

VOLVO PENTA MARINE AUXILIARY DIESEL**D13-MG**

12.78 liter, in-line 6 cylinder - Constant engine speed

Emission compliance: IMO Tier III and US EPA Tier 3



D13-MG is a reliable, powerful, fuel-efficient and clean marine diesel engine. It's based on Volvo Group's proven engine platform and is designed by Volvo Penta to power a wide range of marine auxiliary applications.

This 12.78 liter diesel engine is developed from the latest design in modern diesel technology. The engine has a robust block with ladder frame, high pressure unit injector system, 4 valves per cylinder, "twin entry" waste gate turbo and after cooler.

Together with Volvo Group's Engine Management System it offers powerful response, fuel efficiency and excellent emission performance. The SCR (Selective Catalytic Reduction) exhaust after treatment system is tailored for a perfect fit. The SCR unit, also a silencer, reduces noise by 35-40 dBA. The robust cylinder block is fitted with a ladder frame for smooth operation and low noise.

Typical applications:

- Pumps
- Cranes
- Hydraulic power packs
- Air compressors
- High-pressure water systems
- Fire-fighting equipment
- Nitrogen pumps
- Dry bulk handling

- Proven design - built on Volvo Group technology
- Fuel-efficient and low emission levels
- Powerful response
- Low weight, noise and vibrations
- Type-approved
- Classifiable by all major societies
- Compact installation and easy to service

The engine can be equipped with a wide range of optional equipment and is available with Heat Exchanger (HE), Keel Cooled (KC) or Radiator Cooled (RC) cooling system. Two options for on-board electronic control: The type-approved MCC (Marine Commercial Control) or Open CAN Interface.

The engine and equipment can be covered with the Extended Coverage which prolongs the standard warranty up to five years - or the corresponding number of running hours.

The compact and space saving design makes for easy installation and easily accessible service points.

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Technical Data Engine

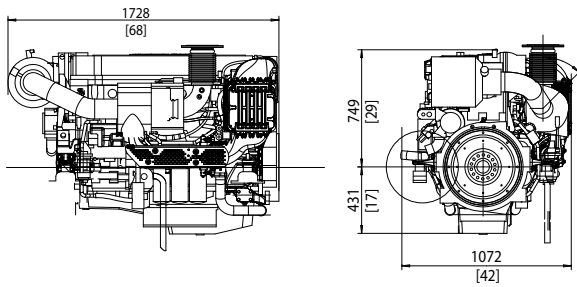
Engine designation	D13 MG			
No. of cylinders and configuration	in-line 6			
Method of operation	4-stroke, direct-injected, turbocharged diesel engine with charge air cooler			
Bore/stroke, mm	131/158			
Displacement, l	12.78			
Compression ratio	18.5			
	1500 rpm	1500 rpm	1800 rpm	1800 rpm
Crankshaft power HE, kW	300	360	360	400
Crankshaft power RC, kW	289	349	341	381
Crankshaft power KC, kW	300	360	360	400
Specific fuel consumption HE/KC , g/kWh				
50%	205	199	212	207
75%	195	191	200	199
100%	191	191	197	197
Recommended fuel conform to	ASTM-D975 1-D & 2-D, EN 590 or JIS KK 2204.			

T10% overload available acc. to class requirements. Fuel temperature 40°C (104°F). Technical data according to ISO 3046 Fuel Stop Power with a tolerance ±4%. Fuel with a lower calorific value of 42700 kJ/kg and density of 840 g/liter at 15°C (60°F). Merchant fuel may differ from this specification which will influence engine power output and fuel consumption. The engine is certified according to IMO Tier III for diesel electric propulsion.

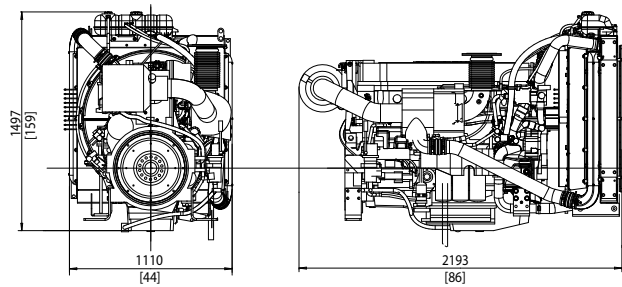
Dimensions

Not for installation, mm (inches)

Engine with HE & KC



Engine with RC



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Technical description

Engine and block

- Cylinder block and cylinder head made of cast iron
- One piece cylinder head
- Replaceable wet cylinder liners and valve seats/guides
- Drop forged crankshaft with induction hardened bearing surfaces and fillets with seven main bearings
- Four valve per cylinder layout with overhead camshaft
- Each cylinder features cross-flow inlet and exhaust ducts
- Gallery oil cooled forged aluminum pistons, three piston rings (keystone top ring)
- Senders for oil pressure (after filter), oil temp, oil pressure, oil level, fuel pressure, freshwater pressure, exhaust temp, crankcase pressure, speed crank and cam, boost pressure/temp, seawater pressure (not KC or RC cool.), coolant level, coolant temp
- Exhaust temperature indication

Lubrication system

- Freshwater-cooled oil cooler integrated in cylinder block
- Twin full flow oil filter of spin-on type and single by-pass filter

Fuel system

- Electronic Unit Injectors
- Gear-driven fuel pump, driven by timing gear
- Electronically controlled injection timing
- 5-hole high pressure injector nozzles
- Twin engine-mounted spin-on fine fuel filters with change over valve

Turbocharger

- Dry twin entry turbocharger

Heat Exchanger cooled system (HE)

- For seawater- and central-cooled Gensets
- Engine-mounted plate heat exchanger with expansion tank
- Belt-driven centrifugal freshwater pump
- Belt-driven rubber impeller raw water pump

Radiator cooled system (RC)

- For aircooled Gensets
- Polygroove belt-driven radiator fan
- Belt-driven centrifugal cooling water pump
- Air to air CAC (Charge Air Cooler)

Keel cooled system (KC)

- 2-circuit cooling system
- Belt-driven centrifugal cooling water pump in HT circuit
- Engine mounted expansion tank in HT circuit
- Gear driven rubber impeller cooling water pump in CAC LT circuit

Control System

Two options for control systems

1. MCC (Marine Commercial Control), an open system that is type-approved. Incl. separate safety shutdown system
2. Open CAN Interface, engine delivered without control system. Different options with or without shut down senders and switches.

Optional equipment

Engine

- Twin fuel pre-filters/water separator with change over valve
- Flexible exhaust compensator
- Cooling water connection bellows
- Electrical and air starting systems available individually or in parallel.
- Raw water pressure indication (only in combination with raw water pump)
- Engine heater 2000W
- Visco fan (only for RC gensets)

Exhaust aftertreatment system

- SCR (Selective Catalytic Reduction)
- Aqueous UREA solution 32% or 40%
- Complete system – developed, certified, and serviced by one company
- Fully integrated capabilities
- Prop-to-helm system (IPS)
- SCR unit reduces noise by up to 35 dBA
- Wide range of installation options available

Miscellaneous

- 110A alternator with integrated charging sensor
- Basic toolkit
- Spare parts according to classification recommendations

Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice. The engine illustrated may not be entirely identical to production standard engines.

Contact your local Volvo Penta dealer for more information regarding Volvo Penta engines and optional equipment/accessories or visit www.volvopenta.com

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