

2 WATER PUMPS DIGITAL TRAINER



Experimental capabilities

- Identification of the components of a pumping system
- Study of 2 centrifugal pumps of identical characteristics
- Study of the QH curves of the pumps
- Study of serial coupling
- Study of parallel coupling
- Study of the efficiency of a pump

Pumps operate at variable speed

Operating principle

The BCP203 bench allows the study of centrifugal pumps of the same characteristics at variable speed.

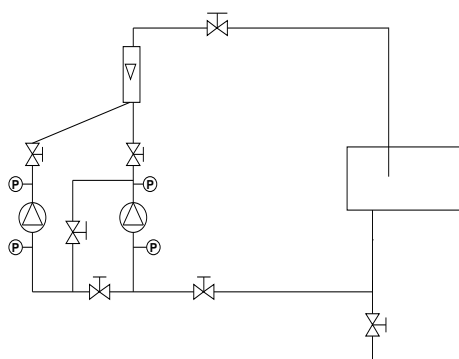
It is equipped with two pumps, the latter of which can be studied alone, coupled in series or in parallel. Students will have to select the different couplings and measure the following characteristics: flow, suction pressure, discharge pressure, electrical power for different operating points.

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

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

Its anodized aluminum structure gives it great robustness and flexibility of integration into your premises. The manufacture of this equipment complies with the European machinery directive.

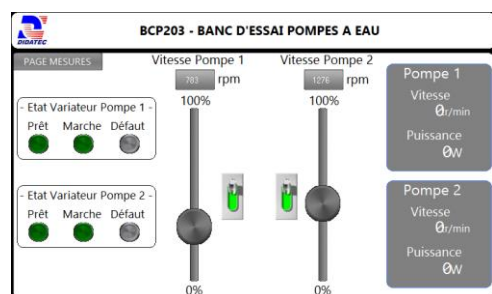
Illustrations



The trainer has a power supply box in accordance with European electrical standards with general power disconnector, white voltage presence light, emergency stop button, ground connection and differential protection.

The box has a 7-inch touch screen that allows you to adjust the speed of rotation of the pumps, to turn them on and which displays the following measurements:

- general flow rate
- rotational speed pump 1
- rotation speed pump 2
- Instantaneous electric power pump 1
- Instantaneous electric power pump 2
- Pressure suction pump 1
- Pressure discharge pump 1
- Pressure suction pump 2
- Pressure discharge pump 2



Technical details

1. Plastic feed tank:

- Volume: 55 L
- Lateral indication of the level
- Drain valve

2. Two variable speed centrifugal pumps:

- Stainless steel cast body
- Stainless steel axle
- Stainless steel turbine
- 4 m³/h, 20 mCE, 2900 tr/min, 0,37 kW
- variable speed drive with speed adjustment by the screen

3. Vortex electronic flow meter:

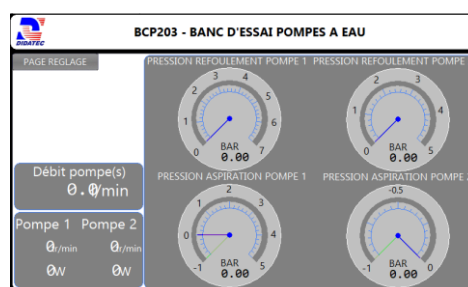
- Signal output 4... 20 mA
- Scale: 9 - 150 L/min

4. Circuits :

- PVC piping and valves
- Discharge diaphragm flow control valve
- A ball valve set for series/parallel coupling

P: Digital pressure sensors:

- 4 Digital pressure sensors
- 2 Aspiration
- 2 Refoulement



Data acquisition system

The trainer is also equipped with supervision and parameterization software. The connection to the PC is made by an RJ45 port

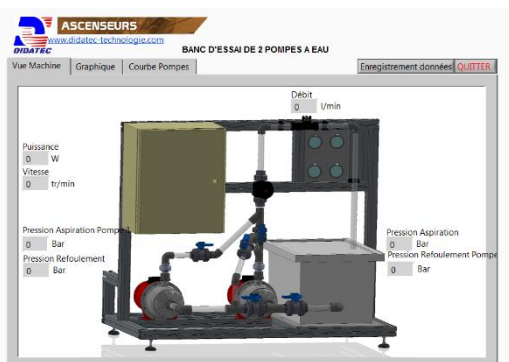
BCP203



or by WIFI. The software is divided into three parts:

MACHINE VIEW:

We find in this window the 3D of the machine with the location of the different measurements of the process and their values.

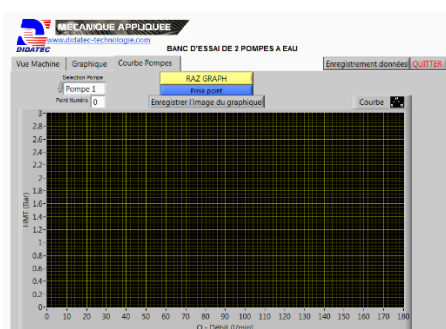
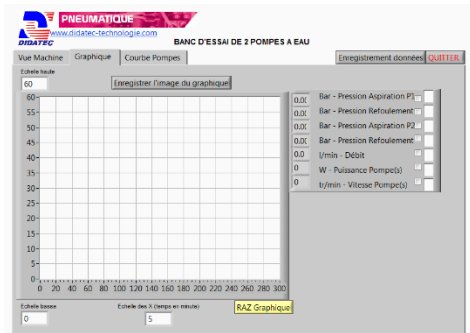


PUMP CURVE:

We find in this window, the possibility to draw a QH pump curve in automatic. Simply select one pump from the two present and fix the flow rate on the machine using the control valve. Once the flow rate is set, the student records the measurement by clicking directly on "point point". The curve is constructed automatically.

GRAPHIC :

We find in this graphical window, the possibility to draw measurement curves as a function of time by selecting the desired quantities.



Services required

- Electrical supply : 230 Vac – 50 Hz – 10 A
- Electrical network : 1 phase(s) + Neutral + Earth.
- Water supply : 15 L/min – 3 bars
- Dimensions: (LxWxH mm): 1100 x 650 x 940
- weight (Kg): 80

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
- Data acquisition software
- Certificate of conformity CE