Rudder Winglets / Hydrofoils

Response to the German Class Association

1. Purpose

The German Class has submitted a request to authorize rudder winglets / hydrofoils, with the objective of making the boat more manageable and forgiving for lighter crews (including youth and female sailors), particularly in winds above 15 knots.

The question raised is therefore the following:

Would allowing rudder foils bring a benefit to the F18 class, and what could be the consequences for the class as a whole?

The Technical Committee has reviewed the proposal as well as feedback received from experienced sailors, including comments from Sam Carter and John Forbes.

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2. Fundamental principles of the F18 class

Before evaluating the proposal, it is important to recall the key principles that have historically guided the development of the Formula 18 class:

- Providing safe and fair racing for a wide range of sailors.
- Maintaining controlled development within the box rule framework.
- Preserving a balance between performance, cost and accessibility.
- Ensuring fleet stability and long-term participation.

Any modification to appendages therefore needs to be considered not only in terms of performance potential but also in terms of long-term impact on the class ecosystem.

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3. Potential advantages identified

Some possible benefits of rudder winglets have been identified.

Handling and control in stronger winds

- Possible stabilizing effect during downwind sailing
- Improved longitudinal control of the boat
- Reduced risk of pitch-pole situations
- Greater tolerance to steering and crew positioning errors

Sailing comfort

- Potential reduction in physical fatigue
- Possibly easier boat handling for lighter crews in demanding conditions

These aspects deserve consideration and further technical evaluation.

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4. Major concerns raised

Despite the potential advantages, several important concerns have been raised during the discussions.

4.1 Performance-driven development

As pointed out by John Forbes, the argument of helping youth and female sailors may not fully reflect the primary effect of such a development.

In practice, the introduction of rudder foils is likely to be driven mainly by performance gains rather than accessibility considerations.

Once such appendages are allowed, they generally become performance-critical equipment, creating pressure for competitive teams to adopt them.

4.2 Cost escalation and fleet impact

Allowing rudder foils would likely increase costs for sailors.

Estimated impacts include:

- approximately 30% increase in rudder cost
- around 1400–1500 € for a pair of blades
- possible need for multiple rudder sets depending on conditions

For manufacturers and suppliers, this would also mean:

- increased production complexity
- additional inventory and spare parts
- expanded after-sales support requirements.

Historically, the success of the F18 class has relied on maintaining a reasonable cost-to-performance ratio compared with other high-performance classes.

4.3 Increased technical complexity

The addition of rudder winglets would introduce:

- additional tuning variables
- changes in rudder rake settings
- possible trim adjustments due to added weight aft
- greater sensitivity in boat setup.

The F18 has traditionally sought to limit unnecessary technical complexity in order to keep the boats accessible and manageable for a broad range of sailors.

In addition, regulating such appendages would significantly increase rule complexity.

4.4 Structural and maintenance considerations

Even without hull modifications, rudder foils may generate higher loads on:

- rudder fittings
- transom areas
- steering systems.

Over time this could increase:

- wear in the rudder system
- maintenance requirements
- potential structural fatigue, particularly on older platforms.

4.5 Class evolution and philosophy

Another important question concerns the long-term evolution of the class.

Allowing rudder foils could potentially:

- encourage further foil-based developments
- lead to new hull or appendage optimization
- progressively shift the class toward a foil-driven design logic.
- Redistribution of performance across design (as highlighted by Sam Carter)
- Potential fragmentation of the fleet rather than convergence (as highlighted by Sam Carter)

As noted by John Forbes, sailors seeking foil-assisted platforms already have several options available (A-Class, Nacra 17, Viper, F16).

The F18 has historically filled a different role:
a high-performance, powerful, but non-foiling sport catamaran with controlled development.

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5. Timing considerations

Another point raised in the discussion is the timing of additional technological changes.

Recent years have already seen several developments within the class, including sail evolution and ongoing discussions about:

- sail materials
- potential boat weight adjustments
- mechanisms balancing lighter and heavier crews.

Introducing a major technological step at this stage could create additional economic pressure on both sailors and builders.

Allowing time for the current generation of boats and equipment to stabilize appears prudent.

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6. Possible path forward

Before considering any rule modification, the following steps could be considered:

- allow 2–3 years for stabilization
- collect objective technical and performance data from manufacturers and other classes using them
- evaluate effects across wind ranges and crew weights
- assess long-term cost implications for the fleet.

Such information would allow the class to base any future decision on measured data rather than assumptions.

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7. Conclusion

At this stage, considering:

- the structural and regulatory concerns highlighted by Sam Carter
- the performance-driven nature of the development noted by John Forbes,
- the potential cost increase
- and the additional technical complexity,
- the risk of triggering a new development cycle

there is currently no clear evidence that authorizing hydrofoils would provide a net benefit for the F18 class as a whole.

Maintaining the current rules therefore appears to be the most prudent approach for the time being.

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8. Closing remark

Thank you to the German Class for bringing forward this proposal and contributing to the ongoing reflection on the evolution of the Formula 18.

This discussion is part of a broader set of topics currently being considered within the class, including sail development, possible boat weight adjustments, and crew weight balance.

All these questions highlight the importance of preserving the balance that has made the F18 successful worldwide — performance, accessibility, reasonable cost and a strong international fleet — while ensuring that any evolution is considered within a long-term and global vision.