

4 WATER PUMPS TRAINER



Experimental capabilities

- Study of three different types of pumps
- Study of 2 centrifugal pumps with identical characteristics
- Study of the curves QH of the pumps
- Study of performance of the pumps
- Study of the coupling series
- Study of parallel coupling
- Study of the curves network

Operating principle

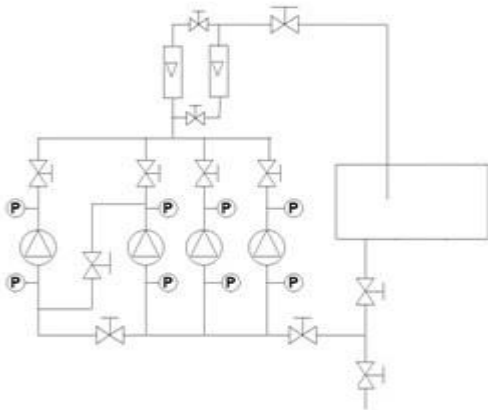
The BCP104 bench allows the study of three types of pumps with different characteristics.

It is equipped with four pumps, they can be studied alone and the two similar pumps can be coupled in series or in parallel. The students will have to select the different couplings and measure the following characteristics: flow rate, suction pressure, discharge pressure, rotation speed, electrical power for different operating points.

The bench has a tank for working under load and the pumps allow water to circulate in the circuit. 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 manufacture of this equipment meets the European machine directive

Illustrations



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

It includes an electrical box with general power disconnecter and 30mA differential circuit breaker.

A beige plastic feed tank

- tank in charge
- Capacity: 100L
- Side level indication
- Circuit drain valve

Pumps to study

- 2 closed impeller centrifugal pumps with stainless steel body
- 1 open impeller centrifugal pump with stainless steel body
- 1 multistage centrifugal pump with stainless steel body

Technical details

PVC float flowmeters

- 1 float flowmeter 2 to 20m³/h
- 1 float flowmeter 300 to 3000L/h

Piping

- PVC pipes and valves
- Diaphragm flow adjustment valve at discharge
- Butterfly-type adjustment valve on suction
- A valve set for series/parallel coupling of the two identical pumps

P: Manometer

- 8 manometers diameter 100mm with needles with glycerine
- 1 at the suction of each pump
- 1 at the discharge of each pump

Drives

- Electronic speed inverter
- Setpoint by potentiometer

Rotation speed

- Digital indicator of the rotation speed of one of the pumps in operation (selection by rotary switch)

Electric power

- Digital indicator of the power used by the pump(s) in operation

Services required

- Electrical supply: 230 VAC – 50 Hz – 20 A
- Electrical supply type : 1 phase + Neutral + Earth
- Water supply : 100L (tank filling)
- Water drain : on the floor
- Dimensions: (LxWxH mm): 1950 x 800 x 1900
- weight (Kg): 170

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

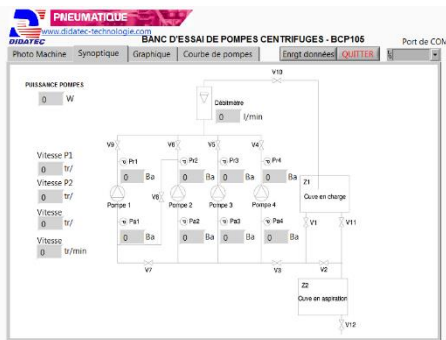
- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Hydraulic diagram
- Wiring diagram
- Certificate of conformity CE

BCP 105: Computer data acquisition option (not included)

- Data acquisition system of the bench including:
 - Digital flowmeter (x1) (replacing float flow meters)
 - Pressure sensor at the suction of the pumps (x4) (replacing the pressure gauges)
 - Pressure sensor at pump discharge (x4) (replacing pressure gauges)
 - Electrical power consumed by pumps (x1)
 - Pump rotation speed sensor
 - WIFI module for connection to a PC
 - Supervision software

• Ref: BCP 105

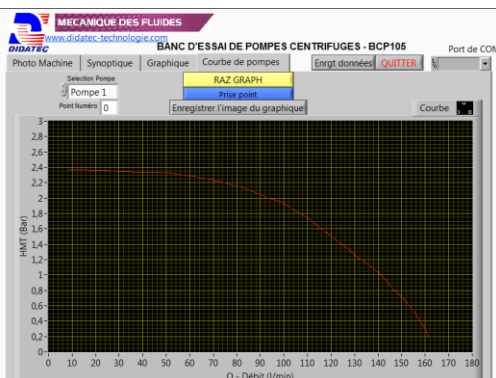
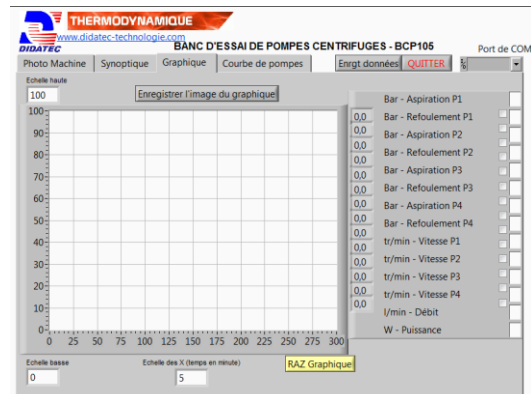
SOFTWARE SYNOPTIC PAGE:



In this window we find the synoptic of the machine with the location of the different measurements of the process and their values.

GRAPHIC PAGE OF THE SOFTWARE:

We find in this graphic window, the possibility of drawing measurement curves according to time by selecting the desired quantities.



SOFTWARE PUMP CURVE PAGE :

We find in this window, the possibility of drawing a QH pump curve in automatic.

Simply select a pump from the four present and fix the flow rate on the machine using the adjustment valve. Once the flow rate is fixed, the student records the measurement by clicking directly on "point taking". The curve is built on the graph.