

Paolo Bisol
DEEP BLUE 48

SPECIFICATIONS

LOA	14.35 m
LWL	13.50 m
Bmax	3.76 m
BWL	3.06 m
Tmax	1.78 m
Tc	0.49 m
Design Displacement	9200 Kg
Sail Area: geom. (100% foretriangle)	86.0 m ²
Mainsail	46.3 m ²
Headsail	36.1 m ²
Staysail	19.8 m ²
Gennaker	110 m ²
Fresh water capacity	700 lt. normal (up to 1400 lt.)
Fuel capacity	460 lt.
Black water tank	120 lt.
Main Engine	67 HP Perkins – Sabre M65
Propeller	22' MAX-Prop three-blades feathering
Batteries	4 x 108 Ah, 12V, in 2 groups 1 dedicated Engine battery 108 Ah / 12V

Ground Tackle:

30 Kg Bruce main anchor, 50 m chain (dia. 10), 50 m nylon rope (dia. 16)

30 Kg Storm anchor, 100 m nylon rope (dia. 16)

15 Kg kedge, 50 m chain/rope

Standard Equipment:

Fridge / Freezer	300 lt. total
4-burner stove with oven	SMEV 7000
Air Heater	Eberspacher D5LC
Reverse osmosis Watermaker	
Wind generator	Ampair 100
Windvane	Scanmar Monitor
3Kg Washing Machine	Eumenia Euronova 600
Tender	Quicksilver 330 Airdeck, 9 Hp outboard

DESIGN CONCEPT AND BACKGROUND

An ocean-going yacht, with long-term accommodation for four, to be capable of being handled by a crew of two.

This boat is called Deep Blue 48, so you know how long it is and where she wants to go, and it's a light displacement.

A light boat means a more easily driven hull, smaller sails, lighter loads on the equipment, i.e. family-friendly sail handling. And lower equipment costs.

It also means speed, i.e. family fun.

When light is slender, as in this case, it means less distorted lines under heel, less tendency to broach, windvane or autopilot-friendly behaviour.

The layout includes some features inspired by the single-handed offshore Open class boats:

- a "Control station" from where the on-watch crew can, at a glance, know everything about the boat and her surroundings;
- a hinged watertight companionway door that can be quickly locked shut, should the big wave come;
- water ballast in wing tanks, 700 lt freshwater, continuously reintegrated by a watermaker. If this breaks, you still have your full tank to finish the journey.

MATERIAL AND CONSTRUCTION

The hull is in wood-epoxy, Western Red Cedar strip-planking with tongue-and-groove profile.

This material was chosen for several reasons:

- it is relatively light for its strength, so suitable for a light displacement; with respect to other lightweight materials such as aluminium, it does not require any additional insulating or cosmetic lining
- it is ideal for custom building, not requiring a mould but only a limited number of "form" frames, and involving limited fairing time
- it looks great inside.

It's also environmentally friendly, since Western Red Cedar is mainly grown in British Columbia where policies of sustainable replenishment of forestry resources are the norm. The same could be said of Douglas Fir, employed here in the form of Marine Plywood for deck plating, internal subdivisions and cabinetry.

The hull thickness is 32 mm, while the deck is 24 mm thick. Both are covered by a layer of fiberglass fabric externally to provide a more hardwearing surface.

Scantlings were defined to comply with ABS rules.

SEAWORTHINESS

Deep Blue 48 exhibits a range of positive stability up to 140° of heel, in all considered loading conditions. This value, higher even than that of some "traditional cruisers", is a combined result of the concentration of the lead ballast in a bulb keel and the relatively large volume of the superstructure.

Mast and rigging are overspecified, in order to provide a higher probability to survive knockdown or capsize imparted loads.

GENERAL ARRANGEMENT

Sail Plan

Many sources agree in considering the cutter rig the ideal choice for a bluewater cruiser.

Its main advantage is to allow smaller sails on the foretriangle. A cutter rig is convenient in many ways:

- Balance: in strong winds the centre of area of the reefed mainsail moves closer to the mast, so it makes sense that the foretriangle moves after to keep the boat balanced. A staysail provides then a good solution.
- In fresh airs the coupled headsail - staysail are more efficient than a single headsail.
- The inner forestay, coupled with running backstays, provides important longitudinal support to the mast, that otherwise would be free to flex fore/aft between the top and the base.

The main disadvantage of the cutter rig is the added complication of the double headsail, and running backstays, when manoeuvring.

While added complication in manoeuvres is not of great concern during passages, it does contrast with the requirements of short handling when approaching anchorages or ports.

To minimise the inconvenience, it was opted for a self-tacking staysail: for manoeuvring in restricted waters, the combination staysail - mainsail still provides acceptable speed in most conditions.

Thanks to the overspecification of the mast section, the running backstays are only needed above a certain wind strength; the mast requires the extra support to prevent "pumping" when motoring against a steep sea, or sailing upwind with strong winds, conditions in which both runners can be kept tight. In fact, the mainsail can tack clear of the runners when double-reefed.

In terms of general architecture of the rig, it was opted for a double-spreader arrangement.

It was preferred to widen the shroud base up to the full breadth of the deck, in order to minimise the loads on mast and rigging. Another advantage of this solution was that the chainplates being at deck edge, they would not intrude the accommodation.

The mainsail is fully-battened and equipped with lazy jacks for ease of handling. It is roached to the full extent allowed by the backstay angle.

Interior Layout

The forward cabin has a double "V" berth. The berth is raised and offers plenty of storage space underneath, which can be accessed by lifting parts of the platform and through a large locker in the front. In addition, two wardrobes with drawers are located after of the berth.

Between forward cabin and saloon, on port side, are the heads. The toilet discharge can be through the hull fitting, or diverted to a 170 lt. holding tank housed under the forward saloon settee.

On the starboard side is a work table for occasional repairs, and storage lockers.

The saloon consists of a "C" settee to starboard and a linear settee to port. The settee to port can be used as a sea berth, while the full crew can still sit around the table. The space under the side settees is filled by the two 700 lt. fresh water / water ballast. Lockers are provided along the topsides, and lighting is supplied by the four portlights as well as two deck hatches. After of the saloon, the main feature is the raised navigation station on the top of the engine box, fitted with a car-style seat that provides the crew on watch with a comfortable position, from where information from the instruments and all-round external visibility is accessible.

The area on starboard of the nav station is used as an enclosed machinery area for the installation of equipment such as pumps, heater, water-heater, water-maker etc.

After of this area are two lockers, one housing a small washing machine, the next is the wet locker, in close proximity of the companionway.

On the port side, a linear 3 m galley is arranged along the hull.

The companionway ladder is inclined 30° from the vertical. The companionway hatch is intended to be watertight: both the top portion and the vertical portion are hinged doors with all-round overlap. The lower portion is removable to provide a more comfortable access when the conditions allow.

The After cabin has a double berth 1.5 m wide. Storage lockers are lined on the hull side. An escape hatch is provided under the cockpit seat.

Sail and general storage for about 3 m³ is provided by the sail locker to starboard and the after peak extending up to the transom.

Deck Layout

The width of the cockpit well is designed to enable crew to brace their feet against the leeward seat when heeled.

The disposition of winches around the cockpit reflects the aim of short-handed sailing, but still provide for all the manoeuvres needed by a cutter-rigged yacht.

The headsail and spinnaker halyards are kept at the mast, while reef lines and mainsail halyards are led to the cockpit.

Three pairs of winches were arranged on the cockpit coamings. Starting from the stern:

A - Lewmar 54 ST, Runners (when used), (or) Headsail, Spinnaker, (or) Mainsail / Staysail

B - Lewmar 54 EST (electrical), Mainsail (stbd), Staysail (port), (or) Headsail, Spinnaker

C - Lewmar 48 ST, Mainsail halyard & Reef lines

D - Lewmar 48 ST, at the mast.

The two after pairs of winches are in fact interchangeable, and for short-handed sailing the sheets can be led to winches A (at easy reach from the helm), and/or to the powered winches, B.

A stern platform was not adopted for the transom, mainly to allow the installation of a wind vane.

The mainsheet track is on the pilothouse roof, at the aftermost possible location compatible with the companionway hatch.