

## Superyachts built for superspeed

A superyacht packed with showstopping trimmings, yet still breaking 25 knots? Once unthinkable, but now reality.  
Alan Harper reports



The aesthetics and performance of the Custom Line 120's bow hark back to hull designs from the 1920s and '30s | Image: Alberto Cocchi

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Marine horsepower has never been so plentiful, compact, quiet and clean. The result is that not only are small boats getting faster, but fast boats are getting bigger. Just a few years ago, a 35m motor yacht capable of 25 knots or more was a rare and specialised creature whose hull was either too full of machinery and fuel tanks to leave much space for luxury, or constructed of such lightweight materials that everything rattled. Sometimes both.

Today, 25 knots is the benchmark for yachts of this size; luxury, of course, is non-negotiable. But the complexity of achieving that delicate balance between weight and performance never goes away, as two striking new motor yachts from Italy amply illustrate. The new Custom Line 120, revealed at the most recent Cannes Yachting Festival, has a commanding quayside presence, an extraordinarily spacious saloon and cockpit area, a clever layout of raised side decks that lead directly from the flybridge to the seating on the bow and a 25-knot top speed.

Slightly smaller than the Custom Line, in both length and beam, the Azimut Grande 35 Metri is a radical-looking craft with five ensuite cabins, including an opulent master stateroom on the main deck, a backlit onyx staircase curving down to the lower accommodation, a side-entry tender garage that can take a 5m tender plus a 3.5m jet ski, a dedicated sun deck and a 26-knot top speed.

Both of these yachts have found an individual solution to a perennial problem – that however much horsepower becomes available to the yacht-builders, their customers have an uncanny knack of ticking the heaviest things on the extras lists, such as folding balconies and acres of marble. And sometimes simply ordering bigger engines to cope with the weight is not an option. This pinch point, where one size of engine is not quite powerful enough and the next size up is too big and too heavy, is particularly problematic in motor yachts in the 35m to 40m class. In their search for new ways to reduce drag and increase efficiency without compromising luxury, naval architects have been obliged to get creative.



The Azimut Grande 35 Metri has a wave-piercing hull, extending the waterline as the bow rises out of the water

Designed around beautiful high-tech engines made by MTU in Germany, both of these motor yachts are fitted with a pair of state-of-the-art MTU 2000-series V16 diesels, whose powerful combined horsepower (5,276hp and 4,800hp respectively) is enough, just, to guarantee that benchmark 25-knot top speed. No doubt the naval architects would have preferred a bit more, but here that pinch point becomes apparent in the MTU brochure. Turn the page from the most powerful 2000-series engine variant and you enter the realm of the 4000 series, which offers mighty power but at more than double the cost in size and weight.

This might seem a slightly arcane problem for most owners, but it's a fundamental issue for the shipyards that calls for tough decisions. Engines and their associated hardware of batteries, fuel tanks, gearboxes and ventilation systems not only account for a significant chunk of the weight of a yacht this size, not to mention more than 10 per cent of its value, but they also take up as much hull volume as a full-beam ensuite master stateroom. Make mine a double? I don't think so.

Custom Line's designers have already been down that road. Its 38m 124 model from 2011 had two 10-tonne 4000-series engines, which gave the yacht a top speed of 27 knots. The Custom Line 108 from 2015, by contrast, was considerably smaller, and could reach 26 knots with a pair of the relatively modest four-tonne 2000 units. So the shipyard set itself a seemingly impossible task: a 25-knot yacht the size of the 124, but with the power plant of the 108. And yet on our sea trial at Cannes in September, the Custom Line 120 – which in spite of its name is actually longer and wider than the 124 – comfortably achieved the designers' performance target, with the smaller engines and a heavy load of fuel and water. How? The secret is in the new hull design.

On the other side of Italy, Azimut had already been wrestling with this same problem and come to the same conclusion. The 4000-series engines were out of the question because of their size and weight, but the new 35 Metri had to be faster than the Azimut 116 that it replaced: a solution could only be achieved by smart design.

It was clear on its launch that Azimut's new flagship represented something different. Until now wave-piercing bows have generally been the preserve of fast ferries and other specialist commercial craft, but here was one on a luxury motor yacht – a sharp protuberance lurking just below the surface at rest, then slicing through the waves and significantly extending the waterline as the bow rises underway.

Efficiency gains were immediate and marked: so marked, in fact, that when comparing fuel consumption and speed with the earlier model, Azimut's engineers discovered improvements not just at low speeds, as they had expected, but throughout the yacht's performance envelope. Their new design was smarter than they thought.

Even in an industry notorious for its relaxed attitude to the pilfering of other people's good ideas, Custom Line could hardly have come out with a wave-piercer of its own – it would have been way too obvious. The designers of the new 120 had the same problem to solve but needed to find a different solution.

The Custom Line has a remarkably fine and elongated entry. Instead of seeking to create lift so that the hull can plane across the surface of the water (creating lift in a big boat needs a lot of power), the naval architects have rethought the problem of how to make a big boat go fast by returning to the old principle of a longer waterline and a sharp, slippery shape to create the minimum of drag. The aesthetics of the 120's bow are also irresistibly reminiscent of hull designs from the '20s and '30s – an era when naval architects weren't exactly spoilt for horsepower, and speed could only be achieved by creating forms that offered as little resistance through the water as possible. Elegance ensued almost by accident. Another byproduct of this very fine form is the reduced buoyancy in the bows, which damps vertical movement in choppy weather, providing a smoother and less boisterous ride.



The Azimut features interiors by Achille Salvagni | Image: Sara Magni, Azimut Yachts

In terms of looks, the Azimut – its exterior styled by Stefano Righini – shows a fearlessly modern face to the world that matches its adventurous hull design, with a complex cacophony of angles and curves, vast areas of glass and a distinctive overhanging bow reminiscent of an aircraft carrier. Inside, the curvaceous and feature-rich Achille Salvagni decor is offered in three colour themes. The yacht also has a brilliantly clever folding balcony in the master suite.

For its new 120, Custom Line engaged the Florence-based stylist Francesco Paszkowski, whose design partner Margherita Casprini sought a muted mix of natural tones and textures for the interior that wouldn't conflict with what she identifies as the star of the show – the stupendous views of sea and sky granted by those enormous windows. The 120 also has its cool design feature, in the shape of a massive steel-and-glass cockpit bulkhead that hinges aloft in its intimidating entirety and locks into the deckhead, opening the saloon and cockpit up into one spectacular living space. As you walk underneath, it's probably best if you don't know that this mighty structure weighs 1,700kg. Similarly, while admiring the sunset from the Azimut's clever unfolding balcony, you might fleetingly appreciate its firmness and solidity, without dwelling on the fact that such attributes inevitably carry a weight penalty.

The things that persuade us to buy yachts always seem to be heavy, like these two cool design features, or space-hungry, like the luxurious cabins below decks that we cannot do without. We create a need for more horsepower while taking away the space to fit it. Yet as we make these increasingly unreasonable demands, the designers and engineers somehow continue to satisfy them.