

### 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.
- Jacket water aftercooler provides optimized combustion and output. No second keel cooler needed.

### Cooling System

- Keel cooled with heat exchanger option
- Gear driven, belt-less sea water pump with flexible impeller made of bronze and stainless steel.
- 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. Relay board and senders for gauged panels standard.
- Standard S-3C remote control panel with engine hour meter, coolant temperature gauge, oil pressure gauge, DC voltage meter, start-stop and shutdown bypass switches. Additional optional panels help you specify the amount and type of information delivered.
- 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.
- 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; ±1.5% regulation over the entire range from no load to full load.
- Configured for 0% isochronous droop with integral electronic governor control supplied by ECU.

AC Output <sup>1</sup>	M150C13
<b>60 Hz, 1800 RPM<sup>1</sup> kW</b>	<b>150 kW</b>
Voltage regulation	1.5%
Frequency droop control	Isochronous 0%
Phase and power factor	Three phase 0.8 power factor std. Opt.: Single phase 1.0 power factor
Generator full load temperature rise	90°C temperature rise at 50°C ambient
Lugger Diesel Engine Data	
Inline cylinders/aspiration/operating cycle	I-6 / Turbo & Aftercooled / 6
Displacement - cid (liter)	414 (6.8)
Bore/stroke - inches (mm)	4.19/5 (106/127)
Fuel injection pump type and control	Electronic (HPCR)
Cooling System (Keel cooling standard, heat exchanger optional)	
KC Heat rejection to jacket water -1800 rpm BTU min	11,800
KC Freshwater pump capacity - 1800 rpm/gpm (lpm)	51.2 (194)
KC Approximate cooling capacity - gal (ltr)	6.5 (24.7)
KC Coolant Flow - 1800 rpm/gpm(lpm)	125 (173)
KC max seawater pump suction head lift - ft (m)	3 (1)
KC sea water pump inlet hose ID - in (mm)	2.5 (63)
KC min. seawater inlet/discharge thru-hull - in (mm)	2.5 (63)
DC Electrical (12V standard, 24V optional)	
DC starting voltage - standard (optional)	12 (24)
Min battery capacity - amp hr/12V CCA (24V CCA)	255/925 (625)
Starter rolling amps @ 0°C - 12VDC (24VDC)	920 (600)
12 Volt battery cable size up to 10 ft (3m)	000
Air	
Air consumption - 1800 rpm/cfm (m <sup>3</sup> /m)	547 (15.5)
Approx heat radiated to air - 1800 rpm/BTU/min	2,040
Generator cooling air flow 1&3Ø - 1800 rpm cfm	1,308
Exhaust gas volume - 1800 rpm/cfm (m <sup>3</sup> /m)	1,123 (32)
Exhaust gas temp - 1800 rpm/F° (C°)	703 (373)
Max. exhaust back pressure - inch H <sub>2</sub> O (mm H <sub>2</sub> O)	30 (762)
Wet exhaust elbow OD- in (mm)	5 (127)
Dry exhaust elbow in (mm)	4 (102)
Fuel	
Fuel injection pump type and control	High Pressure Common Rail
Min suction - in (mm)	0.31 (8)
Min return line - in (mm)	0.31 (8)
Max fuel transfer pump suction lift - ft (m)	7.9 (2.4)
Max fuel flow to transfer pump at 1800 rpm - gph	42.8
Specific fuel consumption max load 1800 rpm - lbs.hp.hr	0.386
Approx. fuel rate <sup>3</sup> at 1800 RPM full load - gph (lph) <sup>3</sup>	12.2 (46.1)
Max Engine Operating Angle	
Continuous (with separate expansion tank)	25
Intermittent (2 minutes)	35
Dimensions and Weight*	
Length - inches (mm)	83.1 (2111)
Width - inches (mm)	33.8 (858)
Height - inches (mm)	41.6 (1056)
Weight - pounds (kilograms)	3550 (1610)

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

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