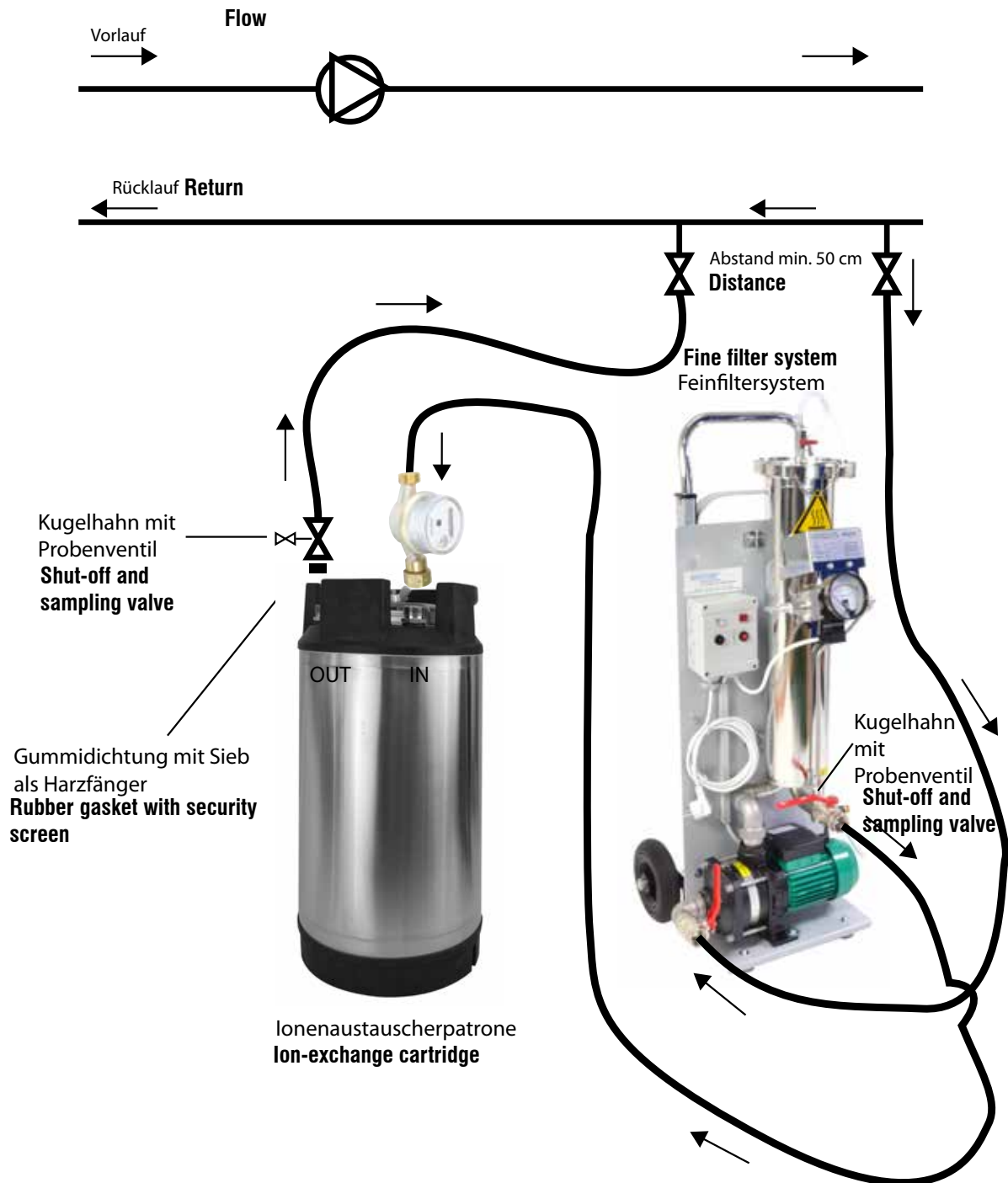


# In-line Heating Water Correction

Filtration and deionization of heating water

Connection principle of fine filter system and ion-exchange cartridge



### Typical scope of delivery:

1. Fine filter system with already installed filter element.
2. Replacement filter elements.
3. Flexible connection tubes made from stainless steel (flexible corrugated tubes)
4. Rubber gasket with screen. ( to be installed at the outflow of the ion-exchange cartridge)
5. Ion-exchange cartridges in individual number.
6. Water meter for flow control.
7. Ball valve with sampling valve
8. Sampling cup.
9. Handheld conductivity meter.

### **Hinweise zur Installation**

Choose a point of installation where a continuous flow of water is guaranteed. We recommend the main return. Two connection valves of min 3/4 „with full passage are required. The distance should be approx. 50 cm.

Connect the entire device as shown on the sketch.

**Caution!!** The enclosed rubber gasket with sieve must be installed at the outlet of the cartridge. This prevents the resins from being flushed into the system if there is damage to the water extraction system of the ion exchanger cartridge.

### **Instructions for commissioning**

Vent the system before starting the pump. There are ventilation options at various points on the filter system and on the ion exchanger. The ion exchanger in particular should be completely vented to prevent the resins from separating.

### **Operation of the fine filter system**

You can activate the pump of the fine filter system by pressing the black button on the electrical switch box. The red button is used to switch off the filter system.

You can use the water meter to determine whether there is water throughput or whether there is a hydraulic fault.

The fine filter system also has differential pressure monitoring. The system switches off automatically at a differential pressure of 1.5 bar. In this case, the fine filter element is clogged and must be replaced. See the separate instructions for the fine filter system.

### **Operation of the ion exchange cartridge**

The water flow from top to bottom through the ion-exchange cartridge and exchanges or removes salts that are dissolved in water.

Depending on the type of ion exchanger, this can be a softening or a complete demineralization (deionization).

We consciously refrain from using electrical measuring devices that measure the water values in the flow. In practice, it has proven useful to take samples manually and check them using hand-held measuring devices.

You can take a sample at the outlet of the fine filter. The water taken from there is used as a reference for the water circulating in the system.

A sampling valve should also be installed at the outlet of the ion exchanger. The water sampled at that valve can be used as a reference for the pure, treated water that has not yet flowed back into the system. It mainly serves as a capacity control for the ion exchanger.

### **Capacity control of the ion exchanger**

The ion exchanger is exhausted in the course of operation. Check the capacity regularly. To do this, take a water sample behind the ion exchanger.

In the event of **softening**, check the sample using an overall hardness test. If the water has a total hardness that is lower than the reference water sample taken from the fine filter, the ion exchanger still has capacity.

In the case of **deionization**, check the sample using a conductivity meter. If the water has a conductivity that is lower than the reference water sample taken from the fine filter, the ion exchanger still has capacity. We recommend to replace the resin or cartridge if the electrical conductivity, measured at the outflow the cartridge, exceeds 10  $\mu\text{S}/\text{cm}$

### **End of the circuit water treatment**

As soon as the reference water sample, taken from the fine filter, has the desired water value in terms of conductivity or total hardness, it can be assumed that the circulating heating water is also within the desired range. However, we recommend that you continue to operate the system until the entire system volume is theoretically flown completely through the filter system one more time. The filter system can then be removed.