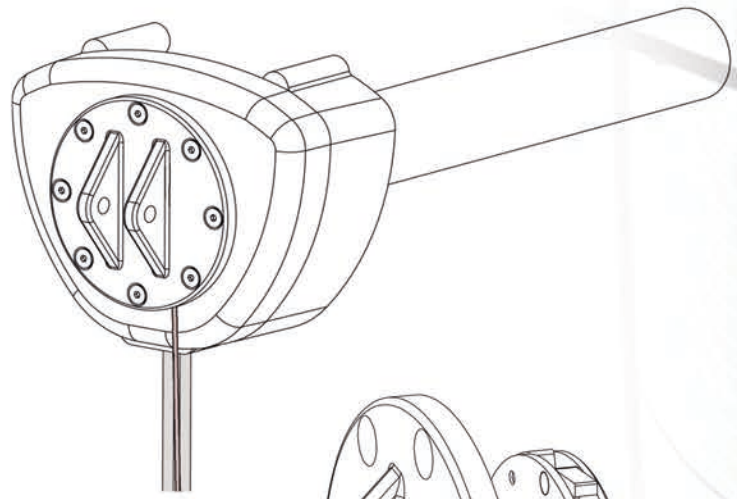
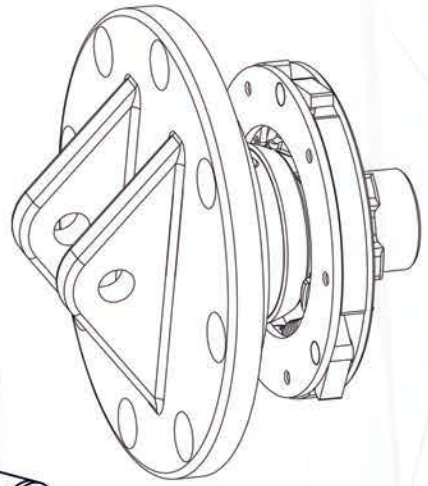
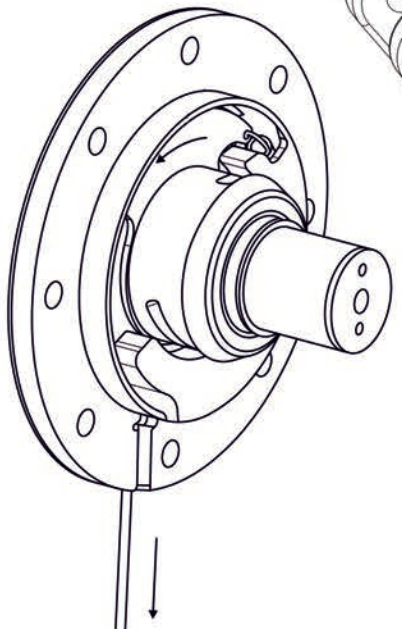
DAME DESIGN AWARDS 2025 APPLICATION







MAINFURL

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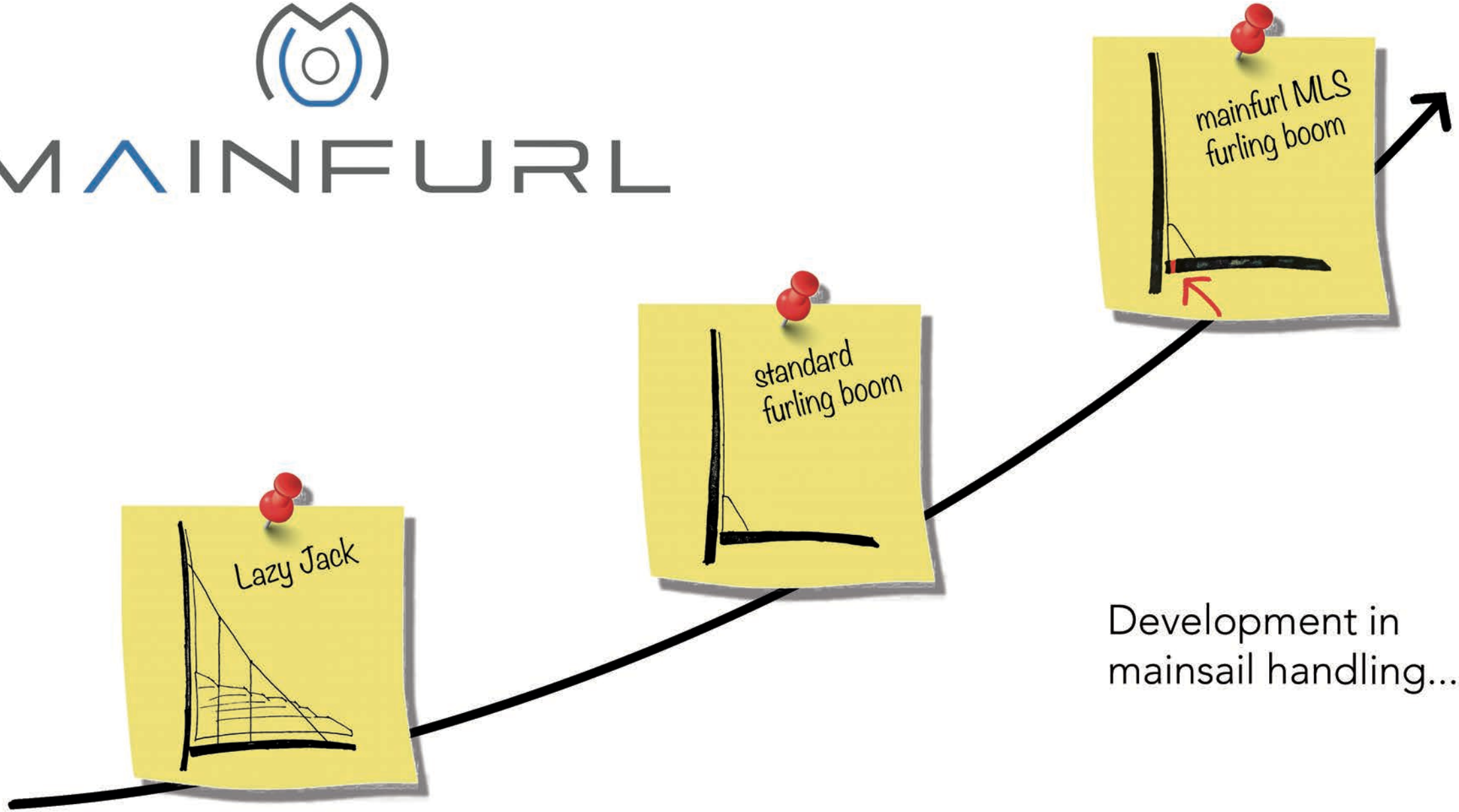


Development in mainsail handling...

1960's

1990's

2025

INNOVATIONS IN IN-BOOM FURLING

Enhanced Sail Efficiency

In-boom furling maintains optimal sail shape at any height, improving efficiency compared to traditional in-mast systems.

Versatile Operation

The system allows both manual and power-assisted furling, enabling sailors to control sails directly from the cockpit with ease.

User-Friendly and Safe

Engineered for safety and ease, in-boom furling makes sail handling straightforward and reduces physical strain for sailors.

MANUAL IN-BOOM FURLING SYSTEM

A manually operated in-boom furling system is operated via an endless furling line, which, through a drive at the front of the boom, activates the mandrel around which the mainsail is furled.

In the initial design, this endless furling line was led into the boom through a hole in the boom's port side and then continued around the drive and out of the boom through a hole in the starboard side of the furling boom.

As a consequence, it was necessary to cut the endless furling line if the furling boom needed to be removed from the yacht.

Similarly, the endless furling line was vulnerable as it required a solid and correct splice.

Especially during reefing of the mainsail, where the mainsail is partially furled in, the endless furling line was exposed to large forces.

"OLD" FURLING BOOM SYSTEM

In 2020, Mainfurl took steps to modify the aforementioned design so that it was possible to remove the furling boom from the yacht without having to cut the endless furling line.

This was achieved, among other ways, by taking the furling line in and out of the same hole in the furling boom and by adding a line stripper to the drive, preventing the furling line from running around and getting stuck when the mainsail is hoisted.

However, this solution requires that the endless furling line is kept firm when hoisting the mainsail preventing the endless furling line from jamming in the line drive.

Thus, the solution provided by the inventors in 2020 solved one problem, but a new problem was also creased.

At the same time, the problem relating to the vulnerable splice of the endless furling line during reefing of the mainsail had still not been resolved.

INNOVATIVE IN-BOOM FURLING

The above-mentioned object is complied with by providing, in a first aspect, an in-boom furling system for a sailing yacht, the Mainfurl Locking System comprising.

a) a static part,

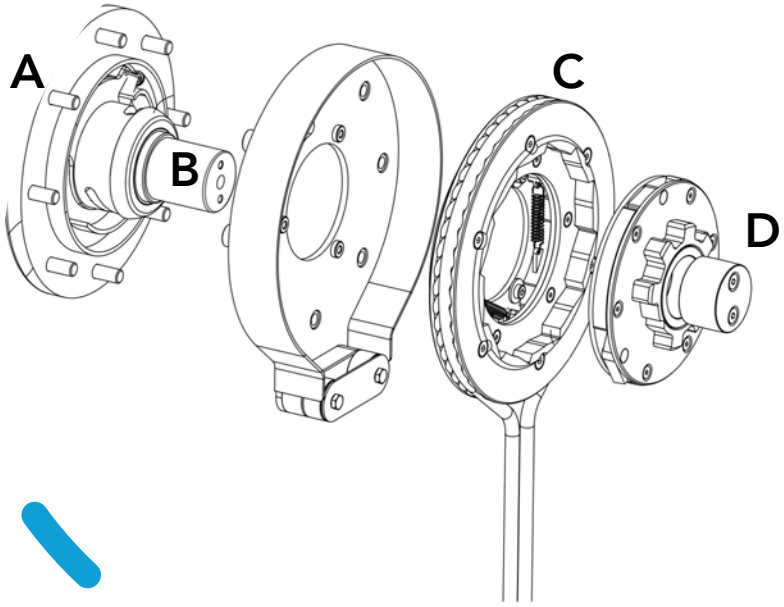
b) a mandrel rotationally attached to the static part and comprising an attachment structure suitable for attachment of a foot of a mainsail to thereby allow furling of the mainsail when rotated in a furling direction and unfurling of the mainsail when rotated in an unfurling direction,

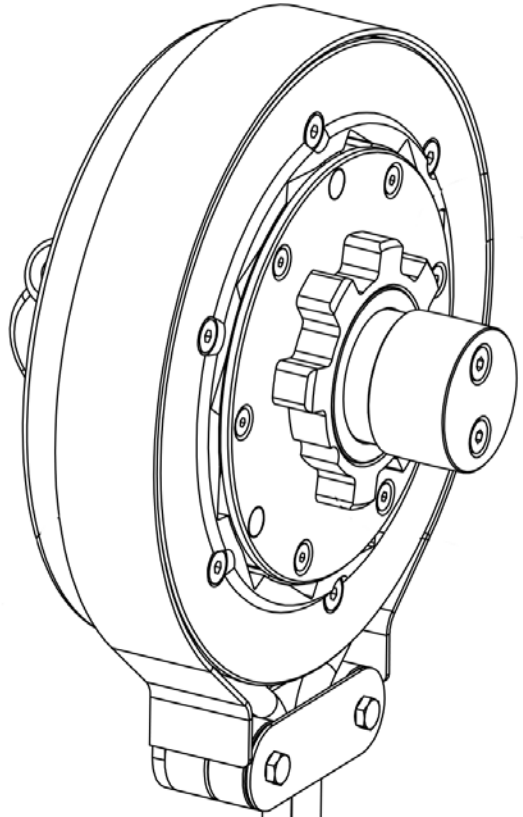
c) a furling structure comprising a rotatably mounted line drive assembly, wherein the rotatably mounted line drive assembly is rotationally attached to the static part andadapted to be rotated relative to the static part by use of a furling line, and

d) a coupling element having a coupling state and a release state, wherein the coupling element:

a. in the coupling state provides interaction between the line drive assembly and the rotatably mounted mandrel so that the rotatably mounted mandrel is rotatable at least in the furling direction by rotation of the line drive assembly in the furling direction when the mainsail is to be furled around the rotatably mounted mandrel, and

b. in the release state allows the rotatably mounted mandrel to rotate freely, such as in the unfurling direction, relative to the rotatably mounted line drive assembly.





MLS SYSTEM BY MAINFURL

The in-boom furling system of the present invention is advantageous in that the rotatably mounted mandrel may rotate freely when the coupling element is in its release state.

Thus, with the coupling element in its release state (and the rotatably mounted mandrel being free to rotate in both directions) the mainsail may be hoisted without potential complications caused by the furling line.

It is moreover advantageous that the in-boom furling system of the present invention provides a braking arrangement when the coupling element is in its coupling state.

The braking arrangement prevents the mainsail from unfurling when the coupling element is in its coupling state for example when the mainsail is reefed.

Finally, there is no longer a requirement for a particularly strong splice of the endless line, as it will not be subjected to loads but only serves the purpose of rotating the line drive. - A simple splice that any rigger and many sailors can make.

OPERATING THE SYSTEM

Hoisting the main sail by:

- Pull the MLS line to unlock the system
- Position the boom in the right angle
- Ease the mainsheet off
- Hoist the main sail

Furling the main sail by:

- Release the MLS line to lock the system
- Position the boom in the right angle
- Attach the endless furling line to a winch
- Ease the mainsheet off
- Take the main halyard in one hand and push the button with the other and furl the main sail

DESIGN AND CONSTRUCTION

Mainfurl's furling booms are characterized by a very elegant design that enhances any sailing boat. Therefore, it has fundamentally been important that the technical and non-visible part of the boom is designed based on the same principle – when things are taken apart, one should experience the same elegance.

The MLS system is executed throughout with high-quality materials and precision to ensure that all elements possess the necessary strength and functionality, even after many years of use.

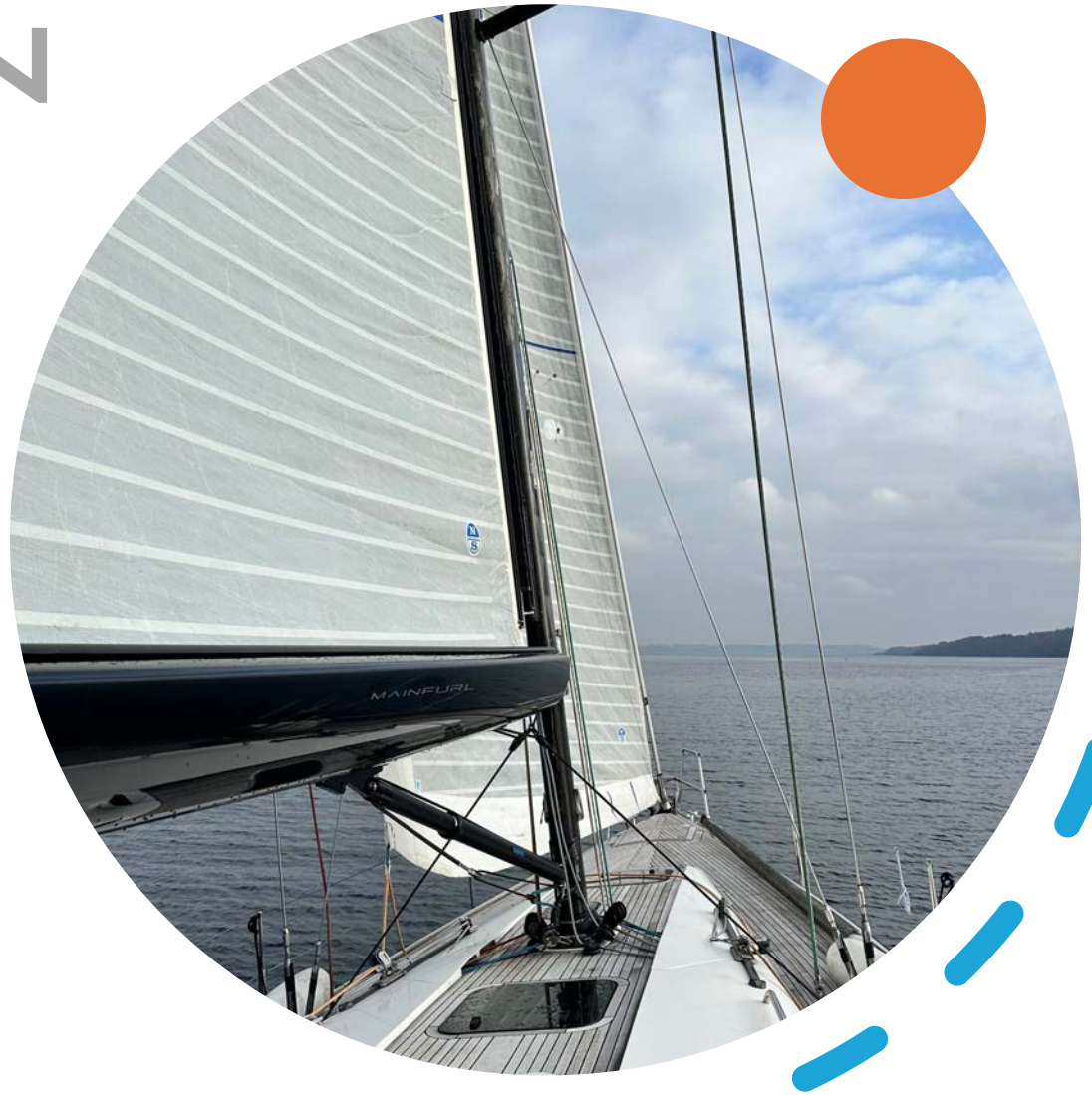
The construction, which has the characteristics of a plug-and-play cassette-built unit, is also designed to be easy to install and maintain, allowing for the easy replacement of parts or the entire unit if necessary.

The materials used consist of steel and aluminum, which are considered sustainable due to their durability and ability for infinite recyclability, thereby saving energy and reducing CO2 emissions during the recycling process.

The finished product has resulted in even simpler and safer handling of the mainsail during hoisting and furling; all handling can be performed safely from the cockpit, removing any potential errors that could necessitate going onto the deck even in severe weather conditions, along with the associated risks.

The developed MLS system elevates the manual furling boom to an entirely new level for furling booms, with an initial price increase of only about 8-10%, which is considered low in light of the new features it offers. A furling boom is, in any case, an optional choice when purchasing a new boat, which is why the increased price is not expected to affect sales.

Additionally, the MLS system has been developed so that it will be possible to upgrade existing furling booms to the new system at a cost of approximately 6,000 to 8,000 EUR excluding VAT, which corresponds to about 15-20% of a completely new boom – quite a modest expense considering the extra functionalities gained from such an upgrade.



THE ADVANTAGES OF THE NEW MLS SYSTEM BY MAINFURL

The new MLS system takes manual boom furling to a whole new level – all the weaknesses of the known furling systems have been eliminated:

There is no need for a particular strong splice, which only a few can create; instead, the endless line can be made using a simple splice that all riggers and most sailors can make or learn to make.

There is no risk of the endless line jamming in the line drive, causing a complete blockage when the mainsail is hoisted because the endless line remains stationary.

There is no risk of the endless line breaking because it is exposed to large forces especially when the mainsail is reefed as the built-in brake ensures that the luff can be tightened when the mainsail is reefed because the mandrel is locked by the built-in brake.

The system is constructed from cassettes, which can be easily serviced and replaced if necessary.