

## Series WL 110 Heat exchanger with supply unit



### Teaching the fundamentals of heat transfer through experiments

Clear, simple, reliable, progress tracking

WL 110 Heat exchanger supply unit with the WL 110.03 Shell & tube heat exchanger



### The supply unit can accommodate four different types of heat exchangers

Perfect educational concept: modular, flexible, versatile

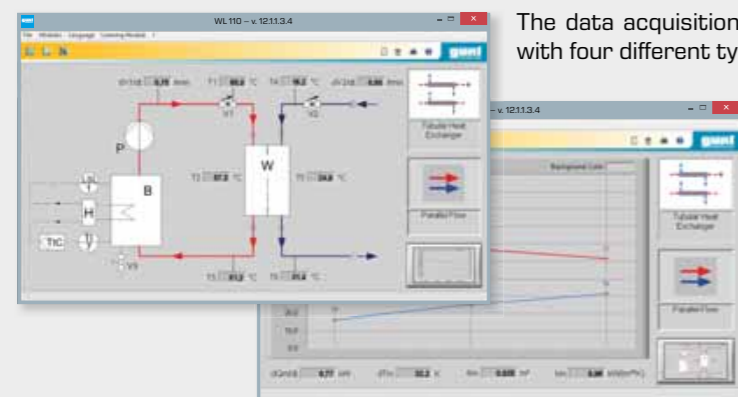
### WL 110.20 Water chiller for WL 110



The cold water needed for all the experiments is usually supplied from a laboratory tap. However when the ambient temperature in the laboratory is too high, the water chiller is recommended for reasonable experimental conditions.

Hot water is also needed for the experiments. It is supplied from the service unit WL 110.

### Software for data acquisition



The data acquisition software supports the complete range of experiments with four different types of heat exchangers.

- temperature curves along the heat exchanger
- selectable parallel flow or counterflow operation
- calculation of heat flows
- calculation of mean heat transfer coefficient
- calculation of efficiency

Convenient connection to any computer via USB.

### Interchangeable accessories



WL 110.01  
Tubular heat exchanger



WL 110.04  
Stirred tank with double jacket and coil



WL 110.02  
Plate heat exchanger



WL 110.03  
Shell & tube heat exchanger

### Learning objectives

- function and behaviour during operation of different heat exchangers
- plotting temperature curves
  - ▶ in parallel flow operation
  - ▶ in counterflow operation
- calculation of mean heat transfer coefficient
- comparing different heat exchanger types

### Didactic advantages:

#### ideally suited for student-centered experiments

A small group of 2 to 3 students can independently and conveniently go through the various experiments.

The lecturer can demonstrate characteristic aspects of heat exchangers in front of a bigger audience when using the data acquisition software and a video projector connected to a PC.

The well-structured instructional material sets out the fundamentals and provides a step-by-step guide through the experiments..