

## FREE & FORCED VORTICES

### HB100A



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study

#### Features

- Bench mounted unit
- Water capacity - Forced = 5litres, Free = 9 litres
- Smart speed controller

#### Description

The HB100A Free and Forced Vortices unit enables students to easily investigate the concept of vortices. The apparatus allows a clear 360° view of the experiment, along with no visual refractory interference thanks to its single skin clear plastic tank. A pure forced vortex is produced by spinning the tank via an internal motor controlled by a “smart” front mounted speed controller which responds to accidental interference of the spinning tank to ensure student safety. Interchangeable free vortex orifices allow investigation of different sized free vortices. Measurement of the different profiles is achieved with a digital sliding horizontal scale and a precision engraved needle point rod allowing an infinite

degree of measurement points to be achieved. The apparatus operates from the atop the HB100 Hydraulics bench base unit.

#### Related laws

- Bernoulli's theorem
- Irrational flow
- Turbulent flow
- Vector Analysis
- Helmholtz's Theorem

#### Learning capabilities

- • Determination of the surface profile and radii of various size free and forced vortices.
- • Determination of total head variation of a free and forced vortex.
- • Comparison of results with theoretical predictions.

- • To be able to visually demonstrate the secondary flow at the base of a free vortex.

#### **Technical Specification**

- A bench mounted unit
- Water capacity - Forced = 5litres, Free = 9 litres
- Smart speed controller

#### **Essential Ancillaries**

- HB100/230
- or
- HB100/115

#### **What's in the Box?**

- Experimental Module

#### **Weights & Dimensions**

- Weight: 7.1 Kg
- Length: 270mm
- Width: 350mm
- Height: 546mm

#### **Essential Services**

- HB100/230
- or
- HB100/115

#### **Ordering information**

To order this product, please call PA Hilton quoting the following code:  
HB100A

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