

CE 705

Activated sludge process

A laboratory-scale wastewater treatment plant

The aerobic activated sludge process is the most widely-used biological process in wastewater treatment plants worldwide. Sound knowledge of this process is therefore essential for budding engineers and specialist technicians in the field of environmental engineering.

This device has been designed by experienced engineers with the aim of being able to clearly teach the complex processes involved in this process in continuous operation in a practical manner. The device is designed for carbon elimination and nitrogen elimination. The nitrogen is removed by nitrification and pre-denitrification. To this end, the aeration tank is divided into an aerobic and an anoxic area.

The device consists of a separate supply unit with a large storage tank for wastewater and a trainer. All process-relevant components are located on the trainer. This includes in particular the aeration tank and secondary clarifier.

You can adjust all process-relevant parameters in order to investigate their influence on the cleaning process. The control of the trainer is realised by the integrated PLC via 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).

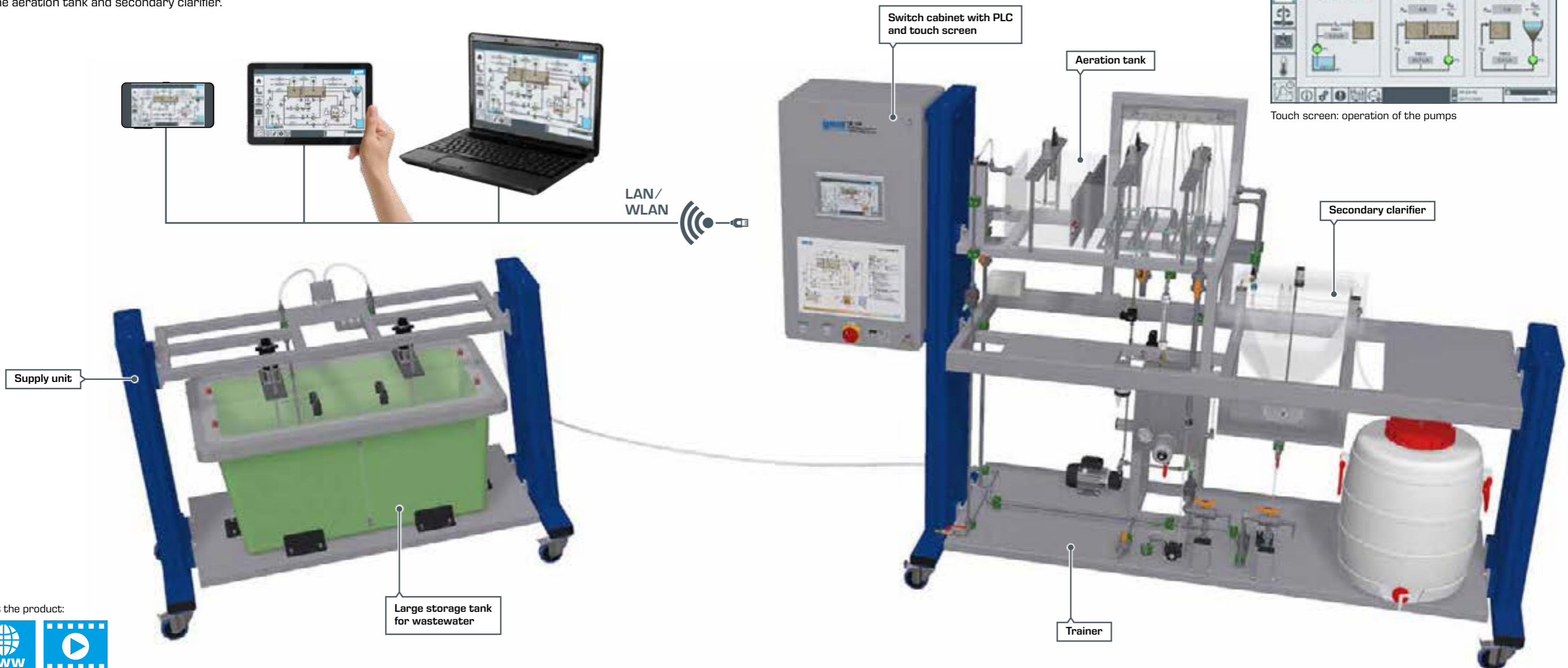
- laboratory-scale wastewater treatment plant
- continuous operation
- nitrification
- pre-denitrification
- device control using an integrated PLC
- integrated router for operation and control via an end device and for screen mirroring on additional end devices: PC, tablet, smartphone



Touch screen: process schematic



Touch screen: operation of the pumps



About the product:

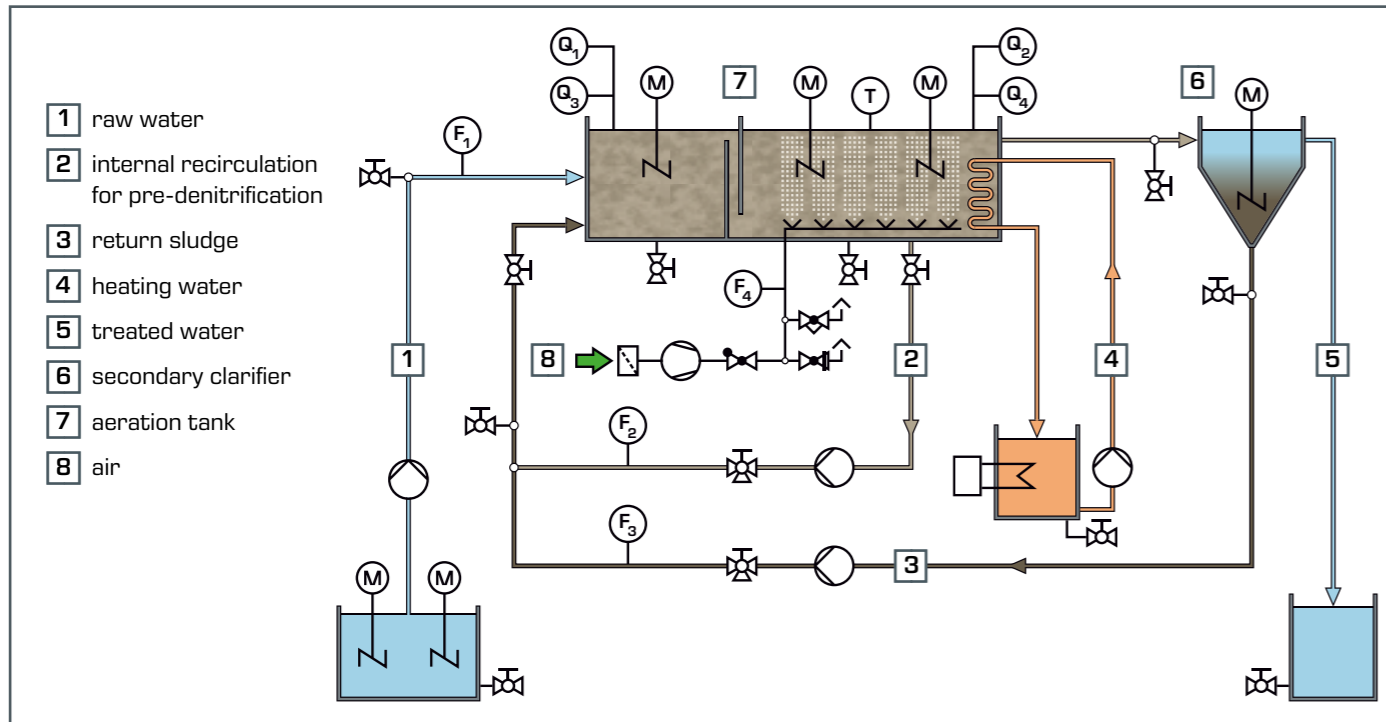


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Instrumentation and control technology

Nowadays, complex processes such as the activated sludge process are largely automated. The use of modern instrumentation and control technology is indispensable for this purpose. This also requires that engineers in the field of environmental engineering have at least basic knowledge of such systems.

To prepare students for the challenges of professional practice, we have also observed this important aspect when developing the device. CE 705 is therefore equipped with extensive instrumentation for measurements and a PLC with touch screen.



Instructional material

You also receive comprehensive instructional material about this device, which quickly helps you become familiar with its operation. In addition, the theoretical fundamentals of the activated sludge process are clearly represented in detail.



Commissioning and training

CE 705 is used in many educational institutions worldwide. Commissioning and training for customers is carried out by expert GUNT employees. In addition to testing the delivered products, GUNT technicians provide in-depth instruction to the customer on operation of the devices. This allows you to quickly incorporate the teaching system in your classroom.



After successful commissioning and training, a GUNT employee hands over CE 705 to Mrs. Professor Dr.-Ing. Deininger of the Deggendorf Institute of Technology (Germany).

Learning objectives

- functional principle of nitrification and pre-denitrification
- creation of a stable operating state
- identification of the following influencing factors
 - ▶ sludge age
 - ▶ volumetric loading
 - ▶ sludge loading
 - ▶ return sludge ratio
 - ▶ return ratio of the internal recirculation (denitrification)
- efficiency of the pre-denitrification
- influence of the following ambient conditions to the biological degradation
 - ▶ temperature
 - ▶ oxygen concentration

Measured variables			
flow rate	F ₁	raw water	<input checked="" type="checkbox"/>
	F ₂	internal recirculation	<input checked="" type="checkbox"/>
	F ₃	return sludge	<input checked="" type="checkbox"/>
	F ₄	aeration	<input type="checkbox"/>
oxygen concentration	Q ₁	denitrification area	<input type="checkbox"/>
	Q ₂	nitrification area	<input checked="" type="checkbox"/>
pH value	Q ₃	denitrification area	<input type="checkbox"/>
	Q ₄	nitrification area	<input type="checkbox"/>
temperature	T	nitrification area	<input checked="" type="checkbox"/>

control

About the product:



TECHNISCHE HOCHSCHULE DEGGENDORF THD

Modern and practical training – supported by high-quality educational systems from GUNT