Three ring aluminum alloy pistons with Ni-Resist insert for the top ring. Keystone piston ring reduces carbon buildup under light loads
- Torsional crankshaft dampers help ensure smooth operation
- A single poly-vee drive belt powers the alternator and jacket-water pump

FUEL SYSTEM

- High pressure common rail fuel injection for smooth, clean delivery
- Direct fuel injection systems
- Ring clamp fuel filters with air bleed and drain
- Electric fuel pump integrated into primary fuel filter. Computer controlled priming for ease of operation

LUBRICATION SYSTEM

- Positive displacement gear-type oil pump
- Full flow, spin-on oil filter
- Jacket-water, plate-type, full flow oil cooler reduces heat and prevents lube oil breakdown
- Large capacity oil pan
- A closed loop crankcase vent traps oil vapor to keep the engine room clean

AIR SYSTEM

- Dry air filter silences intake noise
- Turbocharger with jacket water cooled turbine housings for safety
- Seawater aftercooler provides optimized combustion and output

COOLING SYSTEM

- Heat exchanger cooling system
- Gear driven, belt-less sea water pump with flexible impeller
- Cast iron expansion tank with brass filler neck
- Two thermostats for quick warm-ups and safety
- Cast-iron exhaust manifold for reliable temperature control

ESP AND DC ELECTRICAL SYSTEM

- Negative ground, 12 volt DC system has circuit breaker, starter motor and alternator with regulator
- Low oil pressure and high coolant temperature safety shutdown system.
- Optional control panels help you specify the amount and type of information required Comprehensive list of optional alarms and safety shutdowns
- Optional DC logic system for simplified maintenance
- Optional pre-wired engine, panel with terminal strips

AC GENERATOR

- Direct coupled, single bearing, 12 lead, reconnectable AC generator. Maintenance free brushless design
- All NL generators meet or exceed class society standards with Class "H" insulation, accessible diodes, oversized ball bearings, marine grade shafts and conservative 90°/50° heat rise ratings
- Engines and generators are torsionally matched for long life
- Automatic voltage regulator; ±0.5% regulation over the entire range from no load to full load
- Configured for isochronous frequency control with integral electronic governor control supplied by ECU

SPECIAL EQUIPMENT

- US EPA Tier III Marine certified on 60 Hz models
- Meets or exceeds the standards of most classification societies
- Welded steel base pan
- Belt guard
- Center bonded vibration isolation mounts
- Tough white Imron paint
- Operator's and parts manuals

CLASSIFICATION STANDARDS

ABS Type and Lloyd's Register approval Lloyd's Register states that Northern Lights marine generator sets have been successfully tested in accordance with relevant requirements of Lloyd's Register for Marine Generator applications.

ABS TYPE APPROVED PRODUCT

LLOYD'S REGISTER · LRQA ISO 9001

GENERAL SPECIFICATIONS AND DIMENSIONS

AC Output⨯	**M1066A13**	**M1066H**
60 Hz, 1800 RPM[1] kW	**120 kW**	**185 kW**
50 Hz, 1500 RPM[1] kW w/ABS or Lloyds cert upon request	**N/A**	**155 kW**
Voltage regulation	Both Models:+/- 0.5%	
Frequency droop control	Both Models: Isochronous 0%	
Phase and power factor	Both Models: Three phase 0.8 power factor std.	
Generator full load temperature rise ✓	90°C at 50°C ambient	110°C at 50°C ambient
Lugger Diesel Engine Data		
Inline cylinders/aspiration/operating cycle	Both Models: I-6 / Turbo & Aftercooled / 4	
Displacement - cid (liter)	Both Models: 414 (6.8)	
Bore/stroke - inches (mm)	Both Models: 4.19 / 5 (106 / 127)	
Fuel injection pump type and control	Both Models: Electronic (HPCR)	
Engine Cooling System		
Approximate cooling capacity - gal (ltr)	Both Models: 6.5 (24.7)	
Freshwater pump capacity - 60/50Hz/gpm (lpm)	42 / N/A (160 / N/A)	60 / 50 (227 / 189)
Seawater pump capacity - 60/50Hz/gpm(lpm)	42 / N/A (159 / N/A)	42 / 35 (159 /133)
Heat rejection to jacket water -1800/1500 rpm BTU min	5977 / N/A	Consult factory
DC Electrical (12V standard, 24V optional)		
DC starting voltage - standard (optional)	Both Models: 12 (24)	
Min battery capacity - amp hr/12V CCA (24V CCA)	255 / 925 (625)	225 / 800 (570)
Starter rolling amps @ 0°C - 12VDC (24VDC)	Both Models: 920 (600)	
12 Volt battery cable size up to 10 ft (3m)	Both Models: 000	
Air		
Generator cooling air flow 1&3Ø - 60/50 Hz - cfm	1,110 / N/A	1,100 / 915
Air consumption - 60/50 Hz - cfm (m^3/m)	378 / N/A (10.7 / N/A)	523 / 454 (14.8 / 12.9)
Approx heat radiated to air - 60/50 Hz - BTU/min	1060 / N/A	1458 / 1353
Exhaust gas volume - 60/50Hz - cfm (m^3/m)	974 / N/A (27.6 / N/A)	1317 / 1112 (37.3 / 33.5)
Exhaust gas temp - 60/50Hz - F° (C°)	977° / N/A (525° / N/A)	927° / 980° (497° / 526°)
Max. exhaust back pressure - inch H^2O (mm H^2O)	Both models: 30 (762)	
Fuel		
Min suction and return line - in (mm)	Both models: 3/8 (9.5)	
Max fuel transfer pump suction lift & return line pressure - inch H^2O (kPa)	Both models: 36 (914)	
Max fuel flow to transfer pump at 60/50Hz - gph	22.4 / 20.8	22.3 / 20.6
Specific fuel consumption max load 60/50Hz - lbs.hp.hr	0.354 / 0.333	0.371 / 0.348
Approx. fuel rate⁂ 60/50Hz - gph (lph)	9.0 / 7.1 (34 / 27)	14.9 / 13.1 (56.5 / 49.6)
Dimensions and Weight * ʎ		
Length - inches (mm)	Both models: 90 (2,286)	
Width - inches (mm)	Both models: 42 (1,067)	
Height - inches (mm)	Both models: 41.5 (1,054)	
Weight - pounds (kilograms)	3,630 (1,646)	3,776 (1,713)
Sound Enclosure - Dimensions and Weight * ≈		
Length - inches (mm)	Both models: 90 (2,286)	
Width - inches (mm)	Both models: 42 (1,067)	
Height - inches (mm)	Both models: 42 (1,067)	
Weight - pounds (kilograms)	Both models: 436 (198)	

*** Dimensions provided for information only. Do not use for installation. Contact factory for installation drawings and info.**

NOTES:

CF = consult factory representative or www.northern-lights.com for current information.

⨯ Prime kW ratings for 3Ø at 0.8 power factor. Consult factory for deration factors.

✓ Lloyd's Register classed M1066H @ 50 Hz = 110°C temperature rise at 45°C ambient

⁂ Based on prime kW rating at 1800 and 1500 RPM. Fuel rate may vary depending on operating conditions.

ʎ Data for units with hydrolastic mounts, heat exchanger cooling and 3 phase generator ends. Dimensions and weight are affected by optional equipment, AC output, phase, exhaust and cooling configuration.

≈ Consult factory for data on enclosures for single phase sets or sets with InSep

NORTHERN LIGHTS®

Northern Lights, Inc. is ISO 9001 certified through Lloyds Register Quality Assurance
4420 14th Ave. NW., Seattle WA 98107
Tel: (206) 789-3880 • 1-800-762-0165 • Fax: (206) 782-5455