

Melges 24 Class Rule Change Proposal

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Title of the motion, amendment, nomination Change the keel position definition

Topics concerned

	Constitution		Events
X	Class Rules	X	Technical Issues
	Regatta Regulations		General Policies
	Nomination		

Current Rule:

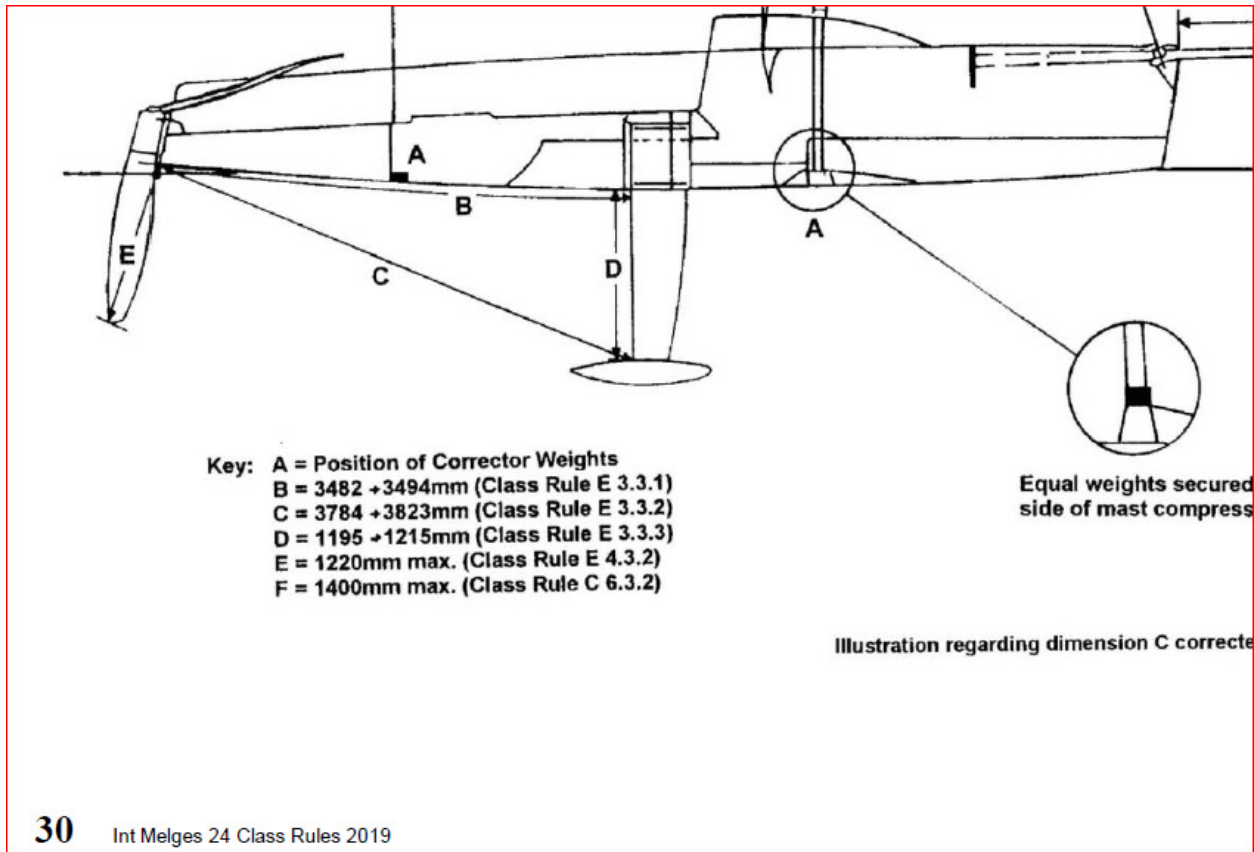
This change affects 3 areas of the current Class Rules

C.8.2	KEEL		
	(a) DIMENSIONS with keel fully lowered:		
		<u>minimum</u>	<u>maximum</u>
	Hull datum point to intersection of hull and fin trailing edge, around hull on centreline	3482 mm	3494 mm
	Hull datum point to intersection of fin trailing edge and top of keel bulb, straight line	3784 mm	3823 mm
	Underside of hull in a straight line to top of keel bulb at the trailing edge of the keel	1195 mm	1215 mm

And

E.3.5	DIMENSIONS	The keel fin and keel bulb shall conform to official templates.	
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And



Proposed New Rule:

The proposal is to change the measurement point of the keel fin to the leading edge

C.8.2 KEEL

(a) DIMENSIONS with keel fully lowered:

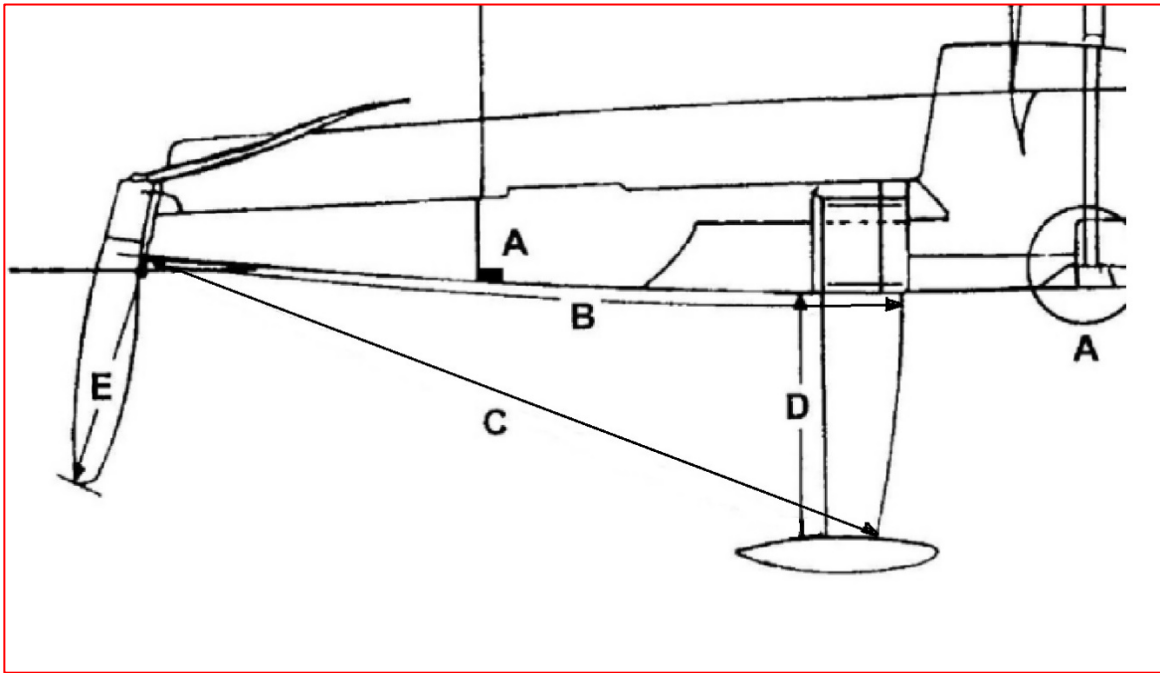
	minimum	maximum
Hull datum point to intersection of hull and fin leading edge, around hull on centreline	3892mm	3905mm
Hull datum point to intersection of fin leading edge and top of keel bulb, straight line	4039mm	4079mm
Underside of hull in a straight line to top of keel bulb at the trailing edge of the keel	1195 mm	1215 mm

And

E.3.5 DIMENSIONS

The keel fin and keel bulb shall conform to official templates.

And



Proposed change to the Key on the Diagram:

Key	A = Position of Corrector Weights
	B = 3892 - 3905mm (Class Rule C.8.2(a))
	C = 4039 - 4079mm (Class Rule C.8.2(a))
	D = 1195 - 1215mm (Class Rule C.8.2(a))
	E = 1220mm max. (Class Rule C.8.3(a))
	F = 1400mm max. (Class Rule C.9.5(b))

Reason:

It is widely accepted that to optimize performance of the foil, the keel is best located close to the forward limits as set by the class rules. Some boats are sacrificing maximum depth (maximum righting moment of the bulb) in favor of reducing the rake of the foil relative to the hull. This suggests there is an advantage to having the bottom of the foil as far forward as possible. The reasons for this vary in opinion but that aside, it is clear that boats are optimizing the foil placement forward up against at least one of the keel placement limits as set by the class rules.

Since Rule C.8.2(a) dictates the measurements for the keel limits shall be taken from the back of the foil, it is clear that the position of the leading edge of the keel is not being controlled if the chord length is not being controlled as well. Although Rule E.3.5. refers to foil shape being controlled by templates, these are not readily available. Thus, there is currently no class controls available to control the shape and chord length of the foil after its manufacture.

Random sampling of various boats in the US and Canadian Mid West fleets, has revealed that the chord length of the foil can vary as much as 10mm. This difference is likely more to do with adjustment or repairs having been made to the easily damaged trailing edge rather than actual manufacturing controls. However, it does suggest that a boat with a shorter foil chord length is at a disadvantage against one with a longer one, if indeed the class is trying to control how far forward a foil can be placed.

Similarly, the trailing edge thicknesses also vary from very sharp (1mm) to very fat (in excess of 3mm).

As example, imagine a foil with a 2mm wide trailing edge that is corrected to a more appropriate 1mm thickness. If the foil was simply extended and faired to a narrower edge, the cord length would increase by approximately 4 or 5mm. When this foil is re-measured it could be placed with its leading edge 4 or 5mm further forward without being detectable.

The easy way to control this situation is simply to measure the foil at its leading edge instead of its trailing edge. The kelp cutter channel is far more difficult to modify and since the profile of the leading edge is so critical to the stalling characteristics of the foil, any modification in this area is more likely to lead to a performance disadvantage. All this suggests the leading edge is likely a more stable point to measure the keel's location.

Determination of new measurements: (Updated for 2022 version)

On the recommendation of the 2019 Technical Committee annual meeting (when this proposal was first introduced) sampling of as many boats as possible including European and World Championships, including most of the 850 series and newer, were taken to determine any variances. The results of this study required a 1mm adjustment to both the "B" and "C" from the proposed 2019 maximum measurements to allow all boats that were measured to remain legal. In all cases, the boats measured within the max value of the current class rules regarding foil placement for the trailing edges. During this exercise, the most accurate and repeatable method to measure "B" and "C" was to set a steel ruler against the leading edge and draw a line perpendicular to the center line. Measurements were then taken on both sides of the foil and averaged to determine the measurement.

