Smlege
Hydronic Solutions

910054NT MULTI- Thermostatic Circulation Valve Manual

1.0. Description

1.1 Two missions of hot water system Supply comfort hot water and control Legionella

Traditional hot water systems often have problems such as uneven cooling and heating at each outlet end and excessive energy consumption. This brings great trouble to users ' comfort, safety and operation and maintenance costs.

Studies show that under the condition of water temperature ≤ 45 °C, the bacterial reproduction rate is accelerated and the risk of microbial pollution is increased. The World Health Organization and countries list Legionella as the No. 1 threat because of its high morbidity and reproduction in the water supply system.

Especially in the hot water circulation system, people must attach great importance to it.

Low water temperature, low flow rate, biofilm and dead water zone are favorable conditions for Legionella breeding.

Therefore, the key to control Legionella is to control the temperature of the whole hot water system to avoid the growth of Legionella.

On the basis of the original hot water system and antibacterial material, the MULTI-Thermostatic Circulation Valve is introduced.

The temperature of each hot water branch can be precisely controlled to ensure not less than 55 °C (Germany) or 50 °C (UK) to prevent Legionella from breeding.

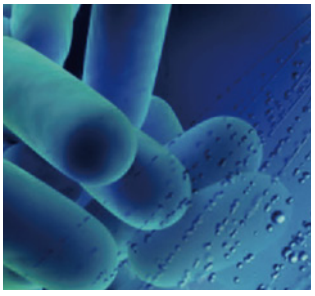
At the same time, the system can be balanced to avoid uneven cooling and heating of each branch and improve comfort.

And the design of hot water system will be more concise, more energy-saving, greatly reducing the user ' s operation and maintenance costs.

1.2 Introduction of Legionella

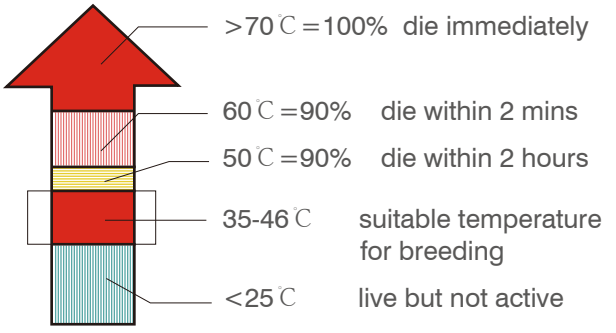
Legionella Pneumonia is a clinical syndrome caused by Legionella pneumophila.

- Pathogens mainly come from hot water (shower), air conditioning, cooling towers, etc., spread by air and invade from respiratory tract.
- The first meeting of veterans was held in Philadelphia, the United States in 1976, which led to 221 people sick, 34 of whom died.
- Legionnaires' pneumonia is acute and severe. If not treated in time, it will die of respiratory failure, shock, acute renal failure and other complications.
- Men are more than women. Older people, smokers and alcoholics, and immunocompromised people are vulnerable.

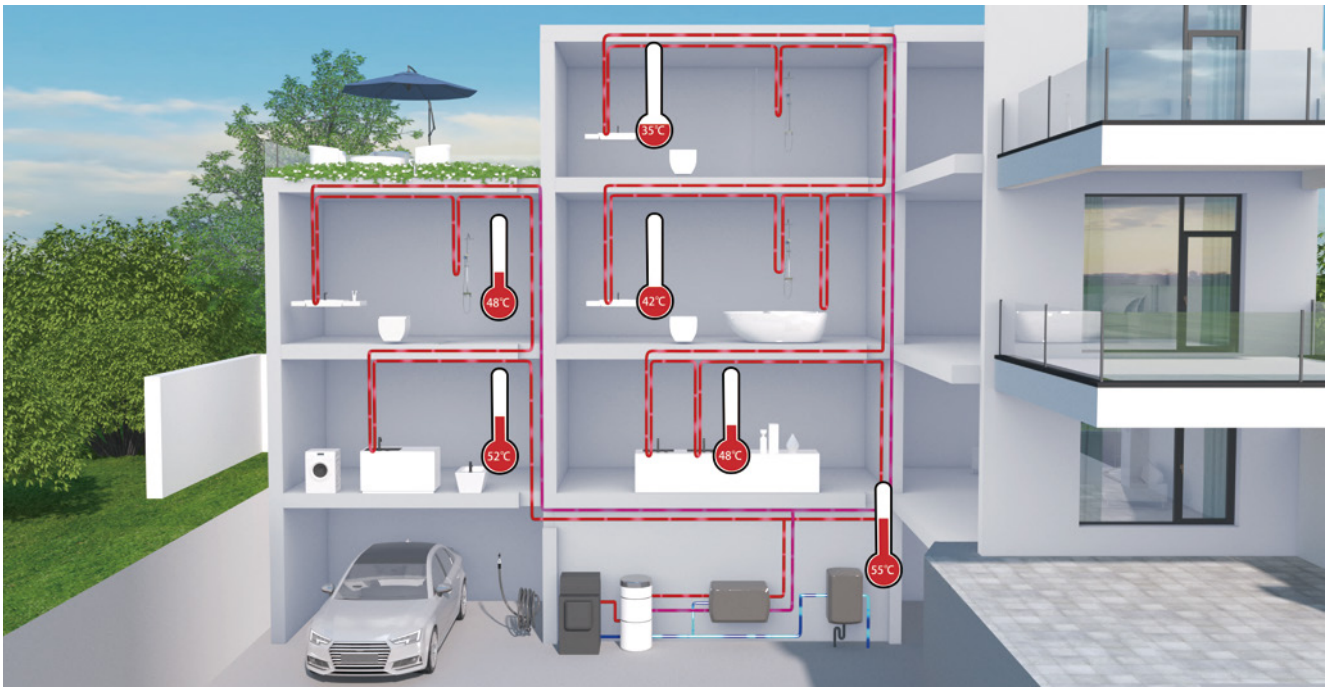


1.Legionella

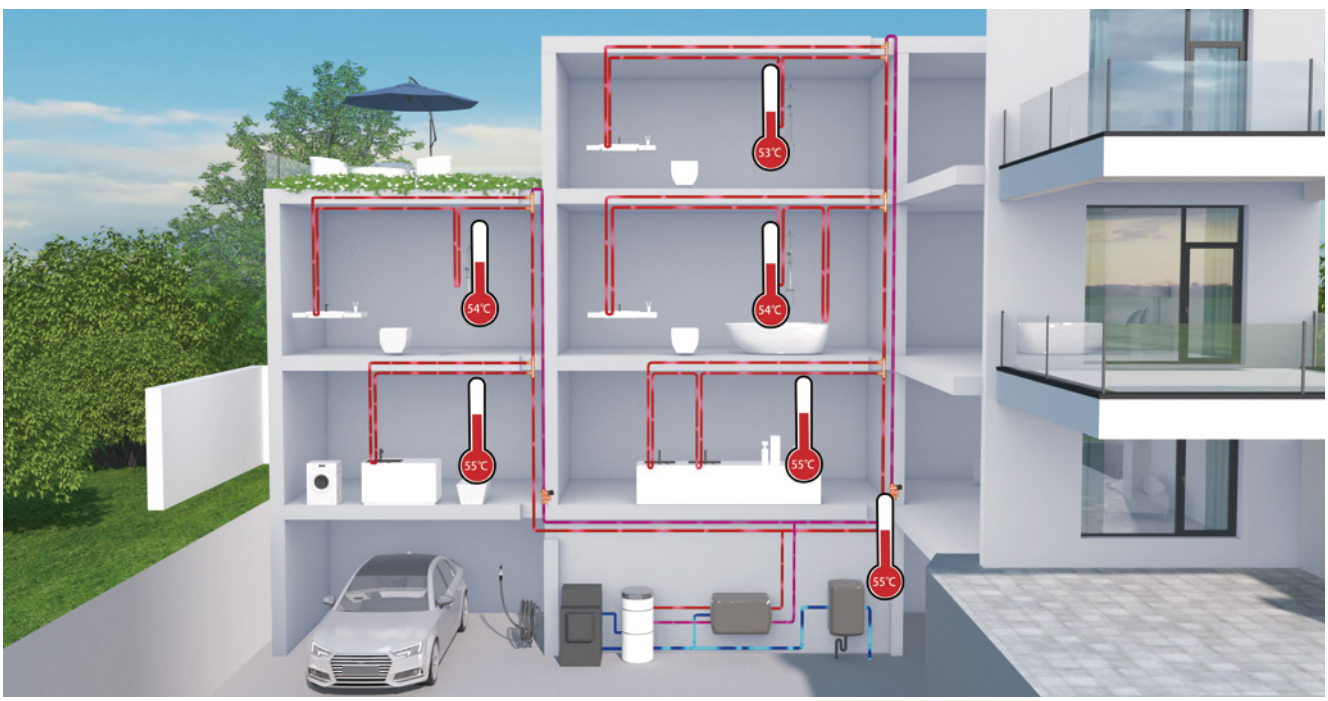
1.2.Legionella transmission pathway (respiratory tract)



1.3 Traditional hot water system(uneven heat and cold, easy to breed bacteria, high energy consumption)



1.4 Hot water system(comfort, energy conservation, safety)



2.0. Features

2.1 Thermostatic control function

Free adjustment can be made between 35 °C and 60 °C to automatically balance the flow rate of the hot water circulation system to reach the preset temperature of each hot water circulation branch.

Control valve core factory preset 55 °C, when the return water temperature does not reach the preset temperature, the valve automatically adjust the opening, with the decrease of temperature increases, so that the circulating branch water temperature does not reduce, avoid the breeding of Legionella. (Figure 1)

When the return water temperature of hot water circulation reaches the preset temperature, the valve is automatically adjusted to the minimum flow, which is conducive to the rapid balance of other branches. (Figure 2)

2.2 Thermal sterilization function

Equipped with mechanical bypass design to facilitate the operation of thermal sterilization of legionella.

The preset temperature of the thermostatic sterilization valve core is 70 °C. When the water temperature is higher than 65 °C, the thermostatic sterilization valve core is opened, and the water flow is circulated independently through the bypass valve, which does not affect the thermal sterilization operation. Until the temperature reaches 70 °C. (Figure 3)

If the temperature exceeds 70 °C, the flow rate through the bypass valve is reduced until the sterilization process achieves thermostatic balance.

When the temperature reaches 75 °C, the bypass valve flow drops to the minimum, avoiding the high temperature of hot water circulation and the possible problems on the equipment. (Figure 4)

Figure 1

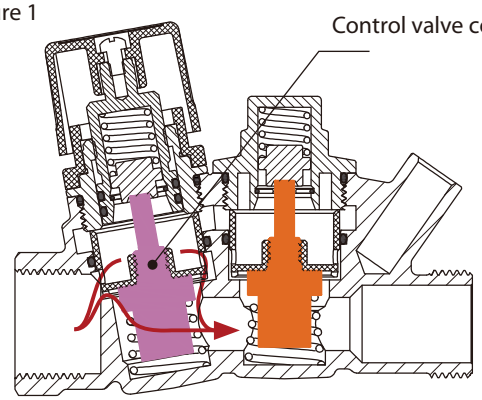


Figure 3

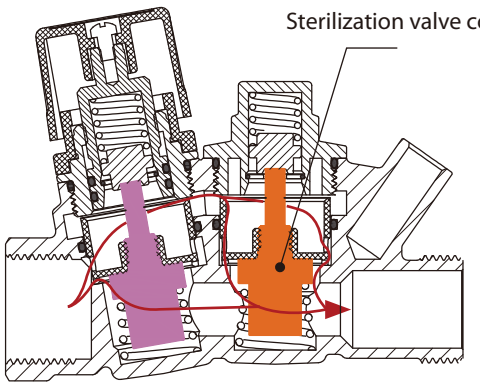


Figure 2

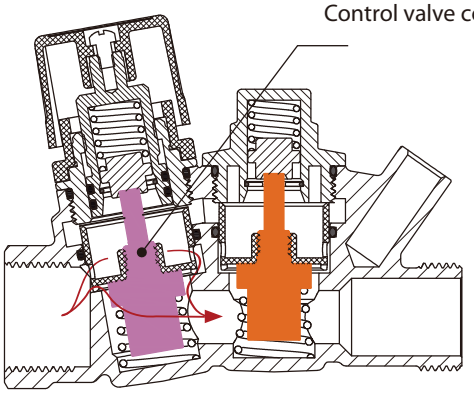
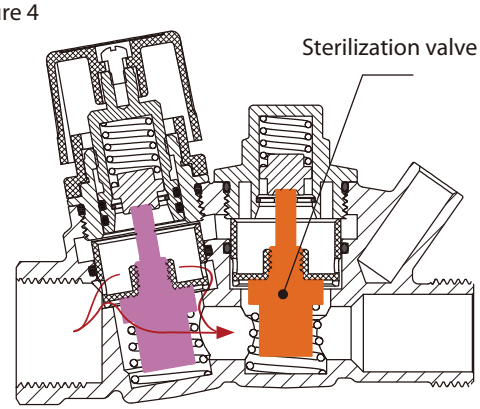


Figure 4



3.0. Technical parameter

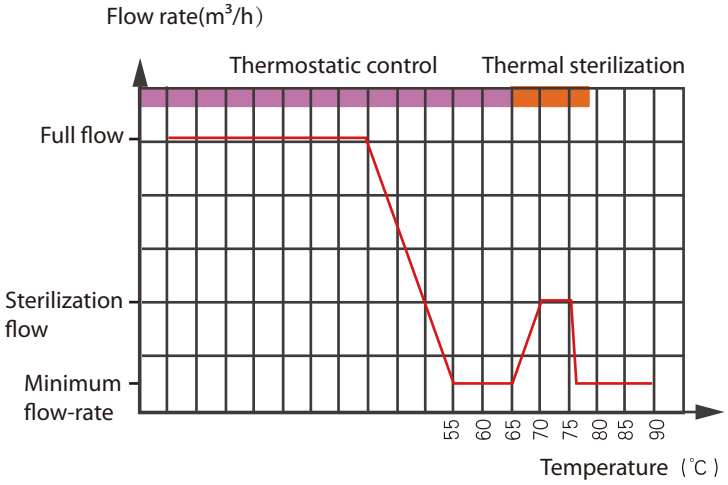
3.1 Capability parameter

Main material : lead-free brass
Medium : hot water
Nominal pressure: PN16
Maximum pressure drop: 1 bar
Maximum inlet temperature : 90 °C

Temperature control range : 35 ~ 60 °C
Control valve core factory preset temperature : 55 °C
Sterilization valve core factory preset temperature : 70 °C
Shutdown temperature : 75 °C

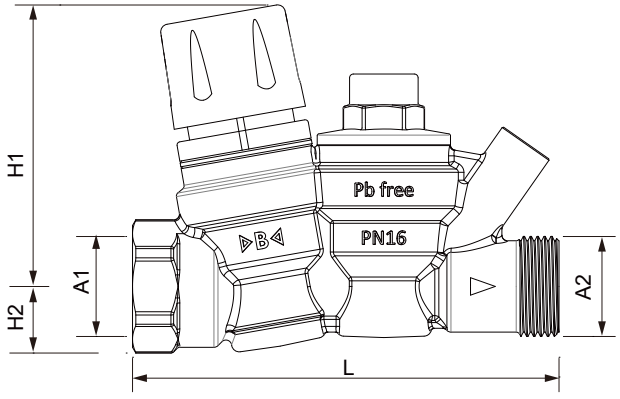
Thermometer interface : 10 mm

hydraulic characteristic



Full open flow Kvmax (m3 / h) : 1.6
Sterilization flow Kvdis (m3 / h) : 0.6
Minimum flow at 55 °C Kvmin (m3 / h) : 0.15 ± 20 %

3.2 Dimensions



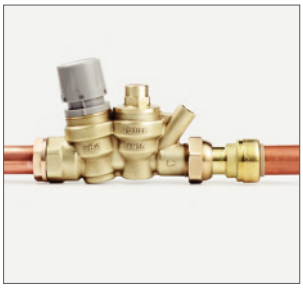
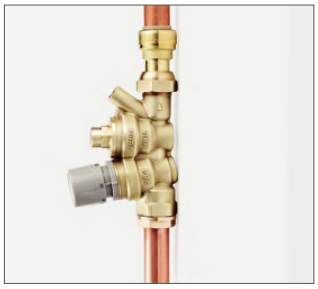
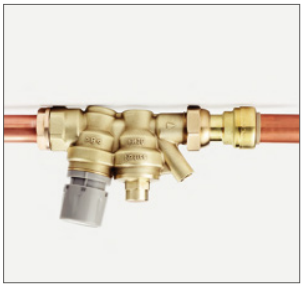
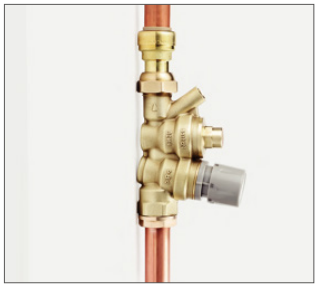
Identification number	Specification	A1	A2	L	H1	H2
CBTCV02001	DN20	G3/4"F	G3/4"M	112	74	17.5

4.0. Installation instruction

Before installing the MTCV, it is necessary to clean the pipeline to avoid impurities entering the circulation system, thus affecting the performance of the equipment. It is recommended that you install suitable filters at the inlet of the water supply system.

4.1 Installation direction

The thermostatic circulating valve can be installed vertically or horizontally according to the flow direction indicated by the valve body arrow, and is not affected. Installation should be easy for subsequent inspection, repair and maintenance of valves.

4.2 Temperature adjustment

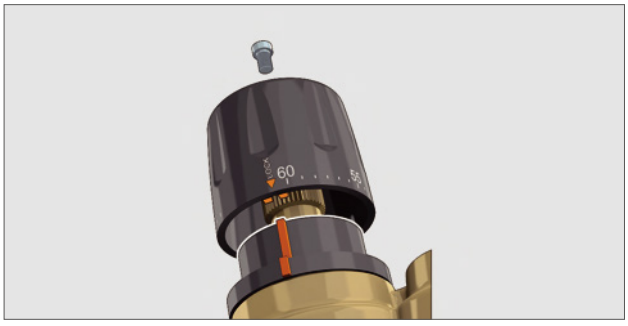
Rotate the handle and adjust the temperature to the desired temperature(clockwise reduce the temperature and counterclockwise increase the temperature)

(Temperature table selected accessories)

4.3 Adjustment locking

After the temperature adjustment is completed, if you are worried about user misoperation, you can lock the temperature to set value through the base. To complete this operation, it is necessary to tear the nameplate on the handle, screw down the fixed screw located on the upper part of the handle, remove the handle and lift the part of the handle groove to the base, and install the screw again. Then, the temperature data displayed on the handle will be lost.

Unlock setting temperature requires the handle to be taken out from the concave, counterclockwise rotation to the end and then the maximum value of the handle alignment scale, tighten the screw again.



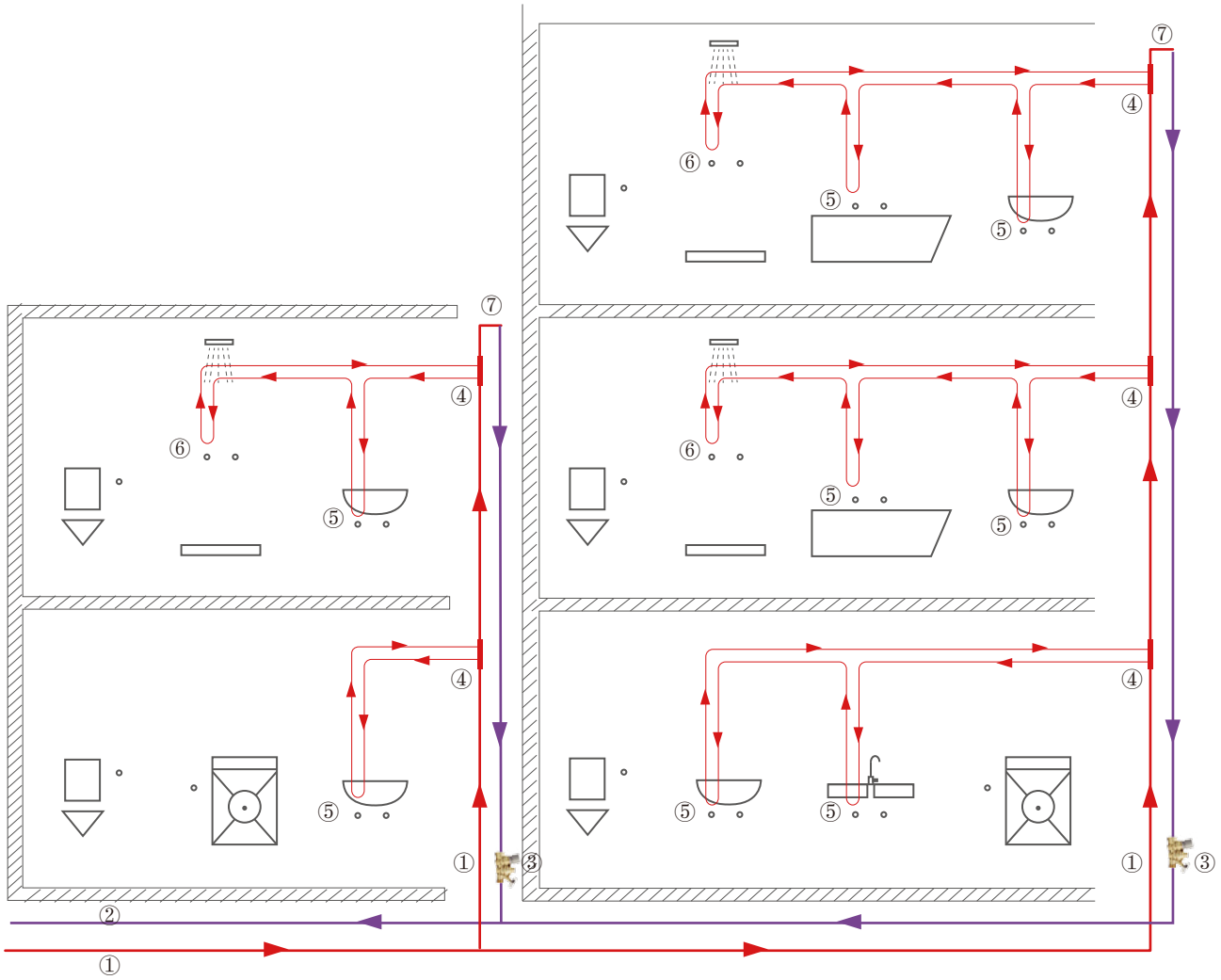
4.4 Heat preservation measures

The product is equipped with a prefabricated thermal insulation shell as standard, which plays the role of thermal insulation and heat insulation to avoid heat loss.

5.0. Application

5.1 Multi-riser hot water circulation system

Minimum flow at 55 °C Kvmin (m3 / h) : 0.15 ± 20 %



5.2 Layered hot water circulation system

Suit for flats, large villas, etc.