



Mainsail Luff Type – What to use?

A question that is regularly asked to us is one on what type of luff should we go for on our mainsail luff to suit a round mast on an IOM.

To better understand the reasons why one choice may be favoured over another we need to look at where we have come from and learn.

In the early 90s the current hard series masts were not available in the 11mm diameter sizes so lightweight round sections were hard to come by. Enter Sailsetc where both standard round and groovy round tubes were made available in clear anodised form with .6 and .5mm wall thickness respectively giving a lightweight section clearly better than any easily obtainable option.

Groovy rigs for a time were considered to must have, being used by both the 1994 (Red Wine) and 1997 (TS2) World Champions. These masts allowed the mainsail luff to be set down the centre of the mast with luff slides preferred over a full bolt rope style seen on dinghies and keel boats. Some heavy lower rigs used the latter.

Moving into late 90s and the lighter round section started to gain favour as it was proving a little stiffer than its groovy counterpart but the differences were still minimal. Simple eyelets with wire luff rings or ties were more common as a pass down from larger International classes but on small bending rigs asked a lot of both mainsail and mast to match through such a wide wind range. Unlike the classes where this method was more common, the IOM has only 3 rigs as opposed to say 5 or 6 where the wind strength bands of a usable sail area are more compact.

The eyelet method worked fine in the lightest of breeze, allowing the sail to rotate around the mast freely. The downside was that in mid range conditions and higher, a high degree of luff tension was needed to stop scalloping between sail ties. Any sideways bend only made the fit worse as winds got to the top end of the rig and Groovy masts continued to be seen on winning boats (Craig Smith continued successfully using these through to his 2005 Worlds win).

Step forward the luff wire set inside the luff pocket, in the same way a jib luff wire would be attached. Adding the wire with its own independent adjustment at the bottom allowed the best of both worlds. It could be free of tension in the lightest of winds for the freedom of an eyelet sail. In stronger winds though, the wire could be lightly tensioned to remove scalloping of the luff without having to over tension the luff of the sail to set correctly. This method started to gain favour in early 2000 as designs became narrower and sideways mast bend to sail fit became more critical. It went on to be used by World Champions in 2001, 2007, 2009, 2011, 2013, 2015 and is still used on more boats winning races today than not.

It is worth adding that from the mid to late 2000s, the new stiffer alloy sections available all but saw an end to the competitive use of Groovy and softer alloy sections being lighter, stiffer and less prone to pre bend relaxation.



In conclusion....

Given the narrow shroud base on current competitive designs and that we are promoting the mast to work sideways for us in a gust, the wire method and its wider range of use has become more widely used and favoured on yachts at the front of any competitive fleet.

That said, there are still some very good results being had by proponents of the eyelets method in lighter conditions. Setting the mast straight with minimal luff curve cut into the sail to suit can help but the added pre bend to achieve this, although not as drastic as the 40+mm seen back in the soft rig 90's, makes the rig less reactive to gusts and not really desirable. In trialling the eyelets on my own Red Wine over the past 18 months to cross check my previous thoughts I have seen no reason to alter my findings.

Whatever your method of preference, it is most critical to use correct head and tack attachment methods for correct freedom of movement and direct luff tensioning through the rotating axis of the luff.

e.g. Wire head swivels that won't move freely, luff tensioning eyes placed aft of the tack sail eyelet, mainsail luff tension not easing in unison with sheets being eased.... etc, will do more to spoil a sail and rigs performance than the choice of mainsail luff type you use.

Mainsail with Luff Wire (below)

Note the short head fitting allowing minimal rotation and the sail and internal wire doing the work, freely on its axis





Tack Setup with Luff Wire

Wire tensioner is vertical line tying to wire looping under gooseneck body, returns up other side to wire loop with bowsie adjuster to tension.

Sail luff tension line tied to sail eyelet, passed down through loop in wire, passed around front of mast then back through wire loop and led along boom to cable tie tensioner.

This method keeps line of tensioning against back edge of mast, rotates freely and eases mainsail luff tension for a run.

An important tip is to only ever tension the wire enough to remove any vertical sag between sail ties. i.e. minimal tension required!





2004 and the use of an 11mm Groovy mast on narrow shroud base hull not ideal



2019 and Eyelets luff sail being trialled on the 1994 designed Red Wine.



Cheers
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