

ThermoProtec™ boiler protection high-flow thermostatic mixing valve

© Copyright 2018 Caleffi

280 Series

Installation, commissioning and servicing instructions



Function

The ThermoProtec™ boiler protection high-flow thermostatic mixing valve is used in hydronic heating systems with non-condensing boilers, including solid fuel, biomass, gas, LP or oil-fired. It can be installed with steel, cast iron and copper tube style boilers, automatically controlling the return water temperature, preventing condensation of the water vapor contained in the flue gas.

The 280 series ThermoProtec™ valve mixes bypass flow from the boiler with return flow from the system, sending a fixed temperature flow to the boiler which protects against corrosion from condensation occurring when a minimum flue gas temperature is not otherwise maintained.

Changeable thermostatic sensor cartridges modifies the valve temperature setting. The thermostatic sensor cartridge can easily be removed for maintenance or to change the piping set temperature, with out removing the valve body from the piping.

These items are designed for use in closed hydronic systems. Do not use in plumbing applications. These items do not meet the low-lead plumbing standards of U.S. and Canada

Product range

280 series boiler protection valve. NPT male or sweat union, sizes 1", 1-1/4".

Technical Characteristics

- Materials:
 - Body: brass
 - Lower body plug: brass
 - Shutter: polysulfone
 - Spring: stainless steel
 - Seal: peroxide-cured EPDM
 - Union seals: non-asbestos fiber
 - Thermostatic sensor: wax
- Suitable fluids: water, glycol solutions
- Max. percentage of glycol: 50%
- Max. working pressure: 150 psi (10 bar)
- Working temperature range: 40–212°F (5–100°C)
- Thermostatic element setpoint: 130°F (55°C) standard
115°F(45°C), 140°F(60°C),
160°F(70°C) optional cartridges (field replaceable)
- Sensor cartridge accuracy: ±3.6°F (±2°C)
- By-pass from boiler complete closing temperature: Tset + 18°F (+ 10°C)
- Cv:
 - size 1"...10 Cv
 - size 1 1/4".. 14 Cv
- Connections:
 - NPT male union: 1" and 1 1/4"
 - sweat union: 1" and 1 1/4"



SAFETY INSTRUCTION

This safety alert symbol will be used in this manual to draw attention to safety related instructions. When used, the safety alert symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.**



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



CAUTION: All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of systems in accordance with all applicable codes and ordinances.



CAUTION: If the boiler protection valve is not installed, commissioned and maintained properly, according to the instructions contained in this manual, it may not operate correctly and may endanger the user.



CAUTION: Make sure that all the connecting pipework is water tight.



CAUTION: When making the water connections, make sure that the mixing valve connecting pipework is not mechanically over-stressed. Over time this could cause breakages, with consequent water losses which, in turn, could cause harm to property and/or people.



CAUTION: Water temperatures higher than 100°F can be dangerous. During the installation, commissioning and maintenance of the boiler protection valve, take the necessary precautions to ensure that such temperatures do not endanger people.



CAUTION: In the case of highly aggressive water, arrangements must be made to treat the water before it enters the boiler protection valve, in accordance with current legislation. Otherwise the mixing valve may be damaged and will not operate correctly.

Operation/Use

The thermostatic sensor, completely immersed in the medium, controls the movement of a shutter that regulates the bypass flow from the boiler and toward the system. At boiler startup, the boiler protection thermostatic mixing valve recirculates the bypass flow from the boiler to bring the boiler up to temperature as quickly as possible. When the bypass flow from the boiler temperature exceeds the temperature setting of the boiler protection mixing valve, the valve's return from the system port starts opening to produce the mixed water temperature: in this phase the system loading begins. When the mixed flow to the boiler temperature is greater than the set point of the boiler protection mixing valve by approximately 18°F (10°C), the bypass flow from the boiler port closes and water returns to the boiler at the same temperature as the return flow from the system.

Installation

Assembly and disassembly should always be conducted when the system is cold and not under pressure.

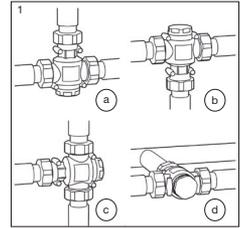
Accessibility: it is essential to provide unobstructed access to the valve for maintenance of the valve or fittings.

1) The valve can be installed on both sides of the boiler, left- or right side, in any position, vertical or horizontal.

2) Installation is recommended on the return to the boiler in mixing mode (boiler protection).

Connections as follows:

- Hot water from boiler: inlet in the port marked with the red dot (2) (see label).
- Cool system water return: inlet in the port marked with the blue dot (1) (see label).
- Mixed water outlet, returning to the boiler, in the port marked with the flame symbol on the valve body

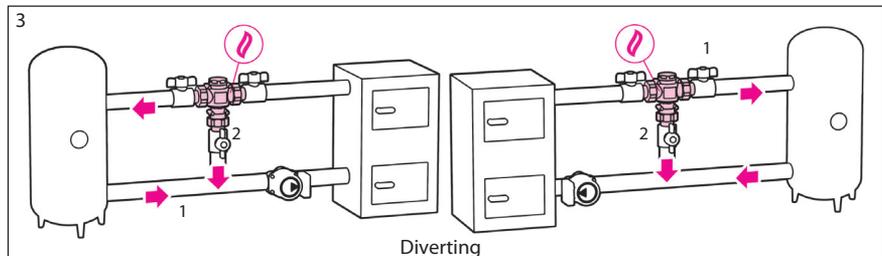
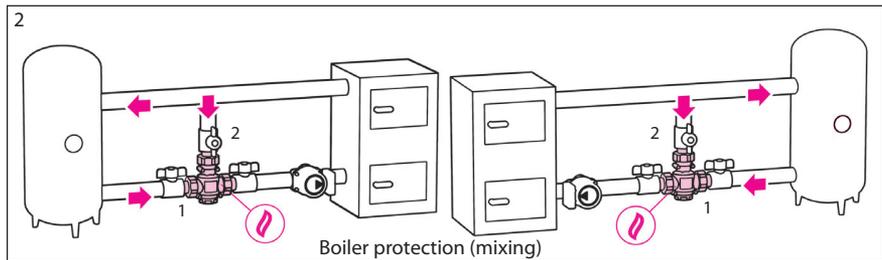


3) Installation is allowed alternatively in diverting mode on the hot water pipe from the boiler.

Connections as follows:

- Hot flow water from boiler: inlet in the port marked with the flame symbol on the valve body.
- Outlet of the water towards the system flow: in the port marked with the blue dot (1) (see label).
- Water by-pass outlet: in the port marked with the red dot (2) (see label).

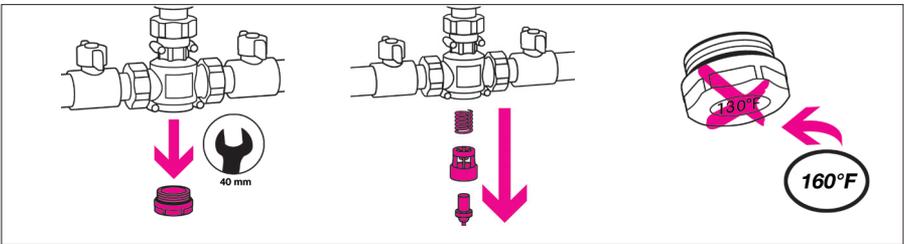
NOTE: The valve is supplied as standard for installation in mixing valve mode, with the "Mixing valve" labels already applied to the body. For installation in diverting mode, apply the "Diverting valve" labels supplied in the packaging.



Maintenance/Setting change

The thermostatic element cartridge with thermostatic sensor can be easily removed for maintenance or set point change, without removing the valve body from the pipe if not installed vertically (1c) or horizontally on its side (1d), as follows:

- isolate the ThermoProtec boiler protection thermostatic mixing valve from the system
- if the valve is installed on a vertical pipe (1c) or laying on a horizontal pipe (1d), remove the valve from the pipe
- unscrew the lower body plug
- take out the cartridge consisting of the spring, inner valve and thermostatic element sensor
- perform maintenance or replace the thermostatic element cartridge with the desired replacement cartridge, fitting it in the same position
- re-assemble the cartridge consisting of the factory-assembled spring, inner valve and thermostatic sensor inside the valve body
- screw the lower body back onto the valve body
- if the valve is installed on a vertical pipe (1c) or laying on a horizontal pipe (1d), re-install the valve onto the pipe
- if the thermostatic element cartridge is replaced with a cartridge featuring a different set point, apply the label indicating the new set point to the lower body plug (this label is supplied in the spare part packaging).



Leave this manual for the user.

Scan to view



280 ThermoProtec™

Installation Tip

CALEFFI
Hydronic Solutions

Caleffi North America, Inc.
3883 W. Milwaukee Road
Milwaukee, WI 53208
T:414.238.2360 F:414.238.2366

7-24-18