

Data Sheet

Valve Bodies Types RA-UN and RA-UR for Small Flow Volumes

Application



RA-UN / RA-UR angle



RA-UN / RA-UR straight



RA-UN / RA-UR horizontal angle

All RA-UN/UR valve bodies can be used together with all types of thermostatic elements in the RA 2000 series.

The valve bodies are fitted with a k_v limiting device for presetting of max. water flow.

RA-UN is for mounting in the flow and RA-UR in the return. An arrow on the valve body indicates the direction of flow.

The valve bodies RA-UN/RA-UR are used in two-pipe heating systems and is available with the following setting ranges for max. water flow:

RA-UN: $k_v = 0.02 - 0.48 \text{ m}^3/\text{h}$

RA-UR: $k_v = 0.02 - 0.47 \text{ m}^3/\text{h}$

The valve bodies are supplied with a protective cap and adjusting screw, which can be used for manual regulation during the construction phase.

The protective cap must not be used as a manual shut off device. A special manual shut off device (code no. 013G5000) should be used.

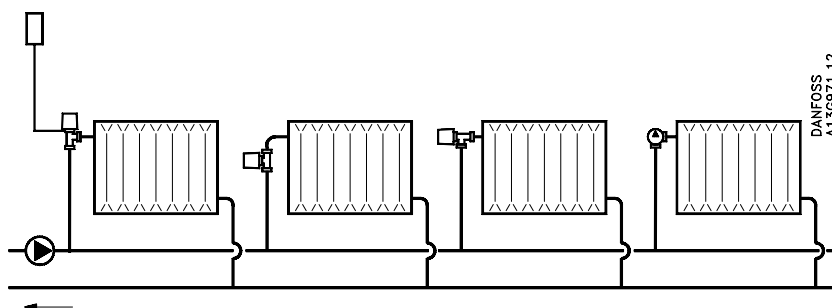
To be able to distinguish between other valve bodies of the RA 2000 series the protective cap is yellow.

Compression fittings for 15 mm, 10 mm or 8 mm copper tube are available for valve body RA-UN/UR with 3/8" and 1/2" BSP connections.

Valve bodies are manufactured from brass with nickel plating. The pressure pin of the gland seal is of chromium steel and works in a lifetime lubricated O-ring. The gland seal can be replaced without draining down the system.

Should water treatment be used it is essential that dosing instructions of the manufacturer are strictly observed. It is recommended that formulations containing mineral oil are avoided.

Principles



Data and Ordering

| Type | Code no. | Design | Connection | | With actuator | Max. pressure, bar | | | | | |
|------------------------|----------|------------------|--------------------|--------|---------------------|--------------------|---------------------|------|--|--|--|
| | | | Inlet | Outlet | N(k _{vs}) | Work | Diff. ²⁾ | Test | | | |
| RA-UN 10 ¹⁾ | 013G3001 | Angle | R _p 3/8 | R 3/8 | 0.57 | 10 | 0.6 | 16 | | | |
| | 013G3002 | Straight | | | | | | | | | |
| | 013G3041 | Horizontal angle | | | | | | | | | |
| RA-UN 15 ¹⁾ | 013G3003 | Angle | R _p 1/2 | R 1/2 | | | | | | | |
| | 013G3004 | Straight | | | | | | | | | |
| | 013G3043 | Horizontal angle | | | | | | | | | |
| RA-UN 20 | 013G3005 | Angle | R _p 3/4 | R 3/4 | | | | | | | |
| | 013G3006 | Straight | | | | | | | | | |
| RA-UR 10 | 013G3299 | Angle | R _p 3/8 | R 3/8 | 00.53 | 10 | 1.0 | 16 | | | |
| | 013G3298 | Straight | | | | | | | | | |
| | 013G3297 | Horizontal angle | | | | | | | | | |
| RA-UR 15 | 013G3229 | Angle | R _p 1/2 | R1/2 | | | | | | | |
| | 013G3228 | Straight | | | | | | | | | |

| Type | Code no. | Presetting, k _v -values with RA 2000 sensor, m ³ /h ³⁾ | | | | | | | |
|------------------------|----------|---|------|------|------|------|------|------|------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N |
| RA-UN 10 ¹⁾ | 013G3001 | 0.02 | 0.06 | 0.11 | 0.17 | 0.23 | 0.30 | 0.35 | 0.48 |
| | 013G3002 | | | | | | | | |
| | 013G3041 | | | | | | | | |
| RA-UN 15 ¹⁾ | 013G3003 | | | | | | | | |
| | 013G3004 | | | | | | | | |
| | 013G3043 | | | | | | | | |
| RA-UN 20 | 013G3005 | | | | | | | | |
| | 013G3006 | | | | | | | | |
| RA-UR 10 | 013G3299 | 0.02 | 0.03 | 0.06 | 0.08 | 0.14 | 0.20 | 0.27 | 0.47 |
| | 013G3298 | | | | | | | | |
| | 013G3297 | | | | | | | | |
| RA-UR 15 | 013G3229 | | | | | | | | |
| | 013G3228 | | | | | | | | |

¹⁾ The valve inlet is prepared for compression fittings.

²⁾ The maximum differential pressure specified is the maximum pressure at which the valves give satisfactory regulation. As with any device which imposes a pressure drop in the system, noise may occur under certain flow/pressure conditions. The differential pressure can be reduced by the use of the Danfoss differential pressure regulators.

³⁾ The k_v-value indicates the water flow (Q) in m³/h at a pressure drop (Δp) across the valve of 1 bar an.

$$k_v = \frac{Q}{\sqrt{\Delta p}}$$

The k_{vs}-value states the flow Q at maximum lift, i.e. at fully open valve at setting N.

Accessories

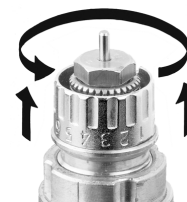
| Product | Dimension | Code no. |
|--|---------------------------|----------|
| Gland seal ¹⁾ (10 pcs.) | | 013G0290 |
| Compression fittings for steel and copper tubes, incl. compression ring and nipple (10 pcs.) | R _p 3/8 x Ø 10 | 013G4100 |
| | R _p 3/8 x Ø 12 | 013G4102 |
| | R _p 1/2 x Ø 10 | 013G4110 |
| | R _p 1/2 x Ø 12 | 013G4112 |
| | R _p 1/2 x Ø 15 | 013G4115 |

¹⁾ The gland seal of the valve can be replaced under pressure, i.e. while the installation is in operation.

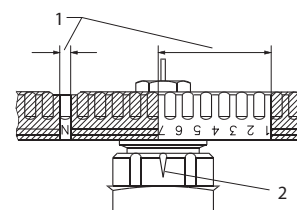
Presetting

The presetting values of the integrated valves can be adjusted easily and accurately without the use of tools (factory setting: 'N'):

- Remove the protective cap or the thermostatic sensor.
- Lift up the setting ring.
- Turn the setting ring until the desired presetting aligns with the reference mark.
- The reference mark will always point towards the radiator connection.
- Let go of the setting ring.



Presetting can be selected infinitely variably within the range of 1 to 7. At setting 'N' the valve is fully open. Setting in the shaded areas of the drawing should be avoided. When the radiator thermostat has been installed, the presetting is protected against unintended regulation.



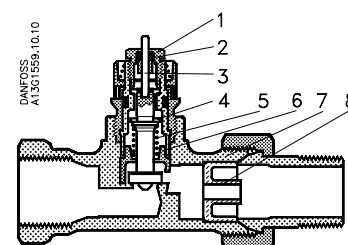
1. Presetting range
2. Reference mark

Design

The radiator thermostats consist of a thermostatic element of the RA 2000 series and a valve body. The element and the valve body are ordered separately.

Materials in contact with water

| | |
|----------------------------------|---------------|
| k_v -limiter | PPS |
| O-ring | EPDM |
| Valve cone | NBR |
| Pressure pin and valve spring | Chrome steel |
| Valve body and other metal parts | Ms 58 |
| Valve body surface | Nickel-plated |

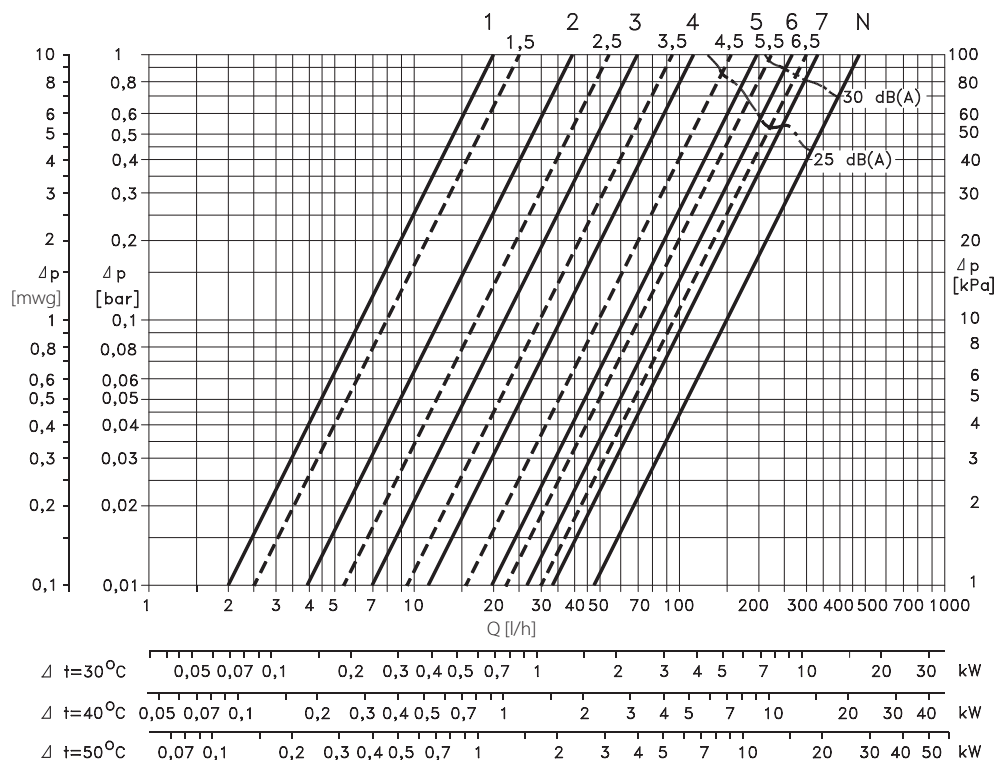


1. Gland seal
2. O-Ring
3. Pressure pin
4. Seal
5. Regulation spring
6. Setting dial
7. Valve body
8. k_v -nozzle

Capacities

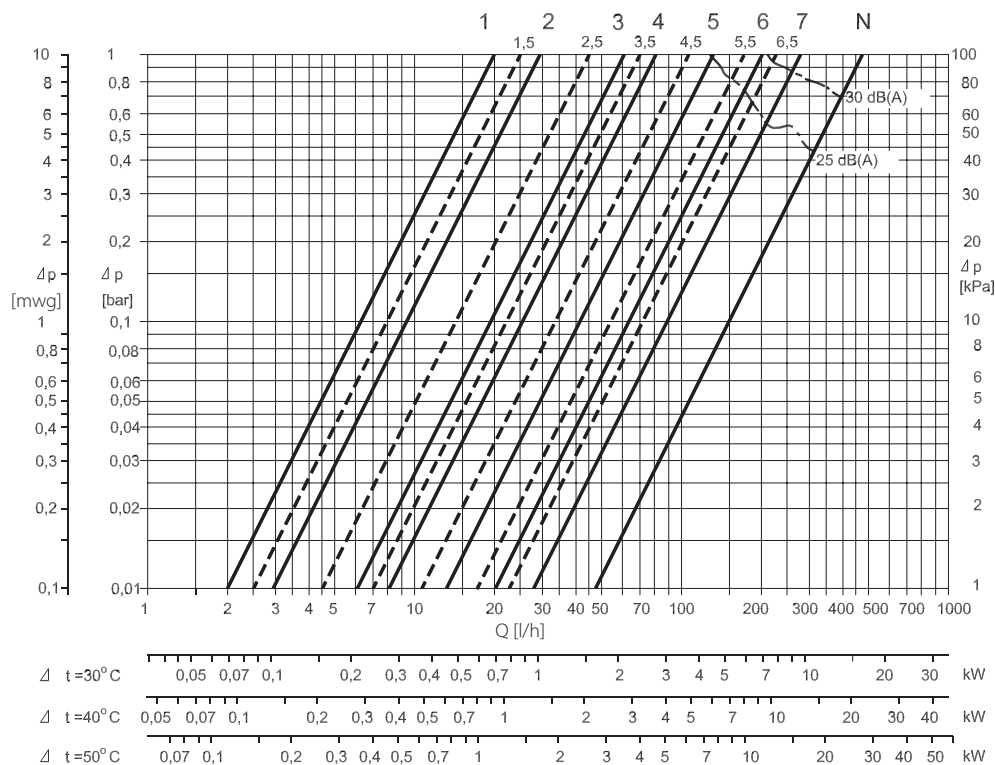
RA-UN presetting

Capacities with RA2000 sensor with a P-band between 0,5K and 2K

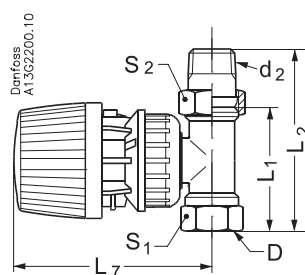


RA-UR presetting

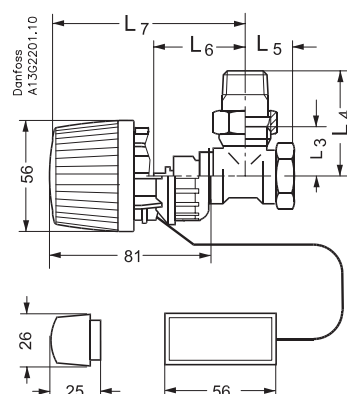
Capacities with RA2000 sensor with a P-band between 0,5K and 2K



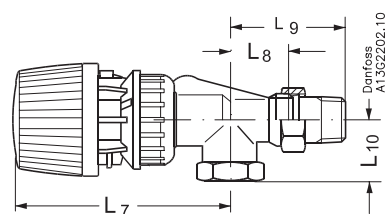
Dimensions



Straight valve body with thermostatic sensor RA
2990



Angle valve body with thermostatic sensor
RA2992



Horizontal angle valve body with thermostatic sensor RA 2990

| Type | Connection | | | L ₁ | L ₂ | L ₃ | L ₄ | L ₅ | L ₆ | L ₇ | L ₈ | L ₉ | L ₁₀ | Arc. flats | |
|-----------------------|------------|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|
| | DN | D | d ₂ | | | | | | | | | | | S ₁ | S ₂ |
| RA-UN 10 | 10 | R _p 3/8 | R 3/8 | 60 | 85 | 27 | 52 | 22 | 47 | 96 | | | | 22 | 27 |
| RA-UN 10 horiz. angle | 10 | R _p 3/8 | R 3/8 | | | | | | 59 | 108 | 26 | 51 | 22 | 22 | 27 |
| RA-UN 15 | 15 | R _p 1/2 | R 1/2 | 67 | 95 | 30 | 58 | 26 | 47 | 96 | | | | 27 | 30 |
| RA-UN 15 horiz. angle | 15 | R _p 1/2 | R 1/2 | | | | | | 60 | 109 | 29 | 57 | 27 | 27 | 30 |
| RA-UN 20 | 20 | R _p 1 | R 1 | 74 | 106 | 34 | 66 | 29 | 47 | 96 | | | | 32 | 37 |
| RA-UR 10 | 10 | R _p 3/8 | R 3/8 | 60 | 85 | 28 | 53 | 27 | 47 | 96 | | | | 22 | 27 |
| RA-UR 10 horiz. angle | 10 | R _p 3/8 | R 3/8 | | | | | | 47 | 96 | 28 | 53 | 27 | 22 | 27 |
| RA-UR 15 | 15 | R _p 1/2 | R 1/2 | 67 | 95 | 28 | 53 | 27 | 47 | 96 | | | | 22 | 27 |

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