

Data sheet

Thermostatic actuator RAVV

- for 2-way valves RAV-/8 (PN 10), VMT-/8 (PN 10), VMA (PN 16)

Description



RAVV is self-acting thermostatic actuator primarily for use for temperature control in small hot water cylinders and to control flow temperatures in central heating systems.

RAVV can be combined with 2-way valves RAV-/8, VMT-/8 or VMA 15. Controller closes on rising temperature.

There is a special version with a section of the capillary tube coiled up to function as minimum temperature sensor. This version can be used to control air heating coils.

Main data:

- DN 10-25
- k_v 0,4-1,6 m³/h
- PN 10 with RAV-/8 and VMT-/8 valves
PN 16 with VMA valves
- Setting ranges:
10 ... 38 °C / 27 ... 57 °C / 40 ... 70 °C
- Temperature:
 - Circ. water / glycolic water up to 30 %:
2 ... 120 °C with RAV-/8 and VMT-/8 valves
2 ... 130 °C with VMA valves
- Connections:
 - Internal and external thread
- Flow mounting

Ordering

Example:
Temperature controller, DN 15,
 k_v 1,6; PN 16; setting range 27 ... 57 °C;
 T_{max} 130 °C; 2-way valve with ext.
thread;

- 1x RAVV thermostatic actuator,
27-57 °C
Code No: **013U1252**
- 1x VMA DN 15 valve
Code No: **065F2034**

Option:

- 1x Imm. pocket, brass
Code No: **017-4370**
- 1x Weld-on tailpieces
Code No: **003H6908**

RAVV thermostatic actuator

Picture	Setting range (°C)	Capillary tube length (m)	Max. sensor temperature (°C)	Code No. ¹⁾
	10 ... 38	1,5	120	013U1255
	10 ... 38	5,0 ²⁾		013U1253
	27 ... 57	1,5		013U1252
	40 ... 70	1,5		013U1251

¹⁾ Incl. Rp 1/2 sensor stuffing box

²⁾ Effective length including minimum temperature sensor

Valves

Picture	Type	DN (mm)	k_v ¹⁾ (m ³ /h)	PN	Connection		Code No.
					inlet	outlet	
	RAV 10/8	10	1,1	10	R _p 3/8 ³⁾	R 3/8 ³⁾	013U0012
	RAV 15/8	15	1,2		R _p 1/2 ³⁾	R 1/2 ³⁾	013U0017
	RAV 20/8	20	1,5		R _p 3/4 ³⁾	R 3/4 ³⁾	013U0022
	RAV 25/8	25	1,6		R _p 1 ³⁾	R 1 ³⁾	013U0027
	VMT 15/8 ²⁾	15	1,2		G 3/4 A ⁴⁾	G 3/4 A ⁴⁾	065F0115
	VMT 20/8 ²⁾	20	1,5		G 1 A ⁴⁾	G 1 A ⁴⁾	065F0120
	VMT 25/8 ²⁾	25	1,6		G 1 1/4 A ⁴⁾	G 1 1/4 A ⁴⁾	065F0125
VMA 15 ⁵⁾	15	15	0,4	16	G 3/4 A ⁴⁾	G 3/4 A ⁴⁾	065F2031
			0,6				065F2032
			0,8				065F2033
			1,1				065F2034
			1,7				065F2035

¹⁾ The capacity (k_v) applies to a P-band of 6 °C. Other P-band, see "Technical data".

²⁾ For ordering of Cu fittings, see Accessories.

³⁾ According to ISO 7/1

⁴⁾ According to ISO 228/1

⁵⁾ For ordering ext. thread tailpieces, see Accessories.

Ordering (continuous)
Accessories for thermostat

Picture	Type designations	Connection	Code No.
	Immersion pocket	R _p ½ × M14 × 1mm, brass, Ø 11 × 112 mm	017-4370
		R _p ½ × M18 × 1,5mm; stainless steel Ø 11 × 112 mm	017-4369
	Sensor stuffing box	R ½ × M14 × 1 mm; rubber EPDM Ø 12,6 × 2,5 × 6 mm	013U0292¹⁾

¹⁾ Code includes housing, gasket, 4 washers and sealing bolt

Accessories for valves

Picture	Type designations	For valve	Dimensions	Code No.	
	Compression fittings ^{1),2),3)}	VMT 15	Ø 15 × 1	013G4125	
			Ø 16 × 1	013G4126	
			Ø 18 × 1	013G4128	
		VMT 20	Ø 18 × 1	013U0134	
			Ø 22 × 1	013U0135	
			Ø 28 × 1	013U0140	
	Weld-on tailpieces	VMA 15	-		003H6908
	External thread tailpieces		Con. ext. thread acc. to EN 10226-1	R ½ "	003H6902
	Valve stuffing box ³⁾		RAV/VMT/VMA		065F0006

¹⁾ Compression fitting consist of compression ring and union

²⁾ For copper pipe

³⁾ The products can only be ordered in multiple packing containing 10 pieces each

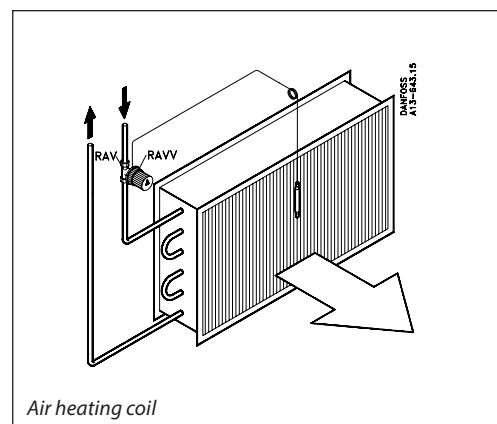
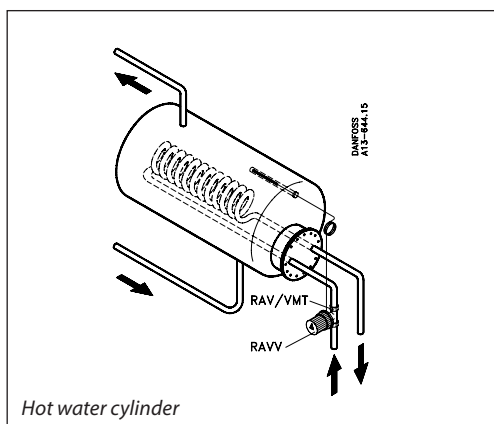
Technical data

Type RAVV-	k _v (m ³ /h) for a P-band in °C of						Max. working pressure (bar)	Max. diff. pressure (bar)	Max. test pressure (bar)	Max. flow temp. (°C)
	2	4	6	8	10	12				
RAV 10/8	0,6	0,8	1,1	1,2	1,3	1,4	10	0,8	16	120
RAV or VMT 15/8	0,6	0,9	1,2	1,3	1,5	1,6				
RAV or VMT 20/8	0,7	1,2	1,5	1,8	2,1	2,3				
RAV or VMT 25/8	0,7	1,2	1,6	2,0	2,3	2,6				
VMA 15 (k _{vS} = 0,4)	0,2	0,3	0,4				16	2 ¹⁾	25	130
VMA 15 (k _{vS} = 0,63)	0,3	0,5	0,6							
VMA 15 (k _{vS} = 1,0)	0,4	0,7	0,8							
VMA 15 (k _{vS} = 1,6)	0,4	0,8	1,1							
VMA 15 (k _{vS} = 2,5)	0,7	1,2	1,7							
Materials	RAV/VMT						VMA			
Valve body	Brass						DZR			
Valve cone	NBR rubber						EPDM			
Spindle	-						DZR			
Temperature sensor	Cu									
Immersion pocket	Brass or stainless steel									
Capillary tube	Cu									

¹⁾ In installations requiring a low-noise function the differential pressure is not to exceed 1 bar.

Application principles

The actuator RAVV must be installed in the flow pipeline only.



Installation positions

Temperature controller

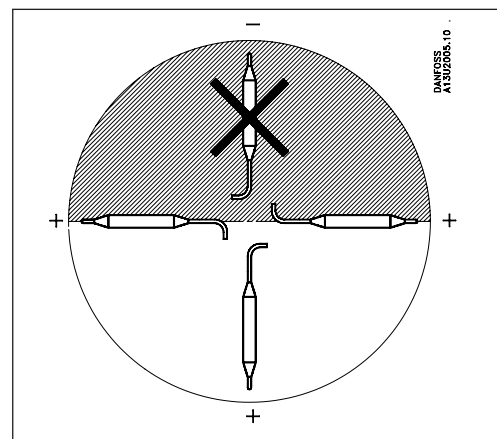
The valve body must be installed in the flow pipeline with the flow in the direction indicated by the cast-in arrow.

The flow temperature must be min. 15 °C higher than the set closing temperature.

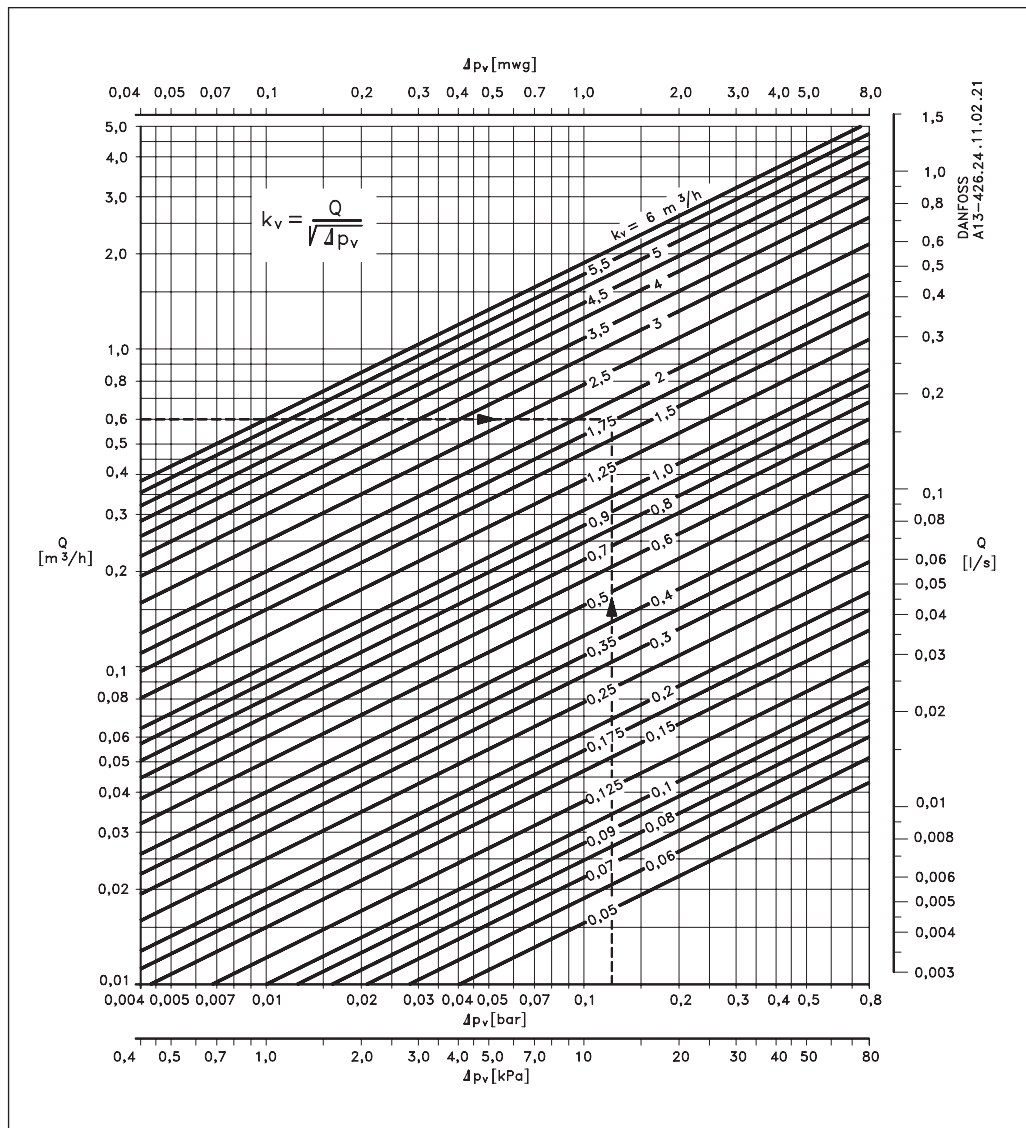
Temperature sensor

The sensor must be installed in position from horizontal to vertically down.

The sensor must always be placed in a pocket when the temperature is to be measured directly in a medium.



Sizing



Example:

Temperature control for hot water service

Given data:

Load: 14 kW (12.000 kcal/h)

Cooling (flow - return): 20 °C

Flow volume: $\frac{12}{20} = 0,6 \text{ m}^3/\text{h}$

Differential pressure Δp across the valve: 0,12 bar

Required:

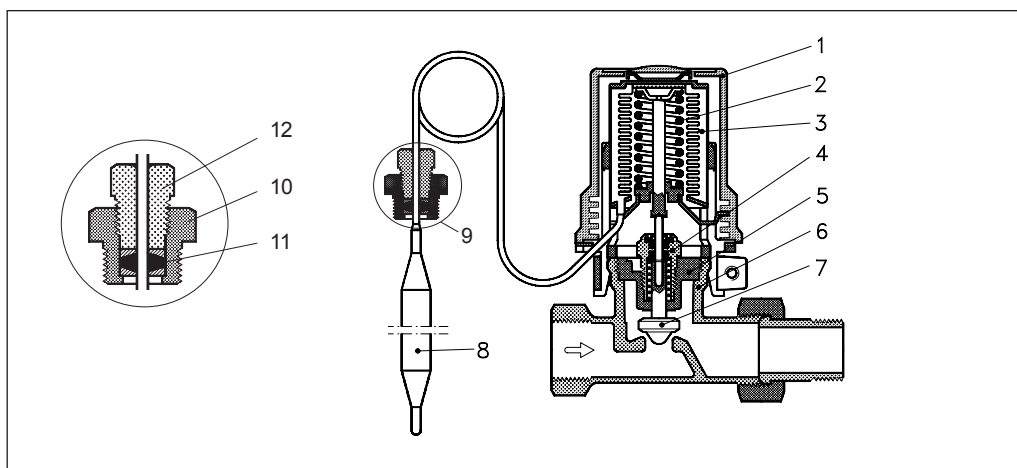
Correct valve size

Method:

From the flow volume (0,6 m³/h) and the differential pressure (0,12 bar) read off the necessary k_v -value in the diagram = 1,75
 In this example, a P-band of 6 °C is required.
 From the k_v -columns in the table, under 6 °C, find the appropriate valve body. Here, the most suitable valve body is RAV 25/8 or VMT 25/8 with a k_v -value of 1,6.

Design

- 1. Handle for temperature setting
- 2. Setting spring
- 3. Bellows
- 4. Valve stuffing box
- 5. Bottom screw
- 6. Valve body
- 7. Valve cone
- 8. Temperature sensor
- 9. Sensor stuffing box
- 10. Housing of sensor stuffing box
- 11. Gasket of sensor stuffing box
- 12. Sealing bolt of sensor stuffing box



Settings

Temperature setting

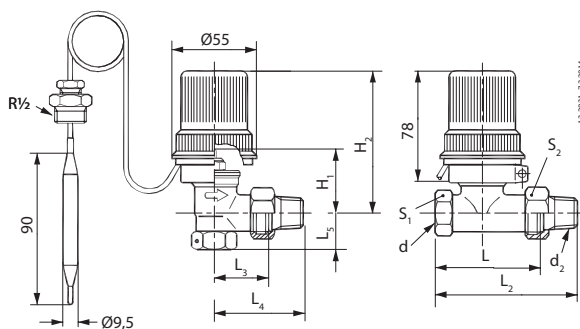
Relation between scale numbers 1 - 5 and closing temperature.

The values given are approximate.

1	2	Ex. 3	4	5	
t_s					$^{\circ}\text{C}$
10	20	24	30	40	(10 → 38)
28	38	42	48	57	(27 → 57)
40	50	54	60	70	(40 → 70)

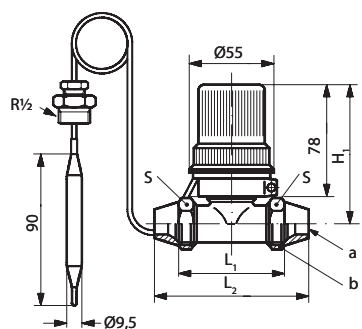
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Dimensions



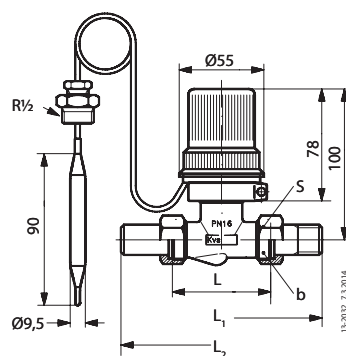
RAVV-RAV-/8

Type	d	d ₂	L	L ₂	L ₃	L ₄	L ₅	H ₁	H ₂	Width across flats	
	ISO 7/1		mm							S ₁ (mm)	S ₂ (mm)
RAVV-RAV 10/8	R _p 3/8	R 3/8	59	85	26	52	22	45	93	22	27
RAVV-RAV 15/8	R _p 1/2	R 1/2	66	95	29	58	26	45	93	27	30
RAVV-RAV 20/8	R _p 3/4	R 3/4	74	106	34	66	29	45	93	32	37
RAVV-RAV 25/8	R _p 1	R 1	90	125	40	75	34	58	106	41	46



RAVV-VMT-/8

Type	a	b	L ₁	L ₂	H ₁	S
	(mm)	ISO 228/1	mm			
RAVV-VMT 15/8	Ø 15/Ø 16/Ø 18	G 3/4 A	66	90	93	30
RAVV-VMT 20/8	Ø 18/Ø 22/	G 1 A	74	101	93	37
RAVV-VMT 25/8	Ø 28	G 1 1/4 A	90	120	106	45



RAVV-VMA

DN	a	L	L ₁	L ₂	S
	ISO 228/1	(mm)	(mm)	(mm)	(mm)
VMA 15	G 3/4 A	65	131	139	27

Dimensions (continuous)

