

-FURLERBOOM-



Owner's manual

(Rev.04 23/08-2021)

It is the owner's responsibility to read the owner's manual before the boom is put to use.

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Preface

The purpose of this owner's manual is to provide the user with the appropriate instructions/information before using the boom.

All information in this manual must be read and fully understood before using the boom.

Furlerboom has no direct control over the use of the boom, and it is therefore the user's and / or the persons responsibility to seek compliance with good safety practices.

This manual is a very important tool and should always be kept on the boat.

All information in this manual is based on the use of the boom under the correct conditions. **IT IS STRICTLY FORBIDDEN TO CHANGE** and / or modify the boom without having been in dialogue with Furlerboom.

It is will always be the owner and the person operating the boom, that has the responsibility of the safety on deck!

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Pre check prior to reefing or furling the main.

The boom be set at the correct angle

A Furlerboom vang is operated by an internal spring. The vang can be released to a mark on or knot in the line and have that stop by the clutch. When this marking or knot is at the location, the boom will be in the correct position for furling.

With a hydraulic vang. A piece of a sail batten can be cut to length of the exposed part of the ram at the correct furling angle and can be used as an easy visual reference. Alternative a Dyneema strap with a lashing can be made with the correct length to limit, the hydraulic vang, when released.

On yachts without a vang, the boom toppling lift is needed. The boom topping lift can be made in a thin Dyneema line with a thicker tail by the clutch, and a mark needs to be set to correspond with the boom in the correct position for furling. We recommend that a mark is made on the line, such that it is easy to see and to reproduce every time you wish to furl.

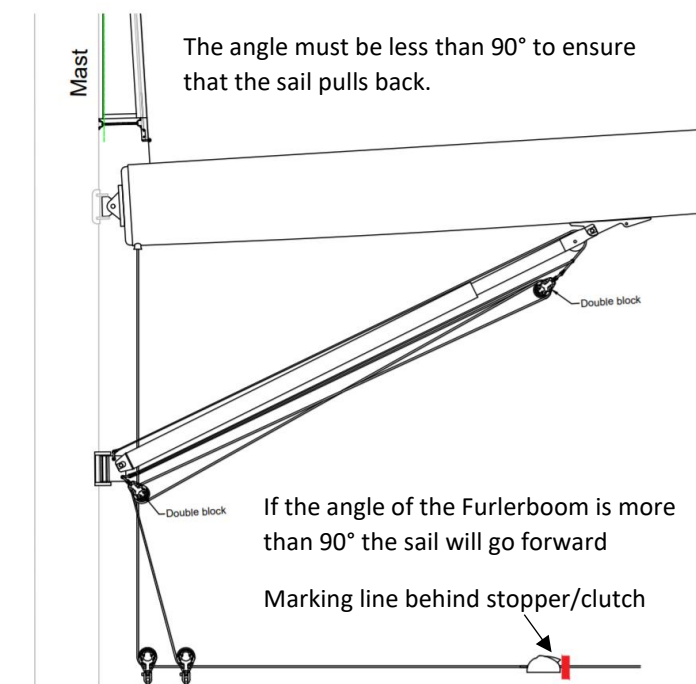
For all three systems it would be wise to use the topping line to reduce the load on the boom, while using the motor. Also fit a line to each side from the outboard end instead of over-tightening the main sheet.

The main sheet must be released so the sail is feathering in the wind. (Release the main sheet from the winch).

To get the sail feathering you do not need to position your yacht head upwind. The lower part of the mast track will follow the boom in any position when the main sheet is released making reefing and furling possible between ($30^\circ \leftarrow 0^\circ \rightarrow 30^\circ$) app. wind angle. The closer to 0° the less risk for damaging the sail by touching your rigging.

You can continue sailing under headsail only, and then reef or furl your mainsail as desired.

The starboard side of the continuous reefing line is the part you need to put around your winch for reefing or furling, and with the boom set at the correct angle and the mainsail itself feathering. You are now ready to reef and furl the sail down for one or two reefs or all the way down in the boom.



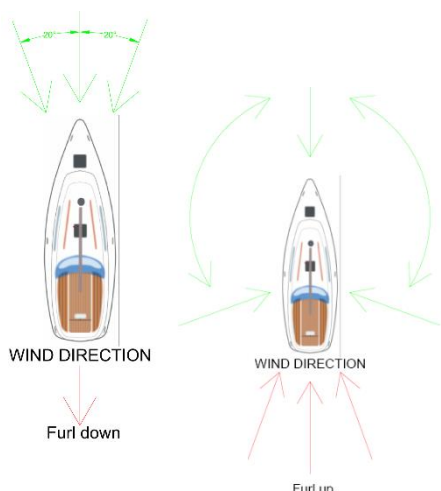
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Hints when furling.

When the starboard reefing line is on the electric winch, release the load of the main halyard until wrinkles just appear at the luff.

The starboard reefing line will rotate the mandrel clockwise and pull the mainsail down. While doing so, keep some resistance on the halyard so the luff of the mainsail, should always remain taut when furling.

If the boom is set too low, the luff of the mainsail moves forward and potentially jam in the forward side of the boom shell. If the boom is set too high, the luff of the mainsail will move backwards and put unnecessary tension on the mast track and luff groove feeder.



- When down furling it is very important to sail upwind within 20° of the wind directions.
- It is most secure to furl down while sailing up wind.
- It is possible to furl down with the wind coming from backboard, however the wind speed must not exceed 3m/s (6kn).
- When furling up it is advised to have the wind coming from backboard. The angle is not that important compared to when you are sailing upwind.

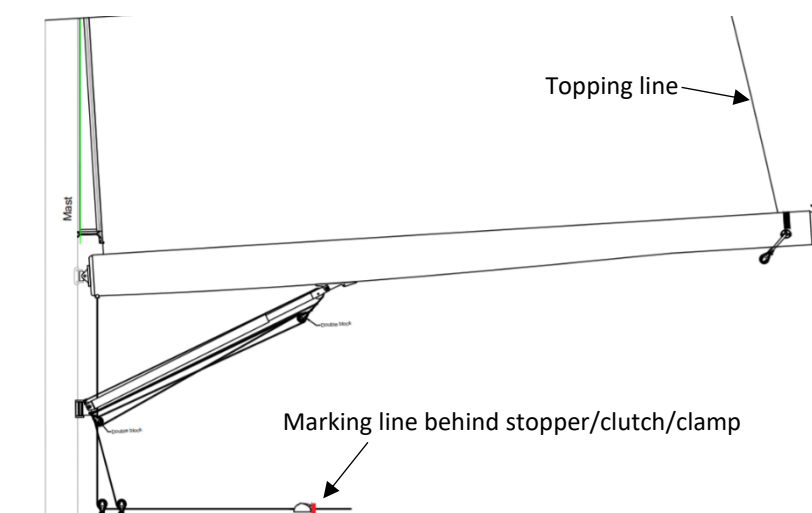
It is always the sailor's responsibility to keep an eye on the sail when furling up or down. When furling, the operator should always keep an eye on sail and listen after strange sounds. If it is suspected that something is wrong. You should always stop and investigate the situation.

The sail should gradually work back along the mandrel as it is furled.

To verify, efficient furling prior to using the system it is advised to do several test furls to check the sail is working back along the mandrel:

Set the boom at the first approximate angle and furl the mainsail for 5-6 full turns. Stop for a moment and check that the mainsail luff is gradually working back along the mandrel as it is furled.

Hint: If the batten is parallel with the top of the boom. Then you are sure that everything is setup correct.



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A system that is set to the correct angle and operated correctly will result in a moderate amount of pull back and keep the mainsail luff nicely taut.

If the mainsail luff is working its way forward and risks jamming into the front of the boom shell, then the outboard end of the boom should be set up higher, or the mainsail was not feathering enough.

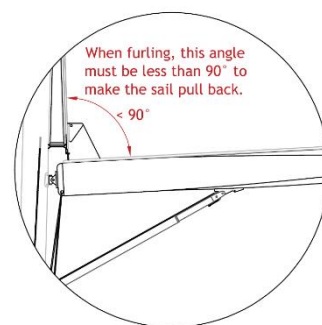
If the mainsail luff is working excessively backwards (clear to see by horizontal stretch marks then visible from the luff feeder back into the mainsail), then the outboard end of the boom should be set up lower.

Also try to experiment with the resistance you provide on the halyard when furling. If you use too much resistance you will see vertical stretch marks in the mainsail and experience the furling being difficult to do. Using too little resistance will see the mainsail going down faster than the sail being furled up and resulting in a “bulge” of the sail being furled into the boom.

Sail works forward:

Indication that the sail is pulling back excessively will result in visually stretch lines through the mainsail from the feeder.

- Was the outboard end of the boom high enough.
“Our recommendation is approx. 87 degrees”.
- Was the main sheet fully unloaded? (released from the winch)
- Was the resistance on the main halyard sufficient?



Reefing the main:

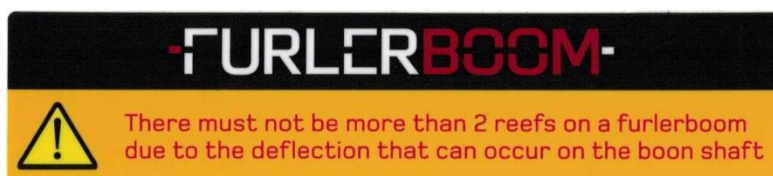
It is a very good practice to set a reef with a batten positioned against the mandrel as this will assist holding the foot flat. Furl the mainsail until you see the batten disappear into the boom shell “at 5 or 7 o’clock” and you are sure it is minimum $\frac{3}{4}$ turn around the mandrel.

Check the position of this batten after some time sailing reefed, as the mainsail may be getting furled tighter by the wind.

It is advised to make a mark at the halyard as an easy visual reference for future reefing point estimates.



The curvature of the track fitted against lower part of the mast, helps to flatten, and correctly depower the mainsail when sailing reefed.



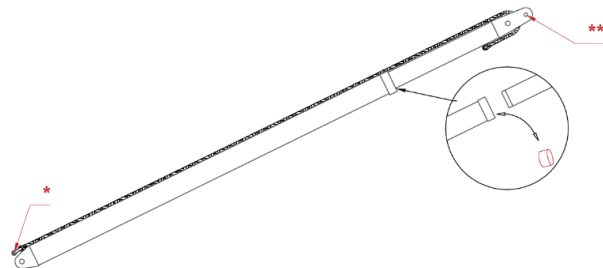
The more you reef the flatter the mainsail will get.

Normal wear and tear will occur. Furlerboom disclaims all responsibility for the wear and tear that will occur when the sail is reefed.

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Furlerboom Vang

The return force of the Furlerboom vang is provided by a long internal stainless-steel spring. Adjusting the return force is done by adding or removing plastic spacers inside the vang (for old model vang) or by adjusting the return force screw (included on the new models).



Original Furlerboom Vang.

Disconnect the Dyneema line on the vang at the mast end. Lift the outboard end of the Furlerboom until the spring is, no longer loaded and disconnect the pin bolt at the upper end. Essentially disconnecting the vang from the boom. Now the vang can be laid down and the internal upper tube can be removed, providing access to removing or adding plastic (POM) spacers.

We recommend the return force being set to carry the weight of the boom, including the furled mainsail + approximately 50kg additional weight at the outboard end.

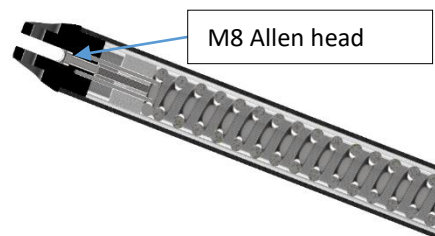
When furling in swells and high waves with the boom moving from side to side. The vang return force alone may not be sufficient to keep the angle consistent and the assistance of a boom topping lift is needed.

A boom topping lift made of thin Dyneema is recommended as it will hardly disturb the sail.

Furlerboom Adjustable Vang.

On the new revised vang, it has been made easy to adjust the return force on the spring. All you need to do is as follow:

- Raise the outboard end of the Furlerboom until the tension is no longer loaded.
- Remove the pin bolt from the Vang bracket that is placed on the mast end side.
- Pull the Vang slightly to the side, so that you have enough space to place an Allen key in the end of the Vang.
- The return force adjustments screw is place in the end of the Vang and can be turned with a M8 "Allen Key".
- Turn the Allen key clockwise if you want to add tension and counterclockwise if you want to remove tension from the spring. For every full turn, you will have moved the tension block approx.2mm. The tension block can be moved approx.20mm in each direction from center.



If more tension is needed it is still possible to add an additional spacer as described for the old model.

FOR SAFETY REASON! ALL ADJUSTMENTS SHOULD BE MADE BY A RIGGER.

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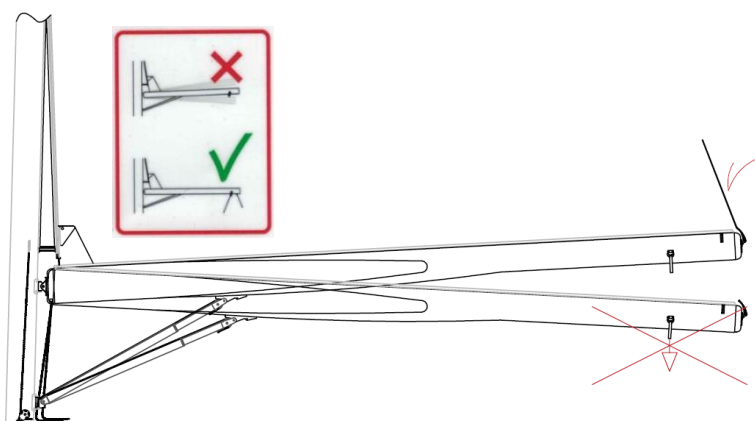
Good practice when under engine.

When the sail is completely furled the additional weight of the boom will add load to the Vang, mast, and boom.

Use the boom topping lift or the main halyard to reduce the load, especially when the engine is running in swell. Fit a line to each side from the outboard end to prevent swinging of the boom instead of over-tightening the main sheet.

If the boom, is forced extensively into horizontal position. With the mainsheet, the load added to boom, mast and Vang can cause damage.

For safety reasons, it is recommended to add slanted straps mounted on the boom. To ensure that the boom does not swing from side to side



Mainsail

Furlerboom will always supply the sailmaker with a sailmaker guide. This guide is given as a service with each order based on our experience from a large number of installations test. However, Furlerboom does not accept any responsibility in accordance with this guide.

It will therefore always be the sailmakers responsibility to ensure that the sail will fit in the boom.

On the sailmaker guide is the following clearly specified;

FurlerBoom A/S have experienced that the sail from some suppliers fill up to 25% more than a normal laminate sail. Furlerboom A/S can therefore no longer assess the boom size according to the P dimensions. We take precautions that if the sailmaker and sail-quality/type information is not provide. Furlerboom can therefore not be responsible for whether the sail in question can fit in the selected boom.

We will always recommended that a new sail is made for the boom and NEVER reuse or refit an existing sail because of the possibility that the sail not will fit in the boom!

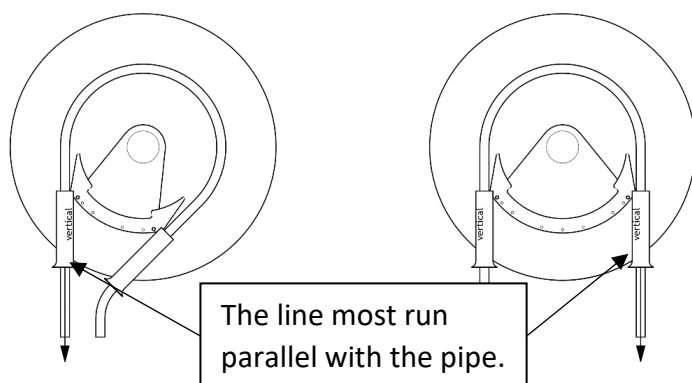
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Furling systems

Furlerboom has two different types of furling systems (Piping & Wheelhouse).

Piping

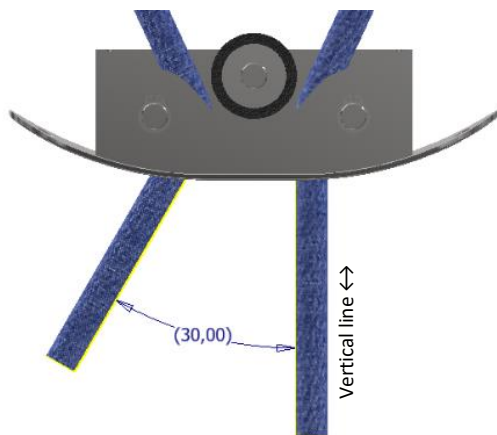
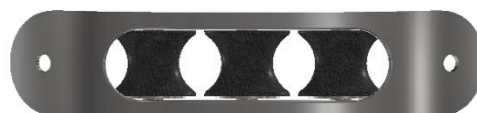
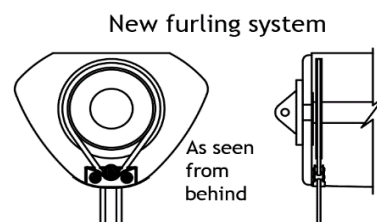
The Piping (Old system) has two pipes that pass through the bottom of the boom. This is where the furling line passes through. The line that is connected to the winch needs to run parallel with the pipe "the vertical line". It could possibly damage the surrounding area around the pipe, on the boom, which can result in cracks or might even pull the pipe out of the boom.



It is very important to keep tension on the line when furling! If not, you may find that a kink or knot will appear and damage the boom. We recommend to always have the line going through the stopper. This will greatly reduce the chances of causing damage to the boom and remove any unwanted kinks or knots.

Wheelhouse

The wheelhousing (New system), is a much easier system to us and you don't need to be as critical about the angle of the furling line. The reason for this is that the furling line passes through a wheelhousing. Which is a separate system and won't cause any friction or unwanted tension to the boom. Using the wheelhouse it is also not that critical for the furling line to go straight down (vertical), it can be angled to the side (We do recommend to stay within 30° from the vertical line).



The reason why you should not pass the 30 degrees is that the furling line might touch the housing plate and because of the friction might damage the furling line over a longer period of time.

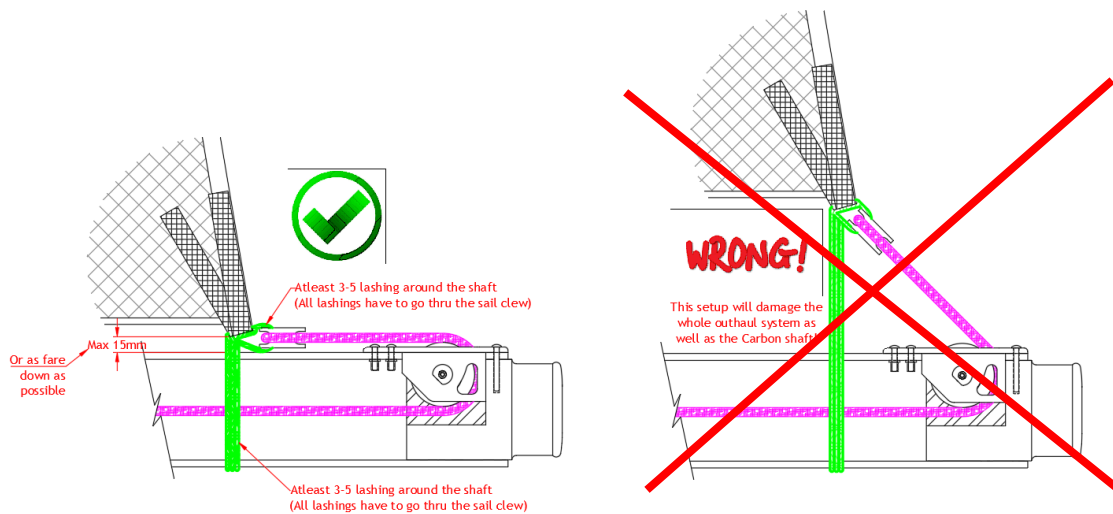
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Outhaul

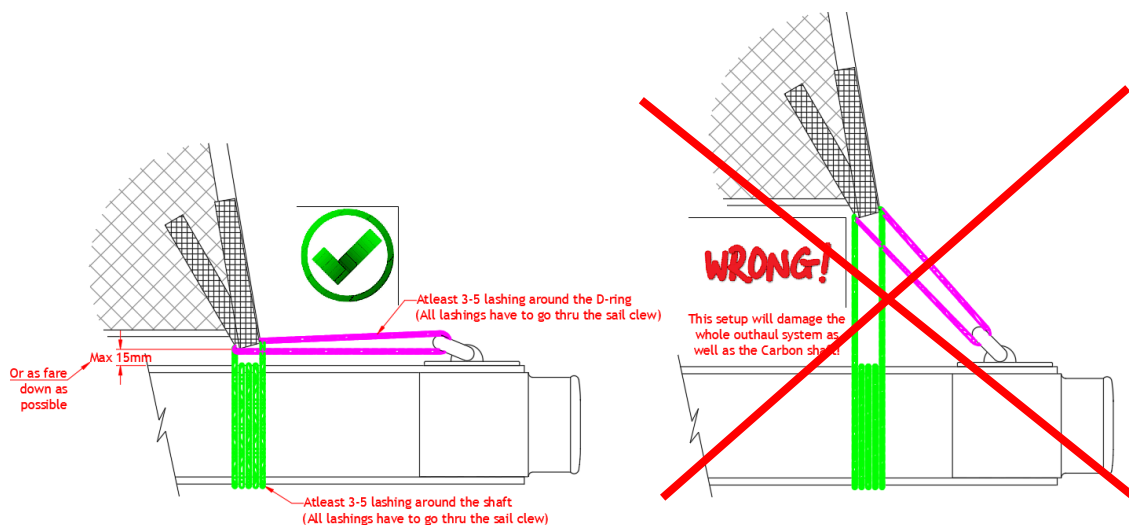
It is very important when securing the main sail to the shaft at the aft.end, for the outhaul is done correct. If this isn't done correctly it will damage the whole outhaul system.

When securing the sail, we recommend to do the following;

1. Make 3-5 lashing that goes thru the sail clew and down around the shaft. The sail should get pulled as far down as possible (we recommend max 15mm space between the sail clew and the shaft).
2. All depending on the outhaul system the lashing should be made as followed;
 - a. When using an outhaul block with an lowfriction ring. There should be made 3-5 lashings thru the sail clew and the lowfriction ring.




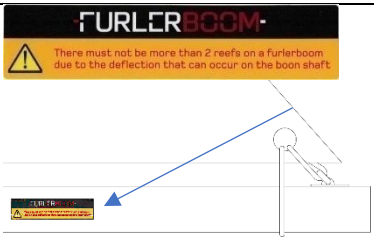
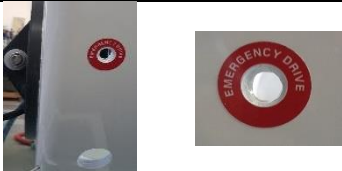
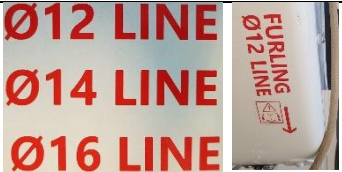

- b. When using a stainless steel D-ring. Then there should be made 3-5 lashings thru the sail clew and the D-ring.



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Warning sticker and lables

On your furlerboom there are placed different types of stickers that explains the following:

| | |
|---|---|
|  | <p>Both lines are used to secure the first reef.</p> <ol style="list-style-type: none"> 1. One is secured to the D-ring 2. The other is secured around the mandrel. |
|  | <p>The reef line should never pas this point! Described on page 5 under: Reefing the main.</p> |
|  | <p>For unlocking the emergency drive on the electrical motor</p> |
|  | <p>Indicates the size of the furling line diameter</p> |
|  | <p>Fit a line to each side from the outboard end to prevent swinging of the boom instead of over-tightening the main sheet.</p> |

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Mast track

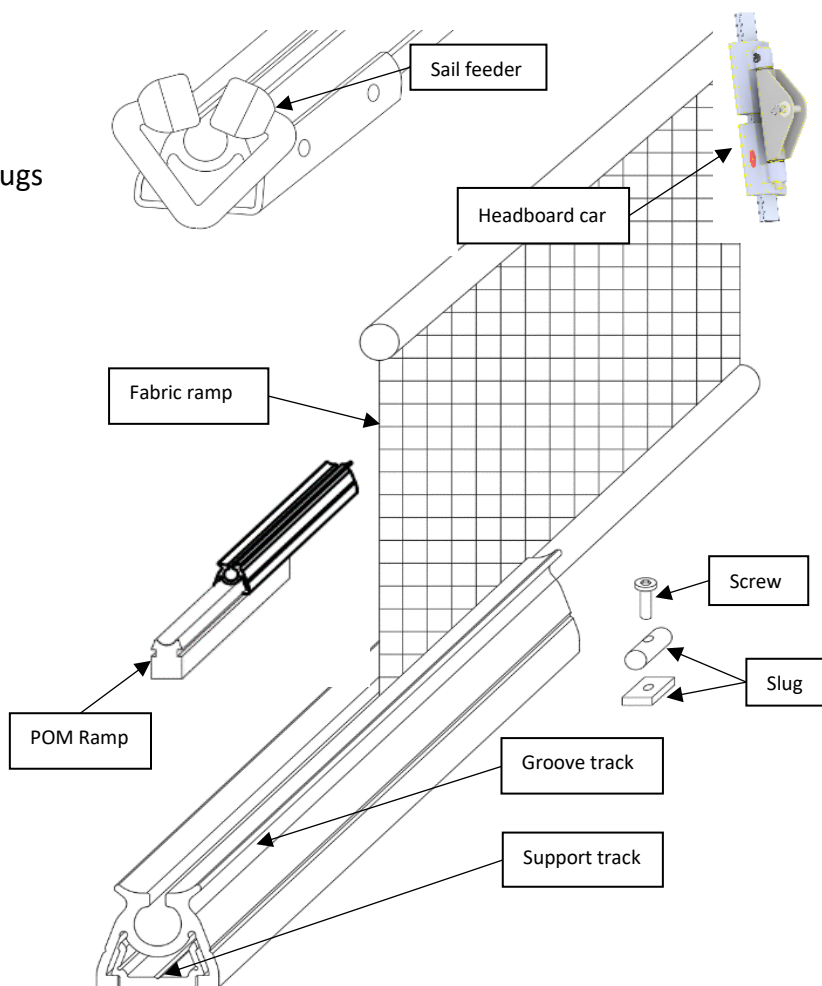
The mast track is a system that is mounted on the mast and ensures that the sail can be raised up or lowered without any difficulties.

It is the operator's responsibility to keep an eye on what they are doing, when the sail is being raised or lowered. As well as if there are any strange or unknown sounds. If the operator suspects that there is an issue. The operator should STOP immediately and investigate the situation.

It is very important that the mast track is installed correctly, and it is recommended to have an authorized rigger to do this. The mast track is installed and secured to the mast.

A mast track consists of the following components and is always shipped as a combined package:

- Aluminum Groove Track (Black anodized).
- Aluminum Support Track (Black anodized).
- Fabric ramp
- POM Ramp
- Headboard car
- Sail feeder
- End stop
- Umbraco screws M6 & Slugs



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Mast track #1 installation guide

The installation must take place while the mast is placed- horizontal.

1. Place the sub-rail on the mast with a 50mm distance to from the top of the mast. Place the POM-ramp in a direct extension of the sub-rail. Make a mark at the end of the rail and POM-ramp also mark all the holes. Be aware that there is a 5mm and 6mm hole in the sub-rail. Make sure only to mark the hole that fits the slugs you have received or the thread that shall be made in the mast. Be observant, on masts with no sail-groove, or where the slugs do not fit the sail groove. In case the slugs do not fit the sail-groove it is necessary to make a thread in the mast. Drill and thread-tapping tools is not included.
2. Make a mark at 4.500mm from the bottom of the POM-ramp. This marks the bottom part of the mast-rail. Make sure that the distance between the bottom part of the mast-rail and the center of the boom bracket is inside the mast track offset of the relevant boom size.

| Mast track offset | | |
|-------------------|-------------|-------------|
| Boom size | Min. offset | Max. offset |
| T15 | 240mm | 340mm |
| T18 | 260mm | 360mm |
| T20 | 280mm | 400mm |

3. If the Sunbrella does not fit or if there is not any sail groove on the mast, a support rail is necessary to install on the mast. Place the sub-rail to the support-rail in extension of the POM-ramp and mark the end and the position of the holes for drilling.

4. Make sure there is the right numbers of slugs and place them in the sail groove, so they fit with the markings of the holes.

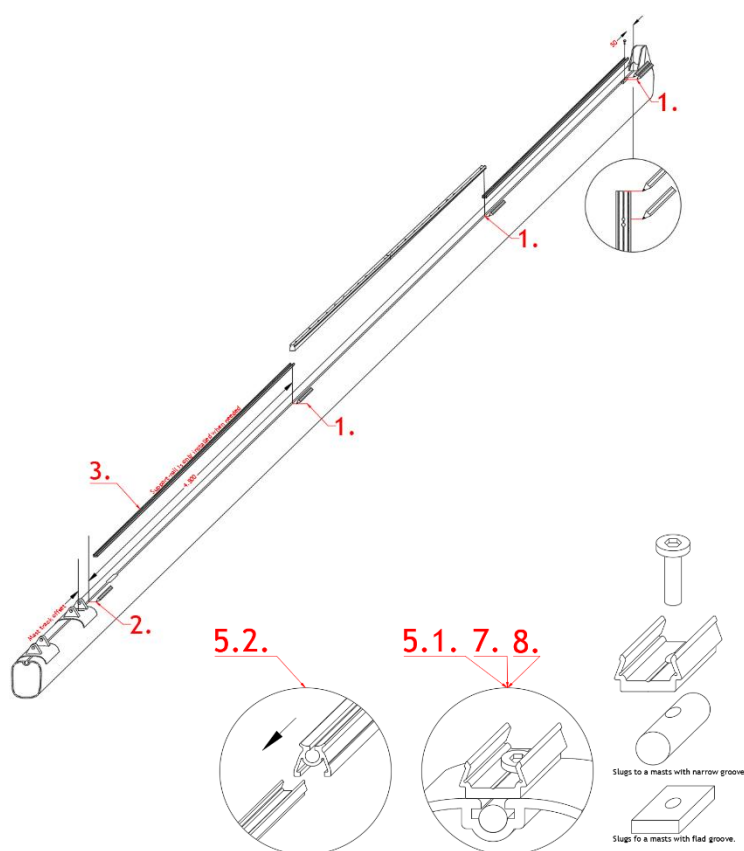
5. If there is a support-rail for the Sunbrella, must it to be installed first.

- 5.1. Place the sub -rail and support-rail together so that it fits with the markings and screw it to the slugs, or in the thread in the mast, with the supplied screws.

- 5.2. **IMPORTANT!!** Slide the support-rail over the under-rail. This will not be possible after the POM-ramp is installed.

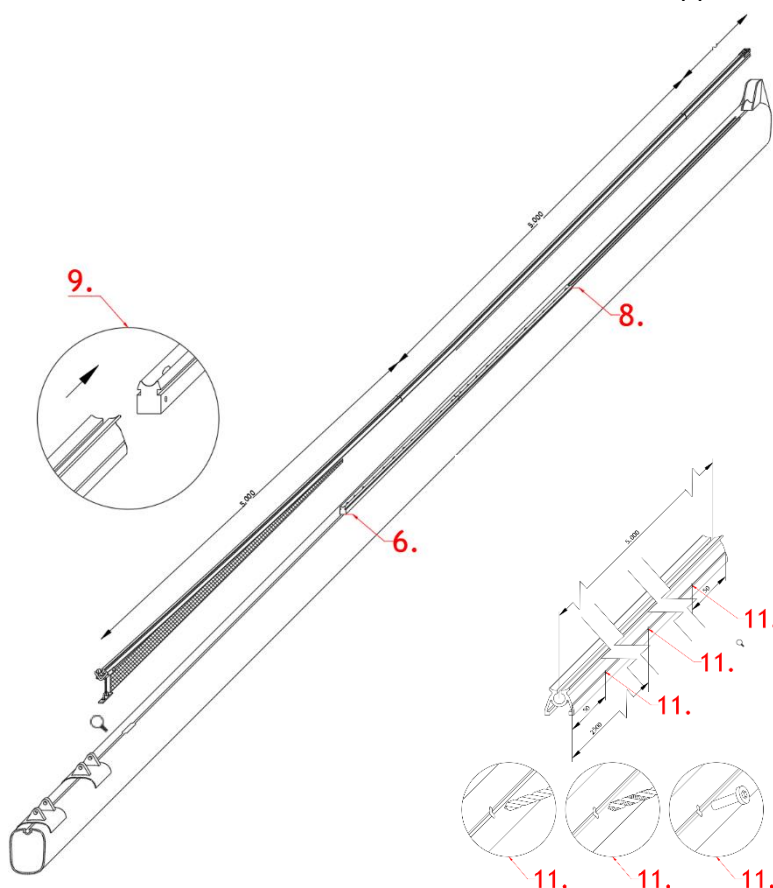
6. Place the POM-ramp and sub-rail on the mast, make sure they fit the markings.

7. Screw the POM-ramp to the slugs, or in the thread, with the supplied screws.



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8. Make sure that the sub-rail is in a direct extension of the POM-ramp and screw them to the slugs or into the thread, with the supplied screws.
9. The mast-rail is divided into 3 to 4 parts. The shortest part has a stop block at the end, this part is slid in first, so that the stop block is positioned at the top end of the mast. When the first part has been installed proceed to slide in the rest of the mast-rails.
10. The Sunbrella is fastened on the last part of the mast-rail. Slide in the Sunbrella in the mast-rail, or support-rail, while the mast-rail is slid on. Make sure that the hanger in the end of the Sunbrella is also slid into the mast-rail or the support-rail.



11. When the mast-rail is properly placed, drill the holes and thread in the sub-rail. Make them through the pre-drilled holes in the mast-rail. The holes are placed in both ends and in the middle of the mast-rail, on each part of the mast-rail. Use the supplied drill and the thread-tapping tool to make the holes and the threads. Use the supplied screws to attach the mast-rail to the sub-rail.

IMPORTANT! Each screw must have 1 drop of the supplied Loctite 243 before mounting.

12. Tighten the Sunbrella to the POM-ramp with the cord in the ramp and tighten the slugs in the other end to ensure that the Sunbrella is properly secured.

13. The mast-rail is now installed.

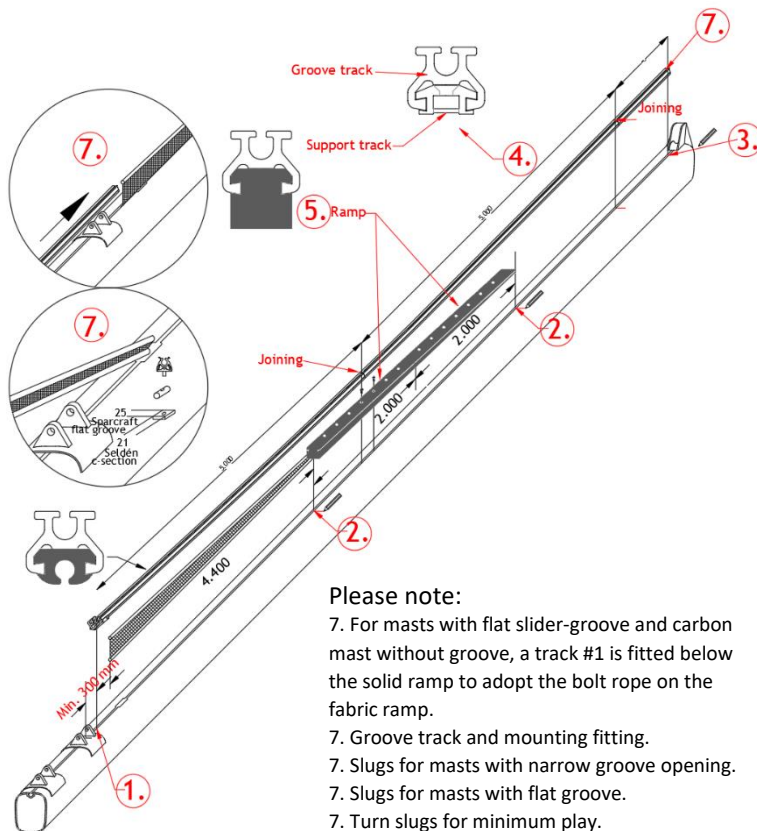
If any problems occur during the installation, Furlerboom can be contacted for further assistance.

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Mast track #2, installation guide.

Mast track #2, is very easy to install. The groove track is made to slide over the support track from below. The track system can be installed on a standing mast by use of special tooling.

1. The tracks are made to finished length from Furlerboom. Start to place the groove tracks loosely on the mast to check if the distance from the feeder to the middle of the gooseneck is min. 300mm.



If any adjustments are needed to be made, we recommend to this at upper joining.

2. Mark the joining point between the fabric ramp, plastic ramp, and support track.

3. Now the upper end of the track defines. (Any corrections to the track length, must be made at the upper end only and equally on support – and groove track). Fit the support track with M6 screws starting from the upper end with the distance between defined by Furlerboom. (The distance between the pre-drilled holes is 50mm and all will be used only on yachts with a very high righting moment).

Do not fit the ramp yet!

On non-groove masts (mostly when it is a carbon mast) Use a Ø 5mm drill bit, M6 drill tap and Epoxy glue. On masts with a groove, slugs and screws are used.

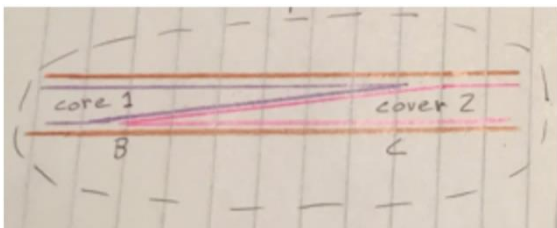
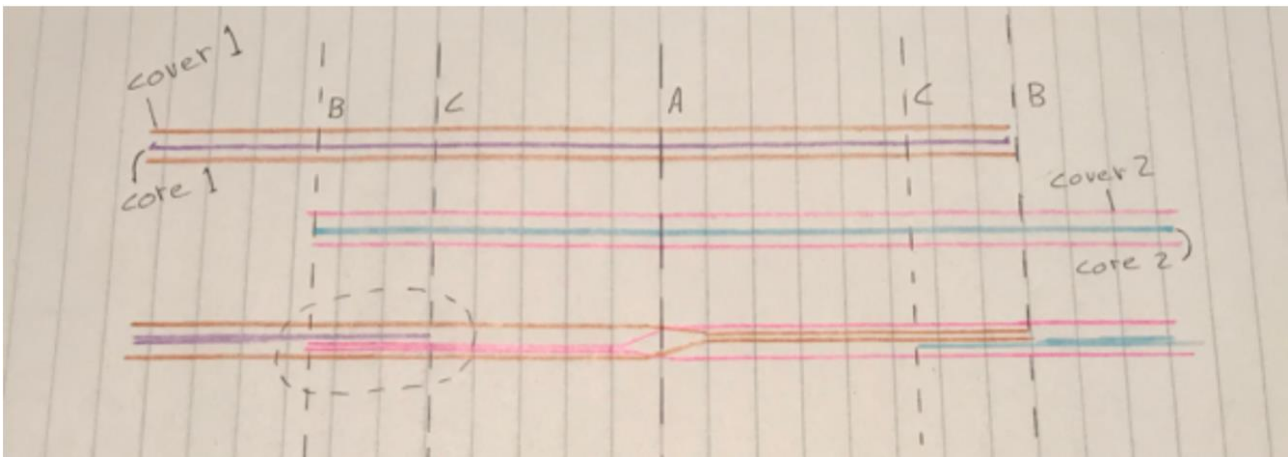
Remember to use some Loctite when securing the slugs and bolts.

4. Slide the groove tracks on to the support track. Fasten the groove track with the end cap into the threaded holes in the support track.
5. Fit the ramp in the same way as the support track.
6. Slide the next groove track on the plastic ramp. As this is slightly curved, friction is enlarged. Bending the mast forward or the groove track backwards will make the sliding easier.
7. Slide the fabric ramp into the mast groove. Slide the lower groove track over the fabric ramp and into a tight fit to groove track 2 and drill Ø 5 holes through the M 6 threaded holes on both sides of the joining. Fit the M 6 insert flush with the surface. If the holes in the plastic are not tapped, there is no need for Loctite.
8. Finally make a lashing between mast and lower end of groove track taking the load from the main sail pulling-back when furling.

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Splicing guides and Hints

"Loop line" by Gottifredi Maffioli is specially designed for continuous furling line applications. The line features a specially braided aramid cover, which allows the line to keep its "roundness" even when pressed into a furling wheel. The aramid also gives it excellent grip and abrasion resistance. The cover and the core have the same thickness, so when spliced cover-to-cover the overall diameter is the same throughout the whole splice. Furlerboom recommends using the "LT"-version, which has a polyester core. When the line is loaded, the polyester core stretches together with the cover, thus avoiding any gap to form at the ends of the splice.

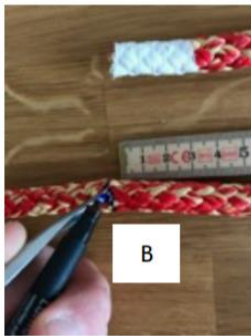
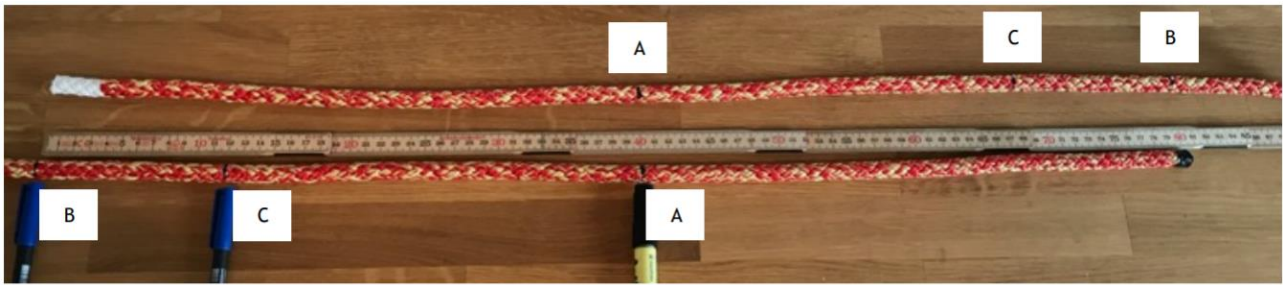


Here is a drawing that shows the basic idea of what the splice should look like. The most important part is to get a nice overlap between the core and the cover (between B and C).

How to determine the length of the furling line When hoisting the main, the furling line runs backwards, unloaded. To ensure that it will run smoothly and prevent jamming, avoid making the line longer than necessary. If possible, make it just long enough to pass around another winch when hoisting. When furling in (reefing or taking down main), the starboard furling line is pulled while the port sideline must run freely. The port furling line is never loaded. Deck layout requirements We recommend 1 powered winch and 2 jammers for the system: 1 jammer for the main halyard and 1 for the starboard furling line. The port furling line does not need a jammer. Consider using a simple bullseye / line lead instead. If you want to keep the jammer for visual reasons, consider taking out the jaws.

-FURLERBOOM-

Step 1: Measure & mark



Place the ends of the furling line next to each other, and mark the covers on both sides in 3 places:

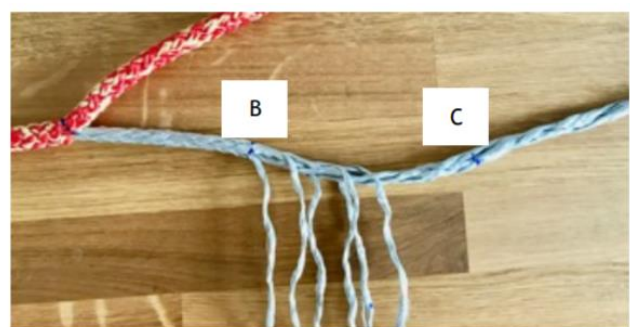
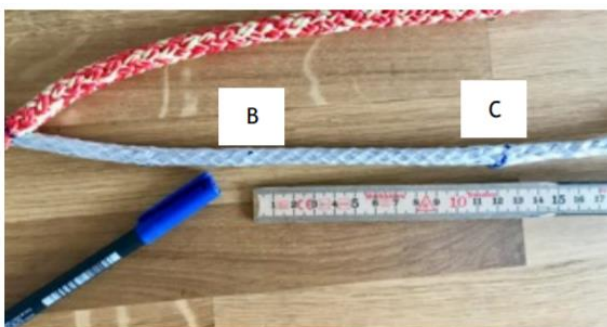
- A. The middle of the splice, 40cm from the line end
- B. The end of the splice, this is how far the covers will overlap. 40cm from points A
- C. The core will eventually stop here. Some 12cm from point B.

Mark the core at point B.

Step 2: Take core out



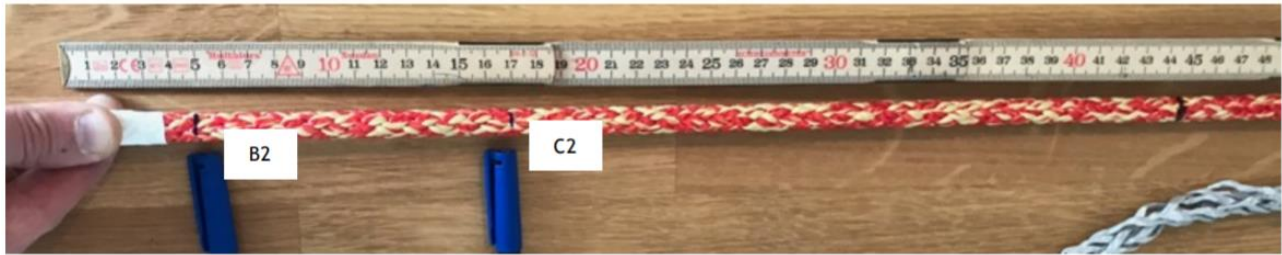
Take the core out at point and mark it.



Thin out the core at point B. (The core will eventually be cut at C and thinned out all the way there. At this point I recommend taking out only 5 or 6 strands to facilitate Step 4, while keeping the structure of the braid.)

-FURLERBOOM-

Step 3: Thin out cover

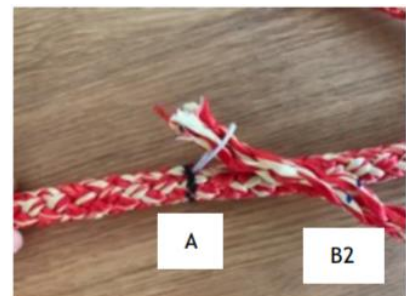


Take the end of the loose cover and stretch it out. When stretched, mark it at 40cm from point A. Let us call this B2. Make another mark, C2, at 12cm from B2. Starting at C2, thin out the cover. Keep in mind that you need to keep the structure of the braid, so take out no more than 8 strands.

Step 4: Splicing the covers together

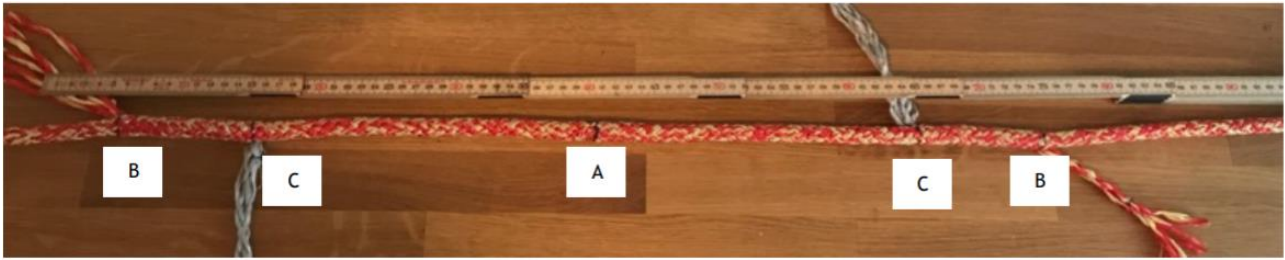


Now take the end of the loose cover (B2) and pull it in from point A and out at point B. It will be a bit difficult at the last bit, between C and B, because the core is taking up space. I recommend using a piece of 1mm Dyneema core. In the picture above, I have pulled in the 1mm Dyneema using a D-Splicer needle.

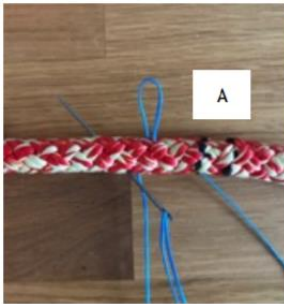


-FURLERBOOM-

Pull the end of the cover until both points A are aligned. Repeat for other side.



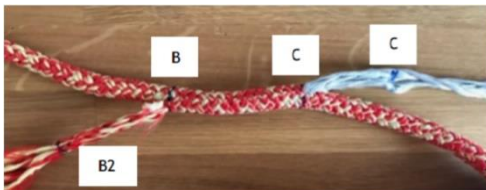
Step 5: Secure splice with stitches



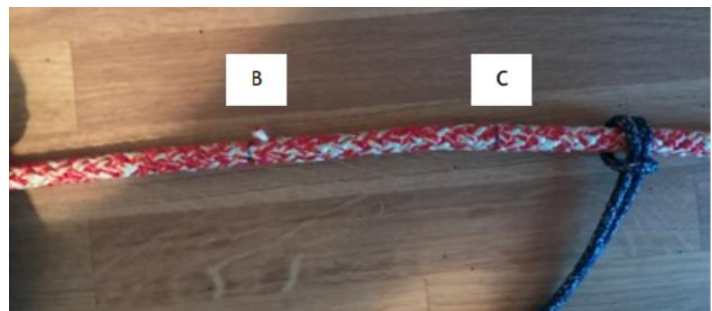
Secure the middle of the splice with some stitches. I am using regular 1mm waxed polyester whipping line. I like to finish it by making a simple "half knot", burying the ends and then cutting them.



Step 6: Cut & taper the core and cover



Cut the end of the cover at B2 and cut the core at C. Thin out evenly by cutting the individual strands in different places.



Step 7: Stretch & finish

Finally stretch the splice and milk the cover until the ends have disappeared inside. If some small pieces remain outside you can just cut them off.

-FURLERBOOM-

The finished splice should now have a uniform diameter throughout the whole length of the splice. If it is a little bit thicker between B and C, its usually a good thing, and it will get evened out when the furling line is used.

The finished splice is now close to the original breaking load of the line and will be able to take the load when it is highest: Going upwind with a reefed mainsail.

A slim and strong splice is essential for the function of the Furlerboom.

When hoisting the mainsail, the reefing line runs backwards unloaded. Make the reefing line as short as possible but ensure you can make a long pass around any available winch or a cleat to prevent from jamming.

We recommend 1 powered winch and 2 jammers for the system: 1 jammer for the main halyard and one for the starboard reefing line.

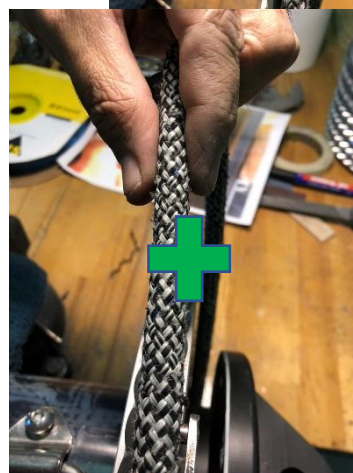
The port side reefing line is never loaded.

The endless reefing line for Furlerboom size T15-T25 must be a 12 mm “balanced” polyester line. For type T35-T45, the reefing line must be 14 mm.

It is very important to make sure that the rope splicing is done correctly. The new splicing should always have the same or close to the original diameter/thickness.

The inner core should NEVER be removed, this will result in a flat spot! If some of the inner core is removed. The rope will not have the correct diameter/thickness and will get jammed between the furl wheel and the furl line stripper and will damage some of the components inside the enclosed furl wheel housing. It is therefore very important that the rope splicing is done correct to prevent unwanted issues.

It is therefore very wise to take a rope splicing course or at least purchase a rope splicing book.



-FURLERBOOM-

Line Splicing, from splicing book: Splicing Modern Ropes

11 CONTINUOUS LOOPS

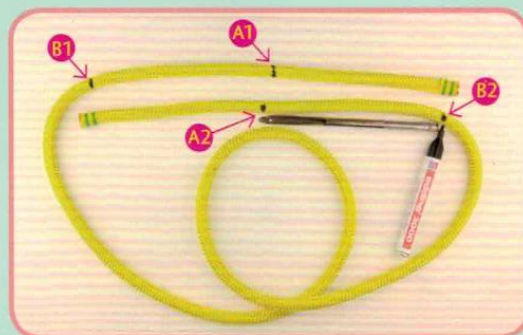
DOUBLE BRAID POLYESTER

Continuous ropes are often used for sheets and in furlers. Their even thickness makes them move smoothly through the blocks. About 70% of the strength of a polyester rope comes from its core and 30% from its cover. It is therefore important to splice both core and cover to maintain strength.

Two methods are explained below. The first option produces a perfectly even rope in terms of thickness, but is less strong because the core isn't spliced to itself. The second method incorporates that (see page 130) so the rope is a lot stronger, but it is also more work.

For equal thickness, spliced without the core

This method provides a weaker rope than the one on page 130. In most cases you won't need this strength, so this easier splice will do. It is, for example, commonly used in roller furling systems.



Mark points A1, A2, B1, B2.
Use a fid with a similar thickness
to the rope diameter.



Take the core from the
cover at B1 and B2.



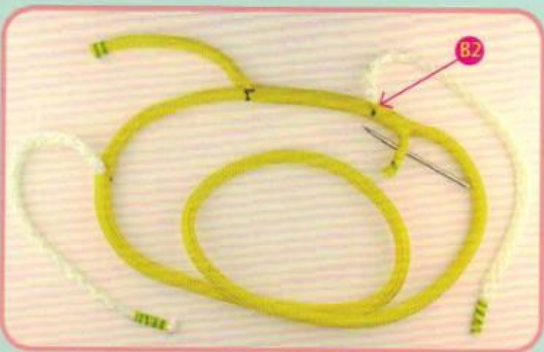
-FURLERBOOM-



Insert the fid into the cover at A2. Take the cover from the other end and tape it to the fid.



Pull out the fid and cover a few centimetres past B2.



At point B2, secure the cover in place with a fid.



Insert the fid into the cover at point A1.



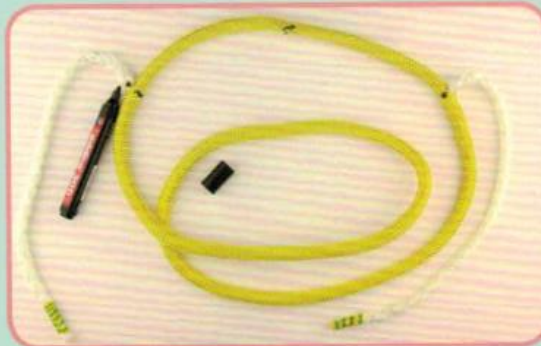
-FURLERBOOM-



Pull out the fid and cover a few centimetres past B1.



Tuck the cover back into the rope from the centre. Put some tension on the rope so that you can evenly distribute the cover and core around the loop. Make sure the cover is not riding up anywhere.



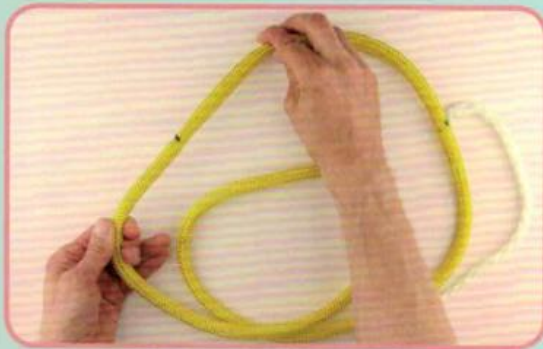
Mark the points at which the core emerges from the cover on both sides.



Try to feel the amount of overlap in the core and take this amount of core from the cover. This should be a few centimetres from the marks. Cut the core at this point to create a smooth transition. Repeat this for the other side.



-FURLERBOOM-



Tuck the core back into the cover.



Add a double-stitched whipping over the transition of cores and covers.



This creates continuous ropes of double braid polyester with an even thickness.



-FURLERBOOM-

Reckmann electrical motor

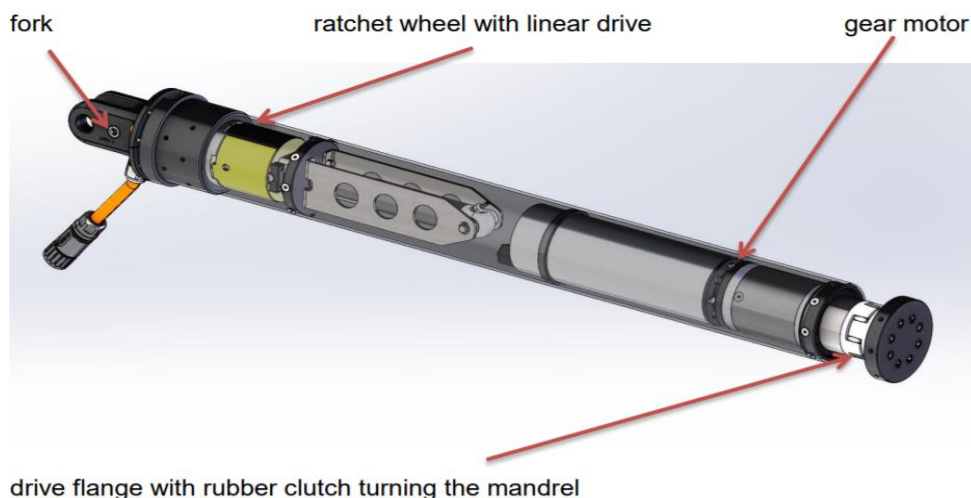
The Manual for the Reckmann electrical motor will always be forwarded together with the Furlerboom when shipped to the customer.

Note! It will always be the boatyard or riggers responsibility to forward the manual as well as instructing the end user in how to operate the system.

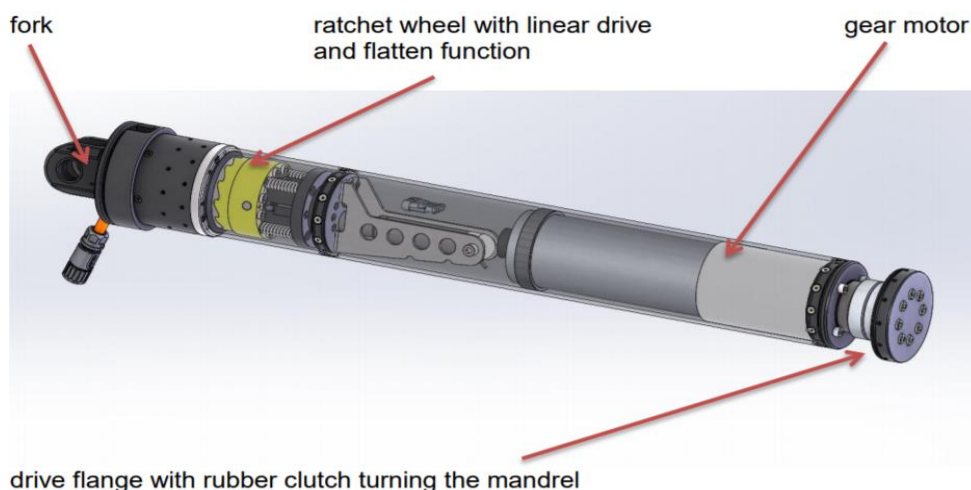
Below you will find an example of the manual however the physical manual from Reckmann should always be used.



Explanatory view of BFE-100



Explanatory view of BFE-125



-FURLERBOOM-



4 Assembly

Before installing the system check each component for damages due to transport. Make sure you got the right parts and the packing list is completed.

4.1 Mechanical assembly

To mount the system we recommend preparing the vessel for the assembly. Check the attached documents for drilling templates, mast cut out drawing and the wiring scheme.

1. Boom drive unit BFE-100 / BFE-125

Use Reckmann drilling template for drilling the fixing holes in the mandrel. This ensures the right distance and angle between the bores.

Line up the drive flange inside the mandrel, secure it with fitting bolts and glue them in with Loctite.

Afterwards the drive unit is positioned inside the mandrel so the front row of boreholes is matching the one in the crown. Secure the crown with fitting bolts and glue them in with Loctite.

Place the mandrel with the drive unit in the boom and fix the fork with pin. Secure the pin with its nut.

Guide the drive cable out of the boom. The connector is sealed with a dust cap to protect it against water or pollution. Only remove this cap when the cable is connected to its socket on the mast. Keep the cap for service cases!

2. Mast cable

To guide the included mast cable through the mast cut a hole in the near of the gooseneck into the mast. For the right dimension, use our cut-out template.

Start to guide the cable through the mast from outside the vessel.

Put the plug through the cut out and afterwards all the 8m cable. The boom drive will be connected to the mast cable. Under deck: connect the mast cable to the control box at the right socket.

The including dust caps have to be mounted whenever the drive is disconnected.



Note: Don't run mast cable too complicated, it has to be disconnected for de-rigging the mast.

*Make sure the electrical connection is protected with the including covers when needed. Water **must not** touch the inside of the plugs!*

-FURLERBOOM-



3. Control box

Find a suitable space under deck where to place the control box. It has to be in the near of the mast, as the mast cable is 8 meter long. The box should be fixed with screws on a suitable structure. Only use the outer holes in the corners of the box. These are isolated from the box to keep it waterproof. Don't drill holes inside the water protected area of the box!



The box should be in reach of the battery power supply and needs to be connected to up to 6 cables. Also take attention to the right alignment. The display should not be upside down, as you need to read the data and control it properly.

4. Control panel

We recommend to mount the control panel in the near of the main halyard winch. When the halyard winch is in reach of the steering position it is possible to mount the panel at the helm. Alternatively, hoisting the mainsail needs to be performed by 2 individuals. Seal the panel plate properly to avoid corrosion or damages caused by water. It is possible to connect 2 panels at the control box (second panel is optional).



5. Sensor box

The sensor box will be installed in the wire of the winch power supply. Ideally place the box in the near of the battery, where the winch power cable is connected to.



6. Attachment of the mainsail

To attach the mainsail it is recommended to turn the boom drive in a position where the lashing eye is facing to the top of the mast. See "mandrel unlock" in main menu.

Lash the tack ring of the sail to the lashing eye in the crown. Pull the foot line through the track on the mandrel and lash the clew with one lashing to the clew ring (pad eye etc.). Another lashing has to go around the mandrel to take the clew loads. Run the luff tape through the feeder and into the mast track.

For the first hoist you have to hoist the mainsail completely before you can furl it onto the mandrel.

The electrical motor from Reckmann will always be installed in the furlerboom and tested before shipping. **Note! It will always be the Boatyard or Riggers responsibility to install the cables, Control box, Control panel and the sensor box on boat.**

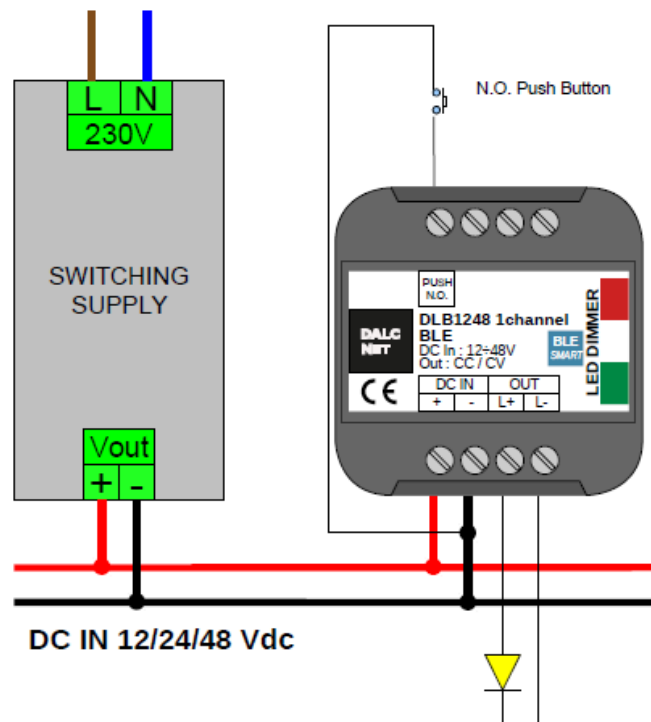
FURLERBOOM-

Casolux Red/White with Bluetooth connection.

Installation

As shown below do the following steps to install the product:

- 1) connect the power supply (12-48 V) to the device terminals DC IN
- 2) connect the N.O. push button in the correct terminals of the device
- 3) connect the LED output terminals OUT



LOCAL COMMAND

PUSH DIMMER FEATURE

The intensity and the status change (ON/OFF) are controlled by the N.O. push button.

| Button | Intensity |
|--------------------------------------|---|
| Click | On/Off |
| Double Click | Maximum intensity |
| Long pressure (>1s) from OFF | Turn ON at 1% (Nightly Time), then dimmer up/down |
| Long pressure (>1s) from ON | Dimmer up/down |
| Long pressure (>5s) case BLE from ON | Device recognition from BlueDimmer APP |

Bluetooth SMART SETUP



Features

- Bluetooth LOW ENERGY 4.1

Functions

RELATION WITH LOCAL COMMANDS

Both local and remote commands can act simultaneously.
The remote control can monitor the output status in real time.

ADDRESSING

Unique ID ✓

CHANNEL MAPS

The intensity and the status (ON/OFF) is controlled by a Bluetooth device

| Channel | Function | Value |
|---------|----------|--------------------|
| 1 | Dimmer | Intensity [0..255] |

COMPATIBLE APPS

- *Bluedimmer:*

The BlueDimmer Low Energy application is used to control through smartphone and tablet modules and strip LED connected to the dimmer DLB1248-BLE-1CH.

The APP implements the following functions:

- turning on
- turning off
- dimmer up and down
- master dimmer of multi source



-FURLERBOOM-

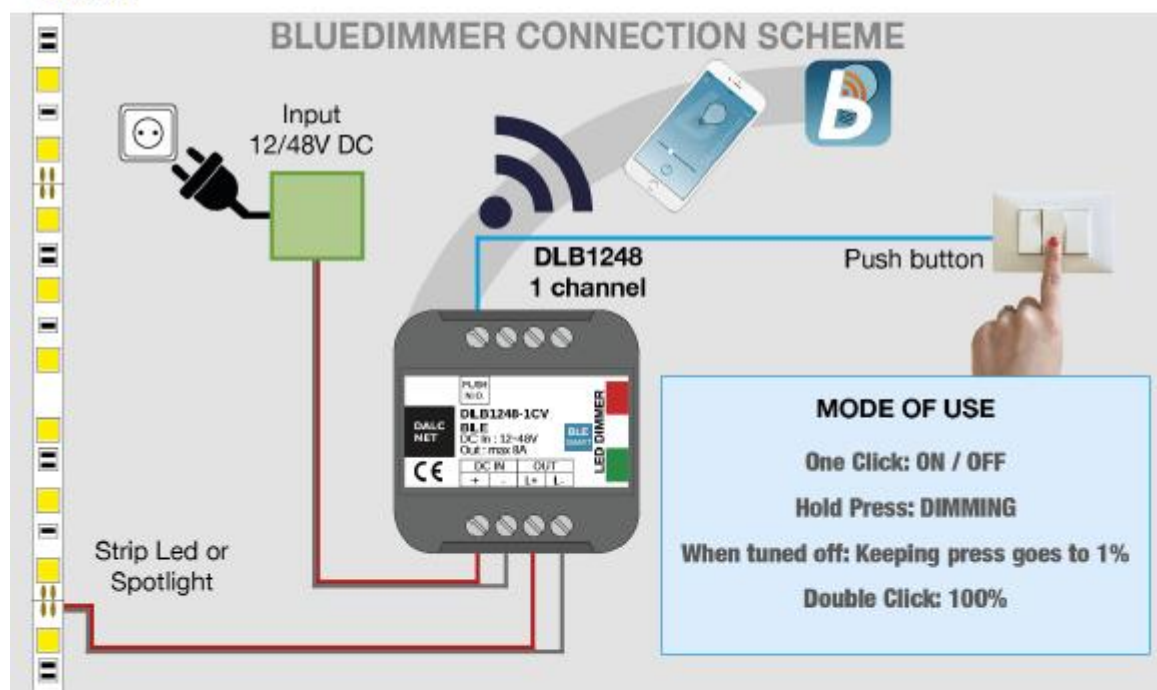
BLUEDIMMER SOFTWARE INSTRUCTIONS



Necessary conditions for the correct use of the device:

- APPLE devices with ON Bluetooth Low Energy 4.1 version
- ANDROID devices with ON Bluetooth Low Energy 4.1 version
- Dalcnet Product DLB1248 with BLE smart function
- Strip Led or spotlight
- N.O. Push-Button
- Bluedimmer App , available on the App Store and Play Store, download for free.

SCHEME



-FURLERBOOM-

APP INSTALLATION ON THE DEVICE

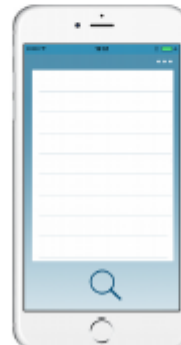
Download for free and install the application on your smartphone and tablet.



OBSERVATION:

On the version of Android 6.0 is necessary to allow at BlueDimmer application to access your location.

START UP SEQUENCE IMAGES



Automatic research and identification of DALCNET DLB1248 with BLE function products.

N.B.:

Manual research is possible by clicking on the lens symbol at the bottom of your device's screen.



Examples of results of the research:






- Device in **blue**= device associated and ready for use
- Device in **black**= new device to pair
- Device in **grey**= device already associated but not available



-FURLERBOOM-

FAQ

Trouble shooting.

1. The mainsail luff moves forward along the mandrel when furling  AB
 2. The mainsail is furling nicely on flat water, but not in swell's  C
 3. The mainsail suddenly has difficulties to get hoisted  D
 4. The mainsail has to come down now but we are not able to prepare the furling  E
 5. The mainsail moves excessively back along the mandrel when furling  F
-
- A. The mainsail is not fully feathering: Ease the mainsheet (free it from the winch).
 - B. The setup of the boom angle has changed: Move the outboard end of the boom up. See the discription on page 2 and 3.
 - C. The outboard end of the boom moves up and down in swells. Increase the return force on the Vang, or even better use the boom topping lift (additionally) when furling. See description on page 5 and 6.
 - D. The endless reefing line must be able to freely revolve backwards when hoisting the mainsail.
 - Check if the splice is correctly made or damaged. A slim and strong splice is essentil for the function of the Furlerboom.
 - Check if any excess length of furling line is jammed at the port side entrance/exit point into the boom.
 - E. Quite simple, do as with a normal boom: release the main halyard and lower the mainsail on top of the boom!
 - F. The set up of the boom angle has changed: move the outboard end of the boom lower.

For further information, visit our homepage:

www.furlerboom.dk

Video guides:

How to furl and reef the main: <https://furlerboom.dk/video#gallery-1>

The In-boom main sail furling system: <https://furlerboom.dk/video#gallery-3>

Reefing and lowering the main: <https://furlerboom.dk/video#gallery-4>

Book reference:

The attached pages describing *Line Splicing and Hints* are copied from the following book:

Splicing Modern Ropes

A practical Handbook

By: Jan-Willem Polman

ISBN: HB:978-1-4729-2320-2

[Visit our website for additional instructions regarding splicing rope](#)