# TBF059

# COMBUSTION LABORATORY UNIT

## Experimental capabilities

- **Identification of the components of a classic heating circuit**
- **Mapping of electrical and hydraulic diagrams.**
- **Commissioning and verification of operation**
- **Visualization of the flame of the burner and the influence of settings (air and fuel) on the flame pattern**
- **Measurement of operating parameters (temperature, flow rate, pressure)**
- **Analysis and combustion control (requires combustion analyzer option).**
- **Calculation of the balances, efficiency and power.**

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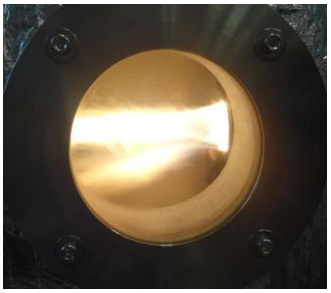
version : FT-TBF059-STD-D

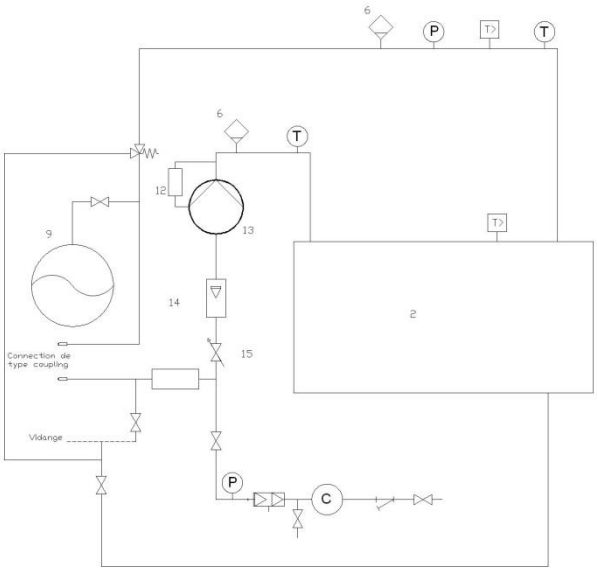
# TBF059

## Operating principle

The TBF059 unit allows the study of the combustion of a heating installation with oil burner and thermostatic regulation.
Students will identify the elements that compose the heating installation as well as explain the role, perform the system startup, parameterize the regulating apparatus, adjust the combustion and the heat balance of the installation.
The body of the installation TBF059 has two portholes to allow visualizing the flame of the burner. The learner will be able to actually see the effects of a wrong setting on the flame.
The instrumentation present on the installation (hydraulic network, fuel, and oxidizer) allows realizing complete assessments of combustion and efficiency.
The robust design of this equipment makes it perfectly suited for school use.
Its anodized aluminum structure on wheels makes it very robust as well as a great flexibility of integration into your premises.
The manufacture of this equipment meets the European machine directive.
This equipment can be used alone or with other compatible devices in our range (see last section of this document°

## Illustrations






## Technical details

The bench is composed of :

1. An aluminum profile frame on 4 directional wheels with brake
2. A power supply box with protection by GFCI
3. Copper piping heating network comprising :
   - A circulating pump with variable speed
   - Water flow rate controller
   - A flow rate control valve
   - Two air vents at the highest point of the circuit
   - A safety valve 3 bar
   - An expansion vessel
   - Two self sealing quick connectors for connection toward a dissipation module
   - A drain valve
4. A stainless steel boiler with insulation of rock wool. Two 110mm diameter portholes allow you to view the flame (one on the side and one facing the flame).
5. A fuel oil burner 20-40 KW with electronic regulation and hoses of fuel oil supply
6. A water filling line comprising:
   - A filter
   - A volumetric meter
   - A backflow preventer
   - A manometer
   - Two stop valves
7. The following instrumentation:
   - A thermometer on the departure of the water circuit
   - A thermometer on the return of the water circuit
   - A flowmeter on the water circuit
   - A measurement probe of the burner air flow rate
   - A pressure manometer of the water circuit
   -The oil flow can be measured by the tank 30L TAN030 (option)

## Services required

- Power supply: 230Vac – 50 Hz – 10 A
- Evacuation of smokes : Diameter 153mm
- Supply in fuel: Oil
- Dimensions: (LxWxH mm): 1450 x 790 x 1760
- weight (Kg): 380

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

## Documentation

- User's manual
- Pedagogical manual
- Electrical diagram
- Fluidic diagram
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE

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# TBF059

## Options

| | |
|---|---|
| • Combustion Analyzer | • Ref : ANA100 |
| • Pump  Smoke Test | • Ref : SMO001 |
| • Suitcase with manometers for fuel pump and flexible | • Ref : MPF001 |

## Recommended equipment

| | |
|---|---|
| • Diesel fuel tank | • Ref : TAN 030 |
| • Unit heater | • Ref : AER 033 |

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