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REVIEW: VOLVO PENTA D1-30 MARINE DIESEL

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The Volvo Penta D1-30 marine diesel engine combines excellent torque and top fuel economy to make it a standout engine.

The three-cylinder 30hp marine diesel market is crowded simply because these engines run way more smoothly than twins but aren't as complex as a four-cylinder. Plus, they suit a wide range of hulls from 10 to 12 metres in single and twin installations.

Beta Marine, Nanni Diesel, Volvo Penta and Yanmar all have offerings based on industrial and tractor diesels; Beta, Nanni and Volvo source their base marine diesel engines from Japan while Yanmars come from the Netherlands. But where Beta and Nanni score with fuel efficiency, they lose out on torque; Yanmar kills them for torque but fuel consumption is substantially higher.

Enter the Volvo Penta D1-30 marine diesel. It's been around a while and has a bit of a weight issue (just like me) compared to its direct competition but delivers the second-highest torque output without killing its fuel efficiency. And unlike the Beta and Nanni Diesel engines it doesn't rev as hard, a plus in any inboard engine.

The Volvo Penta D1-30 marine diesel is essentially a Volvo Penta D2-40 with a cylinder lopped off. It's Volvo's largest three-cylinder recreational marine engine and has all the features of its yacht range, from the twin-cylinder D1-13 up to the four-cylinder turbocharged Volvo D2-75 marine diesel. Features like a 115-amp voltage-regulated alternator that still pumps out 35A with the engine idling at 850rpm, the fresh-water cooled exhaust manifold to reduce internal corrosion from condensation during periods of disuse, and provision for a hot water take-off for the luxury of a shower aboard. Being industrial engines with high 23.5:1 compression ratios, Volvo doesn't tempt owners to do their backs in with hand-starting facilities, so it's essential to fit a large capacity starter battery in addition to the house battery. Fortunately the starter motor is mounted well up the block, away from (heaven forbid) any bilge water or dampness.



The Volvo Penta D1-30 marine diesel engine is ideal for sailing catamarans up to 11.5 metres (in twin sail-drive configuration); keel boats up to 10m in single configuration; or displacement cruisers up to 6m.

VOLVO PENTA D1-30 MARINE DIESEL

The weight excess on the Volvo Penta D1-30 marine diesel engine can be explained to an extent by the engine's construction. The cylinder head and block are cast iron, there's a hefty dynamically balanced crankshaft and the aluminium pistons have chromium-faced rings. Both top and side-mounted oil filler caps are fitted and the spin-on fuel filter/sediment, fresh and raw-water cooling pumps and alternator are all at the forward end of the engine. An auxiliary stop button is mounted on the engine for emergency stops from the cabin. The camshaft-driven inline fuel injection pump is easy to service and of course glowplugs are fitted for easier cold starting.

Servicing is straightforward, with a simple two valves per cylinder design operated by rocker gear and driven by pushrods from the side-mounted gear-driven camshaft. The valve clearance adjustment should be easy as the rocker cover isn't cluttered by any hoses apart from the positive crankcase ventilation connections.

There's a reasonably large 3.5-litre sump to help absorb oil dilution during low speed operation. Depending on anticipated ambient temperature ranges between fills I recommend a diesel-specific SAE 10W30 for cooler climates and SAE 15W40 for tropical conditions, with oil and filter changes every 200 running hours or annually. The maximum port or starboard heel angle is 35 degrees before oil starvation so the engine can be started and warmed up while the yacht is heeled under sail.

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The total coolant capacity including radiator overflow tank is 4.1 litres – adequate for a diesel of this piston displacement.

The standard instrument panel on the Volvo Penta D1-30 marine diesel includes a tachometer (thankfully to only 4000rpm) with digital hour-meter, plus alarms for low oil pressure and high coolant temperature, plus a water ingress alarm for sail-drive models.

Budget permitting, I'd also opt for temperature and alternator charge gauges as prevention is better than stuck with alarms when you least expect them. Naturally, Volvo offers a full range of engine accessories such as sea cocks, strainers, cooling water and exhaust hoses, and skin fittings.

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Transmission options

There's a good choice of transmissions, all mechanical with multi-disc clutches. For shaft-drive installations I'd opt for the MS10A 'box which has an eight-degree down angle at the output flange and a 2.35:1 reduction ratio that gives a usefully low 1360rpm at the prop at maximum engine rpm. There is also a heavier-duty MS15A gearbox with 2.63:1 reduction and also eight-degree down angle but this is intended more for cruisers than yachts, with the prop turning at a maximum of only 1220rpm. It also raises the dry weight to 157kg, fairly hefty for a 30hp diesel.

A sail drive is available with a 2.19:1 reduction based on the engine being installed in a racing yacht. With this drive the engine may be mounted forward or aft of the leg. Complete with MS15A 'box the Volvo Penta D1-30 is 728mm long, 482mm wide and 553mm high.

The Trade-a-Boat verdict

Based on its great torque output at reasonably low rpm the Volvo Penta D1-30 marine diesel would suit sailing catamarans to 11.5 metres in twin sail-drive installations or as a single in keel boats to 10 metres or displacement cruisers to six metres. It has a relatively shallow torque curve with 84 per cent of maximum torque available at fast idle and 88 per cent at maximum rpm. This curve provides plenty of grunt for manoeuvring in tight marinas, which all yacht auxiliaries need but as the injection timing is fixed I recommend not running the Volvo D1-30 continuously below 1800rpm or above 2800rpm.

The Volvo Penta D1-30 marine diesel's three-cylinder design will reduce transmitted vibration through fibreglass hulls to low levels but don't expect much flab massaging.

Call Volvo Penta Australia on (07) 3726 1500 or visit [Volvo Penta Australia](#) for more information.

Volvo Penta D1-30 marine diesel sea trials

RPM	TORQUE (NM)	BHP ABSORBED BY PROP	FUEL BURN (L/H)
1200	59.7	1.5	0.8
1400	64.8	2.3	1.0
1600	66.9	3.4	1.0
1800	67.9	4.8	1.5
2000	70.2	6.6	1.9
2200	71.2	8.7	2.4
2400	70.8	11.4	2.9
2600	68.0	14.5	3.6
2800	65.8	18.1	4.4
3000	63.7	22.3	5.5
3200	62.4	26.9	6.7

VOLVO PENTA D1-30 SPECS

Engine type Three-cylinder indirect injection marine diesel engine

Rated BHP/MHP* 26.9/27.3 at 3000rpm (propshaft)

28.0/28.4 at 3000rpm (crankshaft)

Max torque 71.2Nm at 2200rpm

Displacement 1130cc

Bore x stroke 77x81mm

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158kg (dry w/sail drive)

* Brake horsepower/metric horsepower

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