

VERTICAL FLUID MECHANICS UNIT



Experimental capabilities

- Study of regular pressure losses
- Piping of different diameters (DN15, DN25, DN40)
- Piping smooth or rough of the same diameter (DN15)
- Study of singular pressure losses
- Elbows of different angles
- Short radius elbow
- Long radius elbow
- Two different types of valves (needle and ball valve)
- Sudden increase in diameter (DN15 - DN25)
- Sudden decrease in diameter (DN25 - DN15)
- Bernoulli's Theorem
- Study of a Plexiglas venturi
- Study of a Plexiglas diaphragm

Operating principle

The BCD500 bench allows the study of pressure losses of the different piping components (elbows, fittings, valves and piping systems) on a vertical panel. A pump sucks the water contained in a container and sends it in a hydraulic circuit comprising all the components.

It is equipped with a pressure tapping of differential measurement with self-sealing quick connectors perfectly with a watertight made of stainless steel of STAUBLI type allowing the pressure losses measurements on each item.

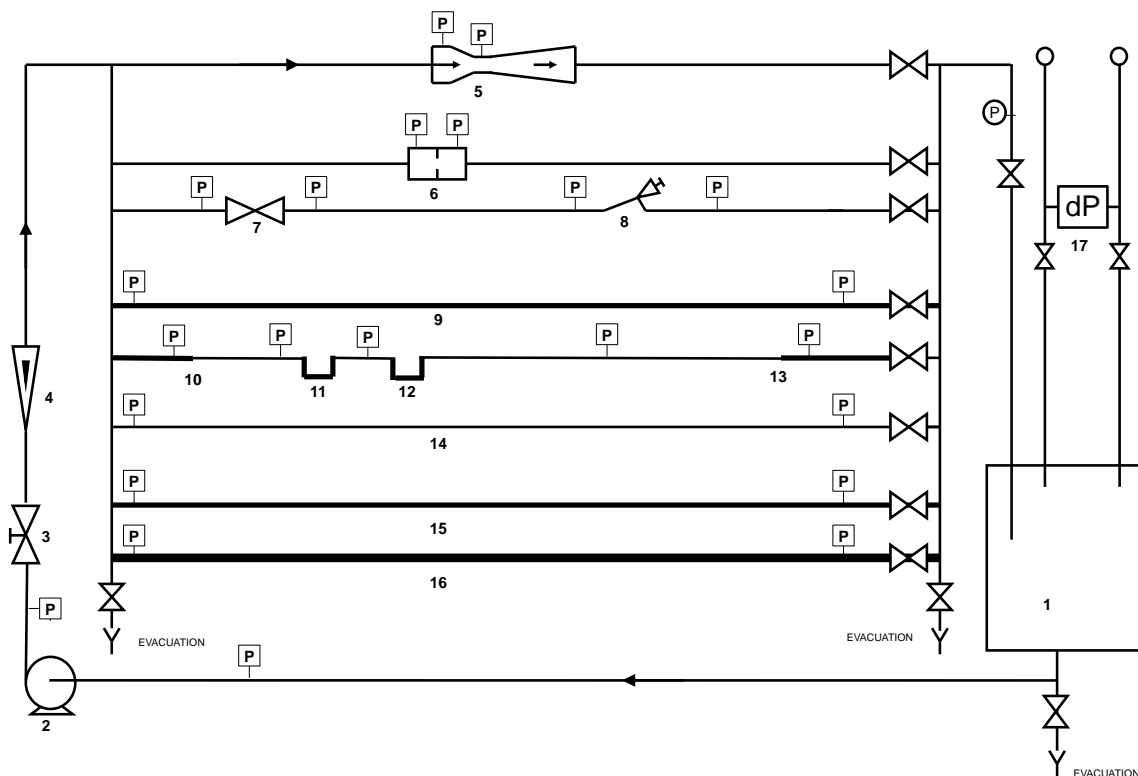
Students will need to vary the flow rate of water and measure the pressure losses of the different components.

The bench is equipped with a precision flow meter that allows to study the relation between flow rate and pressure loss on each item.

The robust design of this equipment makes it perfectly suited for use in schools.

Its anodized aluminum structure on multidirectional wheels with brakes makes it extremely robust as well as a great flexibility of integration into your premises. The manufacturing of this equipment meets the European machine directive.

Diagram of the installation



Technical specifications

VERTICAL WORKING PLANE :

1 water tank

Polyethylene with lid and drain valve
Volume 150L

2 Centrifugal pump

Body, stainless steel wheel and axle
14m³/h, 1,5kW, 47mCE
With on/off switch

3 diaphragm valve for flow control

4 Flowmeter in PVC 100-10000L/h

5 smooth piping DN25: venture Plexiglas

6 smooth piping DN25: Plexiglas diaphragm

7 smooth piping DN25: 1" Valve Bushel

8 smooth piping DN25: Valve Needle

9 PVC rough piping DN15, length 1,5 m equipped with two pressure taps

10 Sudden decrease in diameter DN25 to DN15 on smooth line

12 Four elbows long radius 90°, piping DN15 in smooth line

13 Sudden increase in diameter DN15 to DN25 in smooth line

14 PVC smooth piping DN15, length 1,5m with two pressure taps

15 PVC smooth piping DN25, length 1,5m with two pressure taps

16 PVC smooth piping DN40, length 1,5m with one pressure taps

17 Differential pressure sensor

Scale 0-4 bars, self-sealing quick connectors in stainless steel
And purge valves

Manometer at the circuit output

0 - 4 bars

Pressure valve on the circuit

Translucent pressure PVC piping

Illustration



Illustration self-sealing quick connectors in stainless steel

Services required

- Electrical supply : 230 VAC – 50 Hz – 10 A
- Electrical network : 1 phase + Neutral + Earth
- Water supply : 15 L/min – 3 bars
- Dimensions: (LxWxH mm): 2700 x 800 x 1900
- weight (Kg): 170

Documentation

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

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