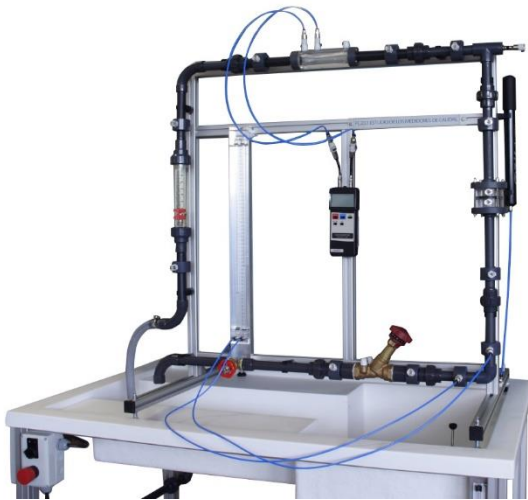




## STUDY OF FLOWMETERS



**DL DKL231**

The objective of this equipment is the study and comparison of some of the different types of existing flowmeters. The system includes several representative flow gauges such as a Venturi tube, a rotameter, a diaphragm, a globe valve and a Pitot tube placed in series to allow a direct comparison of results.

By doing some of the practices proposed, it is possible to understand the nature of fluids and the laws of statics, dynamics and thermodynamics.

It is also possible to easily observe general principles such as the laws of mass and energy conservation. With help of a regulating valve, it is possible to adjust the flow rate according to the needs of practice.

The results are displayed in the water column manometer and the supplied electronic differential gauge. Through these pressure gauges students can work with data taken from different strategic points of the piping.

### TRAINING OBJECTIVES

- Flow measurement comparison between the following elements:
  - Venturi tube
  - Rotameter
  - Diaphragm
  - Globe valve
  - Pitot tube
  - 90° elbow
- Load loss calculation for
  - Venturi tube
  - Rotameter
  - Diaphragm
  - Globe valve
  - Pitot tube
  - 90° elbow
- Demonstration of Bernoulli equation in a Venturi tube.
- Study of static, dynamic and total pressure.

For a better experience and visualization, the flow meters are built with transparent material.

### TECHNICAL DATA

Inner diameter: Main pipe:  $\varnothing$  25mm

Gauges:

- Water column manometer: 500mm
- Electronic differential pressure gauge

Pressure measuring points:

- Quick fittings with double closing.

Diaphragm:

- Hole diameter of the plate:  $\varnothing$  13mm
- Hole diameter of the plate:  $\varnothing$  15mm

Rotameter:

- Measuring range: 150 – 1500 l/min

Venturi tube:

- Throat  $\varnothing$ 12mm
- Inner diameter upstream:  $\varnothing$  21.2mm
- Upstream tapering: 22°
- Downstream tapering: 7°

Other elements:

- Pitot tubes.



# FLUID MECHANICS

## Necessary accessory:

### DL DKL014 – Hydraulic bench

The basic hydraulic bench is a simple, mobile, self-contained module that allows a supply of "hydraulic energy", i.e. an accurately controlled and measurable flow of water.

It includes two collecting tanks, a centrifugal pump, a flowmeter, a mobile framework on wheels, a set of valves and piping.

Or

### DL DKL011 – Hydraulic group

