



# M1308 SERIES

435-545 kW / 400-475 kW

## FEATURES AND BENEFITS

### THE STATE-OF-THE ART IN MARINE EQUIPMENT

The growing demands of the marine marketplace demand a big, robust power producer. As the world's yachts grow more sophisticated, their power generation system must keep pace.

Northern Lights generator sets are based on world-class components - including industrial strength base engines and generator ends. Our exclusive marinization process ensures reliable, clean power no matter what your vessel requires.

### ELECTRONIC SYSTEM PROFILER

The M1308 series comes standard with a ComAp IntelliGen NT marine panel for switchgear mounting which displays engine and AC data. The ECU that controls the electronic fuel injection provides a SAE J1939 data stream of engine information that can be shown on an optional system monitor panel.

### SUPERIOR PMG GENERATOR ENDS

Northern Lights generator ends achieve  $\pm 0.5\%$  voltage regulation. All have low temperature rise ratings to meet or exceed marine requirements. All M1308's have Permanent Magnet Generators for 300% short circuit capability required for classed vessels.

### COMPREHENSIVE OPTIONS LIST

Each option is designed to integrate into a total power system specifically designed for your vessel. Consider a high power PTO, world class sound enclosure or customizable control panel to make your generator set as unique as your boat.

### COMPLETE UNIT TESTING

Northern Lights generator sets are thoroughly factory tested and go through a complete quality control program to ensure your satisfaction with the best built marine generator on the market today.

## COMPONENT SPECIFIC FEATURES

### ENGINE BLOCK

- Vee-eight cylinder, four cycle, liquid cooled, overhead valve, marine diesels based on heavy-duty industrial engine blocks
- Balanced, alloy steel crankshaft with hardened and polished bearing surfaces
- High position alloy steel camshaft and pistons
- Three ring aluminum alloy pistons with Ni-Resist insert for the top ring. Keystone piston ring reduces carbon buildup under light loads
- Two gear-driven, counter-rotating balancing shafts for smooth operation
- Eight groove poly-vee drive belt powers the alternator and freshwater pump
- Replaceable, strength-optimized wet cylinder liners for long life and low rebuild costs

### FUEL SYSTEM

- Electronically controlled fuel injection systems for low exhaust emissions and superior fuel economy
- High torque at low revolution. (1800 or 1500 rpm)
- Ring clamp fuel filter with air bleed and drain
- Diaphragm-type, mechanically driven fuel transfer pump with manual priming lever
- Flexible fuel lines routed to fuel manifold on base frame for easy installation of vessel's hard piping

### LUBRICATION SYSTEM

- 500 hour oil change interval when fuel and oil requirements are met
- Positive displacement gear-type oil pump
- Full flow, spin-on oil filter
- Centrifugal oil cleaner reduces piston crown temperature for longer life
- Freshwater, plate-type, full flow oil cooler reduces heat and thermal breakdown of lube oil
- Large capacity oil pan
- Floating, cast aluminum, rocker cover traps valve noise and is a closed loop crankcase vent
- Lube oil drain for easy changes

### AIR SYSTEM-TURBO AND AFTERCOOLER

- Closed crankcase ventilation
- Dry air filter silences intake noise
- After-cooler with aircraft quality, 70/30 cupro-nickel, two pass element
- Twin, isolated turbocharged for increased output. Fresh-water cooled turbine housings for safety

### COOLING SYSTEM

- Freshwater cooling system with twin thermostats for quicker warm-ups
- Duel heat exchanger with expansion tanks. Gear driven, flexible impeller seawater pump. Easy to clean, tube-type cupro-nickel heat exchanger
- Cast iron expansion tank with brass filler neck. Cast-iron exhaust manifold has double pass freshwater flow for even temperature control, fast warm-up and no hot spots
- Zinc anode electrolysis protection

### DC ELECTRICAL SYSTEM

- SAE J1939 data stream available through a CAN bus plug for optional engine monitor.
- Isolated ground 24 VDC system with circuit breaker, starter motor and battery charging alternator with regulator
- Standard ComAp IntelliGen NT marine panel for switchgear mounting displays engine and AC data. Upgradable with enclosure, synchronizing and paralleling capability
- Low oil pressure and high coolant temperature safety shutdown system

### AC GENERATOR

- Direct coupled, single bearing, 12 lead, reconnectable AC generator. Maintenance free brushless design
- Generators meet or exceed class society standards. All have class H insulation, accessible diodes, oversized ball bearings, marine grade shafts and conservative 95°/50° heat rise ratings
- Engines and generators are torsionally matched for long life
- Automatic voltage regulator gives fast response to electrical load changes. Voltage is regulated to  $\pm 0.5\%$  (one half of one percent) over the entire range from no load to full load
- Isochronous electronic governor for 0% AC frequency droop
- PMG (permanent magnet generator) to power AVR for 300% short circuit capability for classed vessels

### SPECIAL EQUIPMENT

- Standard hydrostatic mounts isolate 98% of hull vibration
- Welded steel base frame with drip pan. Easy to mount and keep clean
- Belt guard protects operator even on sets in sound enclosures
- Sparkling white IMRON® polyurethane paint for protection and visibility
- Operator's and parts manuals

### CLASSIFICATION STANDARDS

- Meets or exceeds US EPA Tier III emission standards
- IMO compliant
- Consult factory for additional details

# GENERAL SPECIFICATIONS AND DIMENSIONS

AC Output <sup>×</sup>	M1308A12	M1308A22	M1308A32	M1308A42	M1308A43
60 Hz, 1800 RPM <sup>1</sup> kW	435 kW	475 kW	514 kW	545 kW	525 kW
50 Hz, 1500 RPM <sup>1</sup> kW	400 kW	420 kW	450 kW	475 kW	
Voltage regulation and PMG	All models: +/-0.5%				
Frequency droop control	0-10%				
Phase and power factor	3 phase, 0.8 pf				
Generator full load temperature rise	Max 95°C/50°C				
<b>Diesel Engine Data</b>					
Cylinders/Aspiration/Operating cycle	All models: V-8/Turbo & Aftercooled/4				
Displacement - cid (liter)	1001 (16.4)				
Bore/Stroke - inches (mm)	5.12/6.1 (130/154)				
HP @ 1800 RPM (1500 RPM) ✓	628 (577)	685 (603)	742 (644)	799 (685)	742 (644)
Max. front power take off HP @ 60 Hz (50 Hz)	202 (168)				
Oil capacity with filter - quarts (ltr)	51 (48)				
<b>Cooling System</b>					
Approx. heat exchanger cooling capacity - gal (ltr)	All models: 17 (63)				
Min. seawater inlet/discharge through hull dia. - in (mm)	C/F				
Sea water pump inlet hose ID - in (mm)	C/F				
Heat rejection to jacket water - 60 Hz BTU/min (kW)	20,470 (360)	21,950 (386)	23,660 (416)	25,530 (449)	23,660 (416)
50 Hz BTU/min (kW)	17,910 (315)	18,650 (328)	19,960 (351)	21,380 (376)	19,960 (351)
Freshwater pump capacity - 60 Hz - gpm (lpm)	C/F				
50 Hz - gpm (lpm)	C/F				
Seawater pump capacity - 60 Hz - gpm (lpm)	66 (250)				
50 Hz - gpm (lpm)	57 (215)				
Max. seawater pump suction head - in (m)	118 (3)				
Consult factory for keel and skin cooler sizing	C/F				
<b>DC Electrical</b>					
DC starting voltage - standard (optional)	24				
Min battery capacity - amp hr/12V CCA (24V CCA)	C/F				
Starter rolling amps @ 0°C - 12VDC (24VDC)	C/F				
24 Volt battery cable size up to 10 ft (3m)	C/F				
<b>Air</b>					
Generator cooling air flow - 60 Hz/cfm	1536 (43.5)	1428 (40.5)	1428 (40.5)	C/F	1428 (40.5)
50 Hz/cfm	1280 (36.3)	1190 (33.7)	C/F	C/F	C/F
Air consumption - 60 Hz - cfm (m <sup>3</sup> /m)	1160 (32.9)	1190 (33.7)	1250 (35.3)	1300 (36.9)	1250 (35.3)
50 Hz - cfm (m <sup>3</sup> /m)	886 (25.1)	913 (25.9)	969 (27.4)	996 (28.2)	969 (27.4)
Exhaust gas volume - 60 Hz - cfm (m <sup>3</sup> /m)	2960 (83.8)	3150 (89.2)	3350 (95.0)	3580 (101.0)	3350 (95.0)
50 Hz - cfm (m <sup>3</sup> /m)	2510 (71.0)	2600 (73.5)	2700 (76.4)	2880 (81.5)	2700 (76.4)
Exhaust gas temp - 60 Hz - F° (C°)	761 (405)	781 (416)	806 (430)	837 (447)	806 (430)
50 Hz - F° (C°)	847 (453)	855 (457)	869 (465)	883 (473)	869 (465)
Approx. heat radiated to air - 60Hz - BTU/min (kW)	3108 (54.6)	3261 (57.3)	3525 (62.0)	C/F	3525 (62.0)
50Hz - BTU/min	2793 (49.1)	3033 (53.3)	3050 (53.6)	C/F	3060 (53.6)
Max. Exhaust Back Pressure - inch H <sub>2</sub> O (mm H <sub>2</sub> O)	All models: 30 (762)				
Wet exhaust Elbow OD- in (mm)	C/F				
<b>Fuel</b>					
Fuel injection pump type and control	All models: PDE/S6 EMS				
Min suction & return line - in (mm)	0.5 (13)				
Max fuel transfer pump suction lift - in (mm)	79 (2000)				
Max fuel flow to transfer pump - gph 60 Hz (50 Hz)	106 (100)				
Full load fuel returned to tank - gph 60 Hz (50 Hz)					
Specific fuel consumption max load - 60 Hz - lbs./hp-hr.	73.7 (71.1)	71.1 (70.0)	68.4 (68.1)	64.6 (65.6)	68.4 (68.1)
50 Hz - lbs./hp-hr.	0.366	0.332	0.331	0.332	0.331
Approx. fuel rate <sup>**</sup> at 60 Hz full load - gph (lph)	0.327	0.326	0.326	0.327	0.326
50 Hz full load - gph (lph) <sup>3</sup>	32.3 (122)	34.9 (132)	37.6 (142)	41.4 (157)	37.6 (142)
50 Hz full load - gph (lph) <sup>3</sup>	28.9 (110)	30.0 (114)	31.9 (121)	34.4 (130)	31.9 (121)
<b>Maximum Engine Operating Angle</b>					
Continuous (with separate expansion tank)	All models: 12° front/rear, 10° lateral				
Intermittent (2 minutes)	25° front/rear, 30° lateral				
<b>Dimensions and Weight (See note λ &amp; ~)</b>					
Set length <sup>λ</sup> - inch (mm)	All models: 106 (2683)				
Set width <sup>λ</sup> - inch (mm)	48.2 (1224)				
Set height <sup>λ</sup> - inch (mm)	51.7 (1314)				
Approx. dry weight <sup>λ</sup> HE cooling 60 Hz - lbs (kg)	C/F	7607 (3450)	C/F	C/F	C/F
Approx. dry weight <sup>λ</sup> HE cooling 50 Hz - lbs (kg)	C/F	7607 (3450)	C/F	C/F	C/F
Sound enclosure <sup>λ</sup> - inch (mm)	C/F				
Sound enclosure <sup>λ</sup> weight - lbs (kg)	C/F				

IMO Tier III

## NOTES:

C/F = Contact factory representative or [www.northern-lights.com](http://www.northern-lights.com) for current information

- × Prime kW ratings for 30 at 0.8 power factor. Consult factory for deration factors.
- ✓ Net flywheel hp rating for fully equipped engine at rated speed under SAE J816b.
- \* Based on prime kW rating at 1800 and 1500 RPM. Fuel rate may vary depending on operating conditions.
- λ Data for units with hydroelastic 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 sets with InSep.
- ~ Dimensions are subject to change without notice, they are not intended for installations. Contact a factory representative for the current installation data.



Northern Lights, Inc. is ISO 9001 certified through Lloyds Register Quality Assurance  
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