# Thermostatic valve bodies

## for single pipe heating systems

To be precise.

Heimeier

# E-Z System

## Description

The HEIMEIER E-Z System is a universally useable valve for all radiators with a two point connection in single and two-pipe heating systems. The system consists of an E-Z distributor, thermostatic valve body, alternatively with axial, angle or straight form with bend nipple, as well as precision steel pipe and compression fittings.

Pipe connector G$^3/_4$, with compression fittings for plastic, copper, precision steel, or multi-layer pipes.

For the HEIMEIER E-Z System, use only the accompanying, labeled HEIMEIER compression fittings (label e. g. 15 THE).

In single pipe operation, the mass flow to the radiators can be set anywhere in the area between 30–60%. Factory settings: 35% to the radiator.

The distributor can be reset by turning the regulating cone to the left as far as it will go to two-pipe operation (100% mass flow through the radiator, by-pass closed).

By turning the regulating cone all the way to the right, the return is shut off, the supply by closing the thermostatic valve body, as a result of which the radiator is detachable without emptying the unit. The by-pass stays opened in single pipe operation regardless of the shut-off, so that the circulation of the circularpipeline is not interrupted.

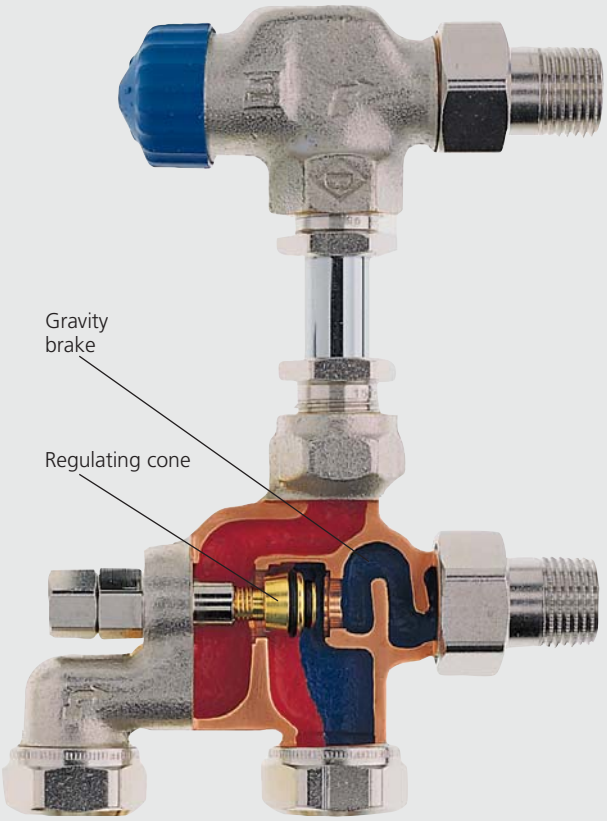
The flow direction marked on the E-Z distributor should be followed, since the flow through the radiator is not optimal with a switched connection.

Important for single pipe heating! Always use thermostatic valve bodies with blue protection cap and stuffing box (gravity model).

## Construction

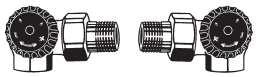
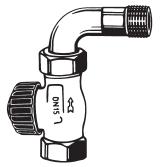
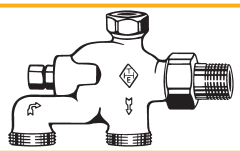
**E-Z System**

with axial thermostatic valve body and blue protection cap




- **for single and two-pipe heating systems**
- **especially low flowresistance**
- **universal connection possibilities for plasitic, copper, precision steel or multi-layer pipes**
- **fits in every installation situation thanks to different structural shapes of the thermostatic valve bodies**
- **no return circulation thanks to integrated gravity brakes in the E-Z distributor**

# Article numbers

| Illustration | Description | | Art. no. |
|---|---|---|---|
|  | **Axial thermostatic valve body**<br>with protection cap and stuffing box blue nickel-plated gunmetal nom. diameter 15 (1/2") | | **2245-02.000** |
|  | **Angle thermostatic valve body**<br>with protection cap and stuffing box blue nickel-plated gunmetal nom. diameter 15 (1/2") | **Connection to radiator left**<br>**Connection to radiator right** | **2341-02.000**<br>**2340-02.000** |
|  | **Straight thermostatic valve body with bended nipple**<br>with protection cap and stuffing box blue nickel-plated gunmetal nom. diameter 15 (1/2") | | **2244-02.000** |
|  | **Compression fitting**<br>for precision steel pipe, nickel-plated<br>connection female thread Rp 1/2 | | **2201-15.351** |
|  | **Precision steel pipe**<br>chromed for supply pipe<br>Ø 15 mm, 1100 mm long | | **3831-15.169** |
|  | **Compression fitting**<br>for precision steel pipe, nickel-plated<br>connection female thread Rp 1/2 | | **2201-15.351** |
|  | **E-Z distributor**<br>for single and two-pipe heating systems<br>nickel-plated gunmetal nom. diameter 15 (1/2") | | **3891-02.000** |

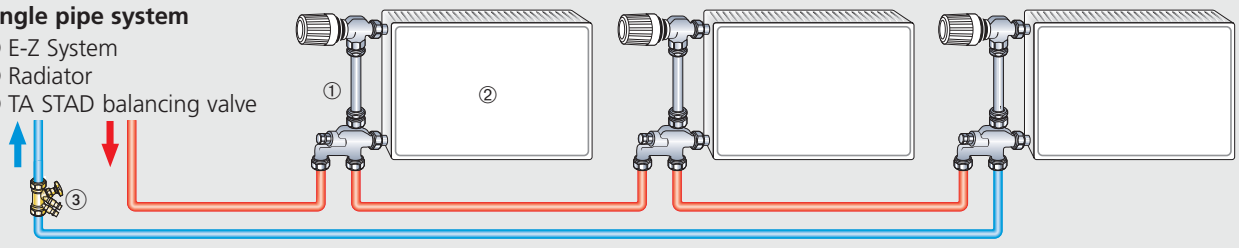
Compression fitting for plastic, copper, precision steel or multi-layer pipes page 6

# Application

## Sample application

**Single pipe system**

① E-Z System
② Radiator
③ TA STAD balancing valve




## Notes

– The composition of the heat transfer medium should be one which avoids damage or the accumulation of stones in hot water heating systems, in accordance with VDI guide line 2035.

For industrial and long-distance energy systems, see applicable codes VdTÜV and 1466/AGFW 5/15. Heat transfer media containing mineral oils or lubricants containing mineral oil can have seriously negative effects on the source apparatus and usually lead to the disintegration of EPDM seals.

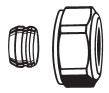
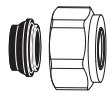
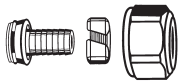
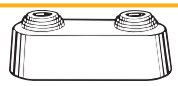
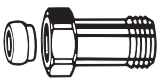
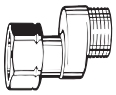
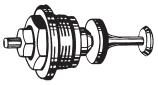
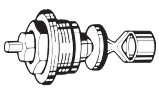
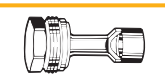
When using nitrite-free frost and corrosion resistance solutions with an ethylene glycol base, pay close attention to the details outlined in the manufacturers' documentation, particularly details concerning concentration and specific additives.

– The thermostatic valve bodies fit all HEIMEIER thermostatic heads and thermal or motor-driven actuators. Tune components appropriately to guarantee maximum safety.

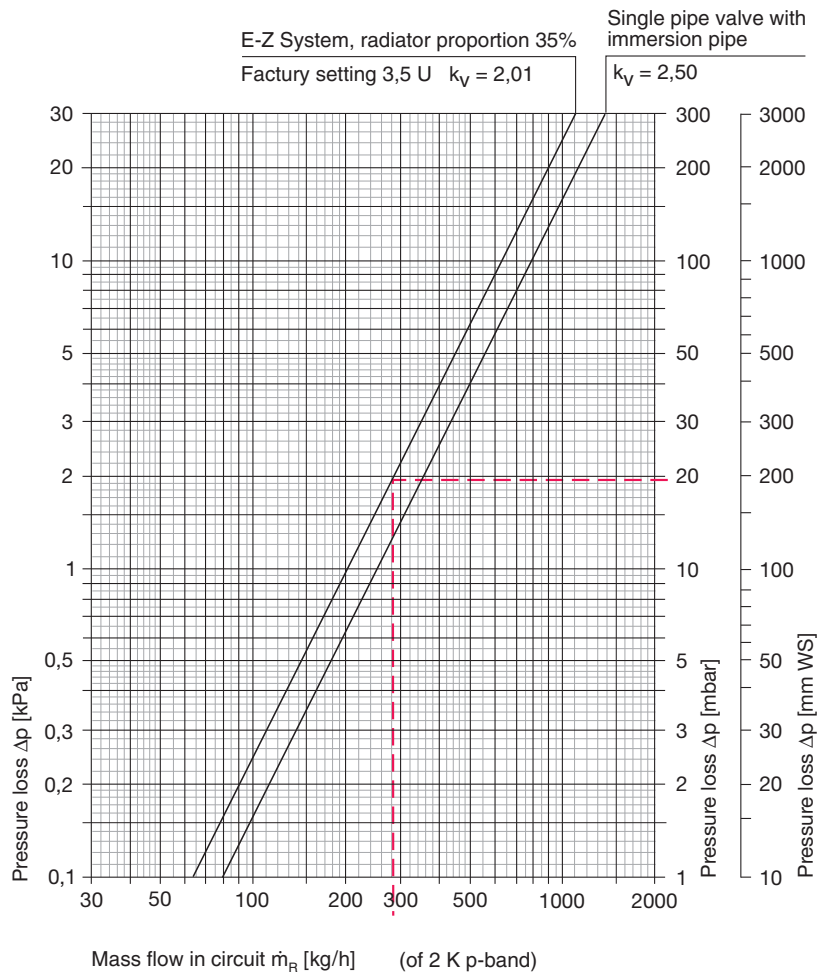
When using actuators from other manufacturers, make sure that the regulating power is appropriate for thermostatic valve bodies with soft-seal valve heads.

# E-Z System, single pipe valve with immersion pipe

## Accessories

| Illustration | Description | L [mm] | Ø pipe | Art. no. |
|---|---|---|---|---|
|  | **Compression fitting**<br>for copper or precision steel pipe, nickel-plated.<br>Metal-to-metal joint. Connection male thread G 3/4.<br><br>With a pipe wall thickness of 0.8 – 1 mm, use support sleeves.<br>Observe the manufacturer's specifications. | | 10<br>12<br>14<br>15<br>16<br>18 | **3831-10.351**<br>**3831-12.351**<br>**3831-14.351**<br>**3831-15.351**<br>**3831-16.351**<br>**3831-18.351** |
|  | **Support sleeve**<br>for copper or precision steel pipes<br>with a wall thickness of 1 mm. | 18.5<br>25.0<br>25.0<br>26.0<br>26,3<br>26.8 | 10<br>12<br>14<br>15<br>16<br>18 | **1300-10.170**<br>**1300-12.170**<br>**1300-14.170**<br>**1300-15.170**<br>**1300-16.170**<br>**1300-18.170** |
|  | **Klemmverschraubung**<br>for copper or precision steel pipe, nickel-plated.<br>Soft sealed.<br>Connection male thread G 3/4. | | 12<br>14<br>15<br>16<br>18 | **1313-12.351**<br>**1313-14.351**<br>**1313-15.351**<br>**1313-16.351**<br>**1313-18.351** |
|  | **Compression fitting**<br>for plastic pipes, nickel-plated.<br>Connection for male thread G 3/4. | | 12 x 2<br>14 x 2<br>16 x 2<br>17 x 2<br>18 x 2<br>18 x 2.5<br>20 x 2<br>21 x 2.5 | **1311-12.351**<br>**1311-14.351**<br>**1311-16.351**<br>**1311-17.351**<br>**1311-18.351**<br>**1312-18.351**<br>**1311-20.351**<br>**1311-21.351** |
|  | **Compression fitting**<br>for multi-layer pipe, nickel-plated.<br>Connection for male thread G 3/4. | | 14 x 2<br>16 x 2<br>18 x 2 | **1331-14.351**<br>**1331-16.351**<br>**1331-18.351** |
|  | **Double rose**<br>white plastic, can be divided in the centre, for various pipe diameters,<br>distance between center points 58 mm, total height max. 31 mm. | | | **3831-00.093** |
|  | **Length compensator**<br>G 3/4 x G 3/4, for clamping<br>plastic, copper, precision steel or multi-layer pipe.<br>Nickel-plated brass. | 25.0<br>50.0 | | **9713-02.354**<br>**9714-02.354** |
|  | **S-union**<br>G 3/4 x G 3/4, to even out different pipe distances, e. g. when replacing<br>old single pipe fitting; pay attention to the flow direction! Axle base 11.5 mm;<br>nickel-plated brass. | | | **1351-02.362** |
|  | **Hexagon key SW 3**<br>for opening and closing the return at the single pipe valve. | | | **3831-03.256** |
|  | **Thermostatic insert for single pipe valve**<br>Substitue insert.<br>Line of product since June 1981. | | | **3831-02.299** |
|  | **Thermostatic insert for single pipe valve with immersion pipe**<br>Modified insert, line of products up to May 1981. Replacement insert for modi-<br>fying a microthermal single pipe valve (immersion pipe line) into a thermostatic model.<br>Use only in connection with thermostatic head with remote sensor or control.<br>**Attention:** microthermal single pipe manual valves in universal production are to be retrofitted according to the principle of the E-Z System to thermostatic valves. To do this, the angle clamp compression fitting in the radiator supply pipe is to be replaced with a flow through thermostatic valve body with bend nipple (art. no. 2244–02.000). The microthermal manual insert is to be replaced with the above-mentioned special insert (art. no. 4300–02.002). For further information, please contact the factory. | | | **0037-02.300** |
|  | **Special insert**<br>for replacing the manual regulator top part with the single pipe manual<br>regulator valve in the universal production line. Water division 50/50. | | | **4300-02.002** |
|  | **Union threading for the circular pipeline**<br>Union nut Art.no. **0121-02.011**<br>Screw nipple R 1/2" **0121-02.010** | | Solder nipple 15 mm<br>Solder nipple 16 mm<br>Solder nipple 18 mm<br>Steel welding nipple 1/2" | **1300-15.039**<br>**1300-16.039**<br>**1300-18.039**<br>**1306-02.043** |

# Technical data




**Equivalent pipe lengths [m]**

| $k_V$ | 12 x 1 | 14 x 1 | 15 x 1 | 16 x 1 | 18 x 1 |
|---|---|---|---|---|---|
| 2.01 | 1.3 | 3.4 | 5.1 | 7.7 | 14.9 |
| 2.50 | 0.8 | 2.2 | 3.3 | 5.0 | 9.6 |

Copper pipe $\vartheta$ = 80 °C v = 0.5 m/s

## Setting for the E-Z distributor

Turn the regulating cone all the way to the left with a screwdriver to the position 0. Set the required radiator settings by turning the regulating cone to the right (factory setting: 3.5 revolutions ≙ 35 % radiator setting).

**Attention:** Before the return shut-off, determine the preset radiator setting (setting "U") by turning the regulating cone all the way to the left. This will insure that the original radiator settings can be reset after the return shut-off.

| with the thermostatic head with 2 K actuating variable | $k_v$-value [m³/h] | | | | | | | | Permitted operatonal temperature | Permitted operational pressure |
|---|---|---|---|---|---|---|---|---|---|---|
| | Radiator setting [%] | | | | | | | | | |
| | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 100 | | |
| | Settings E-Z distributor [U] | | | | | | | | | |
| | 4.25 | 3.50 | 3.00 | 2.50 | 2.25 | 1.90 | 1.50 | 0 | TB [°C] | PB [bar] |
| E-Z distributor and thermostatic valve body DN 15 (1/2") DT, WET or AT | 2.15 | 2.01 | 1.91 | 1.80 | 1.71 | 1.57 | 1.44 | 1.42[1)] | 120[2)] | 10 |
| Single pipe valve | – | 2.50 | – | – | – | – | – | – | 120[2)] | 10 |

[1)] Two pipe operation, without thermostatic valve body

[2)] with protection cap or actuators 100°C with immersion pipe DN 15 (1/2")

## Sample calculation

Goal: Pressure loss in single pipe circuit

Given: Heat flow in closed circuit $\dot{Q}$ = 6510 W
Temp. flux in circuit $\Delta t$ = 20 K (70/50°C)
Precision steel pipe Ø = 15 x 1 mm
Length in curcuit l = 25 m
Total individual resistors $\Sigma\zeta$ = 7.0
Number of radiators n = 5
Radiator portion $\dot{m}_{HK}$ ≙ 35%

Solution: Mass flow rate in circuit $\dot{m}_R = \frac{\dot{Q}}{c \cdot \Delta t} = \frac{6510}{1.163 \cdot 20}$ = 280 kg/h

Pressure drop in line R = 3.6 mbar/m (v = 0.6 m/s)

Pressure loss in line $\Delta p_R = R \cdot l = 3.6 \cdot 25$ = 90 mbar

Pressure loss individual resistors $Z = 5 \cdot \Sigma\zeta \cdot v^2 = 5 \cdot 7.0 \cdot 0.6^2$ = 12.6 mbar

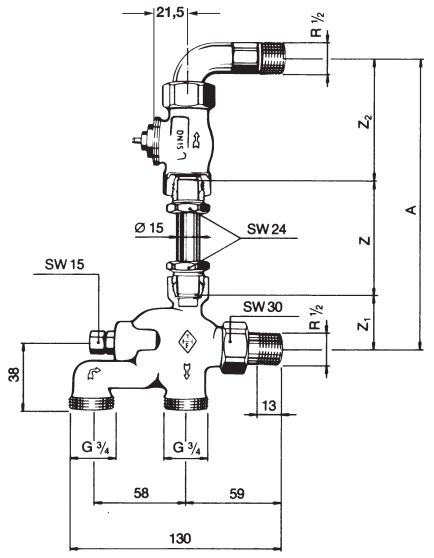
Pressure loss E-Z System $\Delta p_v$ = 19.4 mbar

Pressure loss single pipe-flow circuit $\Delta p_{ges} = \Delta p_v \cdot n + \Delta p_R + Z$
= 19.4 · 5 + 90 + 12.6 = 200 mbar

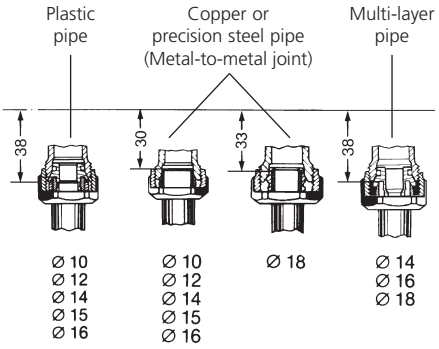
# E-Z System, single pipe valve with immersion pipe

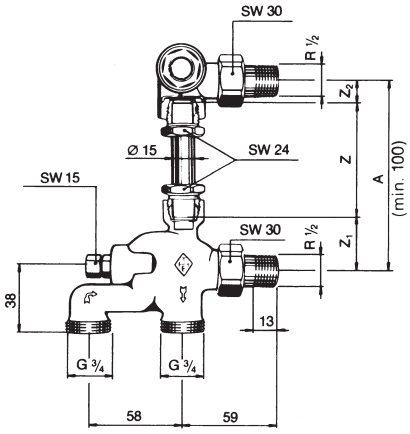
## Dimensions

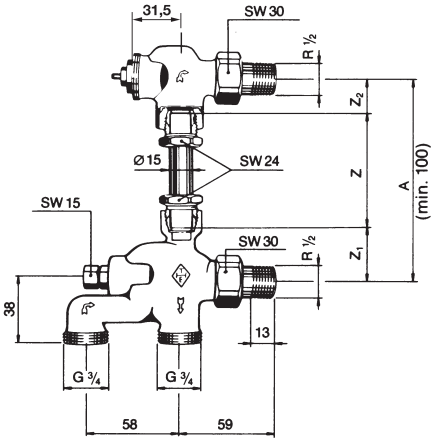
### E-Z System
for single pipe and
two-pipe pipe heating systems




Required length for the precision steel pipe Z:
$Z = A - (Z_1 + Z_2)$
$Z_1 = 30$
$Z_2 = 78$

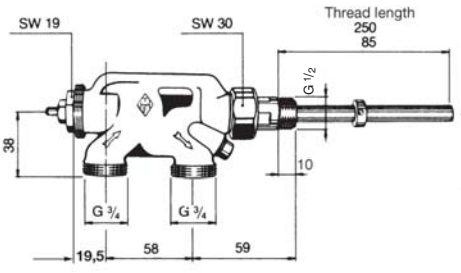


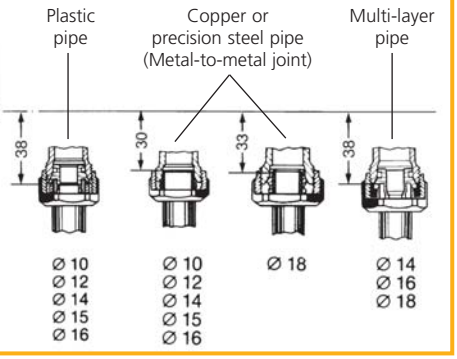




$Z = A - (Z_1 + Z_2)$
$Z_1 = 30$
$Z_2 = 13$

### Single pipe valve with immersion pipe





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Brochure 1.4
1400-18.483 / 04.07
Printed on chlorine-free, bleached paper.
Subject to technical changes.