

## FLOORSTANDING OIL BOILER



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### Experimental capabilities

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- Identification of components of a heating circuit with floor-standing oil boiler and a regulating circuit
- Commissioning of heating installation and verification of operation
- System setup and basic measurement readings (temperatures, pressures, flow rates)
- Advanced measurement and calculation of powers involved and of the consumptions
- Study of heat transfer
- Study of control systems by three-way valve
- Study of the combustion on a burner operating by oil

## Operating principle

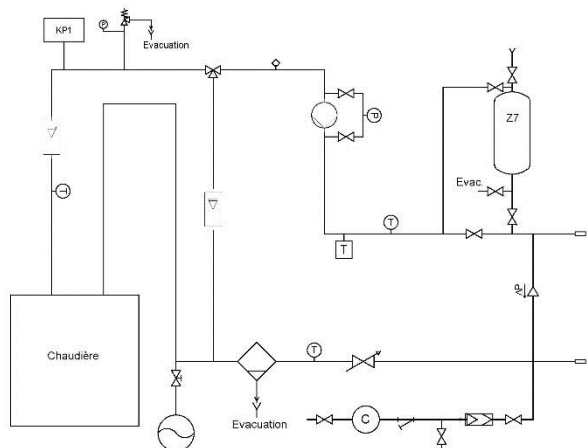
The TCF025 bench allows the study of a home heating system; it consists of a production system (floor-standing oil boiler), a circuit with control valve with three-way valve and an electrical box incorporating a digital heating controller. The boiler heats the circuit water at a fixed temperature and the three-way valve adjusts the starting temperature based on the parameters set by the students (heating curve, outside temperature). Students will first make the system commissioning (impoundment ...) then make basic measurements to validate the operation. They can then make a more complete study of the system using the integrated instrumentation (thermal balance, study of the regulation ...) and the proposed optional modules.

The robust design of this device makes it suitable for use in schools.

The equipment is set up on an Anodized aluminium frame on casters wheels. This gives it great strength and a flexibility of integration into your premises. The manufacture of this equipment complies with the European machine directive.

This equipment can be used alone or with other compatible equipment from our range (see last section of this document).

## Illustrations



The bench consists of the following elements:

1. A floor-standing condensing oil boiler, power 23KW
2. A heating safety valve calibrated at 3 bar with manometer
3. A safety pressure switch lack of water
4. A flowmeter 160-1600L/h on the hot water of the boiler
5. A dial thermometer 0/120°C on the hot water of boiler
6. A three-way valve with servo electric motor installed in mixture

## Technical details

7. A flowmeter 160-1600L/h on the mixing branch of the three-way valve
8. A water pump 25-80 with pressure measurement kit
9. A dial thermometer 0/120°C on the hot water circuit towards the dissipation
10. An injection pot volume 12L with insulation valves, drain valve and air vent valve
11. A differential pressure valve
12. Two quick couplings for connecting the dissipation systems
13. A flow rate control valve type TA
14. A dial thermometer 0/120°C on the return circuit
15. Air and dirt separator
16. An expansion tank with isolating valve
17. A water supply line with a stop valve, meter, filter and backflow valves
18. Electrical box:

The bench has an electrical box compliant with current standards (main switch, power indicator light, emergency stop button and differential circuit breaker). It is equipped with switch to turn on the various components (pumps, boiler ...). It also includes a digital heating controller and a simulation potentiometer of external temperature.

19. Structure

The system is installed on an anodized aluminum profile chassis fitted with four swivel castors with brake

## Services required

- Electrical supply : 230 Vac – 50 Hz – 10 A
- Electrical network : 1 phase(s) + Neutral + Earth.
- Water supply : filling – 2 bars
- Dimensions: (LxWxH mm): 2300 x 1200 x 1540
- weight (Kg): 250

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
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE

# TCF025



## Options

- Gas analyzer
- Ref : KIG100

## Recommended equipment

- Oil tank 30L
- Unit heater dissipation bench
- Bench of radiators
- Heated floor
- Bench of hydraulic balancing (radiators)
- Briefcase of balancing TA
- Bench of fan coil
- Ref : TAN030
- Ref : AER033
- Ref : TCF120
- Ref : TCF121
- Ref : TCF122
- Ref : TCF123
- Ref : TCF124