

Reynold's Numbers Apparatus

Overview

The Reynolds numbers apparatus is a bench top kit which prefer to be attached to the hydraulic main unit to provides highly experience for trainees, the kit illustrate the purpose of the visualization of the laminar and turbulent flows. Also, the critical Reynolds number can be determined through the experiment.



Specifications

- The unit is capable of displaying the laminar and turbulent flows.
- The transition from the laminar to the turbulent flow after a limiting velocity can be observed during the experiment.
- The experimental unit consists of a transparent pipe section through which water flows, the flow rate in the pipe section can be adjusted by a valve.
- The unit uses water as the flowing medium and ink as the contrast medium to show the flow patterns.
- Water enters a constant head tank (reservoir) above the pipe section, it then passes through a specially shaped bellmouth into the pipe section.
- This arrangement ensures a steady, uniform flow at entry to the pipe section, then Ink is injected into the flowing water.
- The laminar or turbulent flow are displayed in color with the aid of an injected contrast medium (ink).
- The experimental results can be used to determine the critical Reynolds number.

- A layer of glass beads in the water tank ensures an even and low-turbulence flow.
- The experimental unit is positioned easily and securely on the work surface of the main hydraulic unit module.

- The water is supplied and the flow rate measured by the main hydraulic unit.
- The Reynolds number is used to assess whether a flow is laminar or turbulent.

Experiments

- Visualization of turbulent flow
- Computation of the critical Reynolds number

- Visualization of laminar flow
- Visualization of the transition zone
- Observation of the velocity profile.

Technical Data

Water tank

- » Diam. 150mm
- » Height 270mm
- » Capacity: 4000 mL

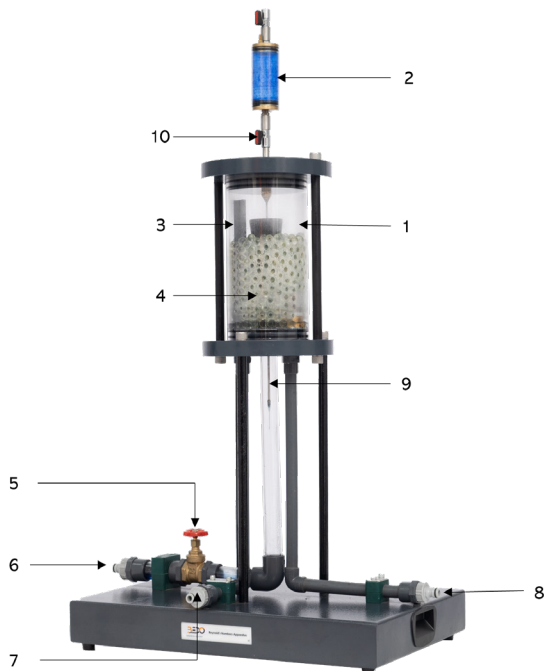
Pipe section

- » Test Pipe: inner Diam. 25mm

Tank for ink

- » capacity: approx. 250 mL

Components



1	Water tank
2	Ink tank
3	Control valves.
4	Glass balls
5	Draining valve
6	Drain outlet
7	Overflow disposing outlet
8	Water supply inlet
9	Test pipe
10	Ink discharge valve

Scope of Delivery

- Reynold's Numbers Apparatus (FM110)
- Hard copy user manual

Required of Operation

- Main Hydraulic Bench (FM100)

Options

- Digital Content (BI01)