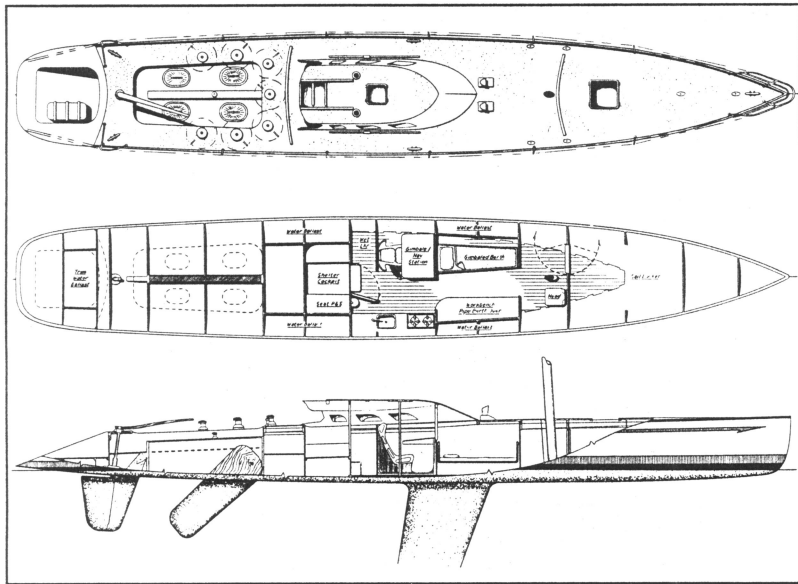


BOC racer pushes the limits of design

Lean, light and shallow, Gerr's plan has 9-foot beam on a 60-foot hull

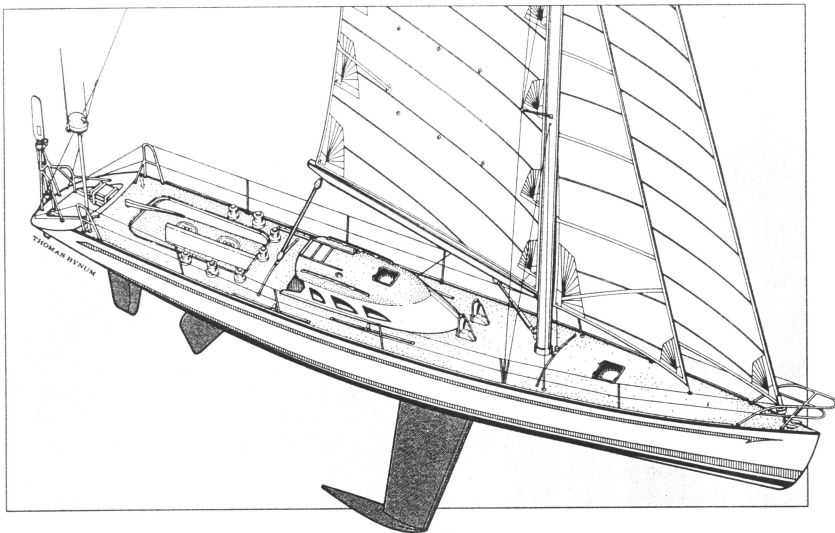


Holger Danske is an ultra-ultralight-displacement BOC racer. Cockpit layout puts all of the sail controls within reach of the helm. The tiller is unusual in a marathon racing boat of this length; most have wheels. Cabin accommodates one sailor on a fast solo cruise around the world.

SAIL JULY 1990

BOC preview

Singular designs



Paul Cohen's *Holger Danske* is a minimum-beam, minimum-sail-area boat for easy sailing. The skeg retracts into a box in the cockpit

By Dennis Caprio
Staff Writer

Dave Gerr's BOC boat *Holger Danske*, designed for skipper Paul Cohen, explores the limits of light weight and narrow beam in an offshore racing boat.

Holger Danske is the smallest Class I boat (60 feet) drawn so far for the 1990 BOC single-handed race around the world. It has a displacement/length (D/L) ratio of 40, common for high-speed multihulls of a few years ago but unheard of in a monohull. Other BOC boats have D/L ratios of 50-60.

Although the difference between 60 and 40 seems small, the progression is geometric and gives the light boat a tremendous real-world speed advantage.

Holger Danske's beam is only 9 feet, 7 inches. A beam of 13 feet was considered narrow for a Class I BOC boat, and beams have increased some for the 1990-1991 race.

The theory behind Gerr's approach is that a very light and narrow hull has less resistance, giving it higher displacement speed. A light, narrow hull won't pound or steer wildly when driven hard in rough seas, and it should be fast under a modest and easily handled rig.

Depth of hull also comes into play. A shallow boat ought to be faster than a deep one, so *Holger Danske* is shallow.

"It's got a very flat bottom and very hard bilges amidships," Gerr said, "because once you decide to go narrow, you have to do everything that's humanly possible to maximize whatever stability might be in that beam."

Holger Danske gives away sail-carrying power to beamier boats, so the sail plan must be kept low and light to enhance stability. Although this boat's rig is short by BOC standards (59 feet on a 60-foot hull), sail-area-to-displacement ratio is 24 — high, compared to the 18 or 19 of a good performance cruiser but low compared to the 29-plus on a number of this year's BOC boats. *Holger Danske's* hull is more easily driven than that of a wide boat, and it should fly in moderate to heavy air. In light air, boats with bigger rigs will be faster.

Most BOC boats have water ballast. It enhances sail-carrying power when the skipper floods the weather tanks; light-weather downwind performance when the tanks are emptied; and reaching and windward performance in extremely light air when the skipper floods the leeward tanks to heel the boat onto its sailing lines.

Holger Danske carries its water ballast fairly high in the hull on the beam ends. Gerr says the vertical location of the boat's center of gravity is about halfway up the topsides, which is common for BOC boats, but that *Holger Danske's* narrow beam gives it a safety advantage.

The rules governing BOC competition don't take into account reserve stability (which keeps a boat from capsizing or allows it to right itself), so the rule-makers control the amount of water ballast by limiting heeling to 10 degrees.

However, as the beam increases, the boat's initial stability (its form stability, resulting from the shape of the hull) also increases.

A very wide boat can carry lots of water ballast and still heel only 10 degrees. To keep the wide boats light, designers specify a minimum amount of ballast in the keel and rely on the water ballast and form stability for sail-carrying power.

These boats can be as stable upside down as they are right side up. In the *Globe Challenge*, such a design, skippered by Philippe Poupon, took a knockdown and failed to right itself.

"I think they're death traps," Gerr said. "I also don't think they can be driven into a seaway, but they're doing surpris-

SPECIFICATIONS

LOA: 60 feet
LWL: 57 feet
Beam: 9 feet, 7 inches
Draft: 11.5 feet
Displacement: 16,800 pounds
Ballast: 7,200 pounds
Designer: Gerr Marine Inc., 838 West End Ave., Suite BB, New York, N.Y. 10025.
Builder: Cohen Offshore, 11 Voorhis Point, South Nyack, N.Y. 10960.