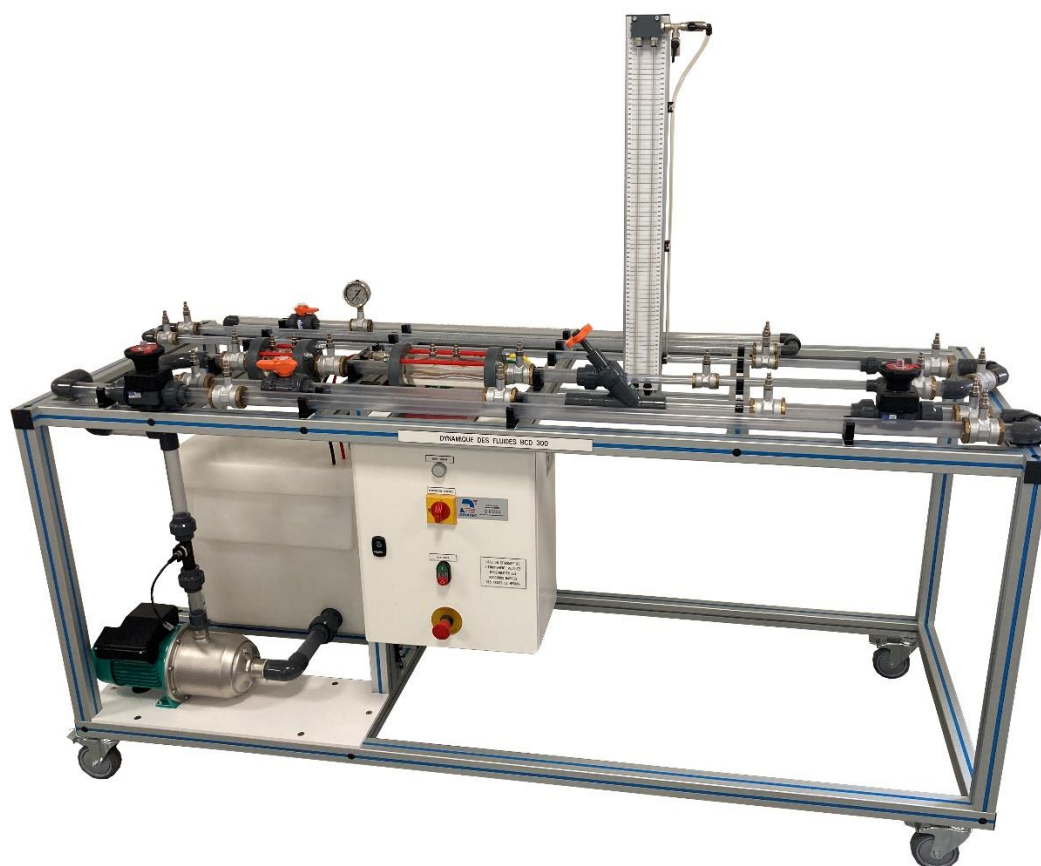


PRESSURE LOSSES AND FLUID MECHANICS TRAINER UNIT



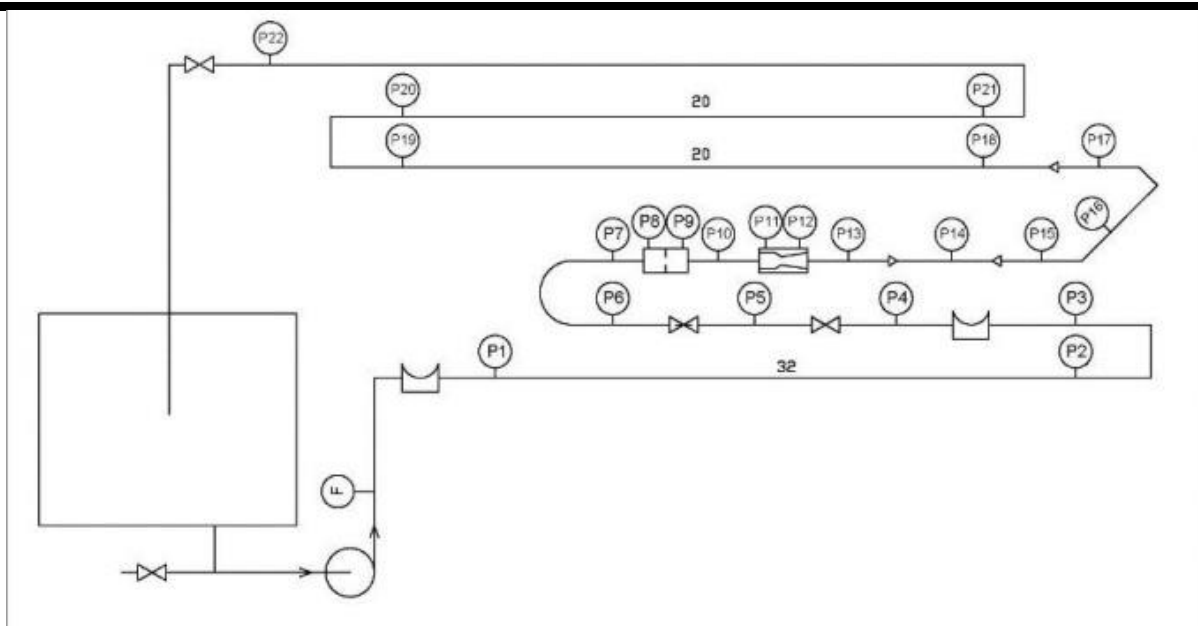
Experimental capabilities

- Study of regular pressure losses
- Piping of different diameters (DN15, DN25)
- Smooth or rough piping of the same diameter (DN15)
- Study of singular pressure losses
- Bends of different angles (180°, 135, 45°)
- Short radius bend (180°)
- Long radius bend (180°)
- Three different types of valves (diaphragm, ball and needle)
- Sudden increase in diameter (DN15 - DN25)
- Sudden decrease in diameter (DN25 - DN15)
- Bernoulli's Theorem
- Study of a transparent venturi
- Study of a transparent orifice plate flowmeter

Operating principle

The BCD300 trainer allows the study of the pressure losses of the various piping components (bends, fittings, valves and pipes). A pump sucks up the water contained in a tank and sends it to a hydraulic circuit comprising all the components. It is equipped with a differential pressure measurement socket with self-closing quick couplings that are perfectly waterproof and a water column manometer with graduation. The students will have to vary the water flow and measure the pressure losses of the different components. The bench is equipped with a flowmeter which allows to study the relationship between the flow and the pressure losses on each element. The robust design of this equipment makes it perfectly suited for school use. Its anodized aluminum structure on wheels makes it very robust as well as a great flexibility of integration into your premises. The manufacturing of this equipment meets the European machine directive.

Principle diagram



Technical details

The trainer is installed on an aluminum profile structure fitted with four directional castors with brakes.

Translucent PVC piping

Diaphragm flow control valve
Circuit pressurizing valve
21 pressure taps with self-closing connector

Horizontal worktop

Smooth pipe DN25 length 1.5m
Smooth pipe DN15 length 1.5m
Rough pipe DN15 length 1.5m
Bends of different angles (180° small radius, 180° large radius, 135°, 45°)
Three types of valves (diaphragm, ball, needle)
Increase and decrease in diameter (DN25 to DN15)
A transparent venturi and orifice plate

Centrifugal pump

Stainless steel pump
Maximum flow: 6m³/h
Maximum discharge pressure: 45 mCE
Electrical power: 0.75kW

Polyethylene water tank

Capacity: 75L
Drain valve in the lower part

Electronic flow meter

Measuring range: 5 – 85 L/min

Circuit output pressure gauge

Measurement scale: 0 - 6 bar

Differential pressure sensor

Measurement scale: 0 – 4 bar
Self-sealing quick couplings
Hose purge system

Water column manometer

Graduation from 0 to 700 mm
Self-sealing quick couplings

Electrical box :

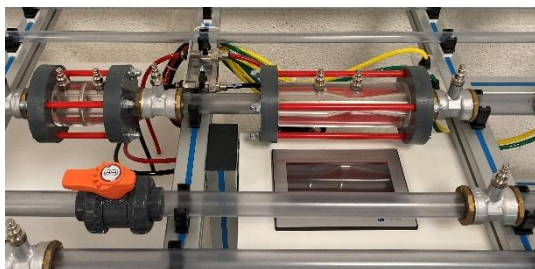
Steel electrical box with 30mA differential protection and emergency stop button
7" touch screen for displaying differential pressure and water flow

Illustration

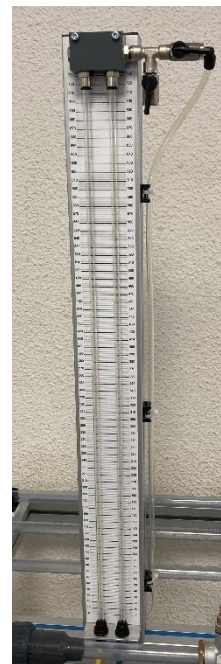
BCD300



Illustration of a pressure tap by self-closing quick coupling



Venturi, orifice and touch screen



Water column manometer

Services required

- Power supply: 230 V - 50 Hz - 6 A
- Electrical supply Type: 1-Phase + Neutral + Earth
- Water supply: 70L tank filling
- Dimensions: (LxWxH mm): 2090 x 790 x 1200
- weight (Kg): 110

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Wiring diagram
- Hydraulic diagram
- Certificate of conformity CE