

STUDY OF FLUIDIZATION OR OF DRYING IN FLUIDIZED BED



Experimental capabilities

- Study of the behavior of alumina in fluidized bed
- Study of the flow rate and the pressure of the air on fixed or fluidized product
- Heat balance
- Operation of the humid air diagram
- Pressure losses monitoring

Operating principle

The GPCFL2 bench allows the study of fluidization.

After expansion of the compressed air 1, we dry the air through a line cartridge 2 in order to improve the subsequent drying.

Then we heat the air in an air heater 4: the output temperature is regulated, the humidity input and output are measured.

The air arrives in the enclosure 5 hot and dry, it fluidizes the humid alumina and dries it

We control the pressure losses as well as the moisture input and output of the container 5.

The air exits cooled and passes into a cyclone in order to send air free of dust in the atmosphere.

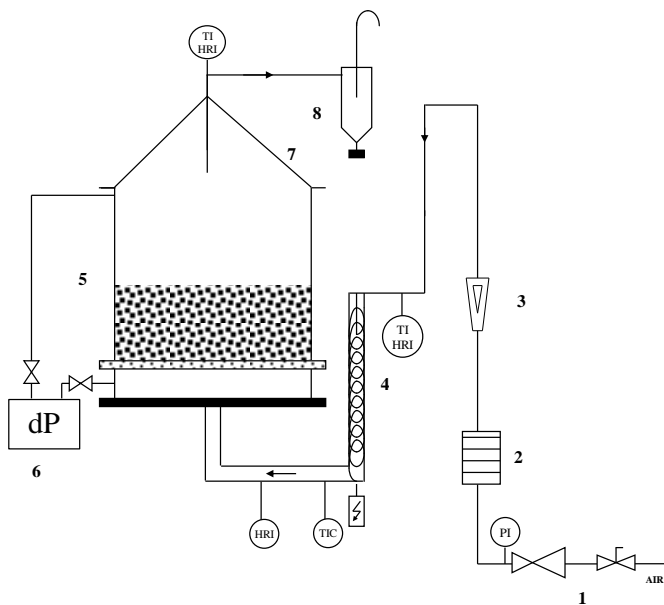
The robust design of this equipment makes it perfectly suited for school use.

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

Technical details



3. Two air flow rate measurements

- Small and large scale

4. Air heater

- Power 2000 W to 150 °C
- Temperature safety
- Stainless steel heating elements

5. Test container

- Stainless steel 316L
- Air distribution chamber in the lower part
- Bed support grid in bronze

6. Digital differential pressure sensor

- Measurements of pressure losses between the input and the output of the fluidization vessel

7. Removable cover

8. Cyclone of gas-solid separation

- Borosilicate glass

Instrumentation:

- Measurement of temperature and inlet air humidity and outlet of the container and input heater
- PID Temperature regulation output of the heating element by variation of power
- Safety in temperature on the heating element
 - 1 Pt 100 probe heater output

The bench is installed on an aluminum profile structure equipped with four directional braked casters.

It has an electrical box with a main power disconnect switch and a 30mA differential circuit breaker.

1. Air network

- Inline filter
- Expansion valve regulator
- Adjustment valve

2. Dryer of compressed air

- Drying by adsorption
- Carter aluminum

GPCFL2



Services required

- Electrical supply : 400 Vac – 50 Hz – 16 A
- Electrical network : 3 phase(s) + Neutral + Earth.
- Compressed air supply: 6-8 bars (dry air)
- Dimensions: (LxWxH mm): 1400 x 700 x 1800
- weight (Kg): 90

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
- Fluidic diagram
- Certificate of conformity CE