# V2000BB

## BB type TRV Body

Radiator valve with broadband cartridge

### APPLICATION

Thermostatic radiator valve bodies (TRV bodies) are fitted on the supply or return of radiators or heat exchangers. Together with a radiator thermostat, for example the Thera-4, they control the room temperature by regulating the flow of hot water into the radiator or heat exchanger. The temperature of different rooms is controlled individually and energy is saved.

TRV bodies of this type have quiet operation and are fitted to the supply of radiators on two-pipe systems with medium flow rates.

The valve insert can be replaced while the system is running and without draining using the service tool (see 'Accessories').

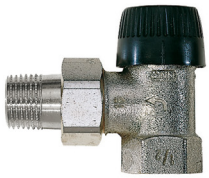
- Honeywell Home radiator thermostats with M30 x 1.5 connection
- Certain Honeywell Home MT4 actuators
- Honeywell Home Hometronic HR80 and Roomtronic HR40 actuators

### AT-CONCEPT

AT-Concept valves share the same valve housing design. The valve insert can be replaced by any other AT-Concept valve insert, i.e. BB, KV, UBG, SL, VS, FS, FV and SC.

### FEATURES

- For heating systems with medium flow rates
- Available for installation on the supply or on the return
- Quiet operation
- DIN type bodies with dimensions according to EN 215, Appendix A, Series D
- NF type bodies with dimensions according to EN 215, Appendix A, Series F
- AT-Concept valve housing and insert
- Valve insert can be replaced while system is operating and without draining the system
- Valve opening spring is not in the water
- Standard M30 x 1.5 thermostat connection
- Supplied with black protection cap, imprinted 'BB' for clear identification



V2000EB

V2000DB

V2020EB

V2020DB

V2000AB

V2000LB

V2000RB

V2000BB

V2000HB

V2000IB

## DESIGN

The thermostatic radiator valve body consists of:

- Valve housing PN10, DN10, 15 or 20 with
  - internal thread connection to DIN2999 (ISO7) for threaded, copper or precision steel pipe on inlet (compression ring fittings see 'Accessories')
  - external thread connection with union-nut and radiator tailpiece on outlet (Eurocone for DN15)
  - angle to DIN and straight to DIN bodies with dimensions according to EN215, Appendix A, Series D
  - angle to NF and straight to NF bodies with dimensions according to EN215, Appendix A, Series F
- Valve insert with BB (broadband) type cartridge
- Protection cap
- Union-nut and radiator tailpiece

## MATERIALS

- Valve housing made of nickel-plated hot-forged brass
- Valve insert made of brass with EPDM O-rings and soft seals and stainless steel spindle
- Protection cap made of black plastic
- Union-nut and tailpiece made of nickel-plated brass

## PLEASE NOTE:

- To avoid stone deposit and corrosion the composition of the medium should conform with VDI-Guideline 2035
- Additives have to be suitable for EPDM sealings
- System has to be flushed thoroughly before initial operation with all valves fully open
- Any complaints or costs resulting from non-compliance with above rules will not be accepted by Honeywell Home
- Please contact us if you should have any special requirements or needs

## SPECIFICATIONS

| | |
|---|---|
| Medium: | Heating water, water quality to VDI2035 |
| Operating temperature: | max. 130 °C (266°F) |
| Operating pressure: | PN10 |
| Differential pressure: | max. 100kPa (1 bar, 14.5 psi) – max. 20 kPa (0.2 bar, 2.9 psi) recommended for quiet operation |
| $k_{vs}$ ($c_{vs}$)-value: | 0.62 (0.73) |
| Nominal flow: | 142 kg/h |
| Body-head connection: | M30 x 1.5 |
| Closing dimension: | 11.5 mm |
| Stroke: | 2.5 mm |
| Spec. stroke: | 0.22 mm/K |

## IDENTIFICATION

- Black protection cap, 'BB' embossed on top of cap
- 'B' imprinted 3x on top of valve insert

## FUNCTION

Thermostatic radiator valves enable individual control of room temperature and thus save energy.

The TRV body is controlled by the radiator thermostat. Air from the room passing over the sensor of the radiator thermostat causes the sensor to expand when the temperature rises. The sensor acts onto the valve spindle and this causes the TRV body to close. When the temperature falls the sensor contracts and the spring-loaded valve spindle is opened. The TRV opens in proportion to the temperature of the sensor. Only the amount of water required to maintain the room temperature set on the radiator thermostat can flow into the radiator.

## INSTALLATION EXAMPLES

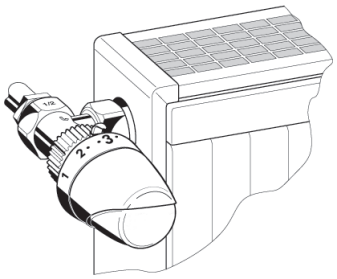


**Fig. 1. Angle**

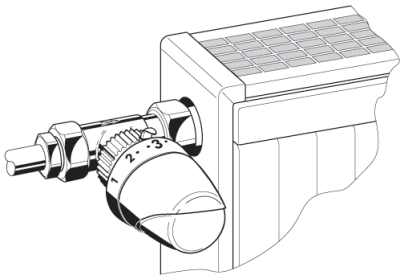


**Fig. 2. Straight**

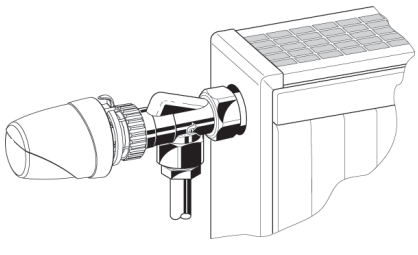


**Fig. 3. Horizontal angle**

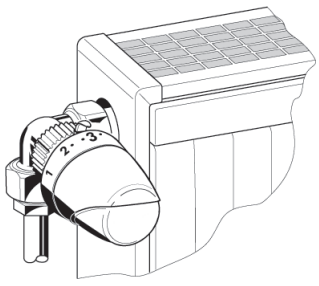


**Fig. 4. Corner angle**

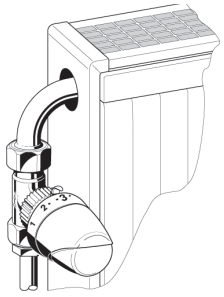


**Fig. 5. Straight with swanneck**

## DIMENSIONS AND ORDERING INFORMATION

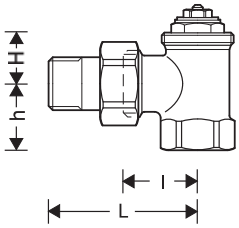



**Fig. 6. Angle**

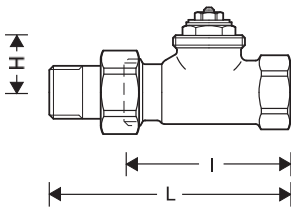



**Fig. 7. Straight**

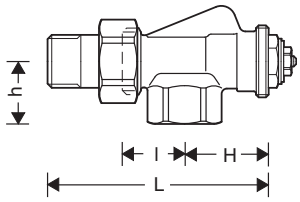



**Fig. 8. Horizontal angle**

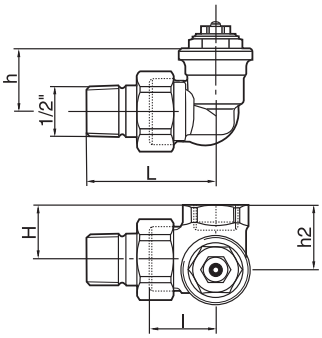



**Fig. 9. Corner angle**

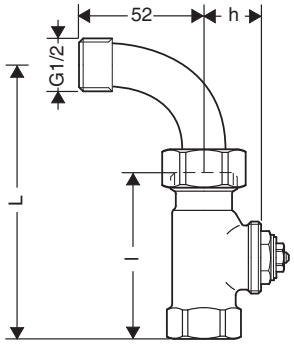


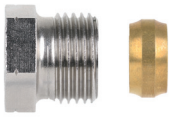
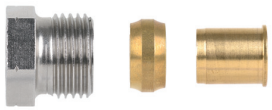
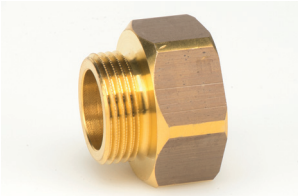

**Fig. 10. Straight with swanneck**

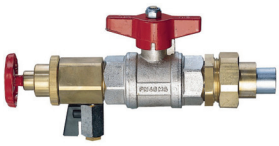
Table 1. Dimensions and OS-Nos (OS=Ordering System)

| Body type | DN | EN215 certified | $k_{vs}(c_{vs})$-value | Pipe connection | l | L | h | H | $h_2$ | OS-No. |
|---|---|---|---|---|---|---|---|---|---|---|
| **For the supply** | | | | | | | | | | |
| Angle to EN215 (D) | 10 | • | 0.62 (0.73) | Rp 3/8" | 26 | 52 | 22 | 20 | - | V2000EBB10 |
| (Fig. 6) | 15 | • | 0.62 (0.73) | Rp 1/2" | 29 | 58 | 26 | 20 | - | V2000EBB15 |
| | 20 | • | 0.62 (0.73) | Rp 3/4" | 34 | 66 | 29 | 19 | - | V2000EBB20 |
| Straight to EN215 (D) | 10 | • | 0.62 (0.73) | Rp 3/8" | 59 | 85 | - | 25 | - | V2000DBB10 |
| (Fig. 7) | 15 | • | 0.62 (0.73) | Rp 1/2" | 66 | 95 | - | 25 | - | V2000DBB15 |
| | 20 | • | 0.62 (0.73) | Rp 3/4" | 74 | 106 | - | 25 | - | V2000DBB20 |
| Angle to EN215 (F) | 10 | • | 0.62 (0.73) | Rp 3/8" | 24 | 49 | 20 | 21 | - | V2020EBB10 |
| (Fig. 6) | 15 | • | 0.62 (0.73) | Rp 1/2" | 26 | 53 | 23 | 22 | - | V2020EBB15 |
| | 20 | | 0.62 (0.73) | Rp 3/4" | 34 | 66 | 29 | 18 | - | V2020EBB20 |
| Straight to EN215 (F) | 10 | • | 0.62 (0.73) | Rp 3/8" | 50 | 75 | - | 26 | - | V2020DBB10 |
| (Fig. 7) | 15 | • | 0.62 (0.73) | Rp 1/2" | 55 | 82 | - | 26 | - | V2020DBB15 |
| | 20 | | 0.62 (0.73) | Rp 3/4" | 74 | 106 | - | 24 | - | V2020DBB20 |
| Horizontal angle | 10 | | 0.62 (0.73) | Rp 3/8" | 24 | 50 | 22 | 33 | - | V2000ABB10 |
| (Fig. 8) | 15 | | 0.62 (0.73) | Rp 1/2" | 26 | 54 | 26 | 35 | - | V2000ABB15 |
| Corner angle, radiator connection left (Fig. 9) | 10 | | 0.62 (0.73) | Rp 3/8" | 24 | 53 | 26 | 22 | 26.5 | V2000LBB10 |
| | 15 | | 0.62 (0.73) | Rp 1/2" | 24 | 53 | 26 | 26 | 30.5 | V2000LBB15 |
| Corner angle, radiator connection right (Fig. 9) | 10 | | 0.62 (0.73) | Rp 3/8" | 24 | 53 | 26 | 22 | 26.5 | V2000RBB10 |
| | 15 | | 0.62 (0.73) | Rp 1/2" | 24 | 53 | 26 | 26 | 30.5 | V2000RBB15 |
| Swanneck (Fig. 10) | 15 | | 0.62 (0.73) | Rp 1/2" | 66 | 108 | 25 | - | - | V2000BBB15 |
| **For the return** | | | | | | | | | | |
| Horizontal angle (Fig. 8) | 15 | | 0.62 (0.73) | Rp 1/2" | 29 | 58 | 26 | 23 | - | V2000HBB15 |
| Straight (Fig. 7) | 15 | | 0.62 (0.73) | Rp 1/2" | 65 | 95 | - | 23 | - | V2000IBB15 |

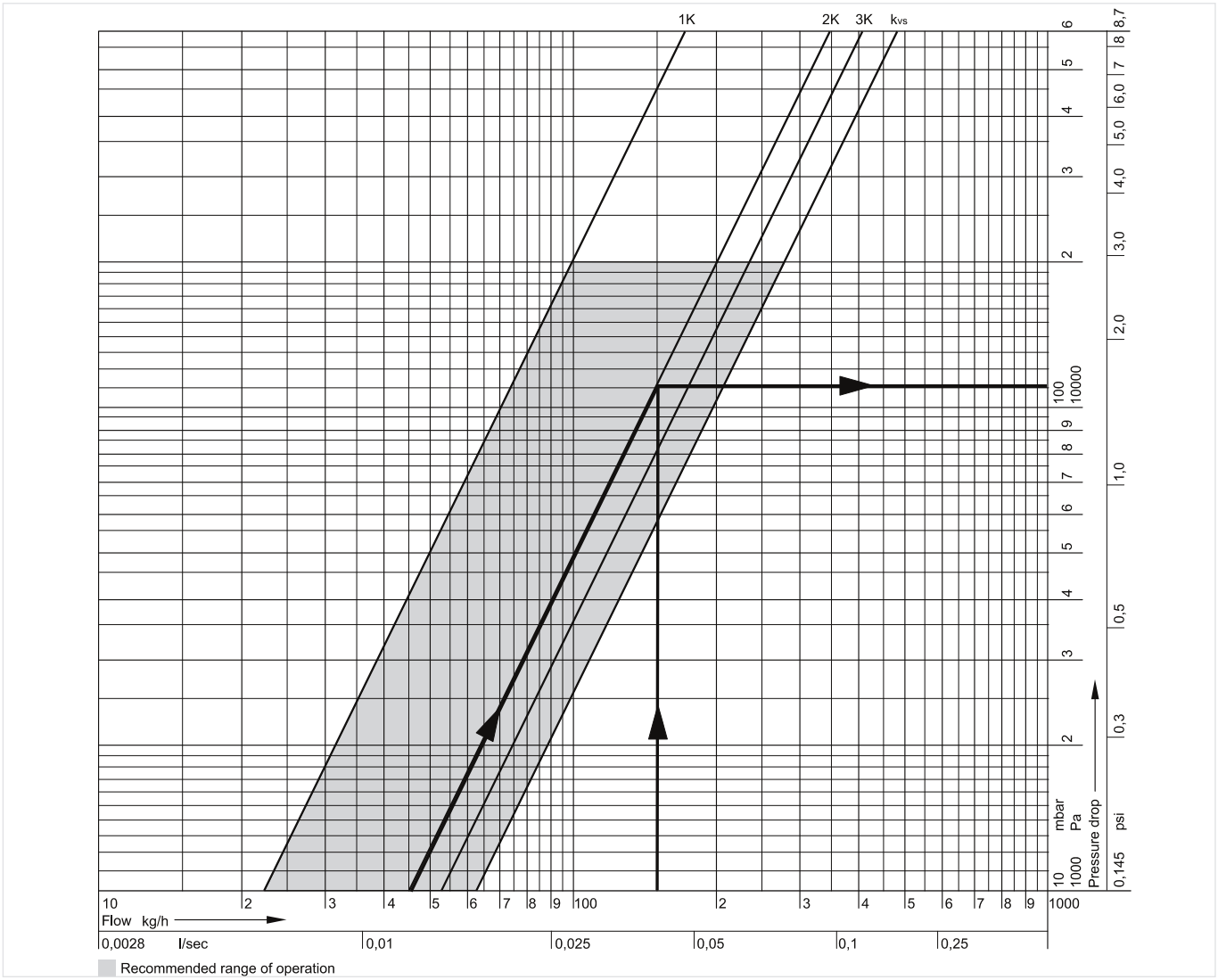
Note: All dimensions in mm unless stated otherwise.

## ACCESSORIES

| | Description | | Dimension | Part No. |
|---|---|---|---|---|
|  | **FIG3/8CS** | **Compression fitting for COPPER and STEEL pipe**<br>Consisting of compression nut and compression ring. For valves with internal thread.<br>Note: Support inserts have to be used for copper or soft steel pipe with 1.0 mm wall thickness. Max. operating temperature 120 °C, max. operating pressure 10 bar. | | |
| | | 3/8", DN10 | 10 mm | FIG3/8CS10 |
| | | 3/8", DN10 | 12 mm | FIG3/8CS12 |
| | | 1/2", DN15 | 10 mm | FIG1/2CS10 |
| | | 1/2", DN15 | 12 mm | FIG1/2CS12 |
| | | 1/2", DN15 | 14 mm | FIG1/2CS14 |
| | | 1/2", DN15 | 15 mm | FIG1/2CS15 |
| | | 1/2", DN15 | 15 mm | FIG1/2CS15-10 |
| | | 1/2", DN15 | 16 mm | FIG1/2CS16 |
| | | 3/4", DN18 | 18 mm | FIG3/4CS18 |
| | | 3/4", DN22 | 22 mm | FIG3/4CS22 |
|  | **FIG3/8CSS** | **Compression fitting for COPPER and STEEL pipe**<br>Consisting of compression nut and compression ring and support insert. For valves with internal thread.<br>Note: Support inserts have to be used for copper or soft steel pipe with 1.0 mm wall thickness. Max. operating temperature 120 °C, max. operating pressure 10 bar. | | |
| | | 3/8", DN10 | 12 mm | FIG3/8CSS12 |
| | | 1/2", DN15 | 12 mm | FIG1/2CSS12 |
| | | 1/2", DN15 | 14 mm | FIG1/2CSS14 |
| | | 1/2", DN15 | 15 mm | FIG1/2CSS15 |
| | | 1/2", DN15 | 16 mm | FIG1/2CSS16 |
| | | 1/2", DN15 | 18 mm | FIG1/2CSS18 |
| | | 3/4", DN20 | 18 mm | FIG3/4CSS18 |
|  | **FIG1/2M** | **Compression fitting for MULTILAYER pipe. Consisting of compression nut, compression ring and support insert. For valves with internal thread.**<br>Note: Max. operating temperature 90°C, max. operating pressure 10 bar | | |
| | | 1/2", DN15 | 16 mm | FIG1/2M16X2 |
|  | **VA6290** | **Reduction piece** | | |
| | | 1" pipe > 1/2" valve | | VA6290A260 |
| | | 1 1/4" pipe > 1/2" valve | | VA6290A280 |
| | | 1" pipe > 3/4" valve | | VA6290A285 |
| | | 1 1/4" pipe > 3/4" valve | | VA6290A305 |
|  | **VA5201Axxx** | **Radiator tailpiece with thread up to collar** | | |
| | | for valves DN10 (3/8") | | VA5201A010 |
| | | for valves DN15 (1/2") | | VA5201A015 |
| | | for valves DN20 (3/4") | | VA5201A020 |
|  | **VA5204Bxxx** | **Extended radiator tailpiece, nickel-plated, to be shortened as required** | | |
| | | 3/8" x 70 mm (for DN10) thread approx. 50 mm | | VA5204B010 |
| | | 1/2" x 76 mm (for DN15) thread approx. 65 mm | | VA5204B015 |
| | | 3/4" x 70 mm (for DN20) thread approx. 60 mm | | VA5204B020 |

| | | | | |
|---|---|---|---|---|
|  | **VA2200Dxxx** | **Manual handwheel cap** | | |
| | | Presettable, with integrated locking device | | VA2200D001 |
|  | **VA2202Axxx** | **Pressure cap – for shutting off valves on radiator outlet** | | |
| | | for valves DN10 ($^3/_8$") | | VA2202A010 |
| | | for valves DN15 ($^1/_2$") | | VA2202A015 |
| | | for valves DN20 ($^3/_4$") | | VA2202A020 |
|  | **VA5090** | **Sealing ring for pressure cap** | | |
| | | for valves DN10 ($^3/_8$") | | VA5090A010 |
| | | for valves DN15 ($^1/_2$") | | VA5090A015 |
| | | for valves DN20 ($^3/_4$") | | VA5090A020 |
|  | **VA8200A** | **Service tool to replace valve insert** | | |
| | | | for all sizes | VA8200A001 |
|  | **VS1200** | **Replacement valve insert** | | |
| | | BB type | | VS1200BB01 |

## FLOW DIAGRAM




| P-Band | 1K | 2K | 3K | open = $k_{VS}$ |
|---|---|---|---|---|
| **$k_V$-value** | 0.22 | 0.45 | 0.52 | 0.62 |
| **cv-value** | 0.26 | 0.53 | 0.61 | 0.73 |

**Design example**

| | |
|---|---|
| Given: | Flow rate 150 kg/h |
| Required: | Pressure loss (Δ p) with a P-band of 2K |
| Solution: | The required pressure loss is found at the intersection of the flow line with the line for the chosen valve performance P=2K |
| Result: | Δp = 110 mbar = 11 000 Pa |

**For more information**

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