

## TH 101 TRAINING BOILER, 100 kg/hr



### GENERAL DESCRIPTION

This is a set of steam boiler and standard accessories for a study of boiler performance.

The basic unit consists of a small industrial type boiler with a burner, a feed water system, a fuel system, and instruments for monitoring boiler operation as well as instruments for control and safety. The complete unit is arranged as a package on a pallet for easy site installation. Optional equipment are available for additional experiments.

Instruction manual is also included.

### EXPERIMENT CAPABILITIES:

- Pressure, temperature and flow measurements.
- Heat of combustion, heat given to steam and boiler efficiency.

### TECHNICAL DATA

The boiler set consists of:

- Boiler unit:
  - Type : Vertical, water tube
  - Rated output : Approx. 105 kW (90,300 kcal/h)
  - Equivalent evaporation : Approx. 100 kg/h steam
  - Maximum working pressure : 10 kg/cm<sup>2</sup> (0.98 MPa)
  - Measuring instruments : Pressure gauge for steam outlet  
: Temperature sensor and indicator with a selector switch for or feed water, outlet steam and exhaust stack
  - Safety devices : Safety valve  
: Low level alarm
  - Boiler accessories : Steam pressure regulator  
: Steam separator  
: Feed water pump  
: Stack, 2x 2.4 m stainless steel with elbows
- Burner:
  - Type : Forced draft, pressure atomized
  - Control : On-Off
  - Fuel : Diesel or kerosene (LPG is available as an option.)
- Fuel system : Fuel tank, fuel meter and oil strainer
- Feed water system : Resin filter, soft water tank and water meter.
- Power supply : 220V, 1 Ph, 50Hz. Other power supply is available on request.

### OPTIONAL EQUIPMENT

#### A Condenser and Cooling Tower

Both condenser and cooling tower should be used together

- TH 101-013 Condenser

Description

The unit is used for studying of heat transfer in a heat exchanger as well as recover condensate for reuse. The unit consists of a counter flow steam tube heat exchanger and instruments for measurement of temperatures, and cooling water flow rate.

Typical experiment

- Condenser heat transfer efficiency

Technical data

- Type : Steam tube
- Accessories : Cooling water pump, condensate transfer pump, water meter, condensate tank.

## OPTIONAL EQUIPMENT

- TH 101-014 Cooling Tower

### Description

The unit is used for recovering of condenser cooling water as well as studying of cooling tower efficiency. The cooling tower is to recycle cooling water in case TH101-013 condenser is used. The unit consists of a cooling tower unit, a storage tank, a circulating pump and temperature gauges.

### Typical experiment

- Cooling tower efficiency

- B • TH 101-021 Sand filter for water with suspended materials
- C • TH 101-022 Carbon filter for water with odour or rust
- D • Portable pH meter
- Other optional equipment, please contact manufacturer ([essom@essom.com](mailto:essom@essom.com))

### Boiler Package

**Net (unpacked) shipping dimensions WxLxH** : 180 x 300 x 200 cm  
**Net weight** : Approx. 800 kg

### Cooling Tower

**Net (unpacked) shipping dimensions WxLxH** : 110 x 110 x 150 cm  
**Net weight** : Approx. 95 kg