TM50

Thermostatic mixing valve

with scald protection

APPLICATION

Thermostatic mixing valves provide control of the water temperature and are used:

- For centralised control on hot water supply units or for localised control adjacent to point-use outlets. Or for use with solar-heated hot water units with dual energy source.
- In heating systems with underfloor heating or for limiting boiler return temperatures.

Where a system includes a hot water circulation circuit, a return flow retarder unit (see accessories) must be fitted to prevent cold water backfeeding and cooling the mixed water at the outlets.

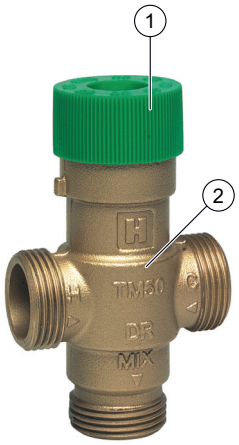
SPECIAL FEATURES

- Highly sensitive thermal element with good all-round water temperature sensing, even at low flow rates
- Scald protection - the hot water inlet is automatically cut off if the cold supply fails provided that the hot water inlet temperature is at least 10 K higher than that of mixed water setting
- The cold water inlet is automatically cut off if the hot supply fails
- Simple setting of the required water temperature
- Options with integrated check valves for cold and hot water inlet available
- Inner components are of scale-resistant materials
- Meets UBA regulations for drinking water

TECHNICAL DATA

Media	
Medium:	Drinking water
Connections/Sizes	
Connection size:	G 3/4"
Pressure values	
Operating pressure:	max. 10 bar
Maximum pressure difference between hot and cold inlet supplies:	2.5 bar
Operating temperatures	
Max. hot water inlet temperature:	90 °C
Setting range:	30 - 60 °C
Control accuracy:	<±4 K
Specifications	
Flow rate at 1.0 bar pressure differential across valve:	appr. 25 l/min
Installation position:	Arbitrary

CONSTRUCTION

Overview			
		**Components**	**Materials**
	1	Adjustment knob	High-quality synthetic material
	2	Housing	Dezincification-resistant brass
		Not depicted components:	
		Adjustment spring	Stainless steel
		Moving parts	High-quality, scale-resistant synthetic material
		Thermostat	-
		Integrated check valves (TM50-1/2ERV only)	High-quality synthetic material
		Seals	EPDM

METHOD OF OPERATION

a) As a mixing valve for hot water supply and heating systems:

The highly sensitive thermal element located in the outlet of the valve controls a plug which regulates the flow proportions of cold and hot water in relation to the mixed hot water setting selected.

Soft seatings are fitted to both hot and cold water inlets. They provide:

- A positive hot inlet shut-off if the cold water supply is interrupted, provided that the hot water inlet temperature is at least 10 K higher than that of the mixed water setting.
- The cold water supply is cut off if the hot water supply is interrupted.

b) As a diverter valve on central heating systems:

For this application flow through the valve is in the reverse direction compared with its use as a hot water mixing valve. The inlet water passes around the sensing element and regulates the control piston so that for temperatures above the set value the water is returned to the heating circuit and for temperatures lower than the set value the water is diverted to the boiler.

TRANSPORTATION AND STORAGE

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

Parameter	Value
Environment:	clean, dry and dust free
Min. ambient temperature:	5 °C
Max. ambient temperature:	55 °C
Min. ambient relative humidity:	25 % *
Max.ambient relative humidity:	85 % *

*non condensing

INSTALLATION GUIDELINES

Setup requirements

- Install without tension or bending stresses
- Fit a return flow-retarder unit where the hot water supply system includes a circulation circuit
- Observe the flow direction arrow when fitting a return flow-retarder unit
- To prevent the growth of legionella, DVGW-W551 specify that the water volume in the pipework between the mixer valve and the furthest take-off point should not exceed 3 litres. This corresponds to a maximum length of 10 metres for $^{3}/_{4}$" (20 mm) pipework and 17 metres for $^{1}/_{2}$" (15 mm)
- Requires regular maintenance in accordance with EN 806-5

Installation Example

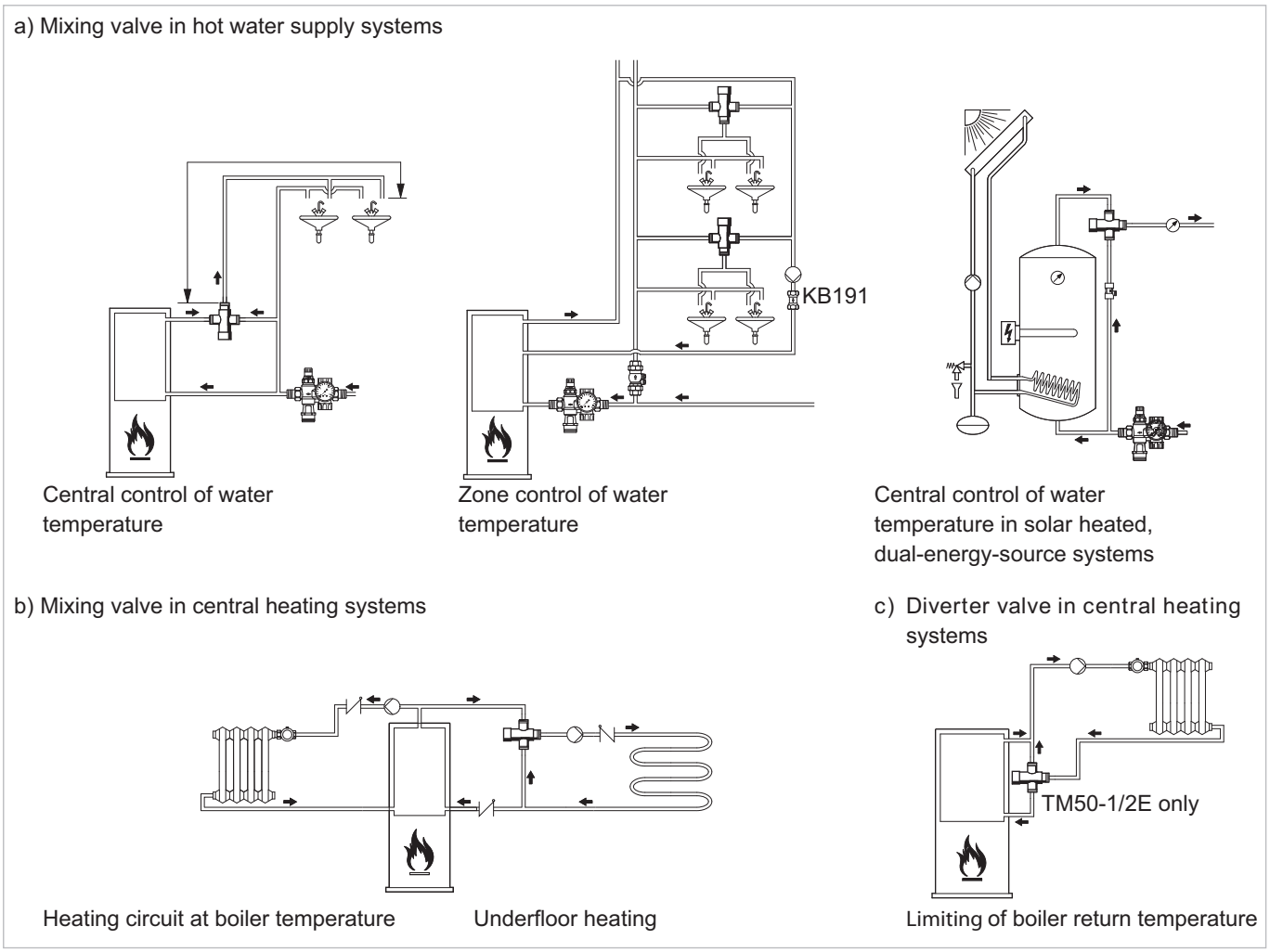
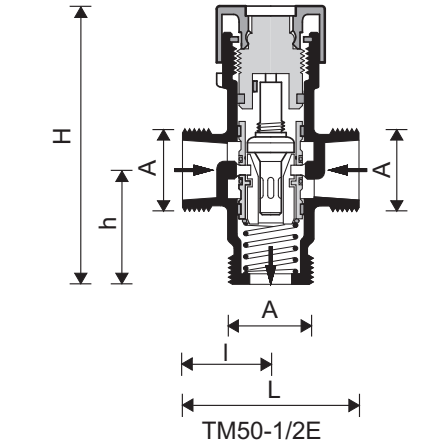


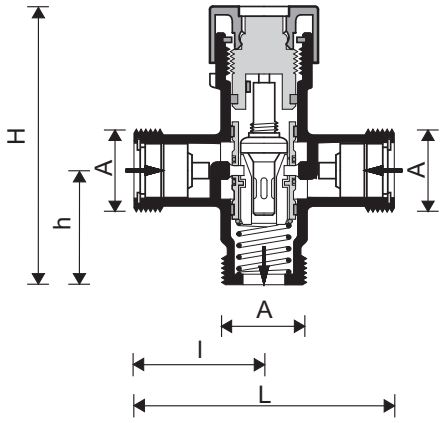
Fig. 1 Standard installation example for the mixing valve

DIMENSIONS

Overview



TM50-1/2E



TM50-1/2ERV

Parameter		TM50-1/2E	TM50-1/2ERV
Connection size:	R	G 3/4"	G 3/4"
Dimensions:	mm		
	L	57	80
	l	29	40
	H	37	37
	h	93	93

ORDERING INFORMATION

The following tables contain all the information you need to make an order of an item of your choice. When ordering, please always state the type, the ordering or the part number.

Options

The valve is available in the following sizes: 1/2"

• standard

- not available

		TM50-1/2E	TM50-1/2ERV
Version:	with male connection G 3/4"	•	–
	with check valves on inlet ports and male connection G 3/4"	–	•

Accessories

	Description		Dimension	Part No.
	**KB191**	**Return flow-retarder unit** for fitting to systems which include a hot water circulation circuit - to prevent cold water backfeeding and cooling the mixed water at the outlets. Operating pressure: max. 10 bar Operating temperature: max. 90 °C. Installation orientation: Arrow pointing in flow direction.		
				KB191-3/4
	**VST06A**	**Connection set** Threaded connections		
			$^1/_2$"	VST06-1/2A
			$^3/_4$"	VST06-3/4A
			1"	VST06-1A
			$1^1/_4$"	VST06-11/4A
			$1^1/_2$"	VST06-11/2A
			2"	VST06-2A
	**VST06B**	**Connection set** Solder connections		
			$^1/_2$"	VST06-1/2B
			$^3/_4$"	VST06-3/4B
			1"	VST06-1B
			$1^1/_4$"	VST06-11/4B
			$1^1/_2$"	VST06-11/2B
			2"	VST06-2B

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