

THE EVEN KEEL

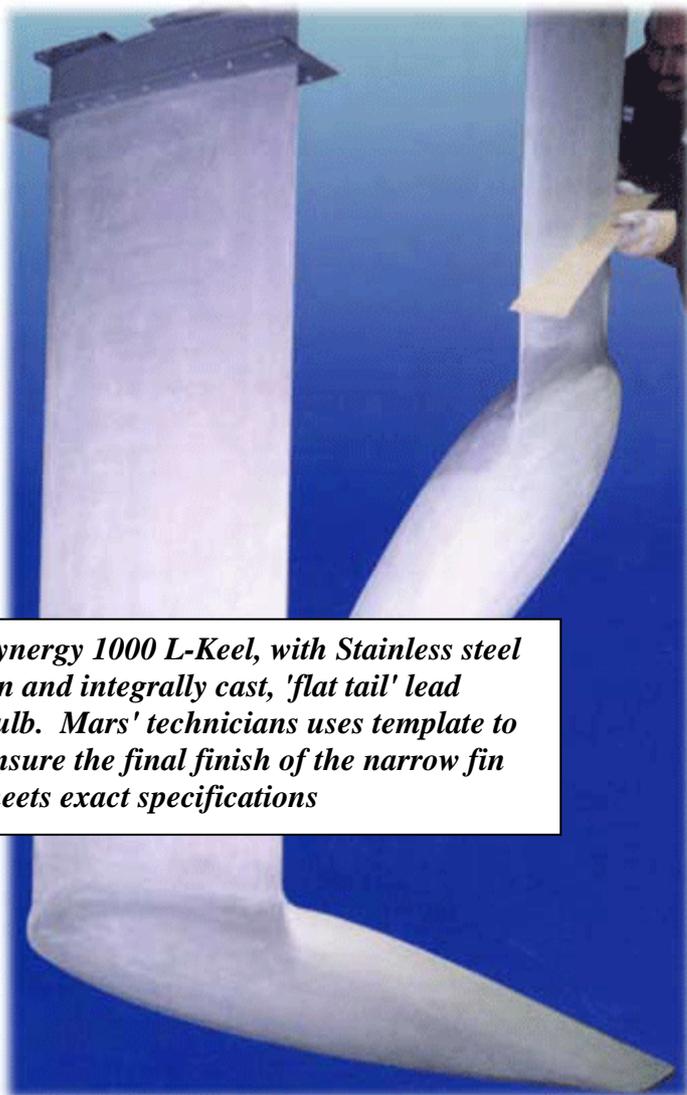
Volume 7 Cover Story

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SYNERGY 1000 FROM TIMELESS MARINE USES ADVANCED KEEL DESIGN AND CONSTRUCTION TECHNIQUES

The Synergy 1000 has been designed for Timeless Marine in Seattle, Washington as a sport boat for one-design racing, as well as, more casual day-sailing. Designer, Carl Schumacher of Alameda, California, traces the lineage of this boat to the Express line of high performance boats he designed back in the early 1980's.

The goal was to design a boat with these opposing criteria: Speed versus Ease of Handling and Comfort. The challenge was creating a light, strong, and affordable, hull construction method. Timeless marine developed a novel hull that is a composite of wood, foam and carbon/glass built over a male mold. Test panels utilizing this method weighed in at nearly 1.5 pounds per square foot, without requiring much internal stiffening. By building over the male plug the interior finish of the hull is smooth, eliminating the need for weight adding liners.



Synergy 1000 L-Keel, with Stainless steel fin and integrally cast, 'flat tail' lead bulb. Mars' technicians uses template to ensure the final finish of the narrow fin meets exact specifications

The deck is built from foam sandwich fibreglass in a typical female mold. This is the easiest way to achieve the more complex shapes of cockpit and cabin house.

The engineering of the keel structure was done by Craig Goring of Friday Harbor, Washington, and the resulting low centre of gravity for the ballast was crucial to achieving an overall light weight.

The MARSKEEL TECHNOLOGY high performance Keel is a 316L stainless steel hollow fin with an integrally cast lead bulb. The fin is reinforced by vertical stiffeners and the 316L alloy's lower carbon content enhances corrosion resistance. The fin is seam welded for strength and is water tight.

Mars' proprietary and technically difficult methodology that allows for integrally casting the bulb to the fin has many benefits. Eliminating bolts

and the necessary joining hardware reduces damaging corrosion. This construction method advances our goal of delivering a one-piece, completed Keel, that simply bolts on to the hull. Mars has developed its own unique method of wrapping the fin and bulb junction with Kevlar. This strengthening, protects against the dissimilar expansion coefficients of the two metals.

Keel Fairing utilizes West System Epoxy and the final finish is achieved with 3 coats of Interprotect 2000E with dry sands between applications. Mars' technicians repeatedly apply templates during the sanding process to ensure precise adherence to specifications.

The hull is a refinement on the typical shapes of performance boats designed by Schumacher. The Waterlines are hollow forward, allowing a fine entry to cut through chop, while providing more volume just aft of the bow and higher to keep the bow from burying while hard running. The turn of the bilge is firm which gives form stability to match the low centre of gravity. The run aft is very clean.

The large main required that the keel location be moved aft and the centre of buoyancy of the hull was moved aft to accommodate the keel.

The deck includes a cockpit with benches and seat backs. All controls lead to the cockpit. The sail plan sports a carbon fibre rig from Hi-Tech Spars with two swept aft spreaders.

Because the boat is to be sailed without overlapping headsails, the rig dimensions have been increased to accommodate Seattle's traditional light winds. A small flat jib and a reefed mainsail would de-power the rig in a breeze.

The interior is simple but functional. A double Vee berth is forward of the mast, along with an enclosed head. In the main cabin are multi-purpose counters port and starboard, as well as, a pair of teak park-bench style seats.

The Synergy 1000 exceeds expectations, delivering on its design, construction, and performance commitments.

SYNERGY 1000

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