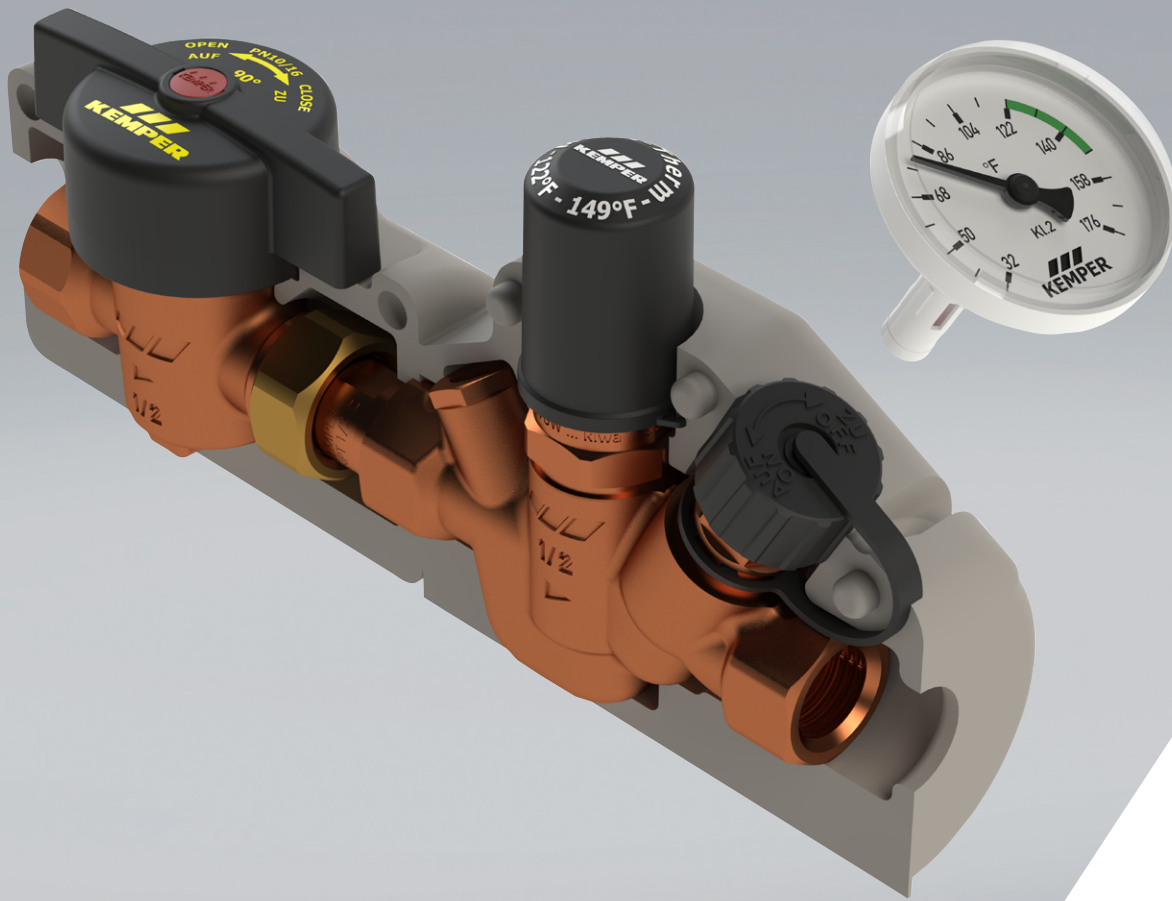




MULTI-THERM Assembly Hot Water Circulation Balancing Valve

// Engineered for installers. Designed for operators.

KEMPER
WATER CONTROL SYSTEMS

Faster Installation. Simple Operation: Multiple Functions in One Compact Assembly

The Product Highlights

01 Quarter Turn Stop Valve

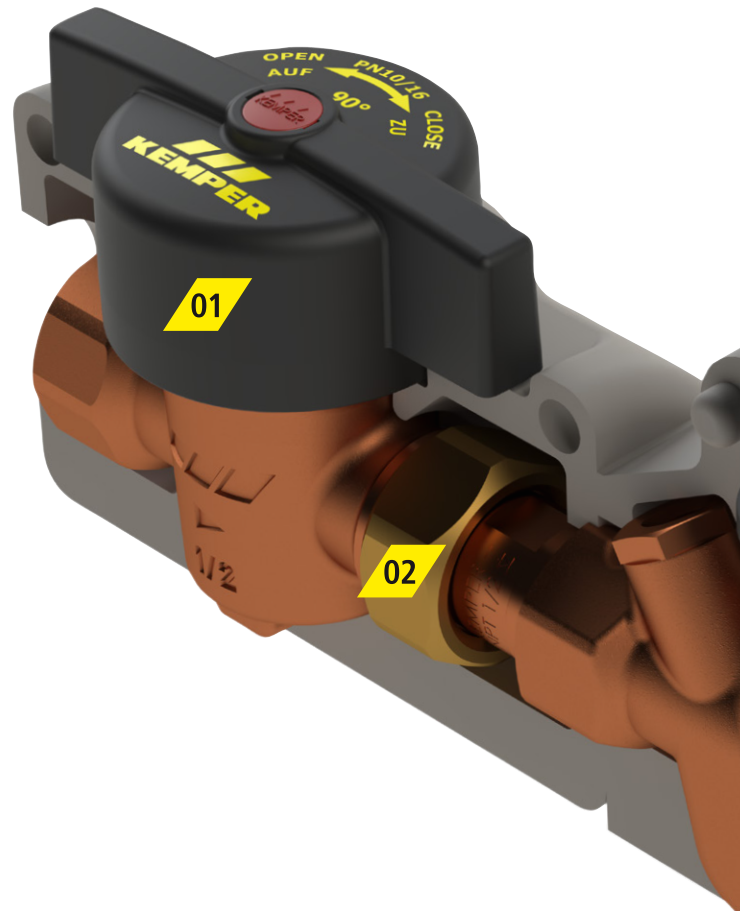
Enables inlet-side shut-off for easy maintenance and servicing.

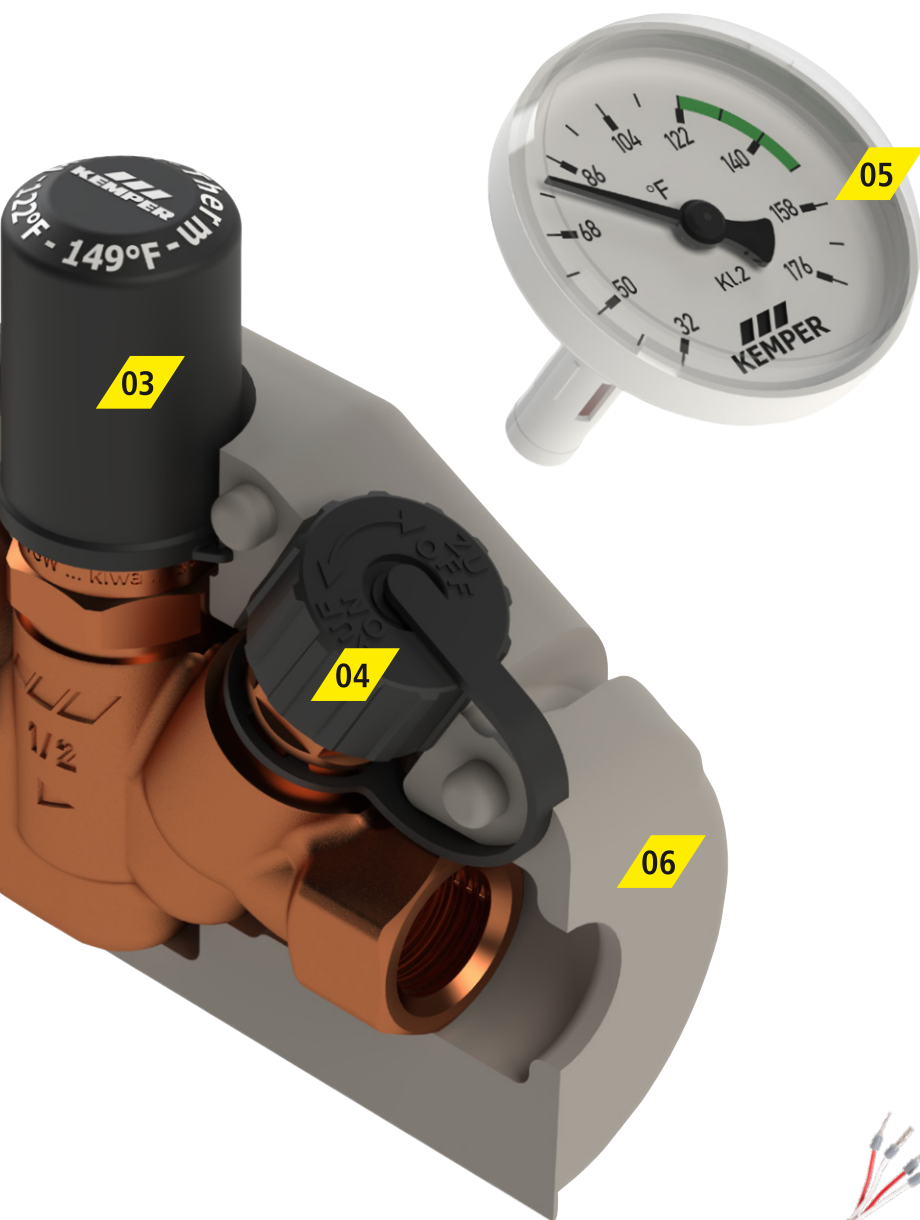
02 Union Connection with Integrated Check Valve

The union connection simplifies installation and allows non-destructive disassembly for maintenance. The integrated check valve prevents thermosiphoning and unwanted back-flow.

03 Adjustable Thermostatic Balancing Head

The thermostatic balancing element automatically regulates the circulation flow rate according to the preset water temperature. The temperature can be adjusted from 111 °F to 129 °F (Figure 154 14) or from 122 °F to 149 °F (Figure 154 12). The thermal element also supports thermal disinfection at elevated system temperatures. A security screw prevents unauthorized tampering.





04 Outlet-side Stop Valve

Integrated on the outlet side of the assembly, the stop valve enables isolation for servicing the valve and downstream system components.

05 Temperature Gauge

Supplied as standard with every valve assembly, the temperature gauge enables quick and easy verification of the water temperature at the point of installation.

06 Insulation Shell

The factory-supplied insulation shell speeds installation, minimizes heat loss, improves energy efficiency and eliminates the need for custom insulation.



PT1000 Temperature Sensor

An optional PT1000 temperature sensor can be used in lieu of the temperature gauge. The sensor enables remote temperature monitoring via a Building Management System (BMS).

Figure T5100 140 00

Branch Plan: Extract from a Major Project

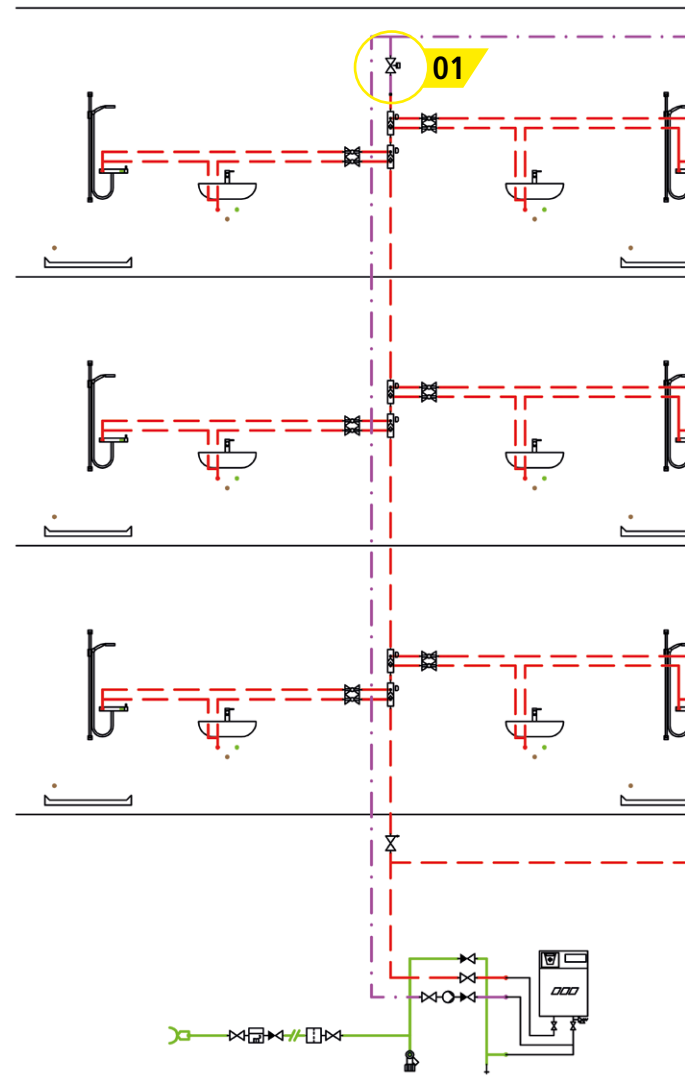
MULTI-THERM thermal balancing valves are used to balance hot water return temperatures between multiple distribution branches.

The designed return temperature is set at the valve and automatically maintained without the need for constant call-backs and readjustments.

The thermostatic "engine" inside the valve constantly throttles to automatically control and balance the temperature and flow of water through each branch, or riser.

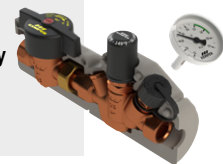
See typical riser distribution layout (to the right) showing the use of the MULTI-THERM valves positioned at the end of each distribution branch.

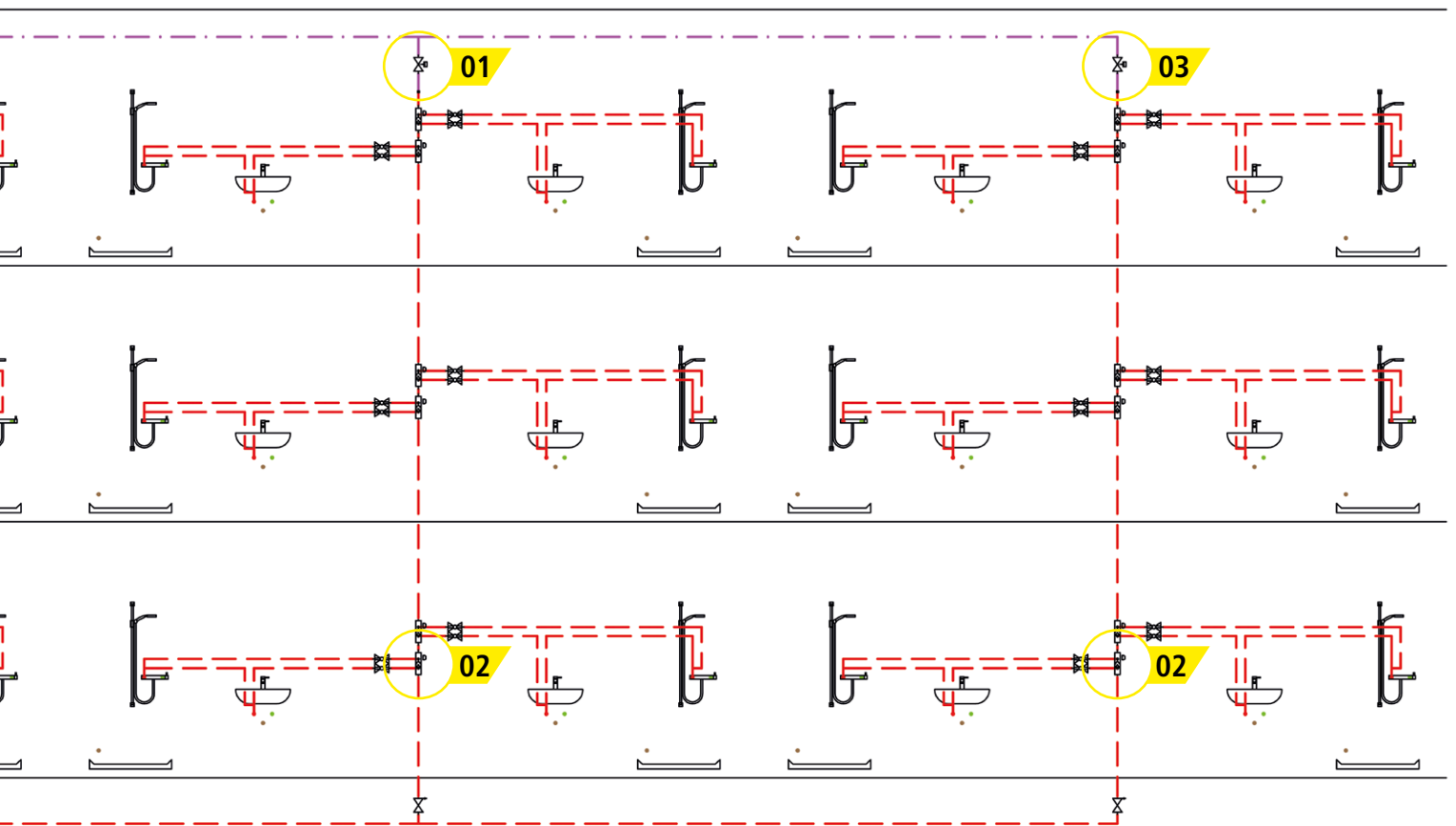
Note: the optional use of KEMPER Flow-Splitters on the supply line provides in-room circulation.



01

MULTI-THERM Assembly
with temperature gauge
Figure 154 12/14





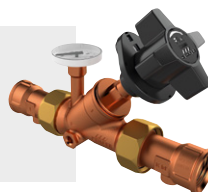
02

KHS Flow-Splitter Unit
Figure 651 06



03

MULTI-FIX-PLUS
with union connections
Figure 155 6G



INFO

The MULTI-FIX-PLUS static balancing valve is typically installed on the longest (index) circuit, providing enhanced balancing control during commissioning and operation.

Technical Data:

Detailed Specifications and Performance Metrics

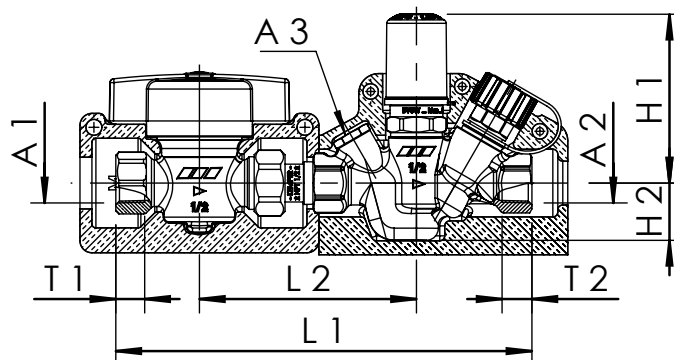
Proper balancing is essential for efficient domestic hot water circulation, ensuring that hot water is available throughout a building whenever and wherever it is needed. By continuously circulating hot water through the system, occupant comfort is enhanced, waiting times are minimized, and unnecessary water consumption is reduced.

The Solution: Thermostatic Balancing

Thermostatic balancing valves automatically regulate circulation flow according to water temperature, ensuring that every branch receives exactly the flow required to maintain the desired temperature.

The KEMPER MULTI-THERM Assembly combines thermostatic balancing, isolation, backflow prevention, temperature monitoring and thermal disinfection in one compact, factory-assembled solution, simplifying installation while supporting efficient and reliable hot water circulation.

Adjustable control range	Fig. 154 12: 122 °F – 149 °F Fig. 154 14: 111 °F – 129 °F
Factory pre-set temperature	Fig. 154 12: 136 °F Fig. 154 14: 120 °F
Pressure rating	232 psi. (PN 16)
Max. operating temperature	194 °F
Temperature range for thermal disinfection	158 °F – 194 °F
Control accuracy	±2K
Valve type	Fig. 154 12 female thread Fig. 154 14 female thread
Material	Wetted metal parts made from dezincification-free, corrosion-resistant and lead-free gunmetal, resistant against aggressive water
Stop valve	Operating handle 90° rotatable with a removable inner top part TOP-ENTRY
Check valve	Integrated within the union connector
Temperature sensor pocket	Temperature sensor pocket for a temperature gauge or a PT 1000 sensor with an isolating unit



A1 inch (FNTF)	A2 inch (G-thread)	H1 inch	H2 inch	L1 inch	T1 inch	L2 inch	cv gal/min
1/2	G 1/4	3.3	1.1	8.2	0.6	4.3	1.16
3/4	G 1/4	3.3	1.3	9.1	0.6	4.8	1.5
1	G 1/4	3.8	1.3	10.1	0.8	5.3	2.5

Correct Sizing

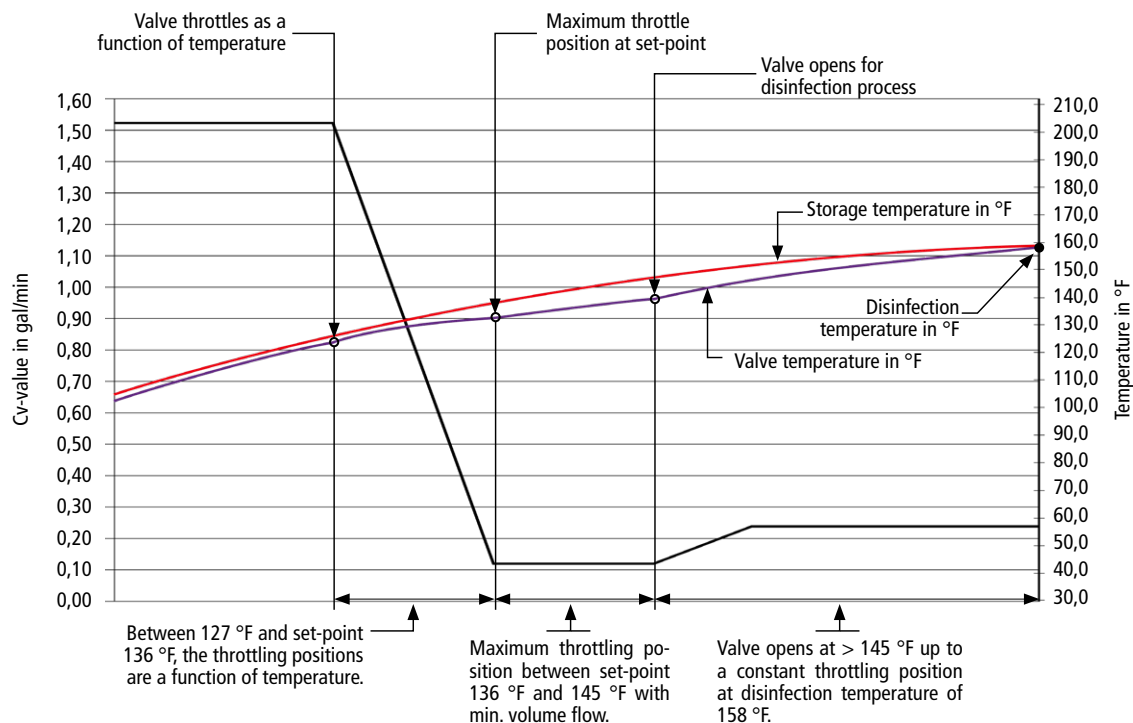
Balancing valves require correct sizing to ensure optimal performance. The performance curve of a MULTI-THERM correlates the required hot water recirculation flow rate to the pressure drop of the valve.

The required hot water recirculation flow rate is a function of the heat loss through the pipe section in question. The required pressure drop is identified as being the difference of the pressure drop between the pipe section in question and the pressure drop of the index run (the index run is the hot water circulation flow path with the highest pressure drop in the system).

Key benefits of hot water circulation systems include:

- // **Immediate hot water** availability at points of use.
- // **Reduced water consumption** by minimizing the need to run taps while waiting for hot water.
- // **Improved user comfort** through reduced waiting times and immediate hot water availability.
- // **Reliable hot water delivery** throughout large and complex buildings.

Flow Characteristics





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