

## 2 WATER PUMPS TRAINER WITH TORQUE MEASUREMENT



### Experimental capabilities

- Study of 2 centrifugal pumps with different characteristics
- Study of the QH curves of the pumps
- Study of serial coupling
- Study of parallel coupling
- Study of network curves
- NPSH study
- Plot of the characteristic curve at different rotational speeds
- Determination of the efficiency of electricity consumption / hydraulic power
- Study of the efficiency of a pump
- Mechanical torque measurement
- Visualization of the wheel of a pump by transparent housing

## Operating principle

The BCP200 bench allows the study of centrifugal pumps of different characteristics.

It is equipped with two pumps, the latter can be studied alone, coupled in series or in parallel. Students will have to select the different couplings and measure the following characteristics: flow, suction pressure, discharge pressure, rotational speed, electrical power, mechanical torque for different operating points.

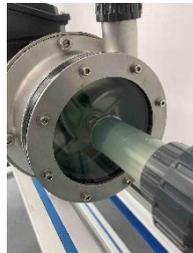
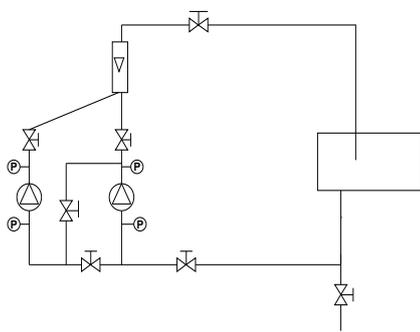
The bench has a tank for working in load and the pumps allow water to circulate in the circuit.

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.

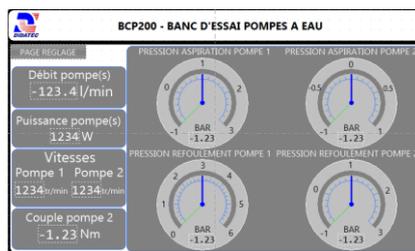
The manufacture of this equipment meets the European machine directive

## Illustrations



### Control panel

- With the elements necessary for the proper functioning and safety of the equipment.
- emergency stop button, GFCI 30 mA ...
- Potentiometer for adjusting the rotational speeds of the pumps deported to the control touch screen.
- Indicators of electrical power, pump rotation speeds, flow, torque, and pressures on the touch screen.
- 7" touch screen with synoptic, manometer page.



## Technical details

- 1. plastic feed tank**
  - Volume: 100 L
  - Lateral indication of the level
  - drain at the bottom
- 2. Pump 1**
  - stainless steel pump with transparent flange
  - 9m<sup>3</sup>/h, Hmt 8.4m, 2900 tr/min
- 3. Pump 2**
  - Cast iron body
  - 8.1m<sup>3</sup>/h, Hmt 6.3m, 1450 tr/min
  - balanced motor with torque measurement
- 4. Electromagnetic flow meter**
  - Scale: 0-300L/min
- 5. Circuits**
  - PVC piping and valves
  - Diaphragm discharge flow control valve
  - Graduated butterfly valve at the suction
  - A valve set for serial/parallel coupling

### P: Measurement of pump pressures

- 4 pressure sensors
- 2 to suction
- 2 to refoulement

### Drives

- Electronic variable speed drive
- setpoint by the touch screen

### Rotational speed

- Indicator of the speed of rotation of the pumps on touch screen

### Electric power

- Indicator of the power used by the pump (or pumps) in operation on touch screen

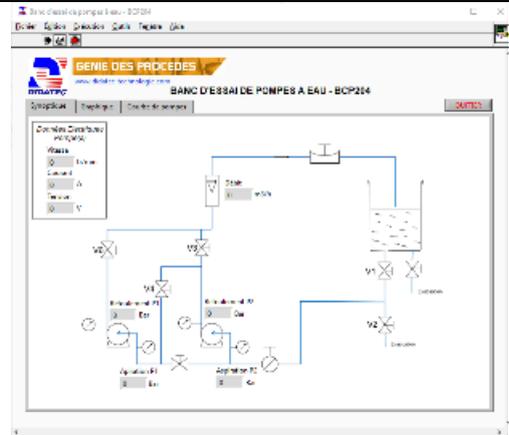
### Mechanical torque

- Mechanical torque indicator

# BCP200



## Options (not included)

BCP201	<p>Data acquisition software</p> <ul style="list-style-type: none"><li>-communication by WIFI</li><li>-Main window with diagram and display of the data</li><li>-second window with real time graph of the data</li><li>-measurement displayed : 4 pressures, 1 flow, 2 rotational speed, 2 electrical power, 1 torque</li><li>-data can be saved to an excel file</li></ul>	
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## Services required

## Documentation

- Electrical supply: 230 VAC – 50 Hz – 16 A
- Electrical supply type : 1 phase + Neutral + Earth
- Water supply : 100L filling of the tank
- Water drain: at ground level
- Dimensions (L x W x H mm) : 2050 x 790 x 1970
- Weight (Kg): 180

- User's manual
- Pedagogic manual
- Technical file of the components
- Lab exercises
- Wiring diagram
- Fluidic diagram
- 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