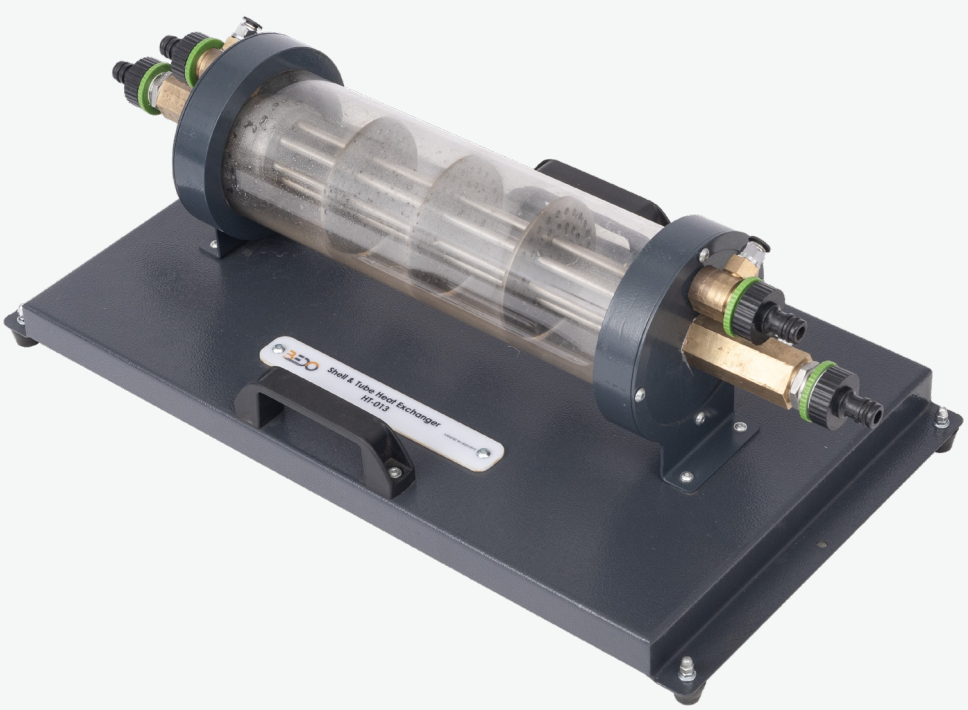
HT112

Shell & Tube Heat Exchanger

Overview

The shell and tube heat exchanger is one of the most popular types of exchanger, this training module demonstrates the function and the working principle of these heat exchange systems consisting of vessel and bundle of tubes. This educational module must be connected to the heat exchanger service unit in order to supply it with the cold and hot water streams in order to investigate its operation.



Specifications

- The module is ideally suited for investigating the functioning and behavior of a plate heat exchanger in operation.
- The unit is connected to heat exchanger supply unit using quick-release couplings.
- The plate heat exchanger is made up of ten profiled plates with water flowing through the spaces between them.
- The plates are soldered in such a way that two separate flow channels are formed.
- The flow channels are one cold flow channel and one hot flow channel, in an alternating arrangement.
- Part of the thermal energy of the hot water is transferred to the cold water.
- Flow regulation 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.
- The supply hose allows cross parallel flow or counter flow operation.

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- The temperature sensors for measuring the inlet and outlet temperature are located in the heat exchanger supply unit.
- Temperature curves are plotted and displayed graphically.
- The measured values can be recorded and processed using data acquisition software in the heat exchanger supply unit.
- The mean heat transfer coefficient is calculated as a characteristic variable.
- Hot and cold water is supplied from heat exchanger supply unit.

Experiments

- Function and behavior during operation of shell and tube heat exchanger.
- Plotting temperature curves:
  - » In cross parallel flow operation.
  - » In cross counterflow operation.
- Calculation of mean heat transfer coefficient.
- Comparison with other heat exchanger types.

Technical Data

Heat transfer surface: 0.0545 m^2

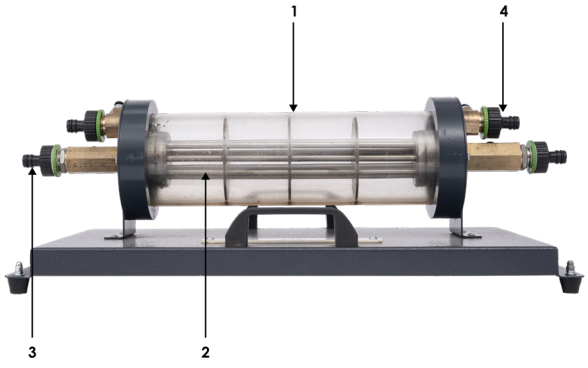
Tube bundle, stainless steel

- Ø outer: 8mm / Inner Diam.: 6mm
- wall thickness: 2mm
- Tubes, 7 / Length: 31cm

Shell, transparent (PMMA)

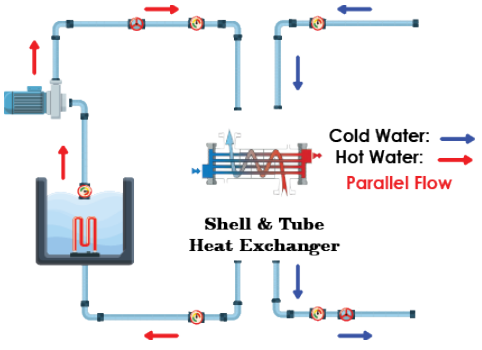
- Ø outer: 110mm
- wall thickness: 3mm / Length: 35.5cm

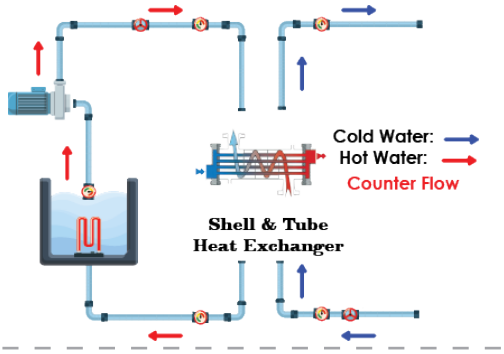
Component



1	Shell side
2	Tube bundle side
3	Tube side water connection
4	Shell side water connection

Schematics





Scope of Delivery

- Shell & Tube Heat Exchanger (HT112)

Required for Operation

- Heat Exchanger supply unit (HT109)

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