GPCE11

Liquid-Liquid extraction pilot unit - rotative disc technology

Experimental capabilities

- **Study of a liquid-liquid extraction pilot**
- **Study of rotating disk technology**
- **Study of the efficacy of the extraction column**
- **Study of mass balance**
- **Calculation of the number of theoretical stages**

DIDATEC– Zone d'activité du parc – 42490 FRAISSES- FRANCE
Tél. +33(0)4.77.10.10.10 – Fax+33(0)4.77.61.56.49 – www.didatec-technologie.com
email : service_commercial@didatec-technologie.com

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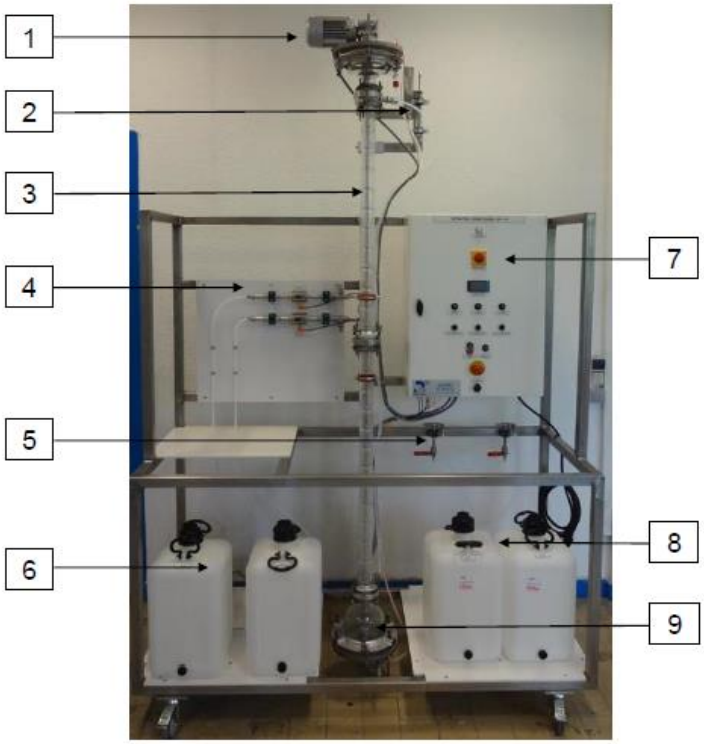
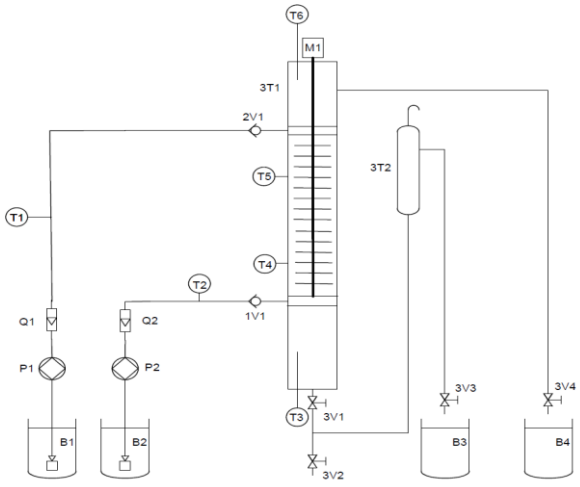
Operating principle

The GPC E11 bench allows the study of a liquid-liquid extraction system with rotating discs.
A gear pump provides supply of the mixture through the top of the column. A second gear pump ensures the solvent supply from the bottom of the column. The mixture and the solvent therefore will circulate at counter-current, which will allow the solvent to extract the acetic acid from the water by shearing of the discs on the liquid.
Students will study the liquid-liquid extraction system.
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.

Illustrations





Technical details

1. **Agitator**
   - Composed of a variable speed geared motor unit

2. **Extraction leg**
   - Material: borosilicate glass
   - Allows the interface level control

3. **Extraction column**
   - Material: borosilicate glass
   - DN : 50 mm
   - Height: 2000 mm with 25 stages

4. **Digital flowmeters**
   - Scale: 0-25 L/min

5. **Sample taking valve**
   - Extract and raffinate

6. **Two supply bins**
   - Material: polyethylene
   - Volume : 35 L

7. **Electrical box**

8. **Two recovery bins**
   - Material: polyethylene
   - Volume : 35 L

9. **Glass decanter**
   - Volume : 3 L

Two gear pumps
- With controllable variable speed drives

Temperature probes Pt100
T1 : Base
T2 : 1/3 lower of the column
T3 : 1/3 higher of the column
T4 : Column head
T5 : Supply of the mixture
T6 : Solvent supply

System of acquisition and computerized control
Control software and data acquisition

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Services required

- Electrical supply : 230 Vac – 50 Hz – 20 A
- Electrical network : 1 phase) + Neutral +
- Dimensions: (L x W x H mm): 1800 x 760 x 2800
- weight (Kg): 200

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

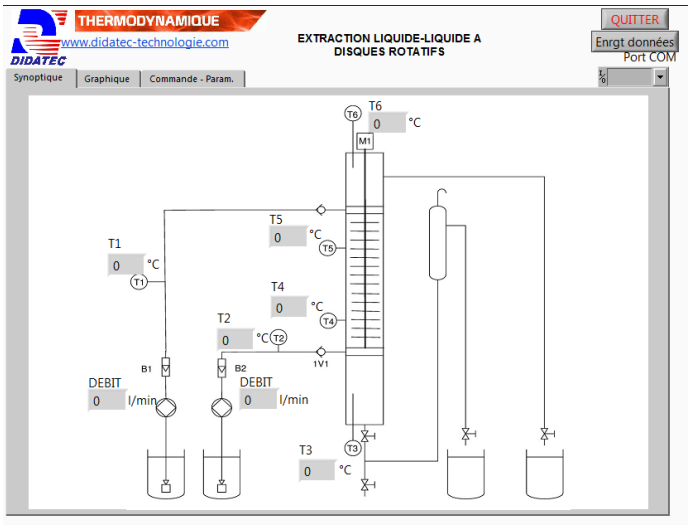
Documentation

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

Monitoring: Parameter setting, Plot of curve, control

The bench is also equipped as standard with a monitoring and configuration software. The connection towards the PC is made via a standard USB port. The software is divided into three parts:

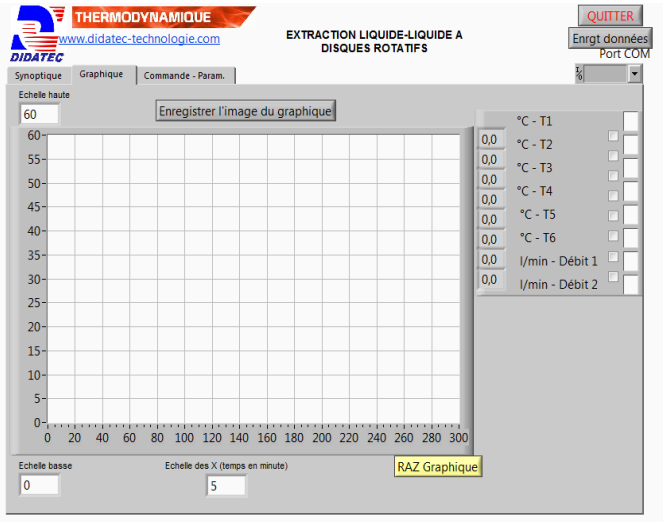
SYNOPTIC:



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

GRAPH:

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



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CONTROL-PARAMETER:

We find in this tab, the possibility to control via the supervision the powering and adjusting the speed of the pump 1, pump 2 and agitator