

BOILING PROCESS



Exemple de réalisation similaire

Experimental capabilities

- Visualization of the different forms of boiling
- Heat transfer
- Effect of Temperature and Pressure on Boiling
- Works with R123zd fluid

Operating principle

The BET030 trainer allows the study of boiling by an experiment on the R1233zd fluid. The fluid is contained in a tank that can be pressurized. A heating element located in the liquid triggers the boil under different conditions. An exchanger in the upper part allows the vapours to be condensed. The user will be able to visualize the different forms of boiling because the container is made of glass.

The bench is fully instrumented to analyse the parameters and make assessments.

The rugged design of this equipment makes it perfectly suited for use in a school setting.

Its anodized aluminum structure on feet gives it a very high robustness as well as great flexibility of integration into your premises. The manufacture of this equipment complies with the European Machine Directive.

Technical details

The bench is installed on an aluminium profile structure equipped with four non-slip feet and includes:

1. A glass test cylinder with 304L stainless steel flanges with a volume of 2.8L including :
 - a 300W heating element with integrated internal probe
 - a water-cooled copper coil exchanger
 - a vapor temperature probe (Pt100)
 - a liquid temperature probe (Pt100)
 - a cylinder pressure sensor (0-6 bar)
 - R1233zd fluid
 - a safety valve set at 4 bar
 - a 3.8 bar safety pressure switch
2. A cooling water circuit including:
 - a needle water flow control valve
 - a 0.05 to 1.8L/min flow meter
 - a temperature sensor at the inlet of the exchanger (Pt100)
 - a temperature sensor at the outlet of the exchanger (Pt100)
3. A 7-inch color touch screen for displaying measurements on a diagram of the installation:
 - 4 Pt100 temperature probes (water and fluid)
 - 1 temperature sensor heating resistor (Tc type K)
 - 1 cylinder pressure
 - 1 cooling water flow
 - 1 electrical power of the heating element
4. An electrical control area including:
 - a general power supply switch
 - a white voltage presence light
 - a button to power the machine
 - a potentiometer to adjust the heating power of the resistor.
5. Data acquisition software (see details on the next page)

Services required

- Electrical supply : 230 Vac-6A-50 Hz
- Water supply : 2 L/min / max 15°C
- Dimensions: (LxWxH mm): 670 x 680 x 700
- weight (Kg): 40

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

- Instruction manual
- Pedagogical manual
- Technical documentation of components
- Lab exercises
- Electrical diagram
- Fluidic diagram
- CE Certificate of Conformity

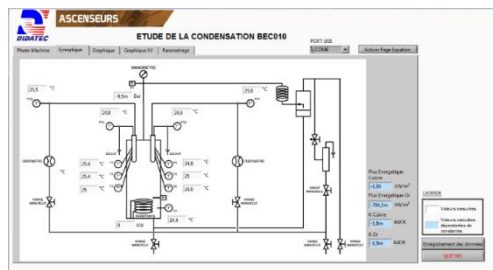
BET030



Data acquisition software

The bench is equipped with data acquisition software as standard. The connection to the PC is made by WIFI. The software is divided into four parts:

SYNOPTIC :



In this window, you will find the synoptic diagram of the machine with the location of the different process measurements and their values.

GRAPHIC :

In this graphic window, we find the possibility to draw measurement curves as a function of time by selecting the desired values.

