



# Elling Yachts

A Dutch motoryacht builder designs and builds to the European Union's Category A ocean classification.

**Text by Dan Spurr and  
Steve D'Antonio**

**Photographs by Steve D'Antonio**

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**Above**—At the Neptune Marine Shipbuilding facility, where Elling Yachts are built in Veerdam, The Netherlands, the finish crew attends to details such as surface buffing and checking lights. After staging has been removed, wheels on the ladders and workstations allow personnel to efficiently move around the boat.

In November 2014, after the Marine Equipment Trade Show (METS) in Amsterdam, The Netherlands, *Professional BoatBuilder* technical editor Steve D'Antonio and I traveled an hour south to Veerdam, to visit Neptune Marine Shipbuilding. D'Antonio, whose consultancy business includes a client who owns one of Neptune's Elling-brand motoryachts, was curious to visit the yard for a close look at materials and processes. We met Elling Yachts owner Anton van den Bos, a graduate of TU Delft in mechanical engineering, who gave us a shop tour and a canal ride aboard an Elling E4 (48'/14.6m), one of two currently available models; the other is the E3 (45'/13.7m). Both were designed by Frank Mulder (Mulder Design, Amstelveen, The Netherlands). A third model, the

65' (19.8m) E6, is scheduled for completion in 2016. To date and in total, 260 Ellings have been produced.

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## History

The parent of Elling Yachts, Neptune Marine Shipbuilding, was founded in 1972 by **Martin** de Kok specializing in workboat construction in steel. Products include the Eurocarrier multi-purpose workboat (stock designs from 59' to 116'/18m to 34m), tugboats, barges, crew boats, dredgers, and a wide variety of marine equipment including cranes, excavators, piling and drilling machines, moorings, and more.

Prior to his affiliation with Neptune, Anton van den Bos worked for Akzo-Nobel, which in the 1970s developed the synthetic para-aramid fiber Twaron,

essentially the same as the Kevlar fiber developed in the United States by DuPont. Through his work with AkzoNobel, van den Bos became familiar with some of Twaron's marine applications, including reinforcements employed in yachts participating in the Whitbread Round the World Race. Looking for new opportunities and challenges, in 1997 van den Bos purchased interest in Neptune to utilize its strengths and capital to develop a program in composites, specifically by forming Elling Yachts, whose boats replaced the earlier Neptunus line of motoryachts in 2003.

## Inception

Frank Mulder was commissioned to design the first models. He opened his design office in 1979, initially specializing in commercial craft. His portfolio took a decided shift with commissions for the superyachts *Octopussy*, *Moonraker*, and *The World Is Not Enough*—each playing to the dash of fictional secret agent James Bond. For Van den Bos's brief, Mulder was called on to design a smaller motoryacht, the E3, capable of offshore passages yet also suitable for European canal cruising and the Mediterranean Sea. Van den Bos says the process took five years, with stylist/designer Ken Freivokh Design (Southampton, United Kingdom) joining the project to create the interior.

The Recreational Craft Directive, developed by and for member countries of the European Union, has four categories of safety requirements for design and construction, the highest



**Above**—Neptune Marine Shipbuilding specializes in a wide variety of commercial vessels, all in steel and aluminum, such as this tug. **Left**—Elling Yachts owner Anton van den Bos previously worked for AkzoNobel, where he became familiar with the physical properties of Twaron (Kevlar), which is incorporated into the laminate of Elling's yachts.

of which is "OCEAN: Designed for extended voyages where conditions may exceed wind force 8 (Beaufort scale) [gale, with 38–46 mph wind] and significant wave heights of 4m [13] and above but excluding abnormal conditions such as storm, violent storm, hurricane, tornado and extreme sea conditions or rogue waves."

Design and construction features to meet the above are numerous, and the language sweeping. For example: "Openings in hull, deck(s) and superstructure shall not impair the structural integrity of the craft or its weathertight integrity when closed."

And, "All craft shall be designed so as to minimize the risk of sinking." Van den Bos decided early on to exceed the requirements by designing a boat capable of a 360° rollover, and then executing the maneuver in a dramatic marketing show, which can be found on YouTube. It's not exactly a Coast Guard 44 taking on the Columbia River Bar, at the mouth of the river, but its righting moment is emphatic. Key to this capability was keeping the center of gravity low, precluding a flybridge and other elevated superstructure. The result is also a decidedly European-looking yacht.

## First Impressions

My first introduction to Elling Yachts, and Anton van den Bos, was in 2006, while making a passage aboard an Elling E3, from Annapolis, Maryland, to Newport, Rhode Island. While not an ocean passage by any means, the conditions were, thanks to the remnants of Hurricane Florence, ideally suited to evaluating an offshore-capable cruiser. It was one of the rougher inshore passages I've made, and the small vessel's solid construction and good seakeeping characteristics left a lasting, favorable impression.

Fast-forward eight years and I find myself, along with fellow PBB editor Dan Spurr, crawling through the hulls of partially completed Elling E4s on the factory's production floor. From my perspective as a technical editor, Elling's formula embodies an amalgamation of form and function, classy good looks and a rugged go-anywhere design, along with a host of interesting features and innovations. While the shop where Ellings are built is traditional, and immaculate, much about the Ellings' systems and features is very modern indeed. —Steve D'Antonio



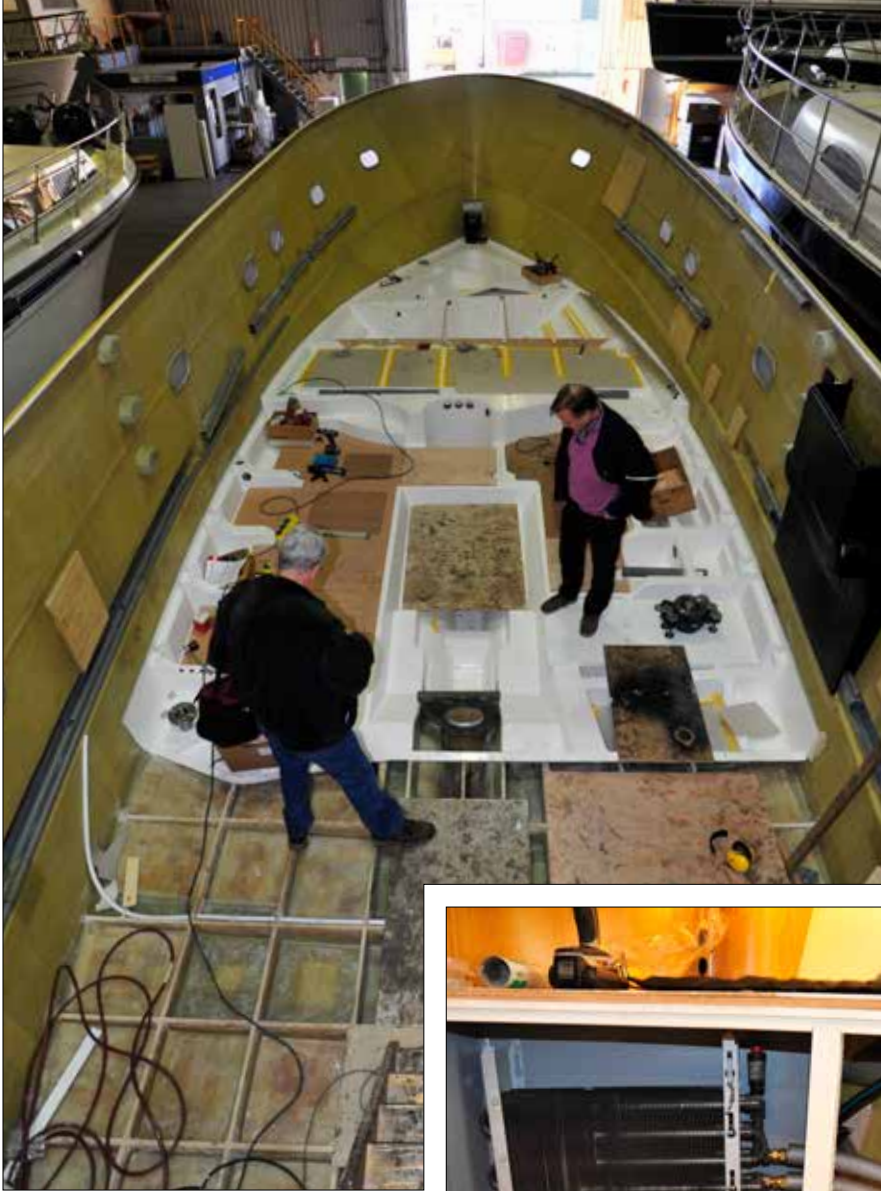
Stern-boarding is via a set of stairs ascending from the molded swim platform. Afterdeck seating is on a free-standing outboard-mounted module, which, while looking somewhat like an add-on, maximizes deck space.



## Construction

Construction is hand-laid E-glass with two layers of Twaron aramid fiber with DSDP (disodium dihydrogen pyrophosphate) polyester resins; a floor pan bonded to the single-skin hull; and a balsa-cored deck with Flexiteek over. An epoxy hull coating gives van den Bos confidence to offer a six-year warranty against blistering. Stringers are plywood glassed over, with all penetrations coated with resin. Fuel tanks are powder-coated steel; polyethylene freshwater tanks total 290 gal (1,098 l) on the E4. The interior of our tour boat was finished in American cherry veneer; a matte or gloss finish is chosen by the customer.

Interesting features include an optional Volvo Penta or Yanmar wing engine with saildrive; Volvo Penta interceptor trim system; a Savas “trucker driver’s” helm seat tuned to the driver’s weight; Gebo double-pane windows with insulated frames to prevent condensation; lithium-ion batteries; optional radiant heating in the saloon floor; and an electrically operated tilting wheelhouse mast that reduces clearance to 11’3” (3.45m) and enables it to navigate many of Europe’s inland waterways. The engineroom is heavily insulated and gasketed, which reduces the volume of noise, as does the **Kevlar [Twaron?]** hull.



**Above**—An FRP pan is installed over the glassed-in wood floors, with cutouts for tank access. **Right**—The hydronic heating-system air handler is installed in a saloon cabinet.



**Above**—Interior detailing is excellent, from joinerwork to custom inlays and protective coatings. **Right**—One of Elling’s female technicians works on cabinetry.





## Systems

Power options range from the standard 190-hp (143-kW) 5-cylinder common-rail Volvo Penta diesel to a 450-hp (338-kW) Cummins diesel, with maximum speed of 11 knots and 18 knots, respectively. Fuel economy and range vary accordingly as well. With a 435-hp (326-kW) Volvo Penta engine, 7.5 knots consumes just 0.26 gal (1 liter) per nautical mile, permitting a range of 1500 nm. At 16 knots, 1 gal (3.8 l) per nm is burned, and range is reduced to 400 nm. Aquadrive thrust bearings are standard.

A noteworthy feature giving the saloon a convertible feel is the large sliding sunroof, with inflatable gasket. For our canal cruise, we had an uncharacteristically sunny day for The Netherlands in November, enabling us to take full advantage of this feature. While it's unique in its own right, keep in mind that this vessel is capable of rolling through 360°, and that's one reason van den Bos opted for the pneumatic gasket.

On the traditional side, the E4's 400-gal (1,514-l) fuel tank (an additional 200-gal/757-l tank is available) is made from mild steel, albeit powder coated. When we queried van den Bos on this material selection—as it is unusual—he made it clear that experiments with stainless steel tanks had been unsuccessful, as the tanks developed problems at the welds. The tried-and-true steel approach, on the other hand, first used in the Neptunus line 40 years ago, has proven problem-free for Elling.



**Above**—In the impeccably clean shop, a new engine on a pallet awaits installation, while behind it a finished yacht is wrapped in protective plastic, ready for transport. **Right**—For the authors' canal cruise, van den Bos took the helm; the overhead sunroof provided good ventilation and a abundant natural light.



**Left**—Interior structure is standard plywood pieces tabbed to the hull, including floors and top support for the rudderstock tube. **Right**—Elling E4's mast, with lights and antennae, hydraulically pivots aft to make the carefully calculated bridge clearances on Europe's canals.







**Left**—Running gear: skeg-supported propeller shaft, rudder, and externally mounted stern thruster. **Right**—A popular option for the single-screw motoryacht is a wing engine coupled to a sail drive unit, which of course requires its own rudder for steerage.

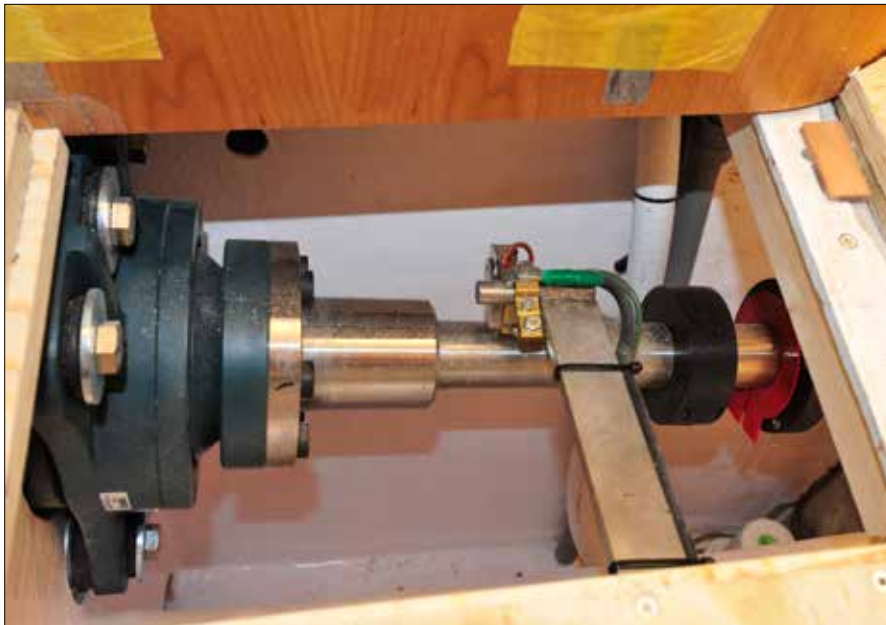
Below-the-waterline alloys are among the very best: a NiBrAl (nickel, bronze aluminum,) propeller and Temet 25 duplex stainless steel propeller shaft, while the entire rudder is made from 316L stainless steel, with

Temet 25 stock (for more on duplex stainless steel alloys, see “The Power and Peril of Stainless,” PBB No. 146).

Dripless shaft seals from Tides Marine (Deerfield Beach, Florida) are standard; typically the shaft brush

assembly is no more than a sprung strip of copper to which a carbon brush has been soldered, but the one on the E4 is nothing less than a work of art.

At the other end of the modernity



*All Elling Yachts are equipped with an Aquadrive system to reduce vibration in the drivetrain and make engine alignment faster and easier, as the technology absorbs as much as several degrees of shaft misalignment. Note the electrical ground brush on top.*

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spectrum, Ellings are optionally available with a 200-Ah Mastervolt lithium-ion battery bank (the entire battery and charging systems are Mastervolt, to avoid any incompatibility issues, something van den Bos is particularly sensi-

tive to where lithium-ion batteries are concerned). Van den Bos says the bank can be charged from fully depleted to 100% in less than two hours while under way, via the engine's 120-amp 24-volt alternator. The little more than

two hours it takes the generator or shore-powered charger to recharge the bank is "just about the time required," van den Bos says, "to prepare a decent meal and clean up."

Elling is experimenting with a larger lithium-ion system, a 400-Ah 24-volt bank, and a 7-kW inverter bank; the vessel will *not* be equipped with a generator, because it will be unnecessary; the battery bank and inverter will carry the load. Recharge capacity is provided by the main engine alternator, as well as an alternator powered by the vessel's wing engine. It is anticipated that this package will be able to operate all the vessel's appliances—cooktop,



Components for an E4's charging and inverter system are laid out in preparation for installation on a boat under construction. Elling utilizes parts from Mastervolt and Blue Sea Systems (now part of the same company) to avoid compatibility issues.




washer/dryer, and dishwasher—as well as powering other typical house loads for 12 or more hours.

## Marketing

Van den Bos has undertaken several dramatic promotions: the aforementioned 360° capsize to prove the design is worthy of the EU Category A ocean classification, in which van den Bos had a crane flip the boat upside down (to add to the drama, he stayed inside, strapped in with a seat belt, confident the boat would right itself, which it did); and a 16-day Atlantic crossing from the Canary Islands to Saint Martin in the West Indies. The E4, powered by a 425-hp (319-kW) Volvo Penta D6 diesel engine, burned 1 liter per nautical mile, running 375 hours nonstop start to finish, in company with two other E4s. Barrels of diesel fuel were lashed on the after-deck cockpit. In the closing hours of the passage, when one boat fouled a propeller on fishing line, all three switched to the 30-hp (23-kW) wing engine with completely separate fuel and control systems. Speed was reduced from 7.5 knots to 5.5 knots, leaving 20 gal (76 l) of fuel remaining.

Price of the E4 with standard engine is around €500,000, or \$552,000.

Neptune Marine Shipbuilding, Veeerdam 1, 5308 JH Aalst (Gld), The Netherlands, tel. +31 (0) 418 673 103, fax +31 (0) 418 673 222, website [www.elling-yachting.com](http://www.elling-yachting.com). 

**About the Authors:** *Dan Spurr is Professional BoatBuilder's editor-at-large. For many years a full-service yard manager, Steve now works with boat builders and owners and others in the industry as "Steve D'Antonio Marine Consulting." He is PBB's technical editor, and is writing a book on marine systems, to be published by McGraw-Hill/International Marine.*

