

Metacentric Height - F1-14MKII

F1-14 MKII Calibrated scale

This equipment enables a thorough investigation of the factors affecting the stability of a floating body.



Experimental content

- Determining the centre of gravity of the pontoon
- Determining the metacentric height and from this the position of the metacentre for the pontoon
- Varying the metacentric height with angle of heel
- With Optional F1-14a comparison of two different hull shapes: hard chine and round bilge

Description

Metacentric Height is an extremely important measurement when considering the stability of a floating body such as a ship. The body can be stable, neutral, or unstable depending on the relative positions of the Centre of Gravity and a theoretical location called the Metacentre. This Metacentre is defined as the intersection of lines through the centre of buoyancy of the body when it is upright and when it is inclined at an angle.

The F1-14-MKII Metacentric Height Apparatus consists of a small rectangular floating pontoon that incorporates movable weights to allow manipulation of the Centre of Gravity and the transverse inclination (angle of heel). Practical results are taken for the stability of the floating body in different conditions, and these are compared to theoretical results derived from first principles.

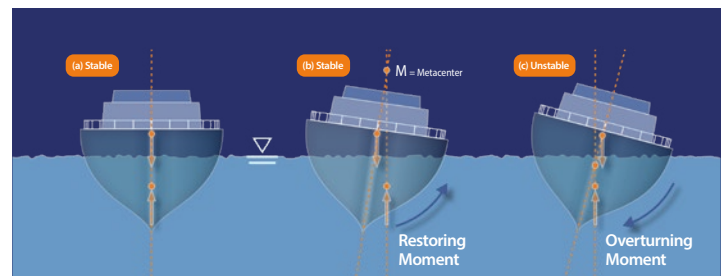
The model can be used with the Armfield F1-10 Hydraulics Bench to provide a source of water for the stability experiments. Alternatively, the unit is supplied with a moulded plastic water tank that can be used if a Hydraulics Bench is not available.

Optionally available is the F1-14a a pair of additional hull shapes, Half-circle and Vee chine used in conjunction with the F1-14-MKII. Both Hulls are of the same volume as the F1-14-MKII allowing student to compare the stability of different hulls. For reduced set-up times, the mast is easily moved from one pontoon to another.



Optional F1-14a

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Technical specifications

Overall dimensions:

Maximum Angle of Heel:	+/- 30°
Hull Width:	200 mm
Hull Height:	100 mm
Hull & Pontoon Assembly Mass:	2kg

Ordering codes

- F1-14 MKII; F1-14a