

ELECTRICAL HOME HEATING SYSTEM



Experimental capabilities

- Identify the components of a radiator home heating system with three-way valve control system
- Know how to commission the installation:
 - Safety instructions.
 - Impoundment.
 - Startup.
 - Device settings
 - Balancing.
- Know how to maintain an installation:
 - Shutting down an installation and emptying.
 - Dismantling and reassembly of equipment.
 - Hydraulic and electrical wiring.
- Study and measure the hydraulic and electrical physical quantities of the installation:
 - Temperature, pressure, flow, heating law.
 - Study on the expansion of heat transfer fluids.
 - Voltage intensity, power absorbed.
- Carry out the energy balances of the different elements or the whole.
- Study and configure a three-way valve control system

Operating principle

The ICP100 bench allows the study of an electric domestic heating system. The heat generator is a three-stage electric boiler. The hydraulic system includes the standard elements of a domestic installation, a filling and emptying line, a three-way control valve, a circulator, radiators with valve, control tee and manual trap, automatic traps and a balancing valve on the return circuit. The bench also includes an electrical box with all protection and signalling elements as well as a heating regulator. The instrumentation used for the study of the system is stationary on the circuits (dial thermometers, float flow meters, pressure manometers, etc.).

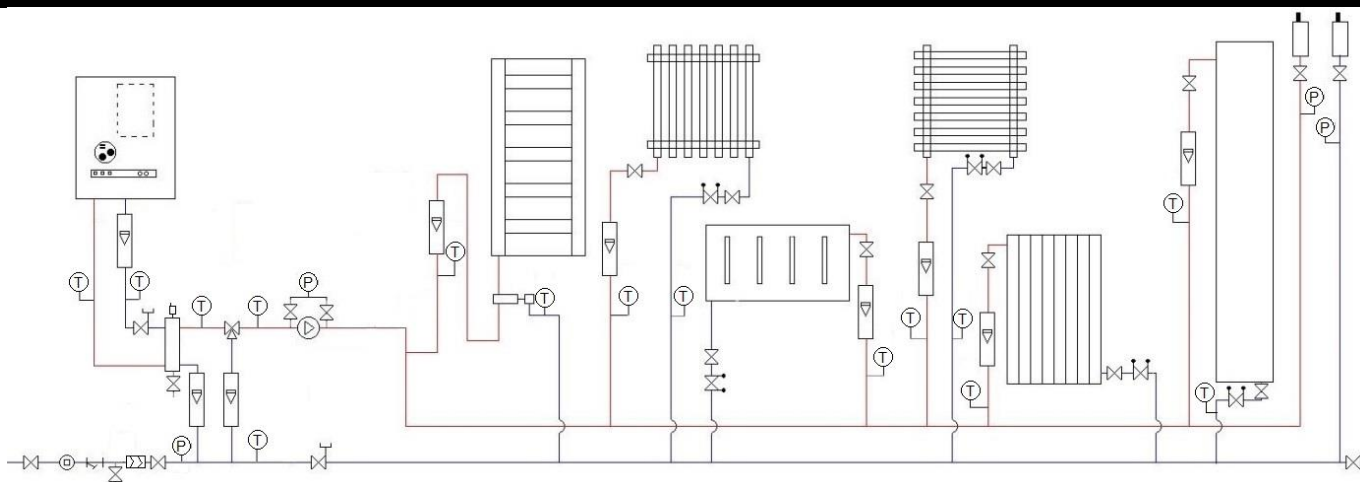
Students will first have to identify the networks and components of the installation and then carry out the commissioning. They will then be able to make the operating settings (flow rates, V3V parameters ..).

In another they will do maintenance activities, emptying the installation and rinsing, changing an element of the hydraulic or electrical circuit ...

The rugged design of this equipment makes it perfectly suited for use in schools.

Its anodized aluminum structure on wheels gives it great robustness and flexibility of integration into your premises. The manufacture of this equipment complies with the European machinery directive

Illustrations



Technical details

1. A supply line including shut-off valves, water meter, disconnecter, filter and pressure gauge
2. A three-stage modulating single-phase electric boiler, adjustable 2-4-6KW compliant with RT2012 with digital temperature and pressure display.
3. The boiler circuit is equipped with a digital display flow meter and a balancing valve.
4. A heating circuit with decoupling bottle, three-way valve with electric servomotor, electronically variable circulator (constant P or D setting) with gauge kit.
5. The heating circuit is equipped with three digital display flow meters.
6. A towel dryer radiator round tubes single-tube connection
7. A horizontal panel radiator 60x70cm double wall with standard fittings
8. A horizontal panel radiator 60x70cm single wall with low central connections
9. A vertical panel radiator 150x45cm single wall with low central connections
10. Each radiator is equipped with a valve, an adjustment tee, a flow measuring element (type TA) for measurements by the balancing case and two dial thermometers (input and output).
11. Two high purge lines with automatic drain and pressure gauge
12. A pot glycol injection system with valve set
13. The hydraulic circuit is made of crimped copper, the pipes are sanded and varnished to maintain an aesthetic appearance over time.

ICP100



14. The bench includes an electrical steel supply box including:
- standard safety devices (general disconnecter, differential circuit breaker, emergency stop, etc.)
 - warning lights and buttoning
 - a heating regulator controlling the three-way valve and a button outdoor temperature simulation potentiometer with meter.

Services required

- Electrical supply : 230 Vac – 50 Hz -20A
- Electrical network: 1phase+neutral+earth
- Water supply: mains water
- Water drain: on the floor
- Dimensions: (LxWxH mm): 3800 x 1610 x 2200
- 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
- Hydraulic diagram
- electric diagram
- Certificate of conformity CE

Options

- Balancing case type TA
- Ref : TCF 123