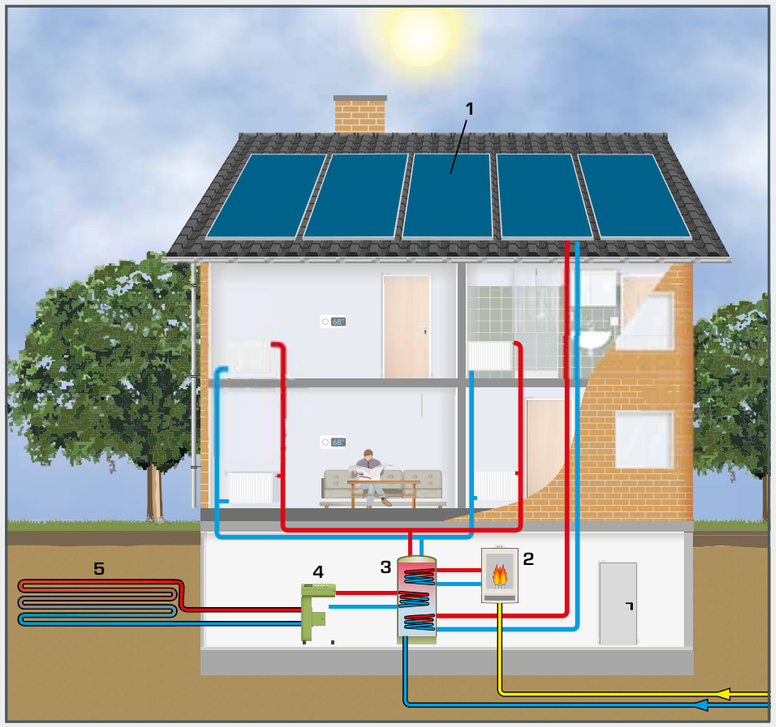
Basic knowledge

Hot water central heating systems

A hot water central heating system has four partial tasks:

- central generation of hot water
- transporting hot water
- heat transfer to rooms
- controlling and regulating temperature



1 flat collector, **2** heating boiler, **3** hot water storage tank, **4** heat pump, **5** geothermal absorber;
hot heat transfer fluid, cold heat transfer fluid, fuel supply

Suitable control technology ensures a uniformly comfortable room climate all year round.

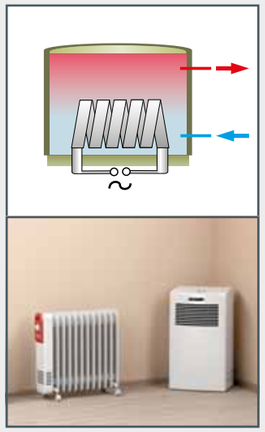
Modern systems allow the heating system to be controlled remotely.

There are different ways of transferring the heat to the rooms, depending on the requirements and size of the room.

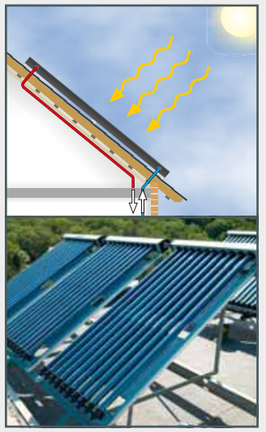
The design of piping systems for the transport of hot water requires knowledge of fluid mechanics, for example the characteristic variables of pumps and friction or pressure losses in pipe elements. GUNT's **product area 4 Fluid mechanics** deals with these aspects.

Generation of hot water

Oil, gas or wood-fired boiler



Electric resistance heating



Solar thermal energy

Heat pump

Hot water

Water as a heat transfer medium

Advantages

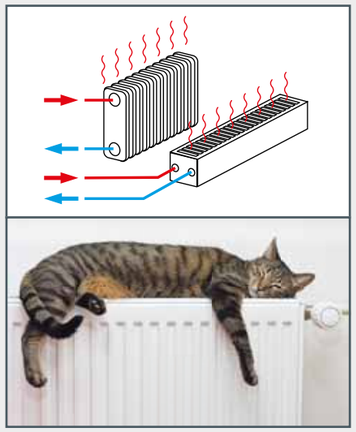
- high heat capacity
- inexpensive and easily obtainable
- non-toxic and environmentally friendly

Disadvantages

- temperature range only 0 ... 100°C at ambient pressure
- corrosive in the presence of oxygen

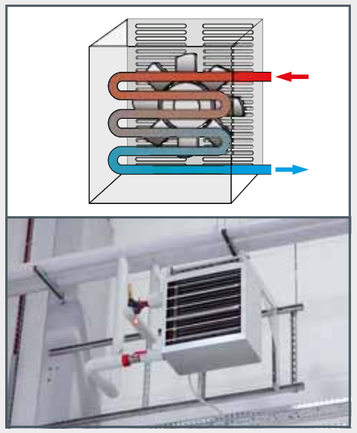
Cold water

Heat transfer to rooms



Radiator with natural convection

Underfloor or wall heating with natural convection



Air heater with forced convection