



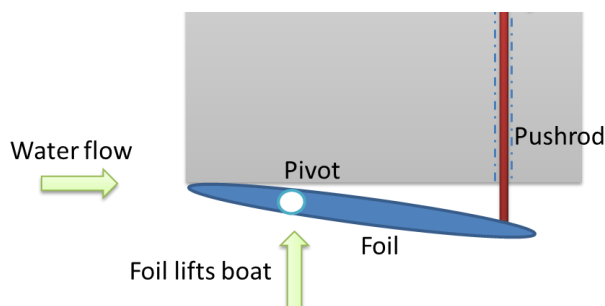
# GLIDE FREE FOILS

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Glide Free Design Pty. Ltd.  
ACN 144 984 529

## The Glide Free Advantage

The essence of the patented Glide Free foiling system is a unique, fully articulated balanced foil, with a floating pushrod actuating the foil lift.



There are many benefits to this system, several of which are highlighted below. These include improved strength, durability, efficiency and control, along with greatly improved practicality for rigging and launching. There is no longer a need for rudder trim control with this system and importantly you can sail low and fast, safely avoiding crashes and pitchpoling.

### Strength and efficiency

#### Low loads on the boat

The centreline Tee foil system balances the loads on the boat and components. Unlike cantilevered foils used on catamarans, the loads applied to the boat are vertical and require no special stiffening of the hull and extra strength to withstand the loads.





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All of the loads are applied through a simple pivoted Tee joint sitting on a cross foil under simple bending load. The pivot is applied near the point of maximum lift of the foil, focussing the main lifting force through a substantial, high strength stainless steel joint which can more easily handle the localised loads than carbon fibre.

## **Low drag foils**

With the fully articulated foil, there is no need for a complex flap system which induces parasitic drag across the entire foil span due to the flap joint. The lifting foil instead is clean and smooth, making it more efficient. Also, as the entire foil is lifting, rather than just the flap, the system is inherently more efficient with lower drag when foiling.

## **No rudder controls required**

As the foil always naturally finds its optimum angle of attack, there is no need to trim the rudder to compensate as is necessary for foils with flaps. As a result, there is no need for an adjustable rudder foil. This reduces complication, cost and the constant need to actively trim the boat as its speed changes.



Simple rudder foil requires no twist grip adjustment and can be inserted from above.

## **Fly fast and safe**

Another aspect is that it is no longer necessary to fly dangerously close to the water surface at maximum ride height in order to optimise the flap angle and achieve the lowest drag, which is the case for the flapped foil. In fact, it is well known that drag of the lifting foil increases as the foil comes closer to the surface. With the fully articulated foil it is possible to fly efficiently at any ride height, so you have the luxury of flying low and safe but also fast!



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## **Stronger, thinner, higher aspect with improved efficiency**

The lifting foil itself is of solid construction, there being no flap and therefore no weakness due to a joint in the foil. It is therefore stronger and more robust and can be more easily made smaller, thinner and higher aspect than a flapped foil.

## **Control and practicality**

The Glide Free system provides exceptional control and practicality.

## **Direct response**

As the system components are always in compression, there is no push/pull as with a flap. This system removes slack from linkages, so there is a direct reaction with no slop in the system. The response is therefore firm and direct providing improved control.

## **Removeable Tee foils**

As the pushrod is not directly connected to the foil it is easy to attach and detach the cross foil with a simple clip system. This makes the foils easy to flat pack, carry and store.





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## **Insert foils from above**

With the Tee foil removed, it is possible to insert the vertical foil from above and clip the Tee foil on without the need to capsizes the boat. This makes rigging much faster and easier. There is no longer any need to carry the boat into the water on its side. The foils can be raised and lowered on the water and easily launched from a trolley.

## **The freely feathering foil**

The fully articulated foil can float freely, feathering in the water flow, which reduces drag and the risk of pitchpoling.

## **Reduced foil drag in light air**

When in displacement mode, the pushrod can be released from the foil by raking the centreboard, raising the wand or detaching the pushrod. As a result, the main lifting foil floats freely, aligning itself to the flow, finding the position of minimum drag. This is unique and quite different to a foil with a fixed section which is always at an angle to the flow.

## **Wand pressure**

The compressive back force from the lifting foil acts to push the wand against the water surface. This eliminates the need for shock cord to hold the wand against the water surface.

## **Wand drag**

When in displacement mode, the load applied to the wand is automatically reduced, as the boat speed decreases. This greatly reduces the drag from the wand, without the need for making any adjustments to the system.



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## Disengage in heavy air

For safety, it is important to be able to sail home, especially in strong winds, in displacement mode. The fully articulated foil can be easily disengaged by raking the centreboard, raising the wand or detaching the pushrod, which keeps the boat safely in the water and under control, making it easy to sail home without the risk of launching or lifting off as the boat speeds up.



## Towing

The same issues relate to towing where it is important to be able to fully disengage the foils while the boat is under tow.



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## Crash recovery

In the event of a breach, where the foil comes to the surface and sucks air, reducing lift, the entire foil is oriented with a positive angle of attack. This rapidly slows the decent and allows flow to re-establish over the whole foil. The boat quickly recovers and keeps going. This is not the case with other foils where the fixed section of the foil is at a much lower angle of incidence to the flow.



Riding too high, the main foil ventilates and begins to dive



The main foil recovers easily, without a crash or pitchpole

## No pitchpole

In the event of a severe breach, such as when the boat leaps out of a wave leading to a crash or nosedive, foiling systems with a fixed sections such as those used on catamarans and Moths can go into negative angle of attack. The foil is no longer lifting, but sucks the boat down, acting as a brake, tripping the boat up, causing a dangerous pitchpole.



Heading down for a 'nose dive'



Breaching the surface and ventilating



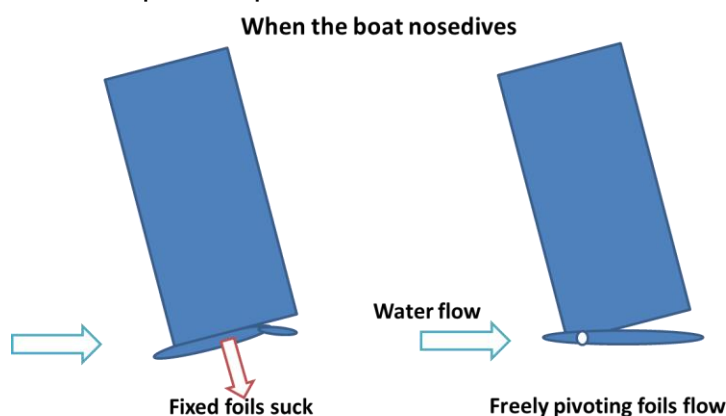


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Under these circumstances, the Glide Free System allows the foil to detach automatically and pivot freely. It is not possible to apply negative lift, so there is no risk of the boat tripping or causing a pitchpole and subsequent capsize.



As a result, boats using the Glide Free system are much safer, less prone to severe crashes and pitchpole and are able to recover much more easily.

## The Glide Free difference

The Glide free system has been in use now for over 20 years and is the core technology around the proven success of the Glide Free Foil retrofit kits now in use world-wide on Laser, Aero, Bic, Melges and others.



RS Aero and International Laser dinghies enhanced with Glide Free Foils



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Melges 14 and Open Bic dinghies enhanced with Glide Free foils

We are especially proud that our patented foiling system has been chosen by Skeeta Foiling Craft as a key component of their unique Skeeta foiling dinghy. This boat is a culmination of many unique developments which further enhance the foiling experience.



Skeeta Foiling dinghy utilises the Glide Free foiling system.