

# VOLVO PENTA AQUAMATIC

# V8-320

239 kW (320 hp)

## V-8 performance for marine use

An advanced V-8 gasoline engine for performance powerboats. With 5.7 liter displacement and eight cylinders, this engine delivers loads of torque and power across the entire speed range. The computer controlled fuel management system combined with catalytic exhaust treatment produces maximum power, greatly reduced emissions and CO, and ultimate reliability. This modern engine is a perfect match for the twin-propeller Duoprop drive.

### World-class performance

The advanced fuel management system combines sophisticated engine management strategies with proven fuel and control system components to produce better fuel mileage, increased reliability and lower emissions. All contribute to world-class boating performance.

The Multi Port Fuel Injection system is monitored and controlled by an engine computer (ECM), giving the following advantages: more responsive and smoother acceleration, excellent turnkey starts in all weather conditions, smooth reliable idling, and reduced fuel consumption.

Additional system features include: engine knock control, overspeed protection, rpm reduction to protect the engine during low oil pressure or high engine temperature situations, altitude compensation, and self-diagnostic capabilities.

### Exceeding emissions regulations

Volvo Penta's unique combination of computer controlled engine management strategies and catalytic treatment of the exhaust produces emissions results that exceed the world's most stringent emissions regulations, including US EPA and CARB's 4-star standard.

### Robust, reliable

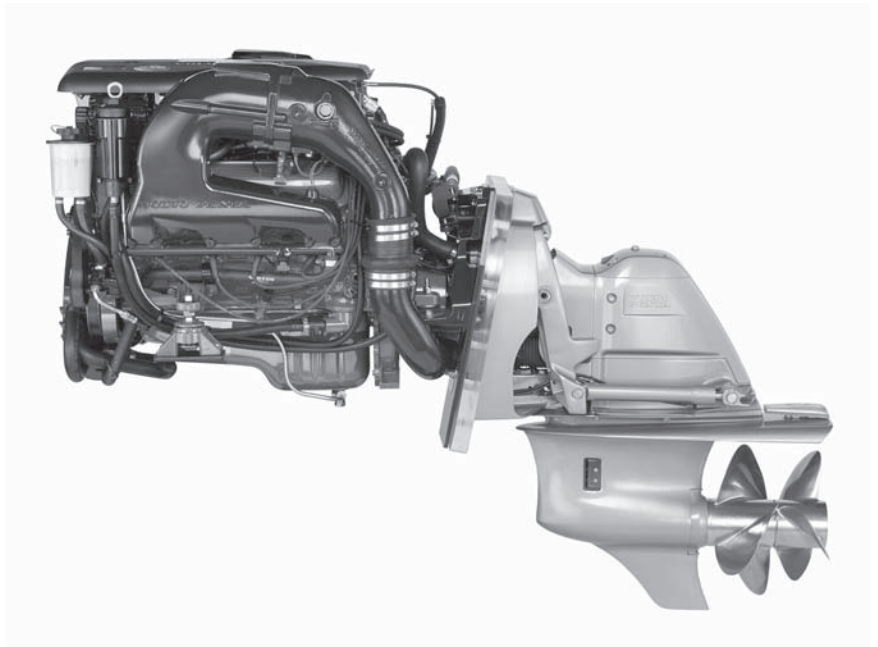
A 5.7 liter gasoline engine in a V-8 configuration, featuring a cast iron block and cylinder heads for durability and corrosion resistance. Critical engine components are designed and constructed for the rigors of the marine environment. Seawater pump, oil filter, fuel filter, and coolant tank are located on the front of the engine for easy service access. Service points are color coded.

Additional reliability can be obtained with the optional freshwater cooling system, which protects the engine and the full exhaust system.

The engine electrical system, power trim system, and other electrical components are protected by conveniently located and labeled circuit breakers or fuses.

### Duoprop™ or Aquamatic™ stern-drive

The drives are equipped with a cone clutch for easy, smooth shifting, pattern-matched spiral bevel gears for optimum strength and minimum gear noise, and a break-away shaft coupling to minimize costly drive repairs.



State of the art corrosion protection is achieved with a 23 step paint process, the drive is further protected by sacrificial anodes. Active Corrosion Protection is available as an option.

The hydrodynamic design of the lower drive housing ensures excellent course stability both at high speed and when maneuvering at low speeds and in reverse.

Both drives feature exhaust outlets through the propeller hub and cavitation plate for decreased noise and vibration.

The Duoprop drive with its twin counter-rotating propellers produces unbeatable speed, acceleration, steering and fuel economy characteristics. A full range of stainless steel propeller sets are offered.

The Aquamatic SX single propeller drive features a full line of stainless steel or aluminum propellers in either right-hand or left-hand rotation.

The drive is equipped with an easily controlled hydraulic power trim system for obtaining the best running position at different sea and load conditions. For maximum driving comfort, power steering is standard on all gasoline engines.

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## Technical description:

### Engine and block

- Cylinder block and cylinder heads made of cast iron for good corrosion resistance
- Pistons with two compression rings and one oil scraper ring
- Five-bearing crankshaft
- Valve train consisting of single camshaft, hydraulic valve lifters, push rods and two overhead valves per cylinder
- Color-coded service points

### Engine mounting

- Four adjustable rubber mounts, one on each side of the engine, and two between transom shield assembly and engine

### Lubrication system

- Pressure lubrication system with full-flow environmentally friendly paper element oil filter
- Remote oil filter for easy service access

### Fuel system

- Multi Port Fuel Injection system
- High capacity water separating fuel filter
- Two electric fuel pumps
- Flexible fuel lines

### Inlet and exhaust system

- Integral Air Fuel Module intake manifold
- Lightweight aluminum exhaust system with catalytic converters and oxygen sensors

- Complete exhaust line with pipe and bellows for exhaust outlet through the drive
- Flame arrestor
- Closed crankcase ventilation

### Cooling system

- Thermostatically controlled seawater cooling
- Full freshwater cooling available as an option
- Crank mounted seawater pump
- Serpentine belt with spring tensioner
- Flush fitting – hose connection to flush cooling system with freshwater

### Electrical system

- 12 V corrosion-protected electrical system
- 14-pin engine to boat connection
- ECM unit ensures constant optimum performance with diagnostic capability
- Charging regulator with battery sensor for voltage drop compensation
- 75 A alternator with internal transistorized voltage regulator and internal fan
- Electronic Spark Timing ignition system
- Platinum tipped spark plugs
- Sealed electrical distribution center containing all fuses, relays, and circuit breakers
- 40 A resettable trim system circuit breaker
- 20 A fuse for protection of the fuel pumps, 15 A fuse for the fuel injection system
- Audible alarm kit – alerts the operator to low

engine oil pressure or high coolant or exhaust temperatures

### Steering system

- Serpentine belt driving all engine pulleys ensures reliability and provides reduced noise
- Belt driven power steering pump
- Oil cooler for power steering

### Instruments and controls

- Supports NMEA 2000 engine communication
- Complete instrument panel available including: tachometer, temperature gauge, oil pressure gauge, voltmeter, key switch, instrument light switch
- Wiring harness from engine to instrument panel
- Digital trim gauge as an accessory
- Full line of modern, ergonomic shift and throttle remote controls specifically designed for Volvo Penta sterndrive engines.

### Aquamatic DPS and SX sterndrive

- Latest generation of sterndrives from the company that invented and introduced the concept
- Cone clutch; smooth, easy shifting
- Coolant water intake for the engine located at the lower part of the drive
- Pattern-matched spiral bevel gears
- Exhaust outlets through propeller hub and cavitation plate
- Break-away coupling between the upper and lower driveshafts reduces impact damage
- Standard tilt specification 52° (42° and 32° available as option on engine order)
- The drive can be turned 28° in each direction during steering
- Built-in kick-up function in trim system to reduce damage if drive impacts an underwater object
- 23 step paint process
- Hydrodynamic lower unit for maximized control and speed
- Active corrosion protection as an option
- Easy to access drive anode placed on the back of the cavitation plate
- Duoprop;  
twin, counter-rotating propellers for improved performance and handling  
helical propeller splines for reduced stress and corrosion (reduces stuck propellers)
- SX with either right-hand or left-hand rotation

### Power Trim

- Electrically operated hydraulic system with trim gauge for best driving comfort
- High capacity trim pump integrated with transom shield to ease installation and save space in engine compartment

### Accessories

For detailed information, please see the Accessories & Maintenance Parts catalog ([www.volvopenta.com](http://www.volvopenta.com)).

Contact your local Volvo Penta dealer for further information.

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.

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## Technical Data

Engine designation .....	<b>V8-320</b>
Propeller shaft power kW (hp) .....	239 (320)
Max. engine speed, rpm .....	5200
Displacement, l (in <sup>3</sup> ) .....	5.7 (350)
Number of cylinders .....	V-8
Fuel system .....	MPI
Bore/stroke, mm .....	101.6/88.4
in. ....	(4.00/3.48)
Compression ratio .....	9.4:1
Volvo Penta Duoprop drive .....	<b>DPS</b>
Ratio .....	1.78:1, 1.95:1, 2.14:1, 2.32:1*
Volvo Penta Aquamatic drive .....	<b>SX</b>
Ratio .....	1.51:1, 1.60:1*
Dry weight engine, transom shield and drive, kg (lb) .....	490 (1081)
Dimensions (not for installation):	
Engine length	
inside transom, mm (in.) .....	936 (36.8)
Engine width, mm (in.) .....	725 (28.6)
Height above crankshaft, mm (in.) .....	562 (22.1)
Height below crankshaft, mm (in.) .....	255 (10)

\* High altitude 1500 m (5000 ft)

Propshaft power according to ISO 8665

Duty rating: R5 (Pleasure Duty)

The engines are certified according to EU RCD.

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