TD - 017

Steam Generation Training Unit

Overview

The educational unit is designed to introduce the students to the components and principle of operation of a steam generator and enables them to examine the characteristic values of the system.

Specifications

- The educational unit is equipped with all components necessary for studying the steam generator.
- A water jet pump evacuates air from the condenser and generates negative pressure. The steam boiler is a once-through boiler with small water content and a short heat-up time.
- As all components are clearly arranged on the front panel, the cyclic process can be easily monitored and understood.
- Sensors record the temperature, pressure and flow rate at all relevant points.
- The educational unit is provided with digital displays to display the measured values.
- At the same time, the measured values can also be transmitted directly to a PC via USB.
- The educational unit is provided with a DAQ software.
- The steam generator has been constructed according to the Pressure Equipment Directive, it has been pressure-tested and is equipped with all legally required safety devices.
- The steam generator and the axial steam turbine together form a complete laboratory-scale steam power plant.
- If the steam generator is operated without the steam turbine, the generated steam is directly liquefied in a condenser and fed back into the evaporation circuit via condensate and feed water pump.

Experiments

- Specific characteristic values of a steam boiler
- Efficiency of a steam generator
- Analysis of the exhaust gases
- Influence of different burner settings
- Saturation temperature and pressure of the steam
- Steam enthalpy
- Determination of the heat flux density and the overall heat transfer coefficient

Technical Data

Burner

» Heating Power: 6kw

Steam Generator

» Once-Through Boiler

» Operating Pressure: 8bar, Max. Pressure: 10bar

» Max. Steam Temperature: 250°C

» Max. Steam Output: 8kg/H

» Power Of Super heater: 750W

Measuring Ranges

» temperature: 0...400°C

» pressure

» 0...1,6bar abs. (condenser)

» 0...16bar (live steam)

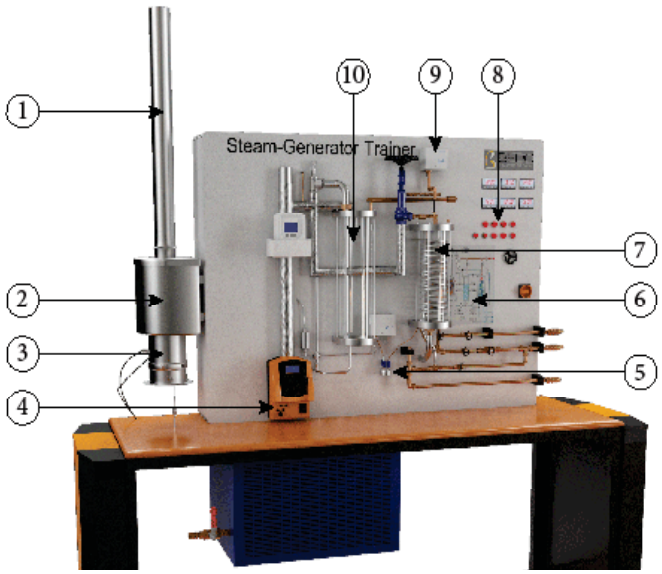
» flow rate

» 0...14L/min (propane gas)

» 0...720L/h (cooling water)

» 0...15L/h (feed water)

Components



1	Chimney for Exhaust Gas
2	Steam Boiler
3	Burner
4	Feed Water Pump
5	Condensate Pump
6	Process Schematic
7	Condenser
8	Displays And Controls
9	Pressure Switch
10	Feed Water Tank

Accessories

- User Manual in Arabic Or English Language
- BEDO software
- Set of tools
- Packing Unit Of distilled Water (20L)

Options

- Axial steam turbine
- Exhaust Gas Analyzer