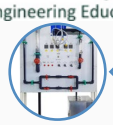

Plate Heat Exchanger (SMT-HT-40)

This heat exchanger is a set of metal plates separated by spacers (gaskets). The plates and gaskets have holes that make the hot and cold flow run on alternate sides of the plates, therefore transferring heat. The metal plates have flow disturbers on their sides to help improve the heat transfer.

The equipment consists of hot water tank with built-in heater. A centrifugal pump draws water and delivers it to the heat exchanger. Laboratory tap water is used for cold water supply. Flowmeters/flow sensors are installed to measure flow rate for hot and cold water. Temperature sensors are installed to measure hot and cold temperature at both inlet and outlet of heat exchanger. A 3KW heater is used to heat the water inside the hot water tank. Electronic safety is installed to protect heater from dry run. A thermostat keeps the hot water temperature constant

TECHNICAL SPECIFICATIONS

Specifications:

- Hot water circuit with tank, heater, temperature controller, pump and protection against lack of water.
- Temperature controller controls the temperature of hot water
- Flow adjustable using valves.
- Stainless steel hot water tank.
- Parallel flow and counter flow operation possible
- Sensors record all relevant data visualised on displays in the process schematic.
- The cold water is supplied and disposed of via the laboratory network
- A low level in the hot water tank will cut the electrical supply to the heater and the pump.

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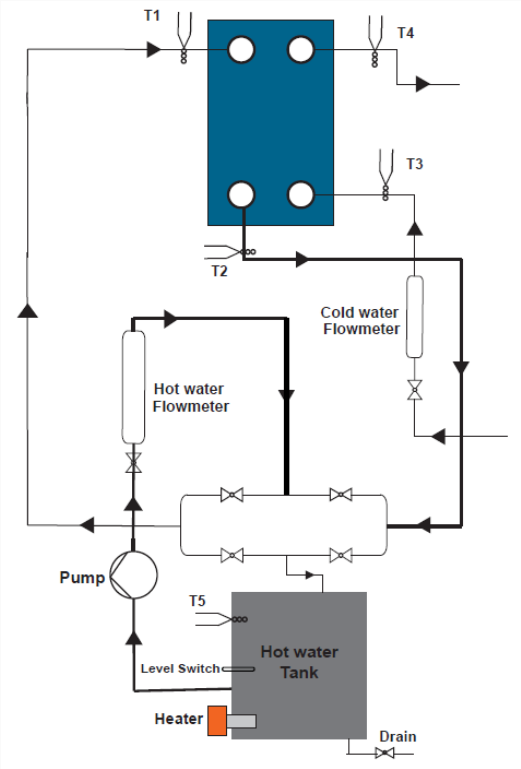
Technical Data:

- Stainless steel plates
  - Plate height: 300-400mm
  - Plate width: 100-150mm
  - No. of plates: 14-18
- Pump
  - Power consumption: 0.25hp
  - Max. flow rate: 12 lpm
- Heater
  - power output: 3kW
  - thermostat: 0 to 70°C
- Hot water tank: approx. 20L

- Measuring ranges
  - Temperature: 4x 0 to 100°C
  - Flow rate: 2x 2 to 8 lpm



Experimental Data:

- Function and behaviour during operation of plate heat exchanger
- Plotting temperature curves:
  - in cross parallel flow operation
  - in cross counter flow operation
- Calculation of mean heat transfer coefficient

Requirements

- 220V electrical supply
- Cold water supply via the laboratory network.

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