

Climate  
Control

IMI Heimeier

# Heimeier Tempset – NPT threads



## Circulation valves

Thermostatic Balancing Valve for Domestic hot water systems

## Heimeier Tempset – NPT threads

This thermostatic valve for automatic balancing in domestic hot water systems features a step-less temperature setting, saving energy with reduced delay time for hot water. The shut-off function enables straightforward maintenance while the temperature control feature delivers safer operating procedures. The Heimeier Tempset is a leadfree product (<0.1% lead content) especially designed to address local environmental demands.



### Key features

#### ZERO lead

Product made of lead-free brass (<0.1% lead content).

#### Thermometer

For easy maintenance.

### Technical description

#### Application:

Domestic hot water systems.

#### Functions:

Stepless temperature setting  
Shut-off  
Temperature control  
Measuring

#### Dimensions:

1/2" - 3/4"

#### Pressure class:

PN 16 (230 psi)

#### Static pressure:

Max. static pressure during temperature control 145 psi.

#### Temperature:

Max. working temperature: 194°F

#### Temperature range:

95-176°F  
Pre-set at 130°F  
Cv at pre-set temperature: 0.348

#### Material:

Valve body: Brass CC768S  
Valve plug: Corrosion-resistant acetal plastic  
Seat: Corrosion-resistant polysulphone plastic  
Other parts in contact with water: Brass CW724R (CuZn21Si3P)  
O-rings: EPDM rubber  
Handwheel: Glassfibre reinforced polyamide plastic

#### Marking:

Valve body: ZERO, PN 16, DN, DR, flow direction arrow.  
Handwheel: IMI

#### Approvals:

Approved by IAPMO R&T  
NSF/ANSI 61 certified  
NSF/ANSI 372 certified

## General

Today, most of the larger buildings have domestic hot water circulating systems in order to reduce the delay time for the water to run hot at the taps.

A Heimeier Tempset thermostatic circulation valve can be fitted instead of a conventional balancing valve.

The valve opens when the temperature of the domestic hot water upstream of the valve is lower than the set temperature and when the supply temperature exceeds the set temperature, the valve closes. The flow of domestic hot water stops until the temperature of the water in the pipe has fallen below the set value, then the valve re-opens and again allows hot water to circulate.

Heimeier Tempset is fitted with a manual shut-off valve in order to allow repair work to be carried out on the system.

## Sizing

The flow requirement in a hot water circulation system is determined by the cooling of the water in the distribution pipes. It is desirable to keep this temperature drop under control, and normally it is recommended a temperature drop of 9-18°F from the hot water tank or boiler etc. to the Heimeier Tempset.

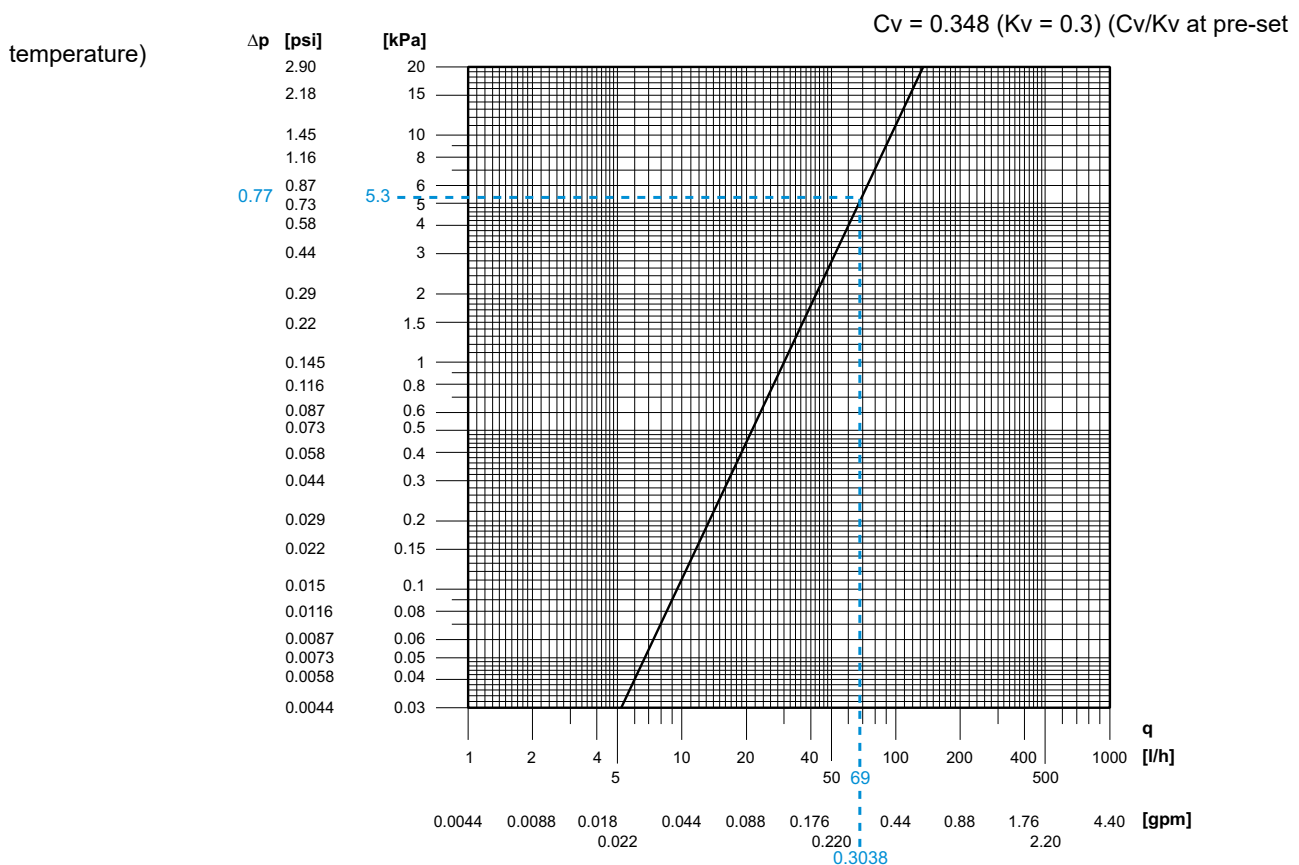
In modern buildings, the heat loss from insulated pipes that will carry the circulating hot water can be estimated to about 3.048 W/ft. From this, the necessary flow rate of the circulation pump can be calculated:

$$q = 3.048 \times \sum L \times 0.86 / \Delta T \quad (q \text{ in gpm})$$

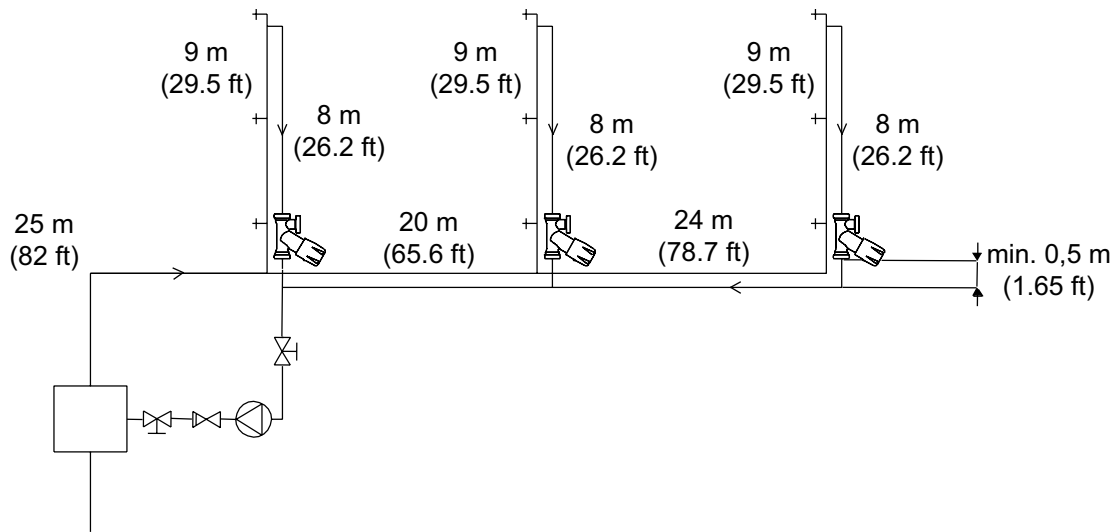
The pump head needs to be sufficient to overcome friction and pressure pulse losses in the pipes to the furthest hot water circulation valve and back, to which must be added the pressure drop across the Heimeier Tempset valve itself, check valve, heat exchanger and other components.

### NB!

The output temperature from the hot water tank, boiler etc. must be at least 41°F above the temperature setting of the Heimeier Tempset.



## Example



### Solution

Necessary flow to overcome 9°F temperature drop to the last Heimeier Tempset:

$$q = 3.048 \times (82 + 29.5 + 26.2 + 65.6 + 29.5 + 26.2 + 78.7 + 29.5 + 26.2) \times 0.0068 / 9 = 0.91 \text{ gpm}$$

Assume that the total flow is divided equally for each Heimeier Tempset.  $0.91 / 3 = 0.30 \text{ gpm}$ , which gives a pressure drop of 0.77 psi (5.3 kPa) for 1/2" (DN 15) (see diagram).

The required pump head is then given by:

1. Heimeier Tempset = 0.77 psi (5.3 kPa)

2. The pressure drop in the hot water pipes to the last tap is estimated to 0.0013 psi/ft (30 Pa/m) (at low load).

$$0.0013 \times (82 + 65.6 + 78.7 + 29.5) = 0.33 \text{ psi (2.3 kPa)}$$

3. The pressure drop in the hot water circulation pipe (from the last tap and back) is estimated to 0.0044 psi/ft (100 Pa/m).

$$0.0044 \times (26.2 + 78.7 + 65.6 + 82) = 1.11 \text{ psi (7.7 kPa)}$$

4. The pressure drop in the check valve, heat exchanger and other components is estimated to 1.74 psi (12 kPa).

$$\sum \Delta p = 0.77 + 0.33 + 1.11 + 1.74 = 3.95 \text{ psi (27.3 kPa)}$$

Select a pump to give 0.91 at a minimum of 4 psi (28 kPa) head.

## Installation

Heimeier Tempset is calibrated and pre-set at 130°F.

Heimeier Tempset can be set at any required temperature between 95-176°F.

### Installation

(see Diagram B)

Fit Heimeier Tempset in each circulation riser, either at the top or bottom of the riser.

Make sure that the valve is fitted the right way round (an arrow on the valve body indicates the direction of flow) and not closer than 19.7 in. from the return pipe.

### Temperature setting

(see Diagram A)

- Loosen the locking screw with the 2.5 mm Allen key, and unscrew it until it projects slightly above the handwheel.
- Turn the handwheel anticlockwise to stop.
- Set the required temperature against the casting line along the centre of the valve body (see the dotted line).
- Tighten the locking screw.

### Shut-off

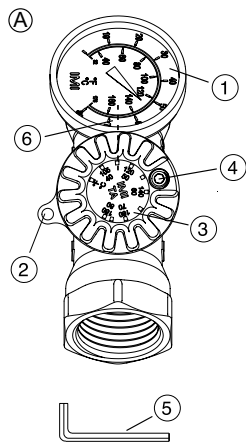
(see Diagram A)

- Loosen the locking screw with the 2.5 mm Allen key, and unscrew it until it projects slightly above the handwheel.
- Turn the handwheel clockwise to stop.

### Resetting the temperature

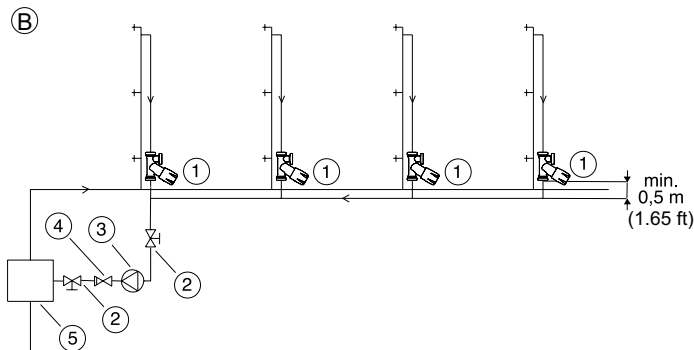
(see Diagram A)

- Turn the handwheel anticlockwise to stop.
- Set the required temperature against the casting line along the centre of the valve body (see the dotted line).
- Tighten the locking screw.



**Diagram A**

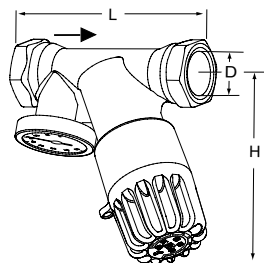
1. Temperature gauge
2. Lug for identification tab
3. Temperature scale
4. Locking screw
5. Allen key for locking screw (2.5 mm)
6. Casting line



**Diagram B**

1. Heimeier Tempset
2. Shut-off valve
3. Domestic hot water circulation pump
4. Check valve
5. Heat exchanger

## Articles



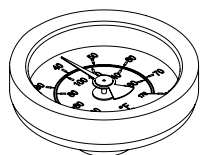
### With thermometer

Pre-set at 130°F

Size	D	L [in]	H* [in]	Cv <sub>nom</sub>	Cvs	lb	Article No
1/2"	1/2 NPT	3.38	3.54	0.348	1.28	1.04	TSET050
3/4"	3/4 NPT	3.62	3.54	0.348	1.28	1.17	TSET075

\*) Maximum height

## Accessories



### Thermometer

32-212°F / 0-100°C

ØD	Article No
1.61 in.	THERM01





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