



History repeats itself

It's now nearly 30 years since Volvo Penta steered a new course in powerboating. The time when Volvo Penta launched the very first inboard/outboard.

The Aquamatic had arrived.

At last, the features of both inboard and outboard systems had been engineered into a single power unit. Since then others have followed in our wake. But through a continous programme of dedicated research and development, the original Innovator is still firmly in the lead.

In maintaining that lead, there have been some notable landmarks over the years: Take the introduction of the 30 and 40 series diesels. These high performance marine diesels were the first to meet exacting demands of today's boat owners. Then there's is the AQ171—the world's first 4 cyl. 16 valve marine engine, and the AQ outdrive system with Integral Power Trim and the unique Computer Display (CD). With CD you have total control at the helm.

But the most significant development of them all, the one that differentiates Volvo Penta from the competition, is Duoprop.

A concept that expanded the horizon of marine diesel power in 1983 and did the same for gasoline V8:s in 1986.

And now, by introducing a completely new styling and colour on the renowned AQ-drive, Volvo Penta shows its strong belief in listening to the needs and wishes from the modern marketplace.

It's no coincidence that the most significant development stories in marine engine history in modern times seem to be written around one name.

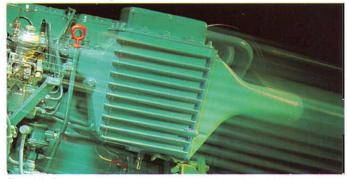
Volvo Penta.



The unique Volvo Penta cone clutch. The innovation that made the Aquamatic drive a reality for boating people the world over.



The AQ 171 has a cross-flow cylinder head, twin overhead camshafts and 4 valves per cylinder. The world's first 4-cyl. 16 valve marine engine.



The 30 Series. A new generation marine diesel Series featuring direct injection, turbocharging and aftercooling.





Integral Power Trim unit which allows for total command in every situation at sea. Power Trim operates in three sectors. Trim, Tilt, Beach.

Always in command with fingertip control

Being in total control is being at ease.

The Volvo Penta AQ drive with Integral Power Trim is designed to match the attitude of your boat with changing sea conditions. Power Trim gets you up onto the plane faster, increases your speed, gives you a smoother ride, cuts down fuel consumption and let you cruise safely in shallow waters.

With the Computer Display (CD) you get instantaneous feedback on the actual drive position and angle of the boat, giving you the information needed for optimum performance and comfort at a glance.

Taken together, the inherent manoeuvrability

of the AQ drive combined with the advantages of Power Trim and CD sets new standards at the helm. Features that allow you to get the very best from your boat. With fingertip control.



There are three drive positions indicated:
The "Tilt" position is used when the boat is moored or transported by trailer.
The "Beach" position is for shallow water use at low speeds.

The "Trim" position is where you finely adjust



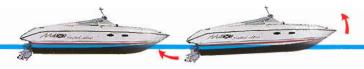
the trim angle for optimum performance.



Trim instructions:



For speeds below the planing threshold. Trim in the drive, the bow is then lowered, making for a smooth ride and directional stability. During acceleration. Trim in the drive to reach planing speed faster.



At planing speeds, trim out the drive to a position where the wetted area of the boat is reduced and the ride feels smooth.





The reliable mechanical



Volvo Penta Kick-Up function minimizes drive-damage



when hitting obstacles in the water.





Twin aquamatic installations. Trim each drive independently to compensate for uneven loading or when exposed to strong cross winds.





In heavy seas. Trim in the drive to partially lower the bow. It will give you a more comfortable ride.

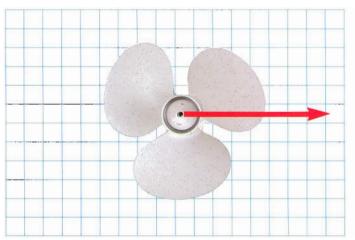
Duoprop

-everything you could wish for

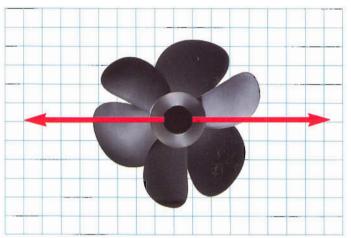
Comfort can be defined in many ways. But if you agree that comfort has everything to do with faster acceleration, higher top speeds, lower fuel consumption, better manoeuvrability, lower noise levels and a sure grip in the water, then you'll also agree that comfort has everything to do with Duoprop.

Duoprop offers lower noise and vibration levels. Duoprop improves acceleration and top speeds. Duoprop reduces fuel consumption by between 10% and 12%. Duoprop gives to boats what four wheel drive gives cars. Duoprop makes it easier to manouevre, both ahead and astern.

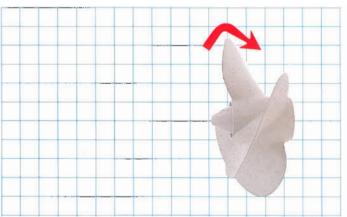




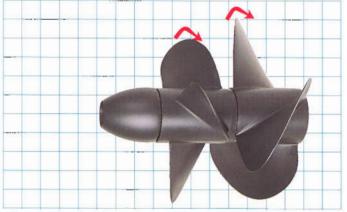
A single propeller has a small blade area in relation to power output. A single propeller "climbs" as a paddle wheel in the water, creating a transverse force.



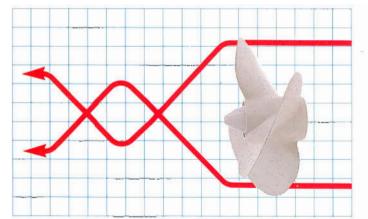
Duoprop with its twin propellers doubles the blade area. Duoprops counter-rotating propellers outbalances each other, eliminating the transverse force.



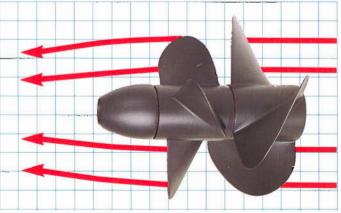
A single propeller has a high rotational speed to be able to convert the power. This means a higher load that produces cavitational problems, high tip turbulence and other induced losses.



Duoprop halves the power input per propeller which means: half load, half tip losses and half induced losses. The low load also significantly reduces the cavitation problem.



A single propeller has a reaction torque corresponding to a revolution of the water jet leaving the propeller, which means thrown away rotational energy.



Duoprop with its twin counter-rotating propellers creates an axially symmetric water jet, which means that all energy is thrust-producing.

The many facets of Duoprop

When we introduced the revolutionary Duoprop propulsion system in 1983, the boating world could hardly believe it was true. Just how could two propellers improve things in so many ways? The secret lies in the unique concept of counter-rotation.

While one propeller rotates to the left, the other rotates to the right. That's when the magic happens. First of all, the transverse forces that are trying to push your boat aside are practically reduced to nil by the action of the twin counter-rotating propellers. This gives you precision of manoeuvre, both ahead and astern, and a smooth, comfortable ride without exhausting work at the wheel.

Duoprop also improves overall efficiency. Thanks to lower propeller revolutions, larger blade area, less turbulence at the blade tips and an axially symmetrical water jet.

There's more pull, and this in turn means the boat accelerates faster and can reach higher top speeds. Increase in efficiency brings with it, too, a decrease in fuel consumption of up to 12%.

Another distinctive feature of Duoprop is the almost total elimination of cavitation—those small bubbles that make a boat tend to slide during tight turns, cause noise and vibration, and may even cause the propeller to erode.

But, with Duoprop, that's no longer a problem. Quite simply, Duoprop means no cavitation and therefore a much smoother ride.

These are just some of the reasons why the competition hates Duoprop, and the boating world loves it.



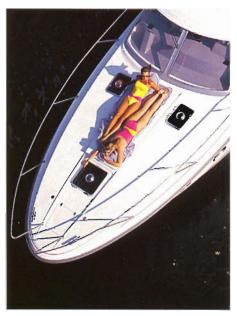
Faster acceleration More of and higher top speeds board

With its higher overall efficiency, Duoprop improves acceleration and increases top speeds. The higher efficiency is the result of the counter-rotation of the twin propellers, which reduces friction, halves turbulence at the blade tips and produces a symmetrically balanced water jet.

All in all, Duoprop offers you a propulsion package with a lot more thrust.

How much more? For most diesels you can reckon about 25%.

It's rather more difficult to give a general figure in the case of petrol engines, as acceleration is more dependent on the type of boat, the length overall, weight and construction.



More comfort on board

The feature that's most apparent with Duoprop is the improvement in the standard of comfort on board. In every respect.

It's not only the lower noise and vibration levels, It's also the ease with which you can maoeuvre your boat, and the way she behaves when under way.

It's the result of the counter-rotating twin propellers.

They practically eliminate cavitation and the transverse force which try to pull the boat sideways. Duoprop also keeps the boat trim angle down. The result is a smooth ride aboard a boat that behaves the way a boat should behave.



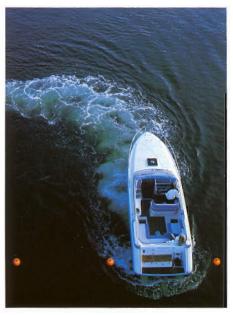
Lower fuel consumption

Not only does Duoprop offer faster acceleration and higher top speeds. It also offers lower fuel consumption. Just how that's possible is explained by the fact that Duoprop improves the overall efficiency of the total propulsion system. With Duoprop, less power is needed from the engine to create the propeller force that pushes the boat forwards. Or, look at it from another view, the engine needs less fuel to do the same amount of work. Thanks to the reduced number of propeller evolutions and less turbulence at the tips of the blades and an axially symmetric water jet, Duoprop cuts fuel consumption by between 10% and 12%.



A powerful grip

It's easy to see the similarity between the effect of Duoprop in the water and four-wheel drive. Biting deep into the water Duoprop never loses track, so you always know precisely how your boat will behave. Even in tight turns at very high speeds, Duoprop will take you where you want to go. There's no sliding away, and no uncertainty. That powerful grip is due to the almost total elimination of cavitation and the cancelling out of the transverse forces that are trying to push your boat sideways.



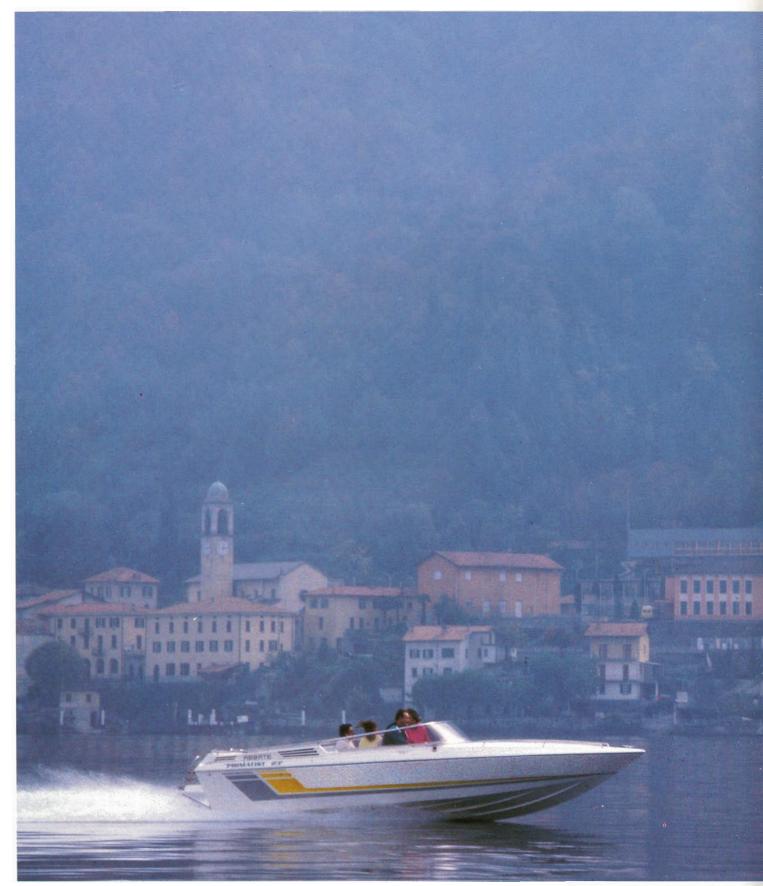
Precision of manoeuvre

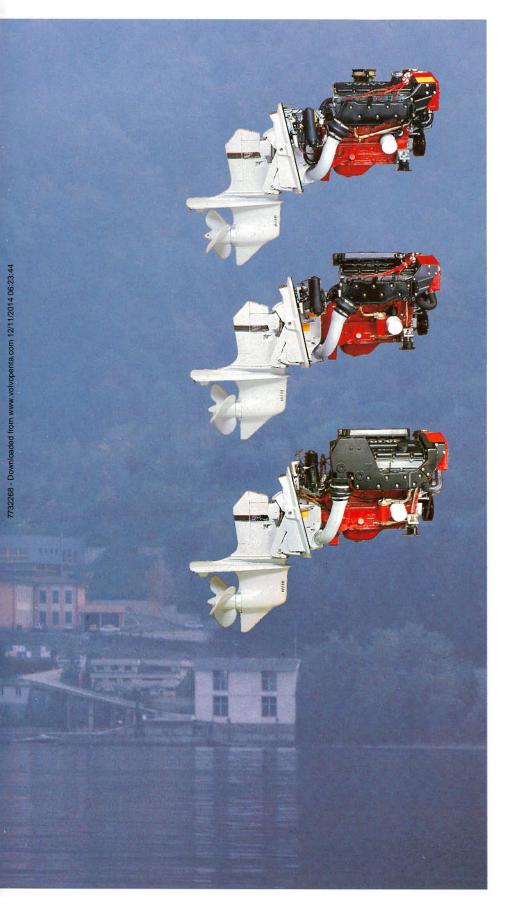
Strong cross winds. A turbulent sea. And lots of gawking spectators. They can make mooring up a boat with conventional propeller a somewhat harrowing experience. But Duoprop makes it a pleasure. Thanks to the way they bite deep into the water, the twin counterrotating propellers allow you to maoeuvre with ease both ahead and astern. It may spoil the spectators fun, but it certainly enhances yours.

With Duoprop you can do all the things you've only dreamed of doing. Both on or off the plane. It's all thanks to the elimination of cavitation and the symmetrical water jet produced by the propellers.

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The compact four-cylinder range





All three petrol engines in our four-cylinder range are classic examples of Volvo Penta's dedication to new technology. 100% designed, engineered and produced in-house to comply with the exacting standards of quality that are the hallmark of Volvo Penta.

Top of the range is the technically advanced AQ 171, with twin overhead camshafts and 16 valve crossflow cylinder head. Its power output is remarkable in relation to its weight and size. The 16 valve system, hydraulic valve lifters and electronic ignition combine to give equally remarkable fuel economy. With its 167 hp, this four-cylinder engine represents the best in both performance and economy.

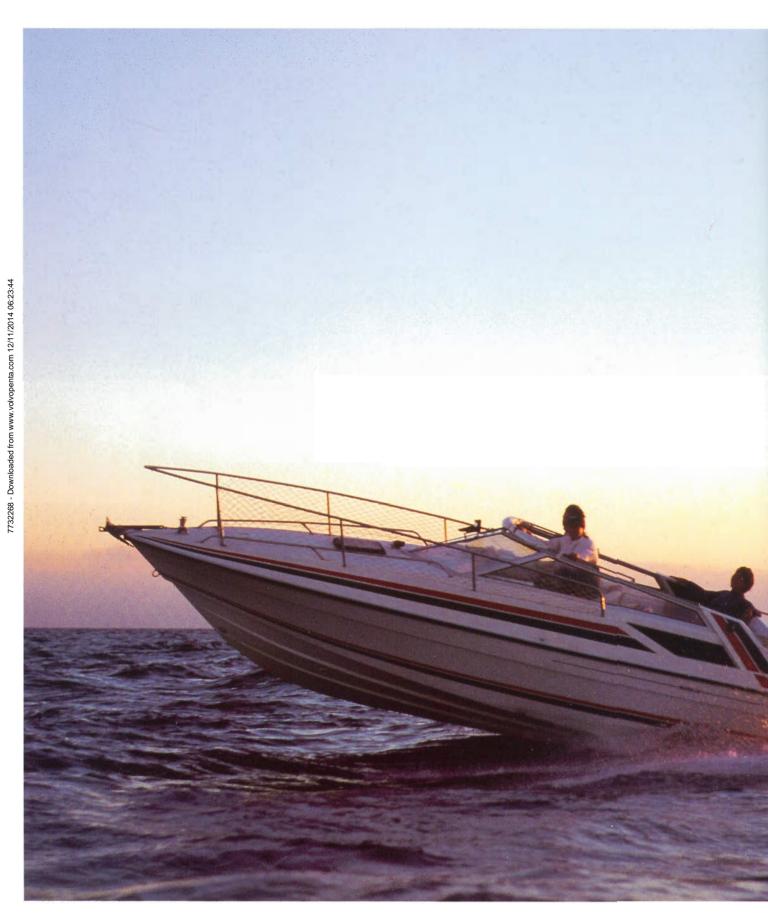
Its fellows are the AQ 151 and AQ 131. The power curve of the 2.5 litre AQ 151 focuses on high, smooth top speeds. The AQ 131 represents the economy package in the range, with the emphasis on fast acceleration and low fuel consumption.

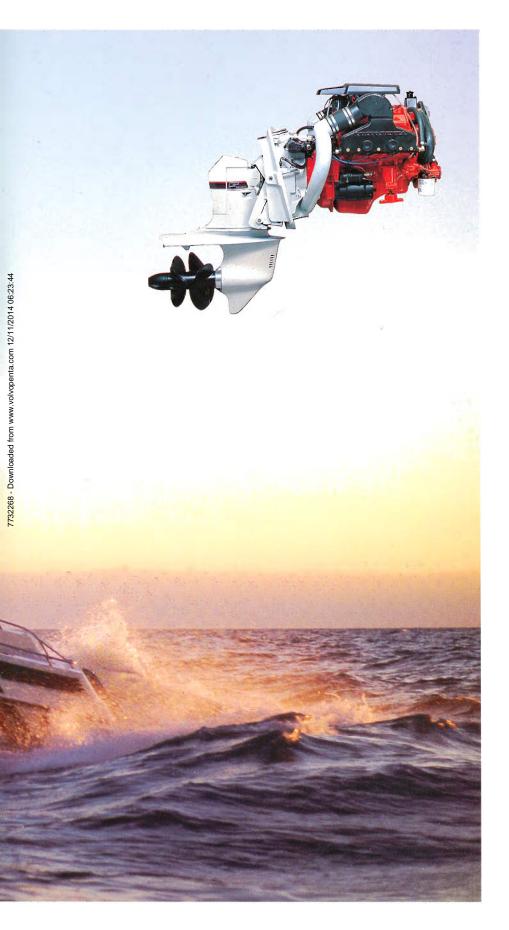
AQ 131. Based on a 2.3 litre block and combined with the SPMT drive, the AQ 131 provides an ideal economy package with outstanding acceleration. (Option SP drive.)

AQ 151. The 2.5 litre, twin carburettor AQ 151 coupled with the SP drive, Integral Power Trim and Computer Display has a power curve optimized for real performance.

AQ 171. The ultimate 4 cylinder marine engine, with a 2.5 litre block and 16 valves the superior power output of the AQ 171 is perfectly matched with the SP drive with Integral Power Trim and CD. Together they provide a level of boat performance normally only found with much larger engines.

The V6 performance package





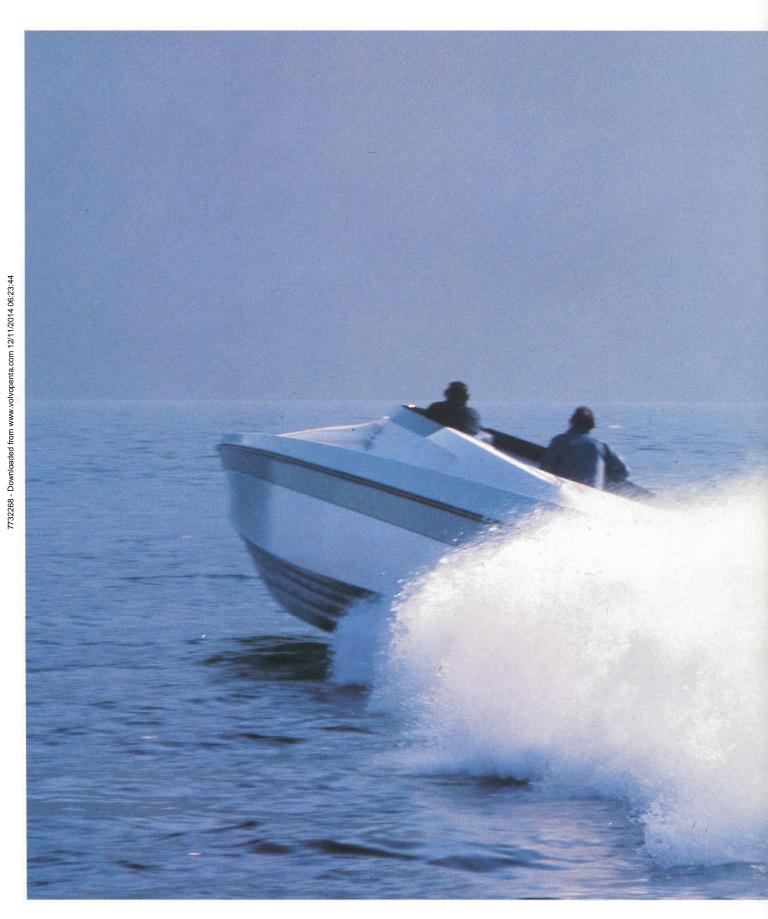
The AQ 205 is a 4.3 litre petrol engine capable of developing 205 hp at 4800 rpm, measured at the flywheel.

With an electronic ignition system, advanced carburation and adapted to run on even lead-free fuel, the AQ 205 represents the latest in marine technology.

When fitted with Duoprop, this V6 marine engine is a worthy competitor for many V8 engines. Thanks to its smaller dimensions and lower weight, the AQ 205 provides the perfect power source for high performance sportsboats in the 17' to 22' range.

AQ 205. Based on a 4,29 litre block and combined with the revolutionary Duoprop the AQ 205 develops 151 kW (205 hp) att 4800 rpm. AQ 205 is equipped with an electronic ignition system, advanced carburettors and Can be driven on lead free petrol.

V8-Duoprop. Raw power and sophisticated technology in perfect harmony





There is no doubt that for sheer brute power the V8 engine with its massive cylinder capacity has got what it takes.

But it's no use an engine developing a formidable power output if this can't effectively be transmitted to the propeller. The solution lies in the harmonisation of engine muscle, drive design and propeller refinement.

The Volvo Penta V8 engines with their advanced Power Trim system and specially designed drive harness the engines potential to maximum effect.

Taking their level of performance, smoothness and control one stage further is the revolutionary Duoprop. Now on the AQ 211, AQ 231 and AQ 271 to give these power units a whole new dimension in performance.

The Volvo Penta V8 line of four models covers the full range of pleasure boating needs from a fast family cruiser to the roar of an out and out performance sportsboat.

AQ 211 and AQ 231

Both models based on a 5 litre block with water cooled exhaust manifolds and riser

The AQ 211 is designed for high torque and low fuel consumption.

Through more advanced carburation the AQ 231 has the accent on top end performance.

All models are equipped with Duoprop.

AQ 271 and AQ 311

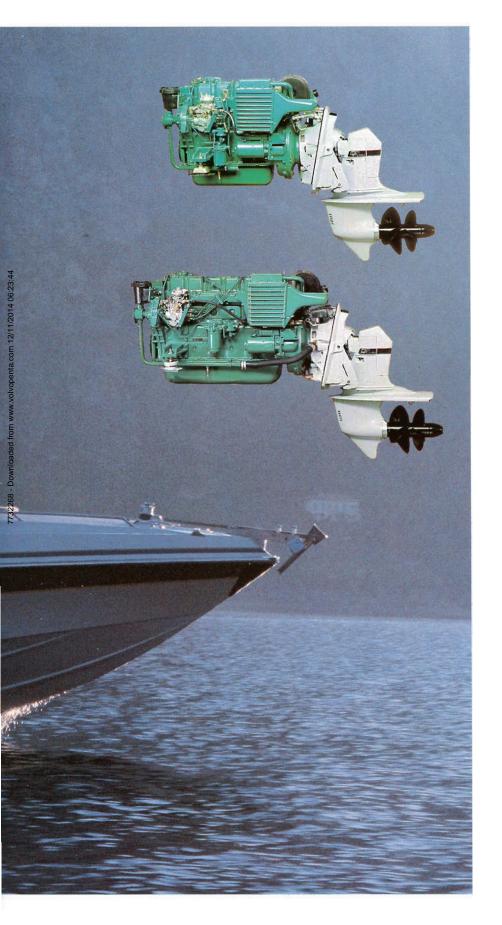
Our most powerful V8 engines features a 5.73 litre block specially designed to perform at high speeds, while still maintaining boating comfort.

The AQ 271 is equipped with Duoprop. The AQ 311 is specially engineered to deliver peak performance without compromise. The AQ 311 is fitted with a choice of specialized single propellers tailored to suit very high speeds.

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31-41 Series Compact power and comfort





The Volvo Penta 31-41 Series is the new generation of high performance marine diesels incorporating the very latest advancements in diesel engine technology and production techniques. From the very start, these engines were designed specifically for marine use and high efficiency through the exploitation of turbocharging, aftercooling and direct injection. This has enabled us to build more compact and more reliable power units to provide the performance and comfort previously only associated with gasoline engines.

High output compact dimensions, low fuel consumption and improved engine durability. This is the fundamental reason why you can expect the 31-41 Series to do their duty, and much more.

Each of the engine models available in the 31 and 41 Series has been carefully matched to a choice of transmissions and propeller systems in the line with Volvo Pentas philosophy of engineering the total propulsion system. Duoprop propeller drive packages with Power Trim and CD are available for every engine in the range.

AQAD 31 Duoprop.

- 4 cylinder 2.39 litre in-line marine diesel engine.
- Compact dimensions, high power to weight ratio and smooth running.
- Fresh water cooled turbocharger and exhaust manifold.
- Precision machined cast iron cylinder block and head for long life and operational dependability.

AQAD 41 Duoprop

- 6 cylinder 3.59 litre marine diesel engine.
- Fresh water cooled turbocharger and exhaust manifold.
- Precision machined cast iron cylinder block and head for long life and operational dependability.
- Compact dimensions, high power to weight ratio and smooth running.
- Also available without aftercooler (AQAD 41).

The Volvo Penta world wide commitment

We take the concept of responsibility right down the line. We provide technical assistance when the product is installed. We provide owners with financial advice. We provide a full range of accessories. And we provide service in more than 130 countries, all over the world. We really care.

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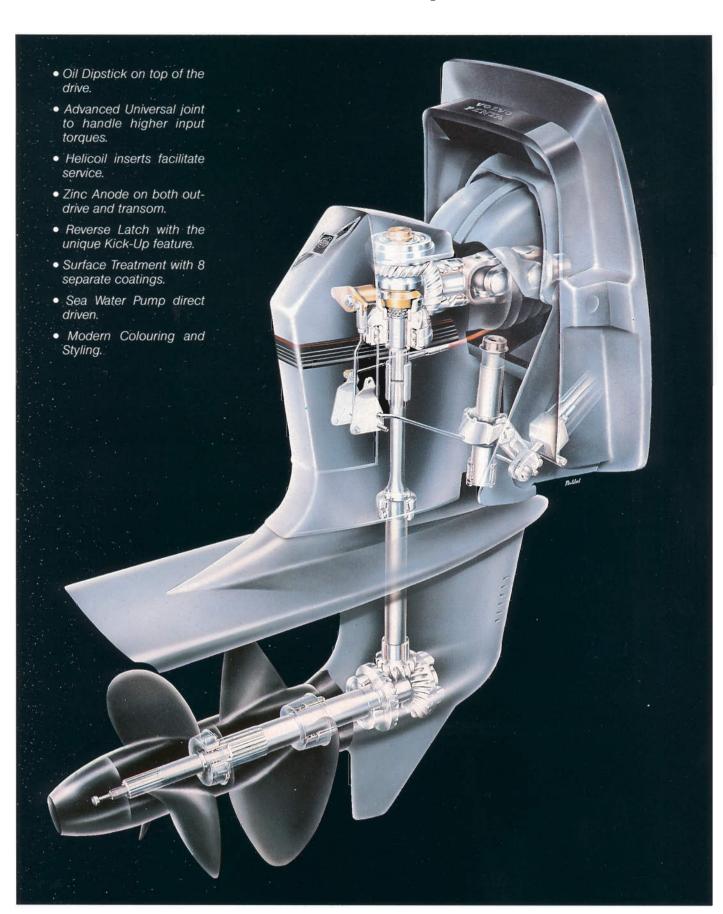
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Renowned Volvo Penta Aquamatic features



Technical Data

			No of	Cylinder volume		Output		Weight	
Engine type	Petrol	Diesel	cyl.	dm³ (l)	cu.in.	kW	hp-r/min	kg	lb
AQ 131/SP o. SPMT	•		4	2.31	140	88	120-5000	238	525
AQ 151/SP			4	2.49	152	107	146-5500	250	551
AQ 171/SP			4	2.49	152	123	167-5700	289	637
AQ 205/DP o. SP	•		V6	4.29	262	151	205-4800	353	778
AQ 211/DP o. SP		100	V8	5.00	305	154	210-4400	402	886
AQ 231/DP o. SP	•		V8	5.00	305	168	229-4600	402	886
AQ 271/DP o. SP	•		V8	5.73	350	202	275-4600	402	886
AQ 311/SP	•		V8	5.73	350	226	307-5200	398	877
AQAD 31/DP o. SP		•	4	2.39	146	96*	130-3800	440	970
AQ D 41/DP o. SP		•	6	3.59	209	110*	150-3800	510	1124
AQAD 41/DP o. SP			6	3.59	209	147*	200-3800	520	1146

Crankshaft output according to SAE J607.
*Crankshaft ISO 3046 standard fuel stop power. Usable power will be reduced by transmission or gearbox losses. This power cannot be exceeded.



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