CE 579
Depth filtration

Depth filtration: indispensable in water treatment

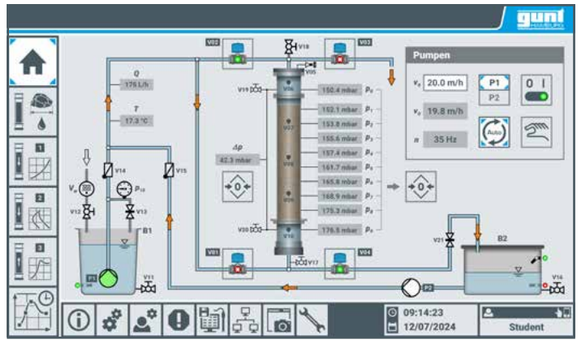
Depth filtration is an important and frequently used process step in water treatment. Exact knowledge of the principle of operation and the characteristics of this process are an indispensable component in the education of budding engineers and specialist technicians.

The educational focus of this trainer is the investigation of the pressure conditions. In order to measure the pressures, the filter is fitted with a differential pressure measurement and several pressure sensors along the filter bed.

The trainer is controlled via the integrated PLC with touch screen. By means of an integrated router, the trainer can alternatively be operated and controlled via an end device. The user interface can also be displayed on additional end devices (screen mirroring). Via the PLC, the measured values can be stored internally. Access to stored measured values is possible from end devices via WLAN with integrated router/LAN connection to the customer's own network.

About the product:

www

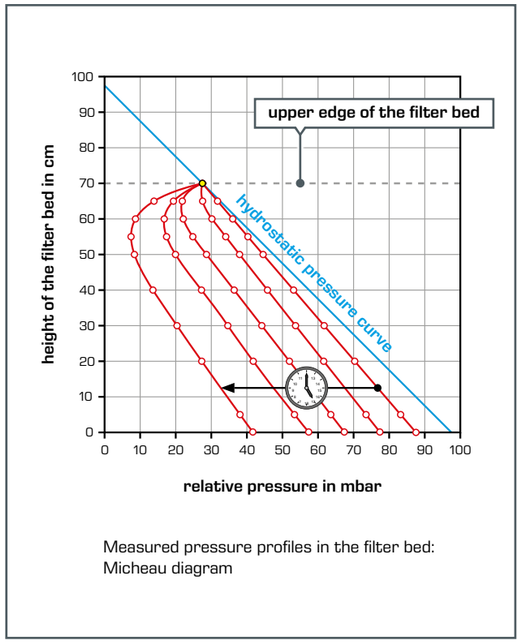


Touch screen: process schematic

Electrically-driven ball valve

Frequency converters for controlling the pumps

Transparent filter tube to observe the increased loading of the filter bed



Measured pressure profiles in the filter bed: Micheau diagram

Learning objectives

- pressure conditions in a filter
- factors influencing the pressure loss (Darcy's law)
  - flow rate
  - height of the filter bed
  - permeability of the filter bed
- determine the pressure in the filter bed (Micheau diagram)
- backwash of filters
  - observe the fluidisation process
  - determine the expansion of the filter bed
  - determine the required flow velocity (fluidisation velocity)