

# VOLVO PENTA INBOARD DIESEL

# D12 MH

216–405 kW (294–550 hp) crankshaft power acc. to ISO 3046, rating 1–2

## Excellent reliability and economy

The D12 MH marine diesel engine is specially designed and developed for installations in heavy duty commercial displacement craft, featuring the latest advanced diesel technology.

Excellent drivability is assured with high low-end and a rich torque curve matched to the power outputs for fast and immediate response.



## World-class performance

Low fuel consumption for long operational range and low operational cost and emission levels is assured with:

- Electronic Unit Injectors
- 4-valve technology
- Electronically controlled injection timing
- High pressure 5-hole injector nozzles
- Electronic governing – EMS

This technology combined optimizes engine performance and efficiency, and ensures efficient combustion by injecting the right quantity of fuel at the right time. This minimizes quantity of unburned fuel, reducing fuel consumption and exhaust emission levels.

## Electronic Vessel Control (EVC/EC)

EVC Electronic Vessel Control is the latest development in engine control and instrumentation for Volvo Penta marine engines. It offers a higher level of integration in your boat: electronic shift and throttle for smooth and safe control, a complete range of easy to read data link gauges, an EVC system display (option) and much more, everything in just one CAN cable.

EVC makes boating easier and safer, offering twin engine synchronization and the new software function trip computer. EVC is scalable from one station up to four, from a classic dashboard up to an

advanced driver information system. EVC works closely together with the engine management system, offering you constant power output regardless of fuel temperature (5–55°C/41–131°F) and quality. The system is built on the latest automotive technology with waterproof connectors, so it's just plug and go.

As an option the EVC system is fully classifiable with a safety shutdown unit (SDU) with exclusive shutdown senders with full broken wire detection and a power module for automatic switch-over to backup power supply (PM).

## Easy installation and service

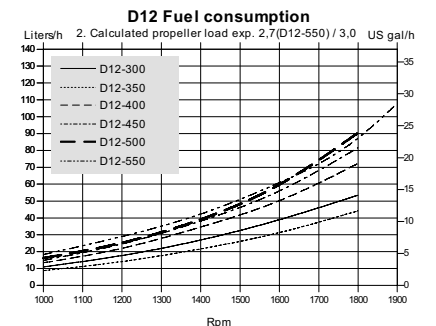
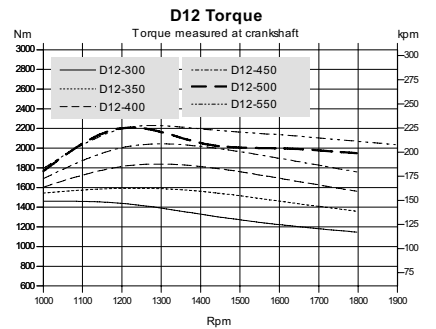
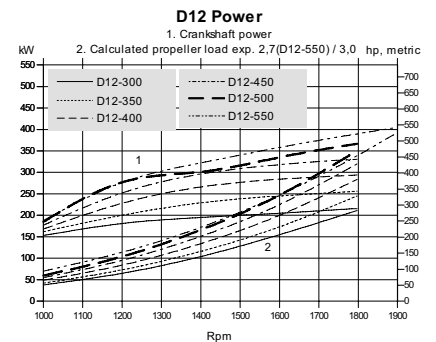
The D12 MH together with EVC gives a time-saving and reliable installation, as it is a complete delivered compact and tailor-made propulsion system from one single supplier.

The EVC system features a self-diagnostic facility. Easily accessible service and maintenance points contribute to the ease of service of the engine.

## Meeting new emission standards

The advanced combustion system with high pressure unit injectors in combination with electronics are meeting the new legislations aiming to minimize noxious emissions and particles.

Closed crankcase ventilation (CCV) is included as standard equipment for the US market and is optional for other markets.



**VOLVO  
PENTA**

# D12 MH

## Technical description:

### Engine and block

- Cylinder block and cylinder head made of cast-iron
- One-piece cast-iron cylinder head
- Replaceable wet cylinder liners and valve seats/g uides
- 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 cast aluminum alloy pistons
- Three piston rings

### Lubrication system

- Integrated oil cooler in cylinder block
- Twin full flow oil filter of spin-on type and by-pass filter

### Fuel system

- Six Electronic Unit Injectors, one per cylinder, vertically positioned at the center in between the four valves
- Gear-driven fuel pump, driven by timing gear

- Electronically controlled central processing system (EMS – Engine Mangement System)
- Electronically controlled injection timing
- 5-hole high pressure injector nozzles
- Single fine fuel filter of spin-on type, with water separator (not classifiable)

### Turbocharger

- Freshwater-cooled turbocharger

### Cooling system

- Freshwater-cooled charge air cooler
- Gear-driven coolant pumps
- Tubular heat exchanger or single-circuit keel cooling

### Electrical system

- 24V electrical system, 24V/60A alternator

### Instruments/controls (option)

- Complete instrumentation including key switch and interlocked alarm
- EVC monitoring panels for single or twin installations
- Electronic remote control for throttle and shift
- Plug-in connections
- SDU shutdown unit for classified installations
- MCC – Marine Control System

### Reverse gear

- MG5114SC/DC-E, electrically shifted.

### Optional equipment

- Closed crankcase ventilation (CCV)
- For further information regarding optional equipment, contact your Volvo Penta representative.

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.

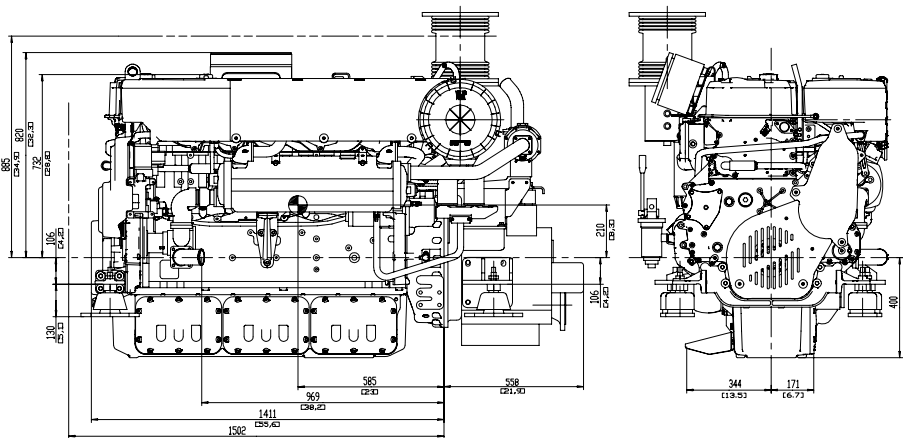
## Technical Data

Engine designation .....	<b>D12 MH</b>					
No. of cylinders and configuration.....	in-line 6					
Method of operation .....	4-stroke, direct-injected, turbocharged diesel engine with aftercooler					
Bore/stroke, mm (in.) .....	131/150 (5.16/5.91)					
Displacement, l (in <sup>3</sup> ).....	12.13 (740.2)					
Compression ratio.....	17.5:1					
Dry weight bobtail, kg (lb) .....	1400 (3086)					
Dry weight with reverse gear						
MG5114SC, kg (lb).....	1603 (3534)					
MG5114DC, kg (lb).....	1768 (3898)					
.....	Rating 1	Rating 1	Rating 1	Rating 1	Rating 2	Rating 2
.....	1800 rpm	1800 rpm	1800 rpm	1800 rpm	1800 rpm	1900 rpm
Crankshaft power, kW (hp) .....	216 (294)	256 (348)	294 (400)	331 (450)	367 (499)	405 (550)
Max. torque, Nm (lb.ft) @ .....	1000 rpm	1200 rpm	1200 rpm	1400 rpm	1200 rpm	1200 rpm
.....	1461 (1078)	1592 (1174)	1814 (1338)	2019 (1489)	2204 (1626)	2196 (1620)
Specific fuel consumption .....	Recommended fuel to conform to: ASTM-D975 1-D & 2-D, EN 590 or JIS KK 2204					
g/kWh (lb/hph) @ .....	1800 rpm	1800 rpm	1800 rpm	1800 rpm	1800 rpm	1900 rpm
.....	209 (0.338)	210 (0.34)	207 (0.335)	208 (0.337)	217 (0.351)	217 (0.352)
Certified according to .....	IMO NOx,	IMO NOx,	IMO NOx,	IMO NOx,	IMO NOx,	IMO NOx,
.....	EU IWW	EU IWW	EU IWW,	EU IWW,	EU IWW,	EU IWW,
.....	US EPA Tier 2			US EPA Tier 2	US EPA Tier 2	US EPA Tier 2

Technical data according to ISO 3046 Fuel Stop Power and ISO 8665. With fuel having an LHV 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. Ratings R1 & R2, see explanation in Volvo Penta's Sales Guide. The engine is classifiable by major classification societies.

## Dimensions D12 MH with MG5114SC-E

Not for installation



**AB Volvo Penta**  
SE-405 08 Göteborg, Sweden  
www.volvopenta.com