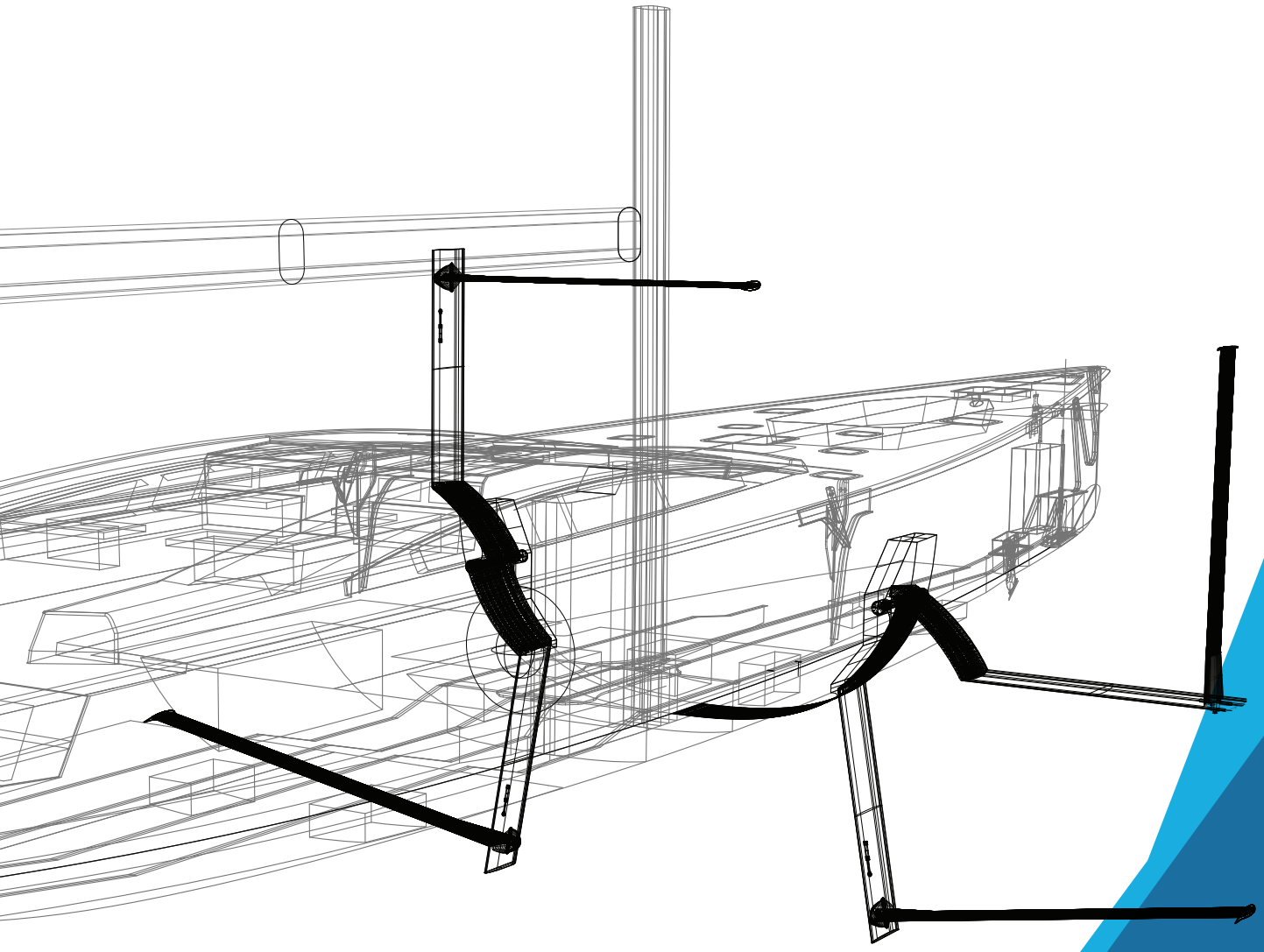
Sailing Booster System®



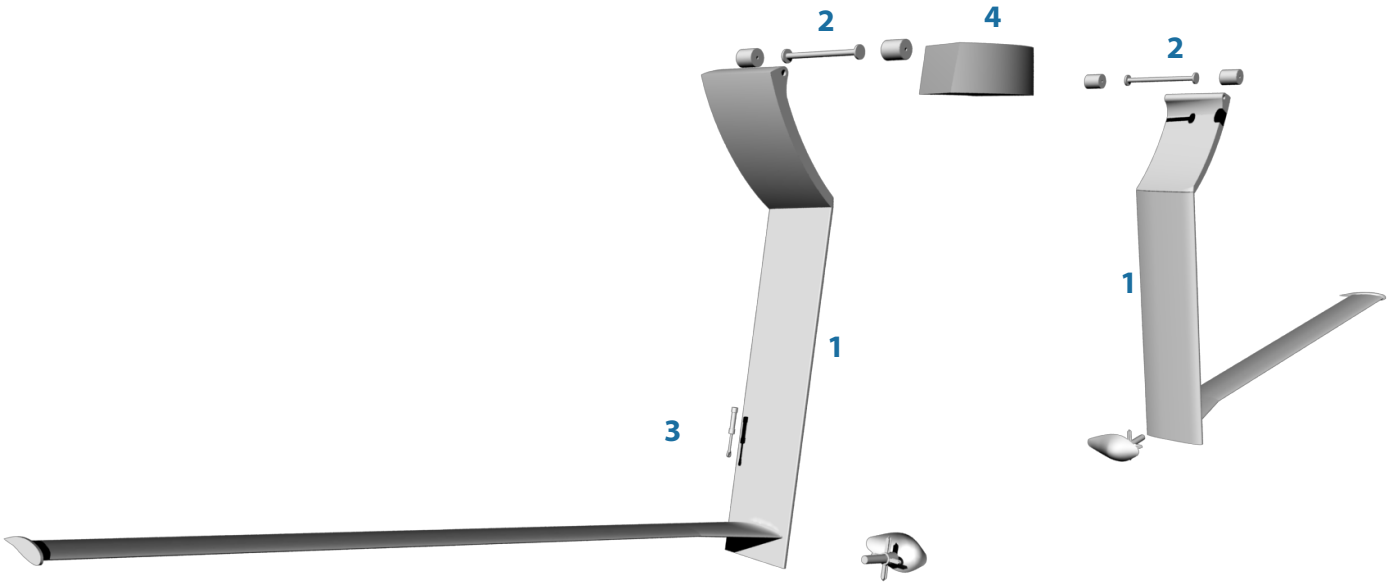
Sailing experience has been taken to a new dimension
New exciting times are shining towards a bright horizon

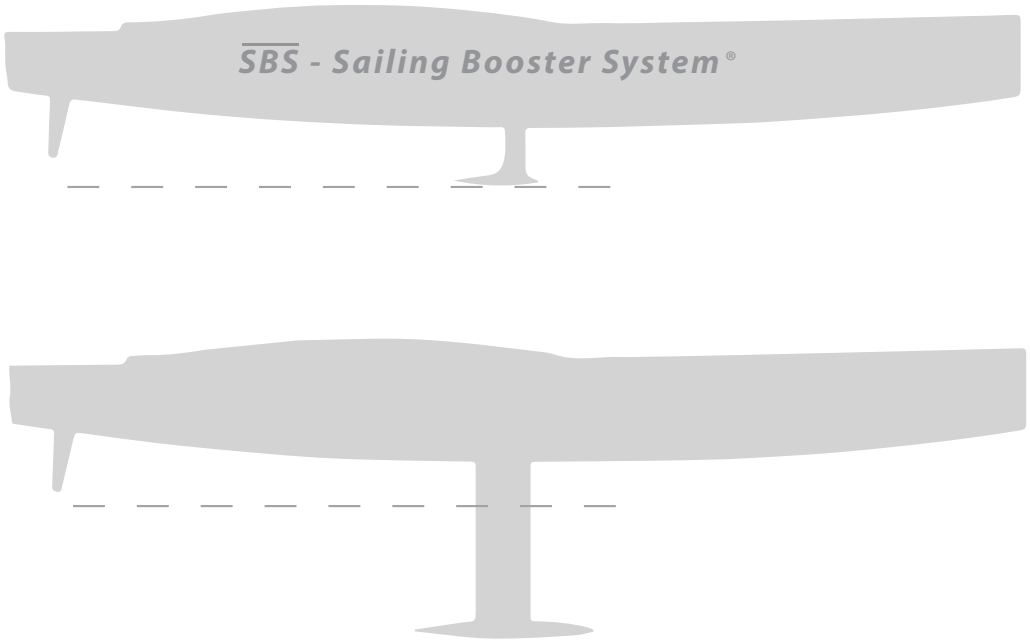
In the last century, sailing faster and safer has been a matter of reducing as much weight as possible in order to achieve a lighter vessel displacement.

A variety of materials were used to develop designs focused on removing weight from masts, sails, decks and hulls. While heavier materials are applied to hydrodynamic keel bulbs, consequently developing ballast tanks, canting keels and other devices.

Nothing so light, fast, agile and radical as SBS has been seen before to enhance speed and stability for an unique vessel displacement performance.

SBS system is composed by two specific wings (hydrofoils) (1) on each side of the vessel. These two wings, the keel wing and lift wing, have separate actuators. The lift wing has a hydraulic piston actuator (3), in order to generate quick changes in the wing lift angles. Hydraulic rotation units (2) move the keel wings down, sideways or up according to the skipper's desires. A hydraulic electrical package provides hydraulic power while an electronic control box (4) measures hull heeling and rolling, plus pitch acceleration, rapidly controlling the vessel in order to improve performance, comfort and stability while in a regatta or cruising. The same control system can be managed on your smartphone or even on a wireless key push bottom inside your pocket.





The lift wing may reduce bulb keel weight up to 68%.

For example, in a 10 ton ballast keel, you may save up to 6.8 tons*.
** ask assistance from a naval engineer or architect to balance your project needs.*

Canting keels with their weight and huge drafts are not needed anymore. Small fixed center keels are chosen in order to comply with stability regulations and to avoid direct rudder crash on shallow waters. The sailboat displacement in a static position may drop a total of 23%. While under way, at higher speeds, the final total dynamic displacement can drop up to 50% of a regular type sailboat of the same size.

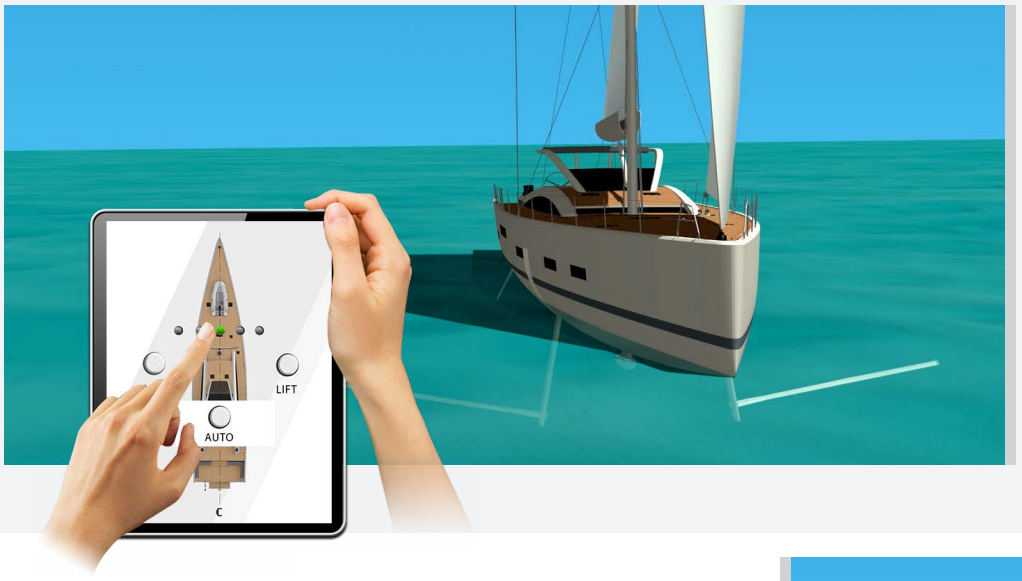
Less displacement means, less wet surface and less total resistance in almost all wind conditions. Displacement sailboat hulls perform better in light to medium air. However, in strong wind, speed performance is limited.

With SBS, semi displacement sailboat hulls with full body transom lines, will easily get into plane mode, rapidly disappearing into the horizon, nautical miles ahead from other canting keels or conventional high speed sailboats.

In aft and broad winds you will be able to remove both SBS wings from the water keeping them up or in horizontal position. Wet surfaces and drags will be kept to a minimum.

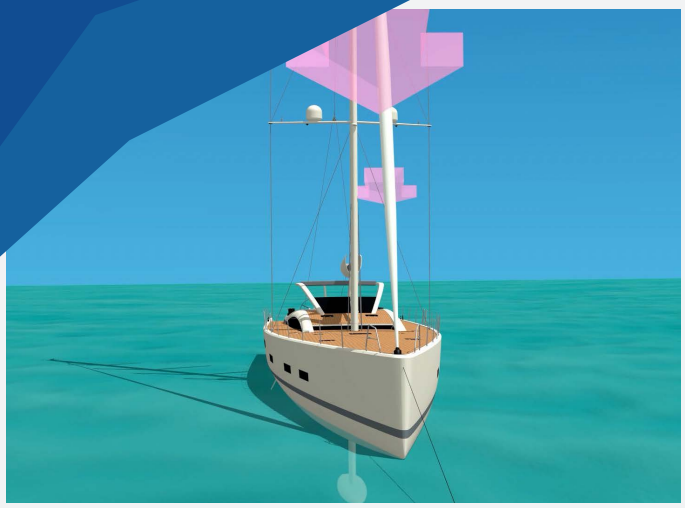
If the skipper of a semi displacement sailboat hull wants to get into a planing mode, using a touch of a finger on the control panel allows the lower leeward wing to increase lift and stability. By reducing displacement and lifting the midship / bow sections, the vessel will increase speed, getting into the planing mode.

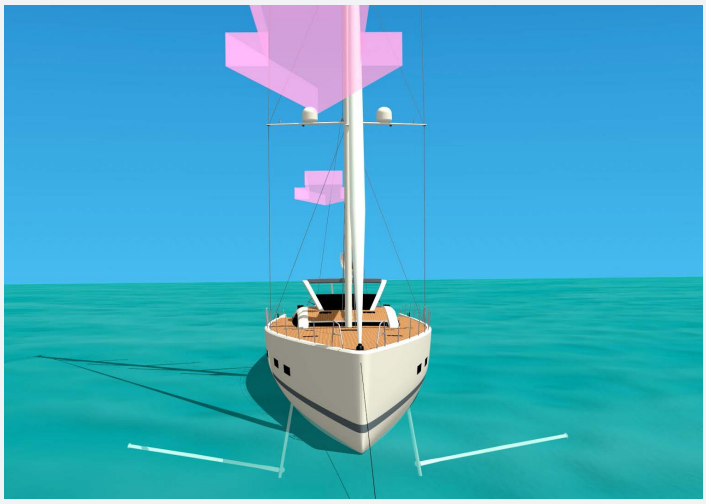
While cruising, engine efficiency will be increased by having the two SBS on up vertical or horizontal positions. If comfort is a priority, only one SBS wing can be kept submerged in order to provide perfect stability.



Control of the system can be monitored using a smartphone, Tablet or a wireless key push bottom, the same way as garage door opener.

The SBS wings are strong enough to be used as a swimming platform. In the lift wings extremity there are attachments for flags to mark the ends, to avoid accidents if a small boat comes too close.





When the time comes to anchor at a cove where rolling motion is a problem, the SBS system is not only a luxury feature, but an important tool for all conditions.

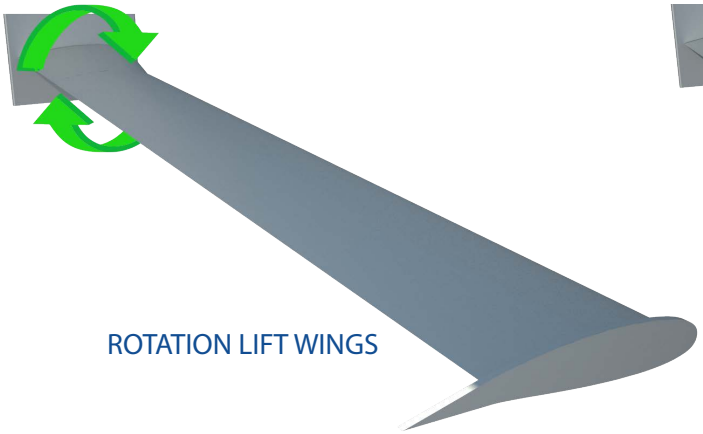
The vessel is kept in place and anchors smoothly. The typical movement that sailboats have while anchored, with the tendency to sail to each side (yaw) as the wind front angle changes is completely blocked. The SBS keel wing system prevents the bow from moving sideways, while the stern of sailboats with conventional keels will continue to turn.

Having both SBS wings lowered into the water, the resistance against rolling movements is huge.

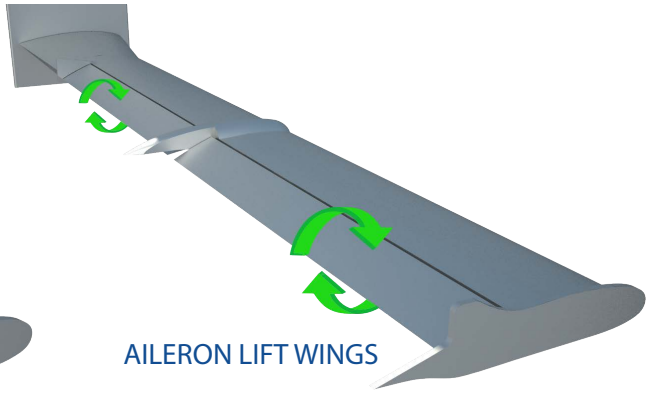
New projects can be designed by having long or short wing keels, high / low or medium lift wings capability.

The lift wing also can be designed with ailerons or a rotate wing assembly depending how much lift or right moment the Naval Architect is planning in his project .

Reducing and tuning the keel size and weight, supported by the SBS engineering team to identify the correct SBS wing keels and wing lifts design, Naval Architects and Engineers will provide to their clients a new experience for the sail and motor yachts.



ROTATION LIFT WINGS



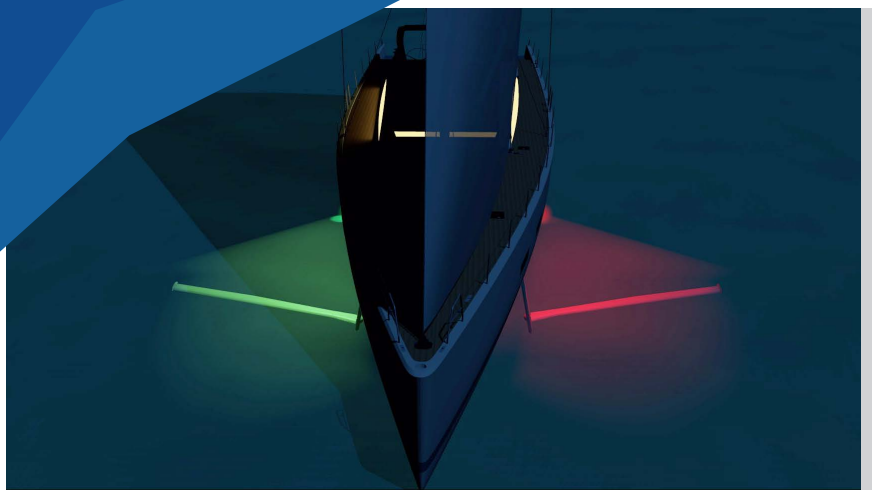
AILERON LIFT WINGS

SBS wings are easy accessible for the crew above the deck , facilitating maintenance such as polishing and cleaning; or, if while sailing, plastic, trash or sea weed gets caught, it can easily be removed by placing up the wings. The wings also can be used for a smooth transfer of crew members while in open waters avoiding unnecessary swims in cold or unclean waters.

At high speeds, sailboats have a vast pitch acceleration on the bow, causing water to embark and the crew must keep distance from the bow in order to avoid accidents. The SBS system generates forward lift to the static center of buoyancy reducing while sailing the vessel's pitch and the quantity of water embarked due to the bow waves.

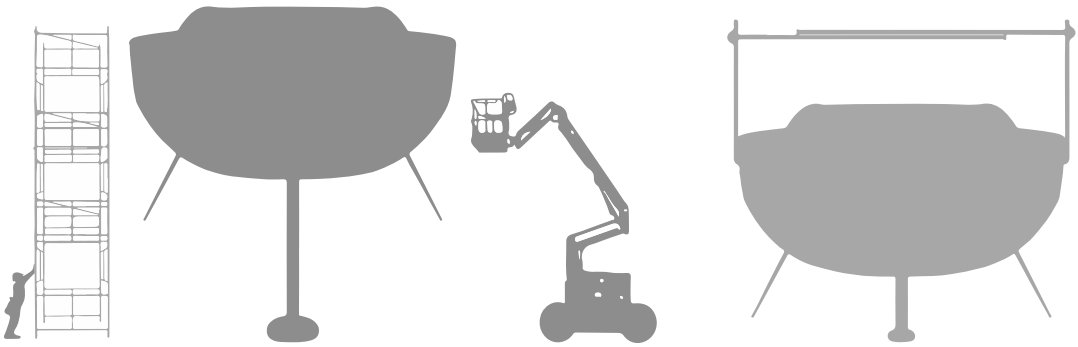
The electronic control box and acceleration sensor on the bow immediately creates up and down forces to compensate the buoyancy changes. The bow does not have to be submerged to create lift.
By having less water on the deck and less water impact, weight is reduced, speed is increased, equipment failure is minimized and most importantly, crew members are kept safe. In the past, astern water ballast tanks have been used for the Volvo Ocean Race sailboats and similar projects. With the SBS system the astern ballast is obsolete.

On aft winds sailing under gennaker or spinnaker, the bow will not be flooded anymore. In heavy seas, lowering the two SBS wings even more, the not flooding of the bow is assured.

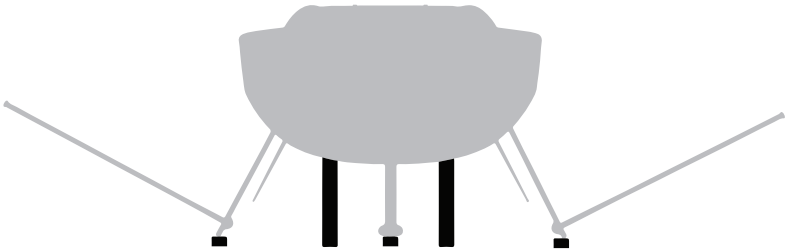


At night, even under sail, the lift wing can be kept illuminated by hull lights or, if preferred, turned off to see the natural spectacular light show performed by the plankton luminescence. A “Free light show” all night long!

When the wings are up, resembling a radar arch, lights can illuminate the deck. The wings are designed so that it is possible to walk below them, but depending on the project parameters, the SBS wings may be placed flush on the deck.

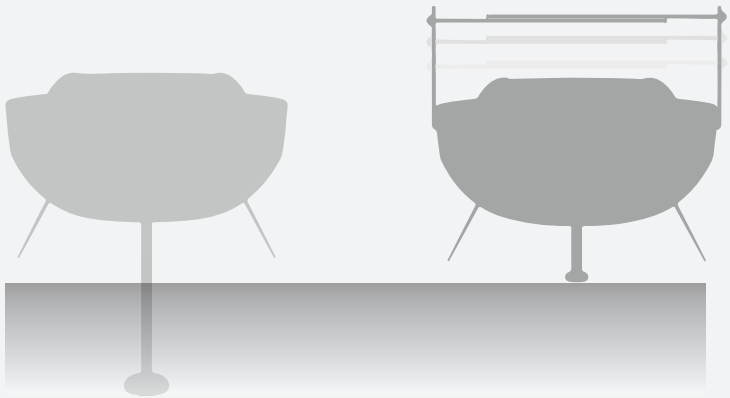


Due to their long keels, fast speed sailboats are always a challenge when stored on shore, due to their height they are not easy accessible and a danger for anyone that would fall from the main deck. Expensive supports and structures are necessary in order to keep the vessel safe and steady specially at windy days. Maintenance and hull painting are also difficult to be performed. Shafts and propellers are too high to reach. SBS vessels do not share these kind of difficulties. The hull is kept low with rudders and keel close to the floor surface.



SBS wings can be stored in the upper right position or placed sideways in order to act as extra support on shore, increasing vessel's stability in high sideways wind.

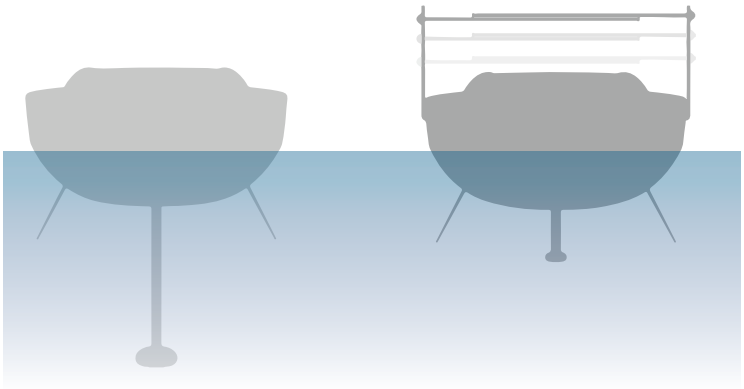
During the vessel construction the hull is maintained low, easy to climb, facilitating access, eliminating hydraulic or mechanical platforms.



The operation to arrive in shallow water coves, ports and marinas was never so easy to be accomplished. By a push of a button, both sides (port and starboard) SBS wings will rotate up coming out from the water and stored above the deck.*

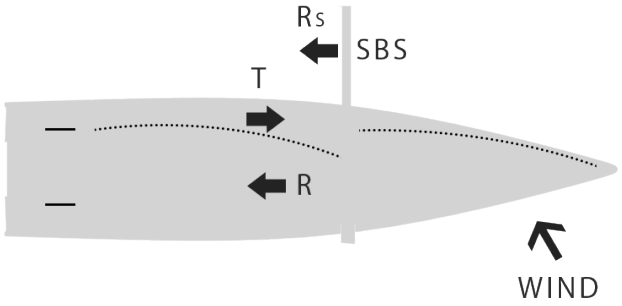
Draft will be reduced in seconds to the yacht rudders lower point. One meter draft (depending on the rudder design) could be a regular marina mooring place for an 80 feet sailboat by using the SBS system.

**According to your final design, the lift wings can be placed at any height on the wing keels. They can be designed to be kept flush on the deck while in the upper position.*



While the SBS wings are placed above the deck, on the upright position, the sailboat original beam is maintained. Less Marina draft for the any size of sailboat, is not a dream anymore . **It is the SBS reality.**

SBS Sailboat



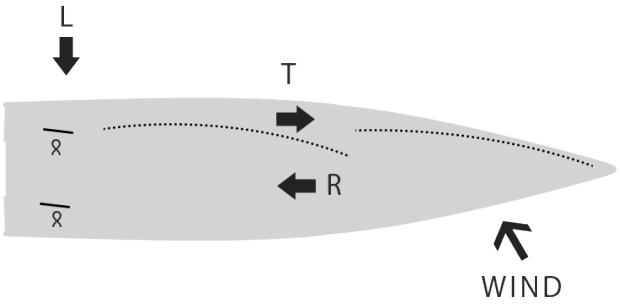
T = Total Resultant Sails thrust force forward

R = Total Resultant resistance hull forces against movement (hull plus appendages).

Rs = Lift wing total resistance.

*rudders at zero attack angle, resulting in no drag.

Standard Sailboat



T = Total Resultant Sails thrust force forward

R = Total Resultant resistance hull forces against movement (hull plus appendages).

L = Rudders side force in order to compensate the binnar generated by T and R forces.

Alfa = Rudders attack angle in order to compensate vessel's trend to tack.

Every sailor, when tacking, knows how difficult it is sometimes to keep the bow from yaw and sail against the wind.

This situation is due to the fact that the sail plan thrust forces are not in the same direction and plan of the hydrodynamic hull plus appendages resistances.

These two forces induce a binary moment that the sailboat rudders have to compensate all time.

Rudder compensation creates drag and hydrodynamic resistance reducing the vessel speed.

The SBS leeward wing reduces, or almost completely removes this binary, making the rudder angle, while tacking, close to zero.

Less drag, less displacement, more speed.

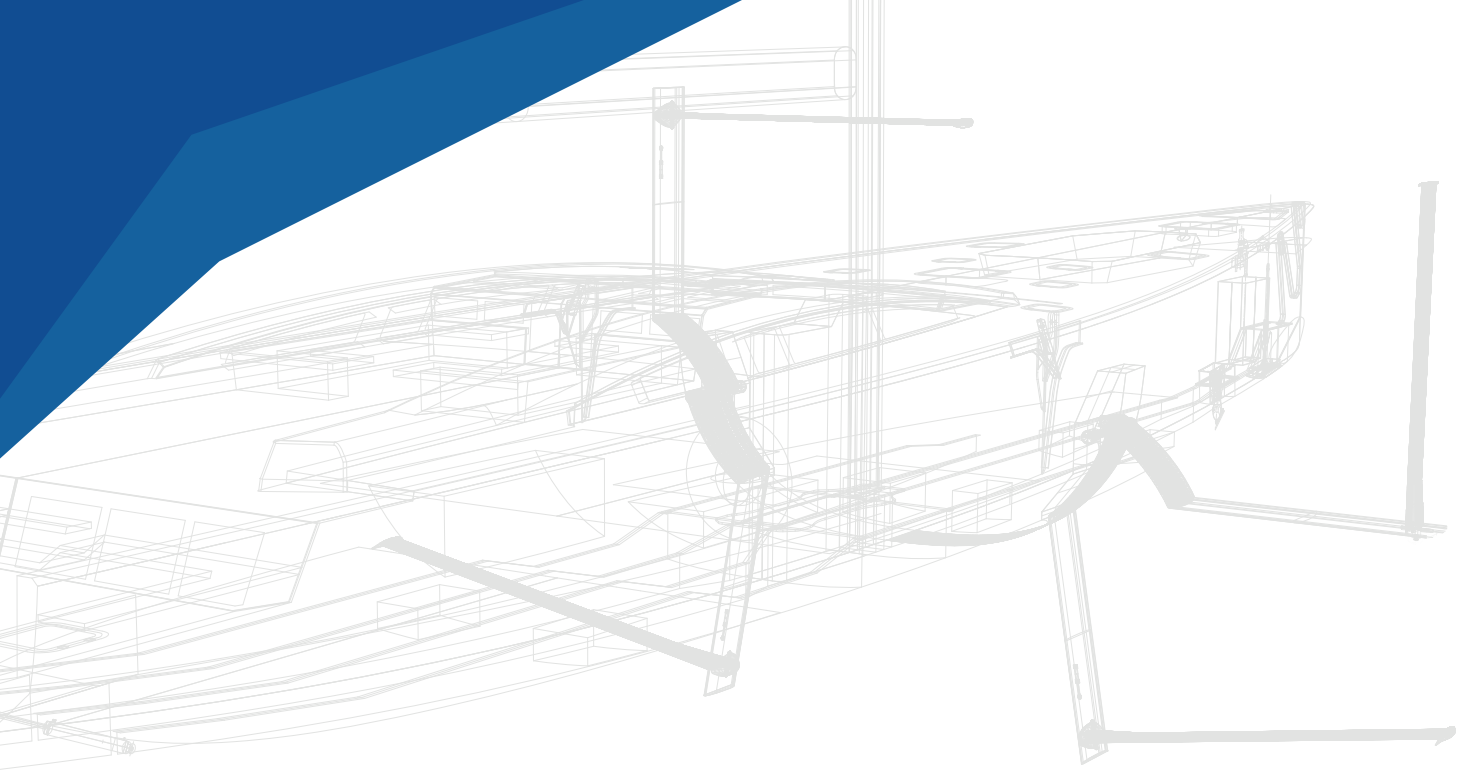
For each skipper there is a heeling hull angle that feels comfortable and appropriate regarding speed and waterline shape.

Having an SBS, with the touch of the skipper's finger, these angles can be selected and the vessel will automatically obey.

At the same time, for two rudders sailboats, skippers also may adjust the hull heeling in order to keep the leeward rudder stock perpendicular to the water plane, while the windward rudder is kept completely out of the water.

In both cases the skipper maximizes rudders steering forces and minimizes windward rudder resistance.

Beginners, within their first sailing years, can cruise safely with their families in strong winds, having both SBS units submerged.



The crew weight at the windward side deck, if desired can be more efficient.

The leeward arm when lowered, reinforced by the windward crew weight, is more efficient when compared to the normal type sailboats.

Windward SBS wing also can be displayed fully extended to the vessel side, and its weight will help the vessel to keep his perpendicular position.

Either maximizing your sailboat performance and efficiency in a regatta or cruising, you will experience with SBS:

- A reduction in fuel consumption
- Amazing gains in comfort and stability
- Reduced draft for a safe mooring
- Bow deck kept dry in all conditions
- Smoothness on board while anchored
- Safely dry docked
- Easily cleaning of the wetted surface and removing debris

SBS is a complete new chapter in sailing experience and a wide horizon for those who love the Oceans.

New times in the history of sailing for a powerfull navigation

Sailing Booster System®

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