

HL 350

Oil burner demonstrator



Learning objectives/experiments

- layout and operating behaviour of an oil burner
- operation of a heating boiler with an oil burner
- effect of burner setting on combustion and on the flame
- temperature measurements in different areas of the combustion chamber
- oil pressure measurements on the burner with observation of the effects of changes on the flame
- investigation of the effect of oil pre-heating on combustion and particularly the flame
- calculation of the heating capacity of a heating boiler
- function of a plate heat exchanger
- temperature curves in a plate heat exchanger

Description

- **trainer for oil burner test**
- **can be extended to form a complete heating system**
- **viewing window for observing the flame**

The unit is equipped with an oil burner. The oil pressure at the burner, the combustion chamber temperature, measured with a thermocouple, and the pre-heat temperature of the oil are indicated on an additional digital measuring unit. A small oil tank is fitted on the lower shelf of the frame.

The heating boiler features a viewing window for observing the flame. The heat generated can be dissipated using a plate heat exchanger and additional cooling water connections, enabling the unit to be operated continuously.

The exhaust gas can be studied in detail with the exhaust gas analyser HL 860.

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1 measuring amplifier with digital displays, 2 boiler control unit, 3 heating boiler with viewing window, 4 thermocouple, 5 double-strand oil filter, 6 oil tank, 7 expansion vessel, 8 cold water connection, 9 water meter, 10 plate heat exchanger, 11 thermometer, 12 safety group

Specification

- [1] functional heating boiler with oil burner
- [2] boiler with control unit
- [3] boiler casing equipped with a viewing window made of special glass
- [4] heating and cooling circuit equipped with expansion vessel, pump, boiler safety group, thermometers, water meter, heat exchanger
- [5] transparent oil tank with filling and bleed connections
- [6] dissipation of generated heat via plate heat exchanger and cold water connection

Technical data

Boiler

- nominal rating: 17...21kW
- control unit with temperature limiter

Burner

- nominal power: approx. 18kW

Pump

- power consumption: 60W
- max. flow rate: 60L/min
- max. head: 4m

Plate heat exchanger

- capacity: 3kW
- 10 plates

Boiler safety group in accordance with DIN 4751

- 2,5bar
- 50kW

Oil tank: 15L

Water meter: 2,5m³/h

Measuring ranges

- pressure: 1...25bar (oil admission pressure)
- temperature:
 - ▶ 1x 0...1200°C
 - ▶ 1x -50...400°C
 - ▶ 1x 0...120°C
 - ▶ 3x 0...80°C

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase

120V, 60Hz, 1 phase

LxWxH: 1560x800x2000mm

Weight: approx. 269kg

Required for operation

water connection, drain
ventilation & exhaust gas routing required

Scope of delivery

- 1 trainer
- 1 manual

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Optional accessories

HL 860 Exhaust gas analyser