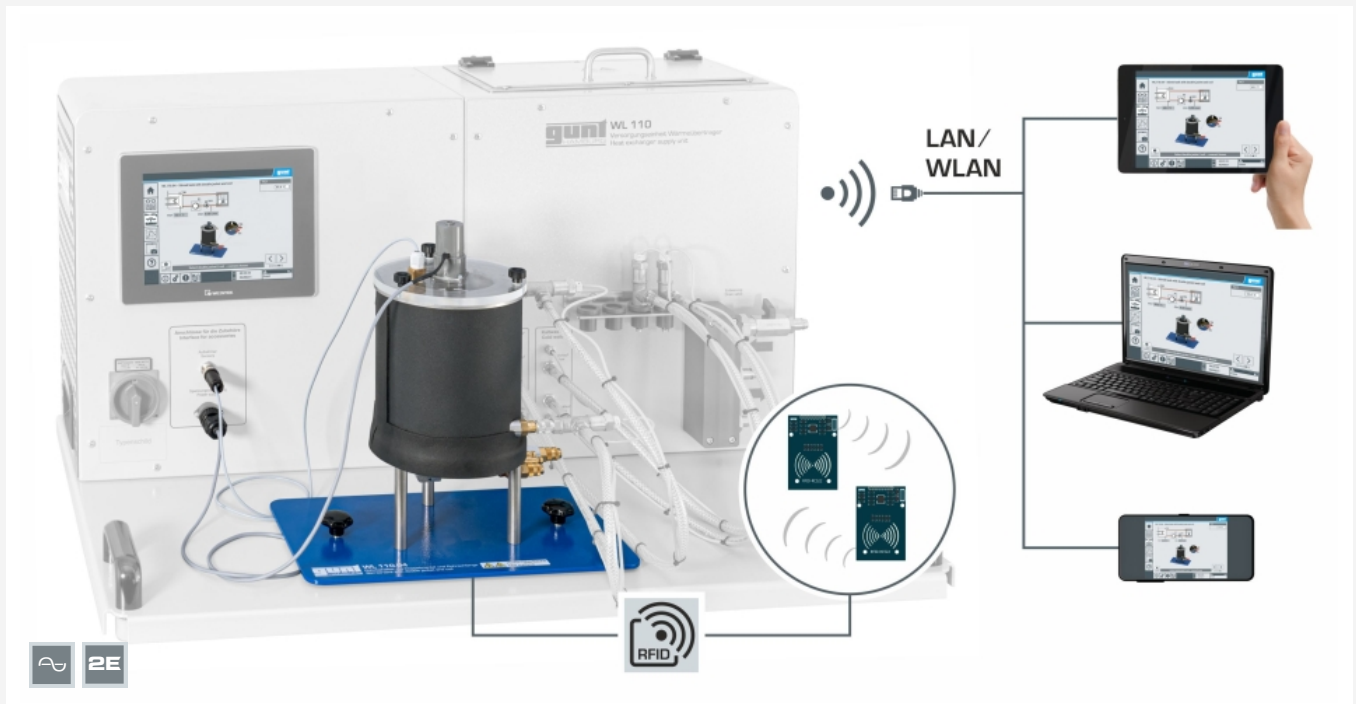


WL 110.04

Stirred tank with double jacket and coil



Complete experimental set-up with supply unit WL 110, screen mirroring is possible on up to 10 end devices

Description

- **stirrer for improved mixing of medium**
- **heating using jacket or coiled tube**
- **intuitive experiment execution via touch screen**
- **integrated router for operation and control via an end device and for screen mirroring on up to 10 end devices: PC, tablet, smartphone**
- **automatic identification of accessories via RFID technology**

In many engineering processes, several basic operations are combined. For example, in a tank a chemical reaction takes place during which heat is to be supplied or removed. Such tanks are equipped with jacket or a coiled tube. Depending on the process, the medium in the jacket or in the coiled tubing is used for heating or cooling of the tank content. For a better mixing of the tank content and an even temperature distribution stirring machines are used. The product temperature at an even temperature distribution is precisely adjustable. Considered here, the stirred tank with double jacket and coil is a model for such tanks.

The jacketed stirred tank WL 110.04 is fitted with a coiled tube. In "heating

mode with jacket" the hot water flows through the jacket and transfers a part of the thermal energy to the cold water in the tank. In "heating mode with coiled tube" the hot water flows through the coil and heats the cold water in the tank. A stirring machine can be used in all modes. During experiments, time functions are plotted and displayed graphically.

The accessory WL 110.04 is easily and safely positioned on the worktop of the WL 110 supply unit. Via RFID technology the accessories are automatically identified, the appropriate PLC software is loaded and an automatic system configuration is performed. The intuitive user interface guides through the experiments. For tracking and evaluation of the experiments, up to 10 external workstations can be used simultaneously using the local network via LAN connection.

Temperature sensors for measuring the inlet and outlet temperatures are located at the supply connections of the WL 110. An additional temperature sensor measures the temperature in the stirred tank. The supply of hot and cold water, the settings for flow and speed as well as the measurement of inlet and outlet temperatures are carried out via the supply unit.

Learning objectives/experiments

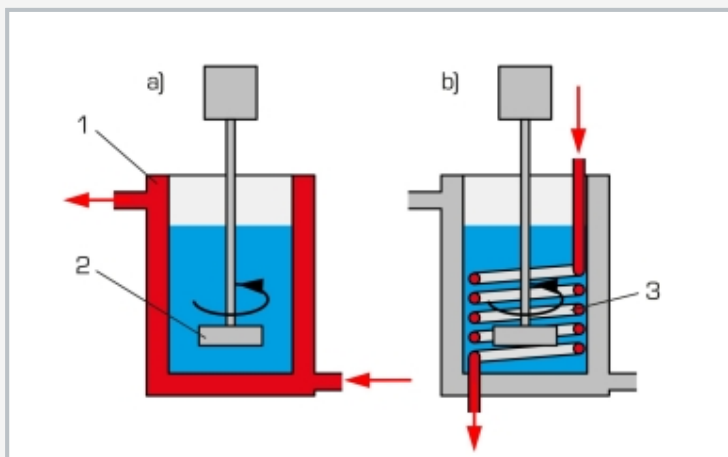
- in conjunction with WL 110 supply unit
 - ▶ function and behaviour during operation of a stirred tank with double jacket and coil
 - ▶ plotting time functions:
 - heating mode with jacket
 - heating mode with coiled tube
 - ▶ influence of a stirring machine
 - ▶ comparison with other heat exchanger types
- PLC software specifically adapted to the accessories used
 - ▶ learning module with theoretical fundamentals
 - ▶ device description
 - ▶ guided experiment preparation
 - ▶ execution of the experiment
 - ▶ graphical representation of the experimental section with measured values for temperature
 - ▶ data transfer via WLAN/LAN for versatile external use of measured values and screenshots e.g. evaluation in Excel

WL 110.04

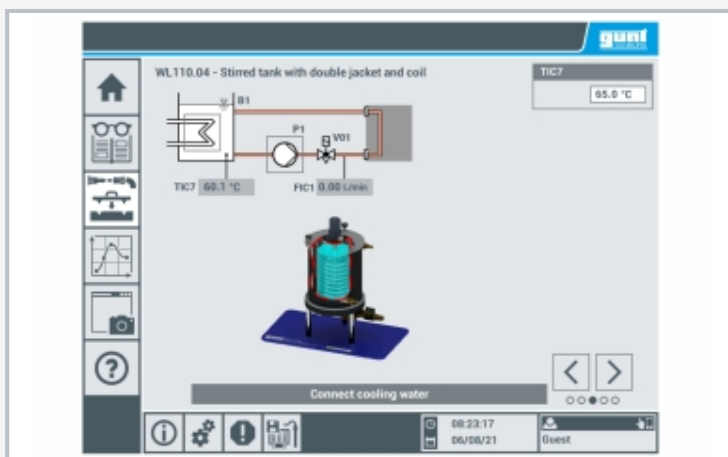
Stirred tank with double jacket and coil



1 stirring machine, 2 temperature sensor, 3 stirred tank, 4 temperature sensor connection, 5 stirring machine connection, 6 water connection jacket, stirred tank, coiled tube water connection



a) heating using jacket: 1 jacket, 2 stirrer
b) heating using coiled tube: 3 coiled tube;
red: hot water, blue: cold water



User interface on the touch screen: guided experiment preparation

Specification

- [1] stirred tank for connection to WL 110
- [2] heating using jacket or coiled tube
- [3] stirring machine can be used in all modes
- [4] speed of stirring machine adjustable using WL 110
- [5] visible working area due to transparent cover
- [6] recording of temperature using WL 110 and additional temperature sensor for measuring temperature in tank
- [7] automatic identification of accessories via RFID technology and use of the corresponding PLC software
- [8] experiment execution and display of the measured values via touch screen (HMI)
- [9] screen-mirroring: access to ongoing experiments and their results from up to 10 end devices simultaneously via the local network
- [10] hot and cold water supply from WL 110

Technical data

- Stirred tank
- nominal capacity: approx. 1200mL
- Stirring machine
- speed: 0...330min⁻¹
- Heat transfer surface
- jacket (stainless steel): approx. 500cm²
 - coil (stainless steel): approx. 500cm²
- Measuring ranges
- temperature: 0...100°C
- LxWxH: 400x230x400mm
Weight: approx. 8kg

Scope of delivery

- 1 stirred tank

WL 110.04

Stirred tank with double jacket and coil

Required accessories

WL 110 Heat exchanger supply unit