

HL 353 MODULAR HOT WATER HEATING SYSTEM

Hot Water Generator HL 353

The HL 353 supply unit generates the hot water required for operating the trainers HL 353.01 and HL 353.02.

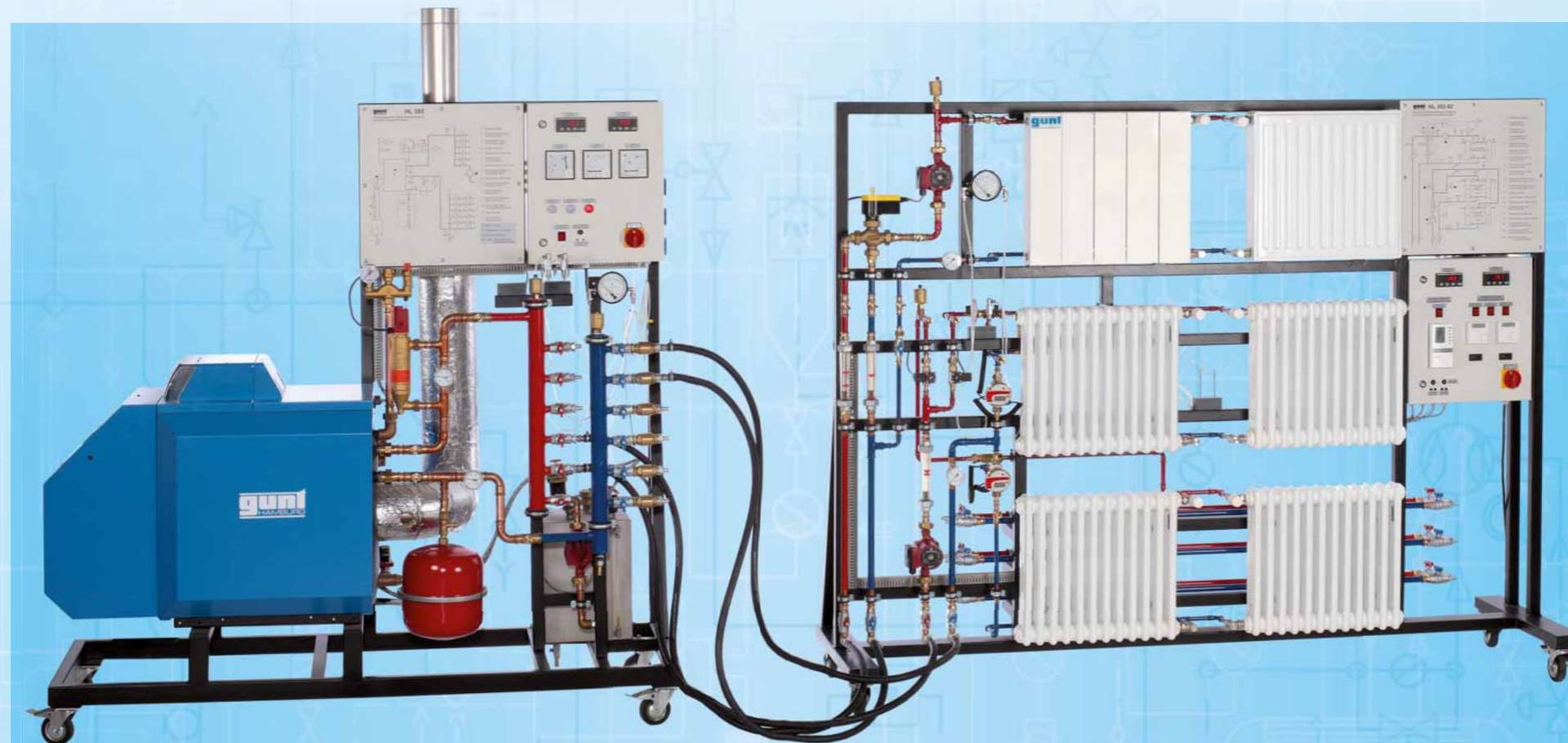
The supply unit includes a boiler with oil burner and oil tank. Hoses with quick-release couplings connect the trainer HL353.01 and /or the trainer HL353.02 with the supply unit to set up a fully functional heating system.

The oil-fired system starts up quickly and reacts rapidly to changing heat demand, making it ideal for laboratory use.

Typical GUNT...

The optimal laboratory system for introducing the fundamentals of domestic heating technology

...clearly laid out, high practical relevance, modular



Hot water generator HL 353

HL 353.02 Heat Distribution and Control in Heating Systems

CONTROL OF HEATING SYSTEMS WITH ONE AND TWO SUBCIRCUITS

- two flat radiators in a heating circuit with one subcircuit
 - ▶ three-way mixing valve as actuator (control element) with heating controller, temperature-led (outside temperature)
 - ▶ simulator for changing outside temperature setting
- four radiators in a heating circuit with two subcircuits
 - ▶ two digital heating controllers with solenoid valves for temperature control

The trainers HL 353.01 and HL 353.02

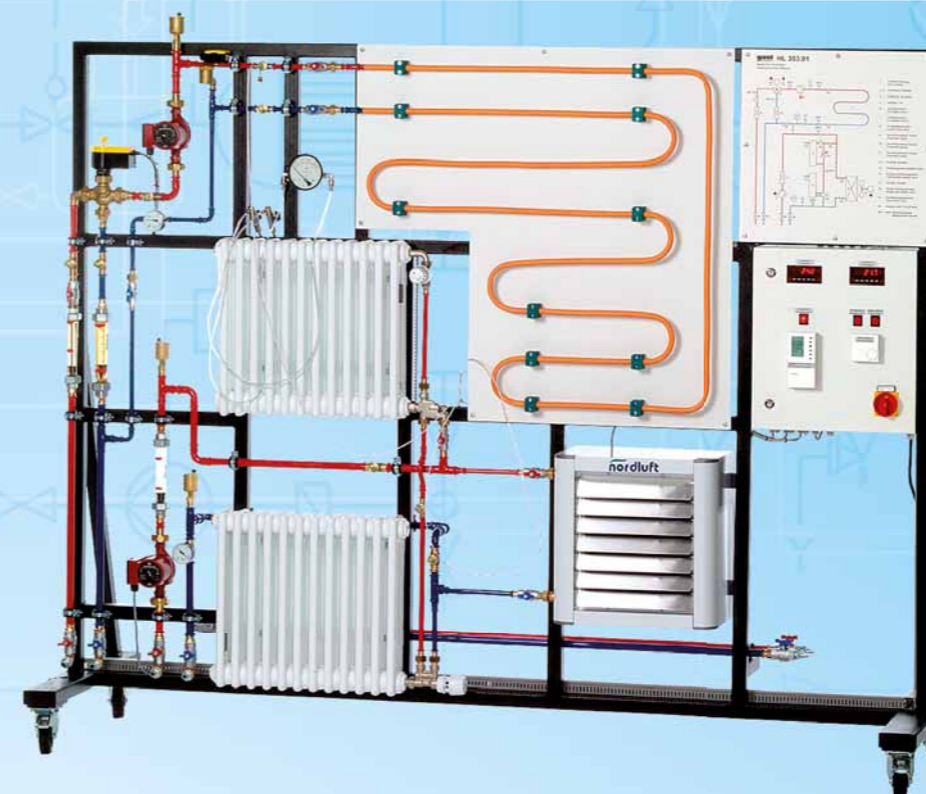
Both trainers contain independent heating circuits for room air heating. The heating circuits are equipped with control devices. The trainers normally use hot water for room air heating generated by the HL 353, however the trainers can also be supplied by a solar thermal heat generator. All heating technology components used in the trainers are commercially available, so the training has a high practical relevance.

Instructional material

The instructional material supplied (technical system description and reference experiments) is designed to help prepare for teaching and for carrying out the experiments.

Learning content

- design of a hot water heating system for room heating
- Together with the trainers HL 353.01 and/or HL 353.02**
- design of room heating systems with control devices
 - function and design of commercially available heating technology components
 - function and design of room heating systems with multiple subcircuits (HL 353.02)
 - hydronic balancing of a heating circuit with multiple radiators (HL 353.02)



HL 353.01 Comparison of Different Heating Types

INDIVIDUAL CONTROL OF ROOM HEATING

- floor heating
 - ▶ three-way mixing valve as actuator (control element) with heating controller, temperature-led (outside temperature)
- two radiators
 - ▶ thermostatic valve and one-pipe radiator valve
- forced convector
 - ▶ room air temperature controller for forced convector fan