

Osborne Reynolds' Demonstration apparatus (EDC-FM-107)

EXPERIMENTAL DATA:

- Demonstration of transition between turbulent and laminar flow
- Determination of transition Reynolds number and comparison with accepted values



DESCRIPTION:

This experimental unit consists of a precision-bore glass pipe held vertically. The constant head tank is made of transparent acrylic. This allows the students to see the flow clearly. Water enters a constant head tank (reservoir) above the test tube and passes through a stilling bed. It then passes through a specially shaped bell-mouth into the test tube. This arrangement ensures a steady, uniform flow at entry to the test tube. A thermometer measures the temperature in the constant head reservoir.

A fixed overflow pipe in the reservoir connects to a suitable drain. At the bottom of the test pipe is a valve which controls the flow rate through the pipe, without disturbing the flow.

Students collect a known quantity of water in a measured time to find the flow rate. Included is a measuring cylinder. To see the pattern of flow in the pipe, students use a dye injector (included). They use it to inject a fine filament of dye into the top of the tube.

The base of the apparatus has adjustable feet for levelling prior to use with the included levelling device.

SCOPE OF DELIVERY:

- 1 experimental unit
- 1 bag of glass beads
- 1L ink
- 1 set of instructional material
- 1 online access to the Media Center

DIMENSIONS AND WEIGHT:

- Minimum size: 400 x 400 x 1140mm (L x W x H)
- Maximum weight: 16kg

TECHNICAL DATA:

Water Tank:

- Capacity: Minimum 2200mL
- Contains glass beads for flow stabilization

Pipe Section:

- Length: Minimum 675mm
- Inner diameter: Minimum Ø10mm

Ink Tank:

- Capacity: Minimum 250mL

Measuring & Flow Control:

- Water flow adjustable via valve
- Flow rate determined by the base module
- Compatible with laboratory water supply