

Specification

for SAILSetc International Marblehead & Ten Rater

PRIME NUMBER & DIAMOND

prices will be found on the boat order form and are valid for orders paid for during 2008

news – see last page

HULL MOULDING ONLY

hull moulding with the following features

- moulded in pre-preg carbon
- 1 layer of 200 grams/m² + 1 layer of 125 or 150 grams/m² woven carbon
- bow (+ stern for 10R) bulkhead is low density epoxy filler
- weight of about 320 grams for PRIME NUMBER with openings trimmed
- weight of about 420 grams for DIAMOND with openings trimmed
- natural black carbon finish
- laminated in one piece with 20 mm flange around aft deck opening(s)
- centre deck with deck level pot recess & foredeck built in
- fin box and mast tube moulding built in, mast tube for conventional rig only
- headsail sheet fairlead, headsail boom swivel and block mount recesses built in
- foredeck cut outs and hatch opening for access to rc are marked
- recesses for the snap in/out rigging screw system
- supplied with A3 format general arrangement showing position/size of major component parts

Options

none

Delivery

we may be able to supply hull mouldings, and additional parts required to build a hull kit, from stock

HULL KIT B

hull moulding as above with the following items

fitted

- deck to hull connection near aft waterline ending (not PRIME NUMBER)
- sheet post trunking
- rc support, cut outs for RMG winch and Futaba/Hitec servo with bolts installed (for quick release system) – *advise if an alternative rc installation is required*
- bracing for shroud points
- mast gate and plastic part of mast/deck adjuster added
- moulded fairlead 67g for under deck sheeting
- two foredeck tubes for headsail swivels
(for A rig and 10 Rater No 1 rig on PRIME NUMBER)
(for No 1 & No 5 rig on DIAMOND)

supplied

- moulding used to modify the bottom of the rc containment pot (not DIAMOND)
- fin moulding, item 370a, maximum length from bottom of hull to lower end of fin is 515 mm, requires cutting to length – see Note 1 -, finishing to section and adding fixings at top and bottom
- moulded rudder, 4 mm stainless steel stock, item 360b, requires finishing and fitting to hull
- ballast casting in natural cast state with fin slot, item 200-036 (PRIME NUMBER) or 200-042 (DIAMOND).

all moulded parts are in carbon/epoxy with a natural carbon finish

options

none

see also options under PART COMPLETED HULL

to complete the hull you will need fittings and adhesives.

fittings pack does NOT include a switch
resins
fillers
silicone sealant

PART COMPLETED HULL

hull kit with the following tasks completed

- fittings pack added includes fitting drain bung, backstay attachment, rudder tube & top bearing, tiller arm and servo/tiller connector strut, sheet post, pot for rc containment, fin bolt, mast/deck adjuster, winch line running gear with turning block, headsail sheet fairleads, headsail boom swivel attachment points, bow bumper
- foils fitted to hull the fin is cut to profile, bolt and threaded insert fitted, the length is cut to give the standard draught of 585 mm, (*see note 1*), the edges are sealed and the whole is adjusted to fit the hull in the correct alignment, the rudder profile is trimmed to fit the hull correctly
- foils finished the fin and carbon rudder are finished to section and fillets are added at the leading edge of both at the hull
- ballast finished the ballast is fitted to the fin and a recessed nut is used to retain it in place – the ballast is faired, adjusted to weight and sprayed with grey primer

options

the rc support will be cut out to accept whichever winch and servo you prefer

FIT RADIO CONTROL EQUIPMENT

fitting radio control equipment can be done if it is provided by yourself
work required to achieve the specification you want will be timed and charged for accordingly

the following equipment should be provided to us

- 2 channel transmitter & receiver
- battery pack for transmitter
- sail winch - preferred winch is RMG 280 winch
- rudder servo – preferred servo is Futaba 9450 or Hitec equivalent
- battery pack for boat to match requirements of winch

NB it is essential to advise SAILSetc which rc units will be provided by the time we start of build please

the following work/parts are provided by us and charged for as appropriate

- plug/socket on aerial/receiver and as required
- water resistant switch if required
- mounting plate for winch
- deck lines added to winch
- tension system for main winch line
- other fittings as required

MEASUREMENT of YACHT with ONE RIG

(see rig order form for rig prices, measurement does not include adding sail marks)

- number + national letters engraved in hull
- number + national letters applied to deck
- hull limit mark (PRIME NUMBER)
- waterline limit marks (DIAMOND)
- measurement forms ready to send to certification authority

measurement of additional rigs (each rig)

- measurement forms ready to send to certification authority

PACKAGING, PACKING and CARRIAGE

Collection of the boat and rigs will mean you avoid any packaging, packing and carriage costs. You may wish to bring or purchase one or more rig bags to ensure that these are protected during your return journey. Alternatively consider making a rig box to bring with you when you collect the rigs. We can supply timber suitable for making a rig box – see catalogue page 21. We can quote for making a box for rigs.

If the goods are to be sent to you, in the UK or outside the UK, then the packaging, packing and carriage costs will depend on the other options you choose, your own location, and the method of delivery that you prefer. We can give you some idea of the costs involved, and an absolute maximum figure, but cannot determine the actual figure until your final order is confirmed.

NEWS

In late 2005 we experimented with a hull made for us from pre-preg carbon using the ROK mould. The result was very encouraging and we have continued to explore this method of making hulls. In fact, except for our IOMs, all our boats are made this way now.

New moulds for PRIME NUMBER were made in early 2006 and the prototype boat finished 3rd in the 2006 world championship sailed by Zvonko Jelacic who had not raced a Marblehead before. In 2nd place, on the same points, was a ROK built in 2002, sailed by Ante Kovacevic who has not raced Marbleheads for many years.

New moulds for the A Class SWORD were also made in early 2006 and all new SWORDS will be made this way.

Rather than make a new mould for the 1999 design Ten Rater PRIZM we revised the design a little to take advantage of the lighter build weight and in light of experience gained since 1999. The new Ten Rater, called DIAMOND, should be sailing in spring 2007.

The pre-preg hulls have several advantages. They are stronger, stiffer, heat resistant and longer lasting hulls, with the possibility of supplying hull mouldings and hull kits almost 'from stock' and more time available for us to carry out other work. One side effect (possibly good, possibly not so good) is that the natural carbon and clear resin produces a black hull thus requiring the hull to be painted/sprayed if you want any other colour.

So, except for our IOMs all our boats are now made using this method. We do not see this as an immediate option for IOM hulls because clear glass is not so attractive as a hull finish.

During 2006 we were in the process of learning about the methods and costs of building boats this way. Initial indications were that price of hulls made using pre-preg would remain about the same and for 2006 we are kept the price the same as for hulls made using the previous method. Having settled down to a system that gives us excellent and consistent results we have found, perhaps inevitably, that this is no 'magic' way of making top quality boats less expensively. Thanks to the aircraft and defence industries, as well as industry as a whole, waking up to the benefits of carbon fibre the cost of this material has escalated a lot recently. While we have good stocks of our own materials we can keep price rises for parts made in house to levels close to inflation. However, we cannot do that for carbon products that we buy in. Thus the price of the pre-peg hulls (as well as carbon tubes) have risen considerably.

The very large increase in the prices of a Marblehead and Ten Rater hull moulding are due partly to the increased price of the process but also reflect the very much larger amount of value that is built into the hull moulding itself. The hull shell is a very complete moulding and, apart from details that help with the fitting out, now even has the fin box and mast tube moulded in from the outset. Because of the extra completeness of the primary hull moulding the cost of getting to the completed boat stage has been reduced. There is also a benefit in consistency.

However the cost of a hull kit, part completed boat or a finished boat remains much higher than previously.

Our boats have always had a reputation for excellent performance and value over a long term and we are confident the extra longevity achieved by the pre-preg building process for these thoroughly well proven designs will make the increased costs fully justified.

Note 1

The standard draught of circa 585 mm has given 'best all round' performance across a range of conditions from 1992 up to 2006. We suggested 20 mm less if sailing in light airs frequently and 20 mm more if sailing in a breeze for much of the time.

The PRIME NUMBER (and ROK) that did so well at the 2006 world championship used a draught some 60 mm larger than standard but it was an exceptional week of strong winds. The same boat used at a 2 day event of lighter conditions, although still capable of winning, lacked pace and we remain confident that the advice above is sound.

As many other Marbleheads use a relatively large draught it would seem possible to maximise the relative performance of PRIME NUMBER by increasing the standard draught from 585 to 610 mm as. This will promote performance in heavier wind while keeping a distinct edge in light airs. Again we suggest 20 mm less if sailing in light airs frequently and 20 mm more if sailing in a breeze for much of the time.

Changes outside that range may give better performance in a limited range of specific conditions depending on the competitor designs.

The PRIZM design has competed incredibly well across the full range from light airs to No 5 rig using the standard draught of 585 mm and we are confident DIAMOND will remain optimised at much the same draught.

Note 2

The ballast is given an upward tilt of 2 to 3 degrees. Small variations from this are possible by using suitable size packing pieces between the ballast and the fin in the slot. You may want to test less or more upward tilt. If fillets and/or fairings are required between ballast and fin then you will have to specify the ballast tilt required.

Note 3

The standard ballast weight of 3.6 kg gives 'best all round' performance across a range of conditions. Lower ballast weights will promote light airs performance to a limited extent at the expense of performance especially to windward when heel angle exceeds 20 degrees. Generally we would expect a shorter fin will promote light airs speed more efficiently than a light ballast.

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