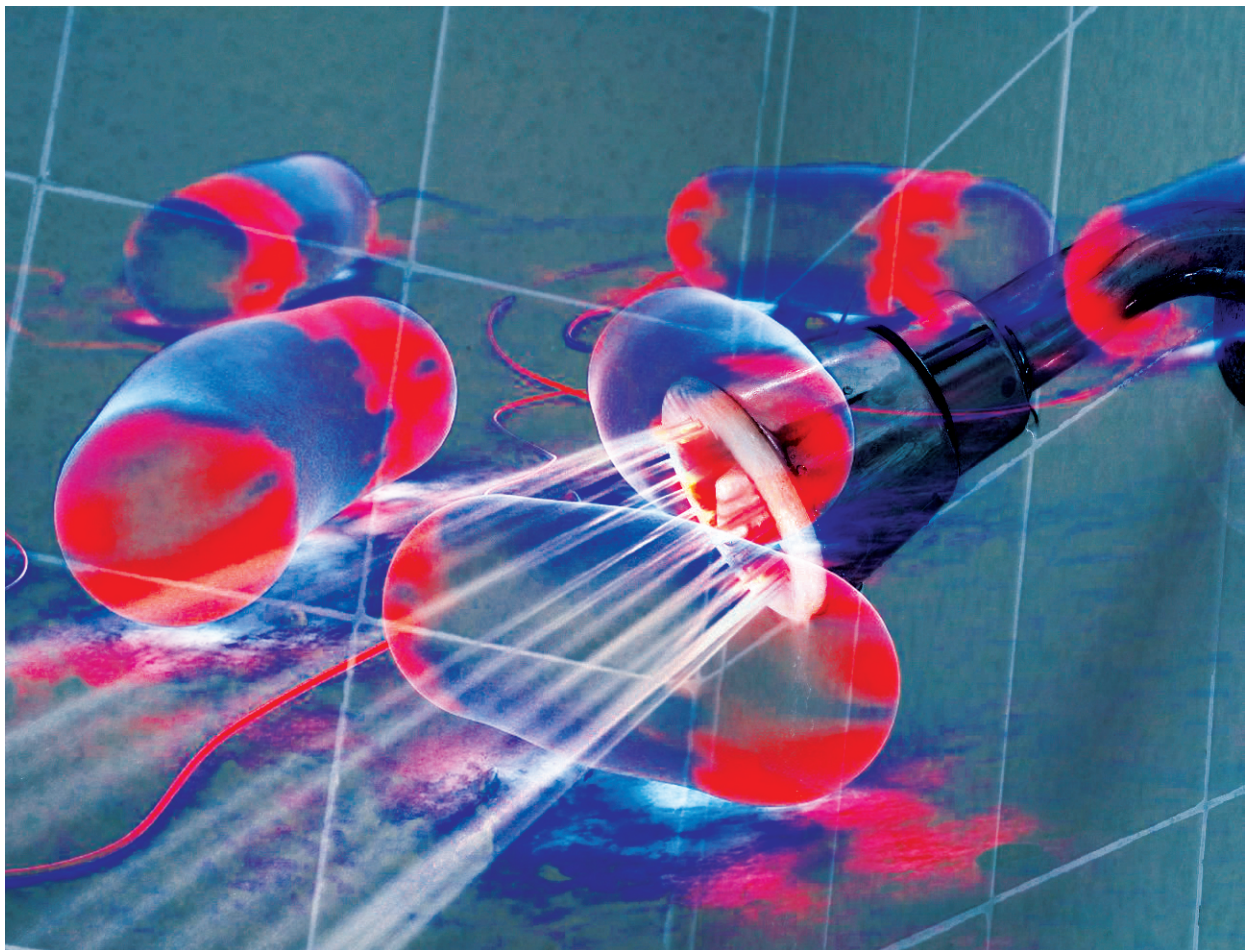


## Avoid the danger of Legionella with the temperature data logger testo 175 T3.



The danger often goes unnoticed, but can have very far-reaching consequences. Over and over again, Legionella in drinking water lead to cases of Legionnaire's disease. Experts estimate that in the UK, roughly up to 9000 cases occur annually, and that 10-15 % of these are fatal, unfortunately they are caused by a disease which is completely avoidable.

Legionella spread among other things through hot and cold water systems. If they are inhaled, for instance in shower steam, they can cause Legionnaire's disease, a serious lung infection. With the temperature data logger testo 175 T3, plus a special pipe clamp probe, the risk can be quickly and safely avoided by testing drinking water temperatures.



Legionella enlarged under a microscope.

### The challenge.

Legionellosis, or Legionnaire's disease, is an infectious disease caused by bacteria of the genus Legionella. These germs reproduce especially quickly in standing, warm water at temperatures between 20 and 50 °C. Transmission to humans is in principle possible through contact with tap water. If bacteria are ingested through eating or drinking, they are as a rule harmless. Only if water containing bacteria is inhaled can this lead to sickness. Initially, this is relatively harmless, with coughing, diarrhoea and fever, however later on, it can lead to acute pneumonia. In principle, Legionnaire's disease can be treated well using antibiotics, how-ever it can also be fatal – especially for older patients, small children and those with weakened immune systems.

Legionella occur only rarely in natural waters. Areas with an increased risk of possible infection are large buildings with complex air conditioning and water supply systems, such as hospitals, care homes, large hotels, apartment buildings or schools, in which the water can be left standing for longer periods, providing an excellent incubation medium for the Legionella. Nonetheless, the danger is also present in hot tubs, swimming pools, saunas and even on campsites.

In many countries, annual inspections with an obligation of proof are now prescribed, in order to test water systems for Legionella. When the growth of such bacterial cultures needs to be prevented, however, the responsibility lies with you. Because it is only with your help that the inhabitants or guests of the facilities, hotels or swimming pools in your care can be fully protected from Legionella. The appropriate preventive measures also allow you to avoid forced closures and economic losses.



The temperature data logger testo 175 T3 with a clamp probe fitted to a shower water pipe.

### The solution.

With the temperature data logger testo 175 T3 and the additionally available pipe clamp probe, you can test the water temperature in your hot and cold water systems precisely and reliably. If the temperatures measured by you are in the the critical range between 20 and 50 °C for a longer period, there is a danger of Legionella contamination, and therefore an urgent need for action.

#### Efficient measurement directly on a water pipe

The pipe clamp probes, which are available together with the proven data logger testo 175 T3, allow you to measure the water temperature directly on the pipe. Thanks to its spring mechanism, the pipe clamp probe can be quickly attached to the pipe in a single step. The variable spring tension means the pipe's diameter is irrelevant – the probe is always securely attached, allowing an accurate measurement. The thermocouple technology allows the probe to acclimatise very quickly to the pipe temperature, and reacts to even the smallest temperature changes. Legionella reproduce above all where water is stagnant. For this reason, the hot water pipes should be tested directly after the hot water storage tank. The water here should have a temperature which does not drop below 55 °C in the longterm, in order to prevent the reproduction of Legionella. In circulation systems, the point just before re-entry into the drinking water heater is particularly relevant for your measurements.

Cold water pipes should also be tested to ensure that their temperature is not above 20 °C.

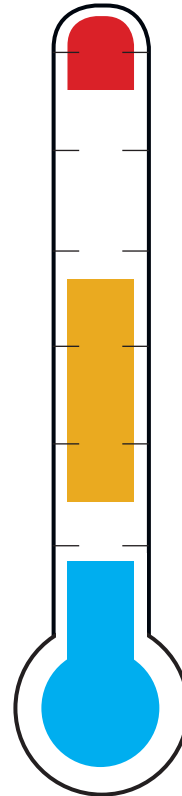
**70 – 80 °C:** Legionella die off very quickly

**55 °C:** Legionella die off slowly

**>50 °C:** Legionella survive, but cannot reproduce

**20 – 50 °C:** Ideal growth conditions for Legionella

**<20 °C:** Legionella survive, but are inactive



Overview of the most relevant temperature ranges, which should be familiar to you in connection with Legionella.

#### Comprehensive data collection

The large memory of the testo 175 T3, with capacity for 1 million measurement values, allows you to record temperature values over a longer period, for example a week. This way, you can take differing usage levels of the drinking water during the week and at the weekend into account.

#### Fast identification of limit value violations

Working with the temperature data logger testo 175 T3 is made even easier by the large, easily legible and backlit display. This means that you can read off the measured values even in badly lit basement rooms, and identify limit value violations even more quickly directly on site, in order to implement any necessary counter-measures.

#### Precise analysis of the collected data

The collected data can be transferred quickly and easily to a PC using a USB cable or SD card, directly after the measurement. With the help of the testo ComSoft Basic 5 soft-ware, which is available for free download, you can analyse and store the measurement values, and print them for your documentation.

#### Legionella detected – now what?

If you have determined, using the temperature data logger testo 175 T3, that the temperature values of a water pipe system have fluctuated in the critical range between 20 and 50 °C for a longer period, there are different methods for tackling Legionella available to you.

- For a thermal disinfection, all withdrawal sites must be run with hot water at a temperature of 70 °C for three minutes, as the bacteria die off at this temperature. Depending on the size of the system, thermal disinfection can also be carried out in stages.
- For chemical disinfections, chlorine products which kill the Legionella germs are usually used. Ozone or chlorine dioxide can also be used, as there are no undesired by products from these.
- If the use of chemicals is not desired, the pulse rinsing technique offers a good alternative. Using compressed air bubbles which are introduced to the water transport system, sediments and bio-films which provide nourishment for bacteria are eroded.

- Ultraviolet irradiation of the drinking water can damage the genetic information of the microorganisms, preventing them from reproducing by cell division.

As a rule, regular descaling of shower heads and aerators with organic acids such as vinegar or lemon juice, for example, is indispensable, since calcium lime deposits provide a good colonisation structure for germs. Dismantling of excessively large pipelines or dead pipes, such as are often found in old buildings or those in need or restoration, is also a basic requirement in the fight against Legionella.

**With the temperature data logger testo 175 T3, you can:**

- Measure the water temperature directly at the water pipe, thanks to a special pipe clamp probe
- Identify limit value violations quickly
- Analyse the temperature values precisely, with the free software testo ComSoft Basic 5

**More information.**

More information on temperature measurement with the data logger testo 175 T3, and answers to all your questions concerning Legionella, at [www.testolimited.com](http://www.testolimited.com).



Data logger testo 175 T3



Pipe clamp probe

