Using Wykeham-Martin Furling gears - an Unofficial Guide

Reefing versus Furling Gears

Just in case you get confused, it is probably worth rehearsing the two generic approaches open to you for reducing headsail area. The first, and currently more common on modern rigs, is to use **reefing gear**, which allows you to vary the amount of sail set from the full sail to nothing depending on conditions. Almost all systems use an aluminium extrusion through which the forestay passes and into which the headsail boltrope is fed. The sail is reefed by turning the extrusion by means of a drum at its lower end. This arrangement means that whatever disaster befalls the reefing mechanism itself - and sometimes they jam or snarl up, there is still a stay supporting the mast.

Furling gears , on the other hand, adopt a different approach. They work on the basis of a top and bottom swivel attached directly to the head and tack (respectively) of the sail. Transmission of the torque from the lower swivel to the upper is done by means of the luff wire in the headsail. You cannot - unless the luff wire is unmanageably stiff - obtain a consistent sail shape in a part-furled condition. So with furling gears, you get all the sail or none at all. Occasionally you will hear of a cunning scheme to allow furling gears to act as reefing gears by using a double luff wire or an extrusion or some such device. Don't bother. Why not? Because with furling gears you don't have a continuous stay supporting the mast as part of the gear itself. Instead you rely of the strength in tension of two bearings. Other than a simple snarl up of the furling line, the most common failure is in these bearings. If you use a furling gear you **must** have an independent stay to support the mast. Finally, please remember that you are unlikely to be able to obtain huge rig tensions through W-M gears. If that is what you want, then use more highly engineered - and expensive! - gear from another manufacturer.

Which Size to Use?

There isn't any rigorous guide, but the figures currently provided by Davey run as follows

- Size 1 50 sq. ft/ 5 sq. m
- Size 2 100 sq. ft/ 10 sq. m
- Size 3 200 sq. ft/ 20 sq. m
- Size 4 350 sq. ft/ 35 sq. m

If you are in any doubt as to sizing, going up a size is highly recommended.

The Luff Wire

It is not simply a question of removing the hanks and fitting the gear. Please check with a sailmaker that the luff wire is going to be stiff enough to work, because if it is not, the lower part of the sail will furl leaving a baggy mess higher up. In "demanding" conditions, this upper part will at best send you sideways, and at worst shred, so wrecking the sail.

The size of the wire depends on the length of the luff - the longer it is the stiffer the wire needs to be - and the sail area. It is best to consult with your sailmaker. For example, James Lawrence Sailmakers in Brightlingsea reckon that up to the size 3 gear 1x19 wire will usually suffice, but for larger sails they will sometimes use a stiffer wire such as "Norselay". Stiffer wires make the sail harder to stow when it is off the furling gear, but without them you may not be able to furl the sail in anything other than perfect conditions.

Arrangements at the Upper End

A few points are worth noting here. Firstly, install the top swivel so that rain water cannot enter the swivel. Over a period of time this can emulsify the grease and corrode the bearings.
Secondly, except on size 1's, you need to prevent the halyard turning instead of the swivel, particularly if you are using 3-strand rope. A good way to do this is to have the halyard arranged such that it starts at one side of the mast, through a single block attached to the top swivel, and then through a block on the other side of the mast down to the deck. Apart from the helpfulness of having a 2:1 purchase for your halyard, as the top swivel is hoisted into position, the two parts of the tackle become more widely separated in a sort of "V" shape, and this helps to keep the swivel swivelling. You will get all manner of problems if you use a single and a single and becket block all arranged in line.
Another thing that can happen is that the pins in the swivel can catch on the fore/jibstay as you furl or unfurl the sail. This usually causes the vocabulary of the crew to be extended in an undesirable direction. One solution is to cut the protruding ends of the pins off, perhaps making a slot for a screwdriver so you can undo them later. Another is to fit a disc of about 4"/100 mm diameter to the upper part of the swivel which keeps the stay away from the furling gear.

Arrangements at the lower end.

The heart of the matter is keeping control of the furling line. In an ideal world, you keep tension on both the furling line and the foresail sheet as you furl and unfurl the sail. In the real world, it is all too easy to get a snarl-up of the furling line. Things you can do to help are:

- Try to keep the drum more or less upright. This is easy enough if it is mounted to a fixed part of the boat like the stemhead, but can be more of a problem if the gear is fitted to a traveller. Classic Marine have devised a version of a bowsprit traveller which uses a pair of plates to locate the gear, instead of the more usual hook. As long as there is tension on the traveller outhaul, the drum stays upright.
- If that doesn't work, you can fix a disc below the drum with 3 or 4 guide rods to form a sort of cage which helps keep the line on the drum.
- As for the furling line itself, its length will vary with the deck layout and the number of turns required to furl the sail, so general guidance can't be offered. But it is better to use braided line rather than 3-strand, and to use the largest diameter line which will fit happily on the drum.

Maintenance

To dismantle the swivels, remove the screw which goes sideways into the drum/swivel, and then unscrew the bearing assembly from the drum/upper part of the swivel. All threads are right handed.
Thick waterproof grease is the best for packing the bearings. Avoid thin lubricants like penetrating oils, because they can be displaced by water, which in turn will corrode the bearings. Much to some peoples horror, the bearings are steel - not stainless. In practice they last up to 10 years, and are easily and cheaply replaceable with standard bicycle bearings. When to repack with grease? Unless you can sense a graunching or dry sound, it is best to leave well alone.