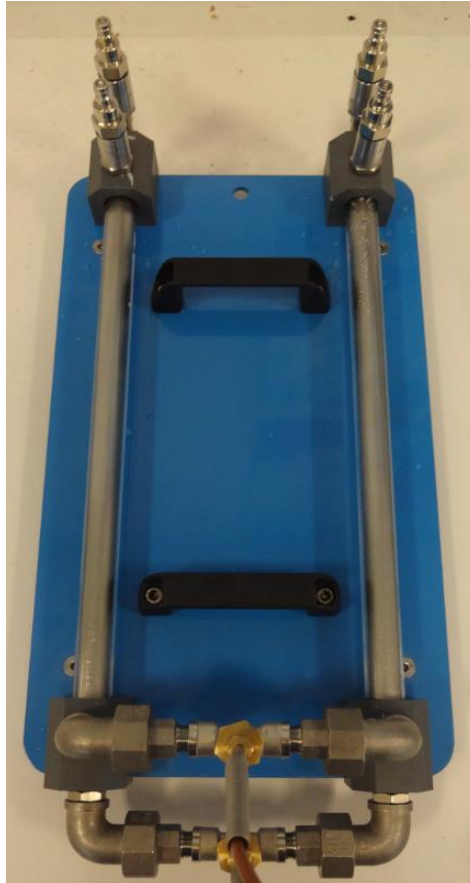


CONCENTRIC TUBE HEAT EXCHANGER



Experimental capabilities

In conjunction with BET 011 supply unit:

- **function and behaviour during operation of a tubular heat exchanger**
- **plotting temperature curves**
- **in parallel flow operation**
- **in counterflow operation**
- **calculation of mean heat transfer coefficient**
- **comparison with other heat exchanger types**

Operating principle

The BET 012 is part of a series of units enabling experiments to be performed on different heat exchanger types. In conjunction with the BET 011 supply unit, which has a hot and cold water circuit and all of the necessary connections, the experimental unit is ideally suited for investigating the functioning and behaviour of a tubular heat exchanger in operation.

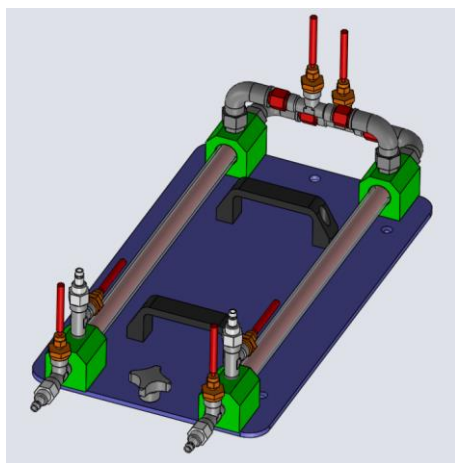
The BET 012 is connected to the BET 011 using quick-release couplings. Hot water flows continuously through the inner tube and cold water through the outer tube. Part of the thermal energy of the hot water is transferred to the cold water. Valves on the supply unit are used to adjust the flow rates of hot and cold water. The supply hose can be reconnected using quick-release couplings, allowing the flow direction to be reversed. This allows parallel flow and counterflow operation. Temperature sensors for measuring the inlet and outlet temperatures are located at the supply connections on the BET 011. The robust design of this device makes it suitable for use in schools.

The equipment is set up on an steel coated frame. The frame is also equipped with adjustable feet with rubber to avoid vibrations.

This gives it great strength and a flexibility of integration into your laboratory.

The manufacture of this equipment complies with the European standard for machinery manufacturing.

Illustrations



Technical details

- Tubular heat exchanger for connection to BET 011
- heat transfer areas :
 - o **-Inner tube:**
 - o Material: stainless steel
 - o $\text{-}\varnothing \text{ ext} = 12 \text{ mm}, \varnothing \text{ int} = 10 \text{ mm}$
- Outside tube:
- Material: stainless steel
- $\varnothing \text{ ext} = 20 \text{ mm}, \varnothing \text{ int} = 16 \text{ mm}$
- mean transfer area: 270cm^2
- cold water supply from BET 011
- hot water supply from BET 011
- Parallel flow and counterflow operation possible
- Recording of temperature using BET 011
 - o 4 sensors: inlet and outlet
 - o 2 sensors: intermediate point cold and hot water
 - o T thermocouple type
 - o Input and output of each circuit of the exchanger

Services required

- Hot Water supply : BET 011
- Cold water supply network: BET 011
- With characteristics: 2 L/min – 3 bars
- Or cold water supply: STL 050 (not included)
- Dimensions : (L x W x H mm) : 400 x 230 x 90
- weight (Kg): 4

Documentation

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

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