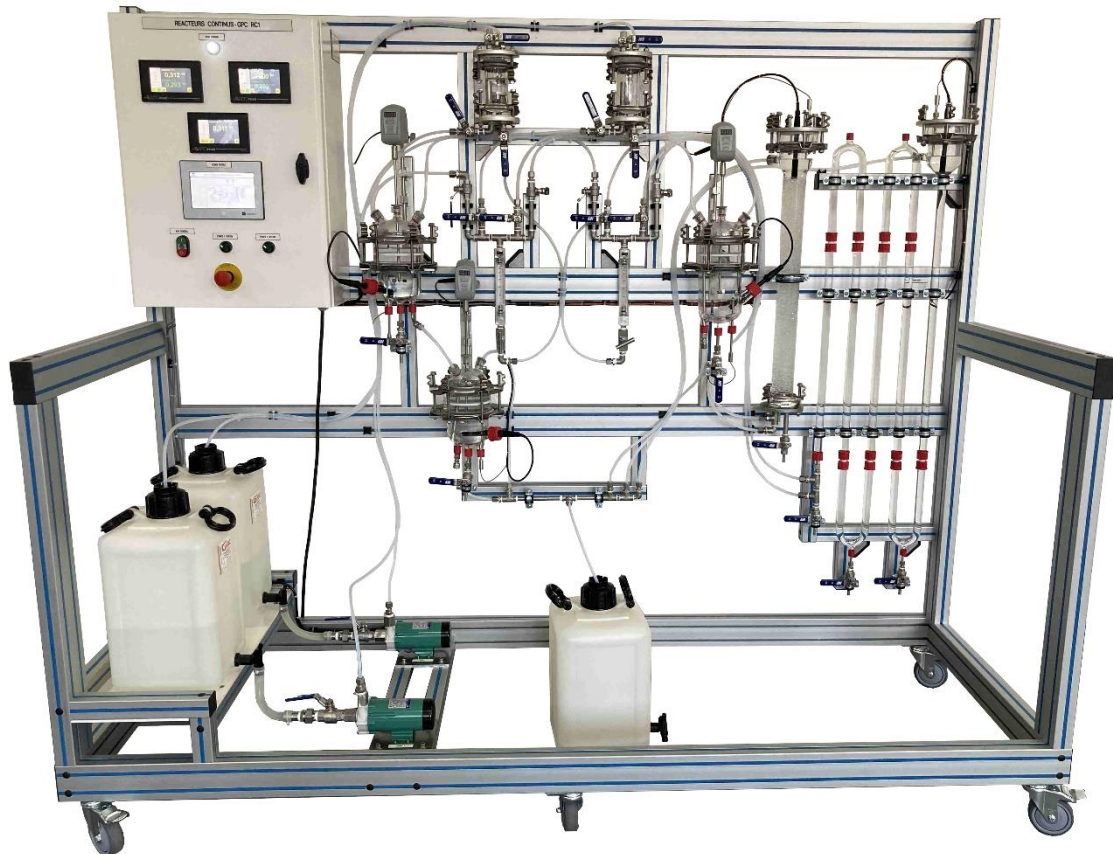


COMPARISON OF CONTINUOUS REACTORS



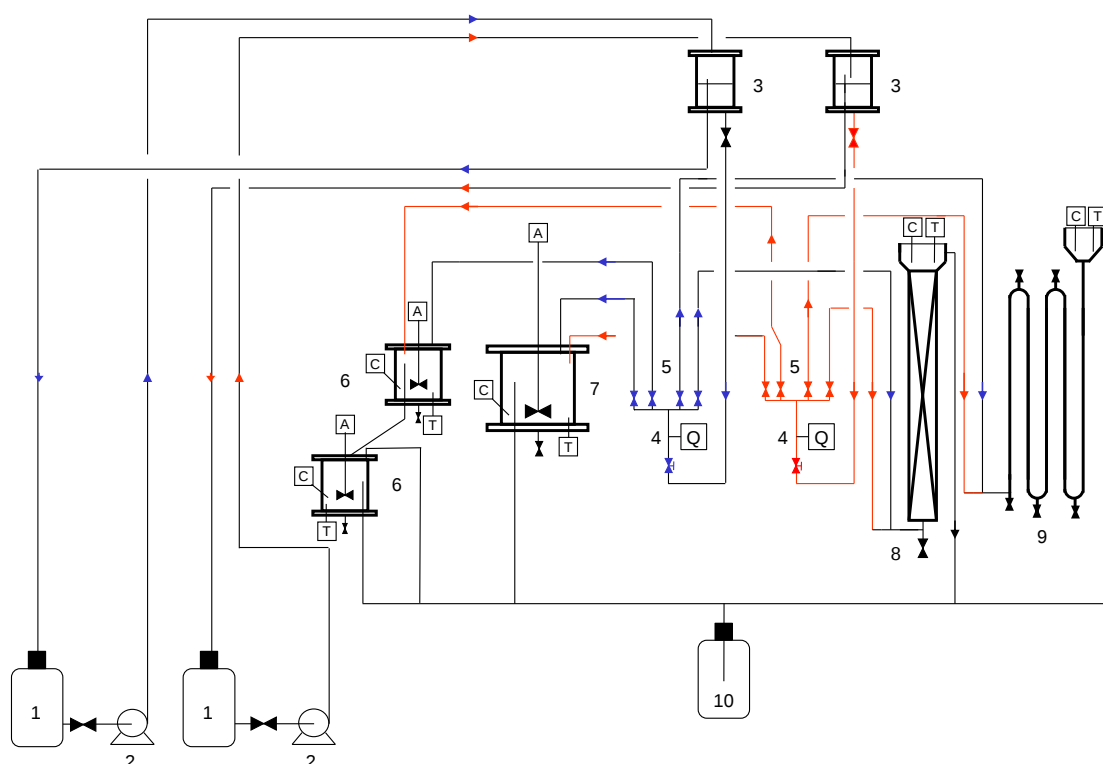
Experimental capabilities

- Mass balance: transfer of material
- Hydrodynamic study of reactors
- Determination of the conservation rate $T = C_t / C_0$
- Determination of the residence time
- Effect of stirrer action (comparative study with or without stirrer)

Operating principle

The GPCRC1 bench allows the study of the continuous reactor comparison of the same volume.
The purpose of this bench is to study reactor operation continuously.
It is equipped with two tanks of product to mix. Each product is taken back to a pump and sent into a barometric leg pot.
A set of valves then makes it possible to send the products towards the different reactors. Each reactor type is equipped with a conductivity sensor at the outlet. The products at the outlet of the reactor are sent to a storage tank.
The robust design of this device makes it suitable for use in schools. The equipment is set up on an Anodized aluminium frame on casters wheels. This gives it great strength and a flexibility of integration into your premises. The manufacture of this equipment complies with the European standard for machinery manufacturing.

Diagram



Technical details

1. Reagent supply tank

- Material : polyethylene
- Volume 20 L

2. reagent supply pump

- body made of polypropylene
- $Q_{\max i} = 900 \text{ L/h}$

3. constant flowrate tank for the reagent

- Material : borosilicate glass
- DN : 50 mm

4. float flowmeter

- float made of stainless steel
- with stainless steel valve

5. Manifolds

- with 4 $\frac{1}{4}$ turn valves to send the reagent in the reactors. Selection of the reactor

6. Reactor 1: perfectly agitated

- Material : borosilicate glass
- two cascading reactors volume 0,5 L each
- Equipped with a variable speed stirrer

7. Reactor 2: perfectly agitated

- Material : borosilicate glass
- volume 1 L

8. Reactor 3: tubular with high dispersion

- Material : borosilicate glass
- DN 50 mm
- length : 550 mm
- packing : Raschig ring

9. Reactor 4: tubular with high dispersion

- Material : borosilicate glass
- DN 15 mm
- length : 6000 mm
- with air drain and bottom drain

10. Collection tank

- Material : polyethylene
- Volume : 20 L

5 conductivity sensors $10 \mu\text{S/cm}$ à 100 mS/cm with temperature sensor Pt100

Services required

- Electrical supply: 230 Vac – 50 Hz – 10 A
- Electrical network: 1 live(s) + Neutral + Earth.
- Dimensions: (LxWxH mm): 2290 x 800 x 2145
- weight (Kg): 150

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

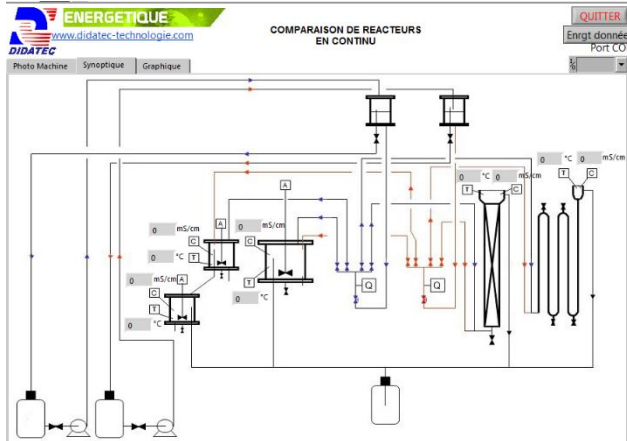
Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Supervising software
- Electrical diagram
- Fluidic diagram
- Certificate of conformity CE

Data acquisition system

The bench is also equipped with supervision and parameterization software. The connection to the PC is made via WIFI. The software is divided into two parts:

Diagram:



We find in this window the synoptic of the machine with the location of the various measures of the process and their values

Graph:

In this graphic window, we find the possibility of drawing measurement curves as a function of time by selecting the desired magnitudes and saving the measurements

