

This equipment is designed to produce and measure the characteristics of free and forced vortices.



F1-23-MKII Vortices

Experimental content

- ▶ Understanding the difference between free and forced vortices
- ▶ Determining the surface profile of a forced vortex
- ▶ Determining the surface profile and total head distribution of a free vortex
- ▶ Visualisation of secondary flow in a free vortex

Description

The apparatus comprises a clear acrylic cylinder on a plinth designed to produce and measure free and forced vortices.

The free vortex is generated by water discharging through an interchangeable orifice in the base of the cylinder, and the resulting profile is measured using a combined calliper and depth scale.

The forced vortex is induced by a paddle in the base of the cylinder, which is rotated by jets of water. The profile of the forced vortex is determined using a series of depth gauges.

Velocity at any point in the free or forced vortices may be measured using the appropriate pitot tube supplied.

Dye crystals (not supplied) may be used to demonstrate secondary flow at the base of the free vortex.

Technical specifications

Tank diameter	245mm
Height to overflow point	180mm
Orifice diameters	8, 12, 16 and 24mm
Forced vortex measuring probes	
Distance from centre	0, 30, 50, 70, 90 and 110mm
Pitot tubes having measuring point (nose) at	15, 25 and 30mm radius
Inlet tubes	9 and 12.5mm diameter

Requires Hydraulics Bench Service unit F1-10/F1-10-2

Overall dimensions

Length	0.60m
Width	0.50m
Height	0.46m

Ordering codes

- ▶ F1-23-MKII