

## Data sheet

# Thermostatic actuator RAVK

- for 2-way valves RAV-/8 (PN 10), VMT-/8 (PN 10), VMA (PN 16)
- for 3-way valves KOVM (PN 10), VMV (PN 16)

### Description



RAVK is self-acting thermostatic actuator primarily for use for temperature control of small hot water cylinders (e.g. storage tanks) or heat exchangers in radiator heating systems.

RAVK can be combined with:

- 2-way valves RAV-/8, VMT-/8, VMA, or
  - 3-way valves VMV and KOVM
- Controller closes on rising temperature.

RAVK 25-45 °C can be combined with VMV DN 15 and DN 20 valves. This combination is used for temperature control in a mixing loop for hot water service.

#### Main data:

- DN 10-25
- $k_v$ , 0,25-4,0 m<sup>3</sup>/h
- PN 10 with RAV-/8, VMT-/8 and KOVM valves  
PN 16 with VMA and VMV valves
- Setting ranges:
  - 10 ... 30 °C with RAV-/8, VMT-/8, VMA, KOVM valves
  - 25 ... 45 °C with VMV DN 15 - 20 valves
  - 25 ... 65 °C with RAV-/8, VMT-/8, VMA, KOVM valves
  - 35 ... 75 °C with RAV-/8, VMT-/8, VMA, KOVM valves
- Temperature:
  - Circ. water / glycolic water up to 30%:
    - 2 ... 90 °C with KOVM valves
    - 2 ... 120 °C with RAV-/8, VMT-/8 and VMV valves
    - 2 ... 130 °C with VMA valves
- Flow and return mounting

### Ordering

Example:  
Temperature controller, DN 15,  
 $k_v$  1,6; PN 16; setting range 25 ... 65 °C;  
 $T_{max}$  130 °C; 2-way valve with ext.  
thread;

- 1x RAVK thermostatic actuator,  
25 ... 65 °C  
Code No: **013U8063**
- 1x VMA DN 15 valve  
Code No: **065F2034**

#### Option:

- 1x Imm. pocket, brass  
Code No: **065-4414**
- 1x Weld-on tailpieces  
Code No: **003H6908**

### RAVK thermostatic actuator

Picture	Setting range (°C)		Capillary length (m)	Max. sensor temp. (°C)	Code No. <sup>1)</sup>
	RAV / VMT / VMA / KOVM	VMV			
	10 ... 30		2,0	120	<b>003L3530</b>
	25 ... 65				<b>013U8063</b>
	35 ... 75				<b>003L3531</b>
		25 ... 45			<b>013U8072</b>

<sup>1)</sup> Incl. Sensor stuffing box  $R_p \frac{1}{2} \times M14 \times 1mm$

**Ordering (continuous)**
**Valves**

Picture	Type	Version	DN (mm)	k <sub>v</sub> <sup>1)</sup> (m <sup>3</sup> /h)	PN	Connection		Code No.
						inlet	outlet	
	RAV 10/8	2-way	10	1,2	10	R <sub>p</sub> 3/8	R 3/8	013U0012
	RAV 15/8		15	1,5		R <sub>p</sub> 1/2	R 1/2	013U0017
	RAV 20/8		20	2,3		R <sub>p</sub> 3/4	R 3/4	013U0022
	RAV 25/8		25	3,1		R <sub>p</sub> 1	R 1	013U0027
	VMT 15/8 <sup>2)</sup>		15	1,5		G 3/4 A		065F0115
	VMT 20/8 <sup>2)</sup>		20	2,3		G 1 A		065F0120
	VMT 25/8 <sup>2)</sup>		25	3,1		G 1 1/4 A		065F0125
	VMA 15 <sup>3)</sup>			15		16	G 3/4 A	065F2030
								065F2031
								065F2032
								065F2033
								065F2034
	VMV 15	3-way	15	2,5	R <sub>p</sub> 1/2	R <sub>p</sub> 1/2	065F0015	
	VMV 20		20	4,0	R <sub>p</sub> 3/4	R <sub>p</sub> 3/4	065F0020	
	KOVN 15			15		10	R <sub>p</sub> 1/2	065F0015
013U3014								
013U3015								
						R <sub>p</sub> 1/2	013U3020	

<sup>1)</sup> Capacity (k<sub>v</sub>) is max. value

<sup>2)</sup> For ordering of Cu fittings, see Accessories,

<sup>3)</sup> For ordering ext. thread tailpieces, see Accessories,

**Accessories for thermostat**

Picture	Type designations	Connection	Code No.
	Immersion pocket	Brass - R <sub>p</sub> 1/2 × M14 × 1mm, Ø 12 × 170 mm	065-4414
	Immersion pocket	Stainless steel - R <sub>p</sub> 1/2 × M14 × 1mm, Ø 12 × 170 mm	065-4415
	Housing of sensor stuff. box	R 1/2 × M14 × 1mm, rubber EPDM Ø 12,6 × 4 × 6 mm	013U8102 <sup>1)</sup>

<sup>1)</sup> Code includes housing and gasket of sensor stuffing box

**Accessories for valves**

Picture	Type designations	For valve	Dimensions	Code No.	
	Compression fittings <sup>1), 2), 5)</sup>	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 1/2 "	003H6902
	Compression fittings <sup>3), 4), 5)</sup>	KOVN 15 (G 1/2 A)	Ø 12 × 1	013G4112	
			Ø 14 × 1	013G4114	
Ø 15 × 1			013G4115		
Ø 16 × 1			013G4116		
Valve stuffing box <sup>5)</sup>	RAV/VMT/VMA/VMV/KOVN		065F0006		

<sup>1)</sup> Compression fitting consist of compression ring and union

<sup>2)</sup> For copper pipe

<sup>3)</sup> Compression fitting consist of compression ring and nut

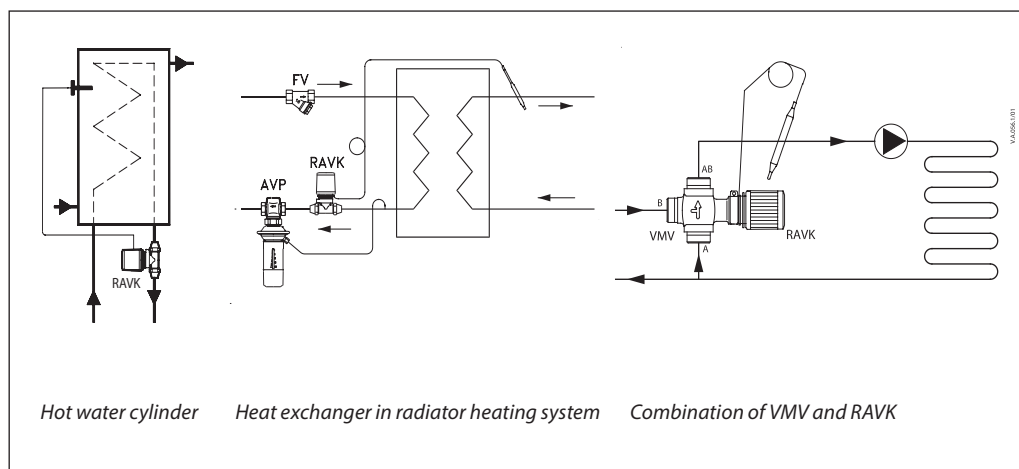
<sup>4)</sup> For steel and copper pipe

<sup>5)</sup> The products can only be ordered in multiple packing containing 10 pieces each

Technical data

Type RAVK	$k_v$ (m <sup>3</sup> /h) at a P-band °C of					Max. pressure		Test pressure (bar)	Max. flow temp. (°C)	Max. sensor temp. (°C)
	2	4	6	8	10	PN (bar)	$\Delta p$ (bar)			
RAV/VMT 10/8	0,35	0,65	0,85	1,0	1,1	10	0,8	16	120	120
RAV/VMT 15/8	0,5	0,75	0,95	1,1	1,2					
RAV/VMT 20/8	0,55	1,1	1,6	2	2,2					
RAV/VMT 25/8	0,6	1,2	1,8	2,2	2,3					
VMA 15 ( $k_{vs}=0,25$ )	0,1	0,2	0,2	0,2	0,2					
VMA 15 ( $k_{vs}=0,4$ )	0,1	0,3	0,3	0,3	0,3					
VMA 15 ( $k_{vs}=0,63$ )	0,2	0,5	0,6	0,6	0,6	16	3,0	25		
VMA 15 ( $k_{vs}=1,0$ )	0,2	0,5	0,7	0,7	0,7		3,0			
VMA 15 ( $k_{vs}=1,6$ )	0,2	0,6	0,8	0,8	0,8		1,5			
VMA 15 ( $k_{vs}=2,5$ )	0,4	0,9	1,3	1,3	1,3		1,5			
VMV 15 ( $k_{vs}=2,5$ )	0,45	0,9	1,3	1,75	2,2		0,5			
VMV 20 ( $k_{vs}=4,0$ )	0,7	1,4	2,1	2,8	3,6	16	0,2	25	120	
KOVM 15 ( $k_{vs}=0,63$ )	0,3	0,4	0,5	0,6	0,6	10	0,8	16	90	
KOVM 15 ( $k_{vs}=1,5$ )	0,7	0,9	1,2	1,3	1,5					
KOVM 15 ( $k_{vs}=2,0$ )	0,9	1,3	1,6	1,8	2,0					
<b>Materials</b>	<b>RAV/VMT</b>		<b>VMA</b>			<b>VMV</b>		<b>KOVM</b>		
Valve body	Brass		DZR			Rg 5		Brass		
Valve cone	NBR rubber		EPDM			EPDM		EPDM		
Spindle	-		DZR			St. steel		St. steel 18/8		
Temp. sensor	Cu									
Immersion pocket	Brass or stainless steel									
Capillary tube	Cu									

Application principles



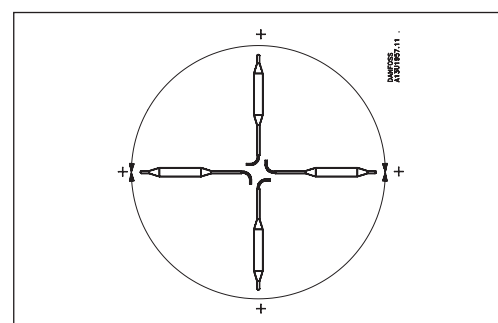
Installation positions

Temperature controller

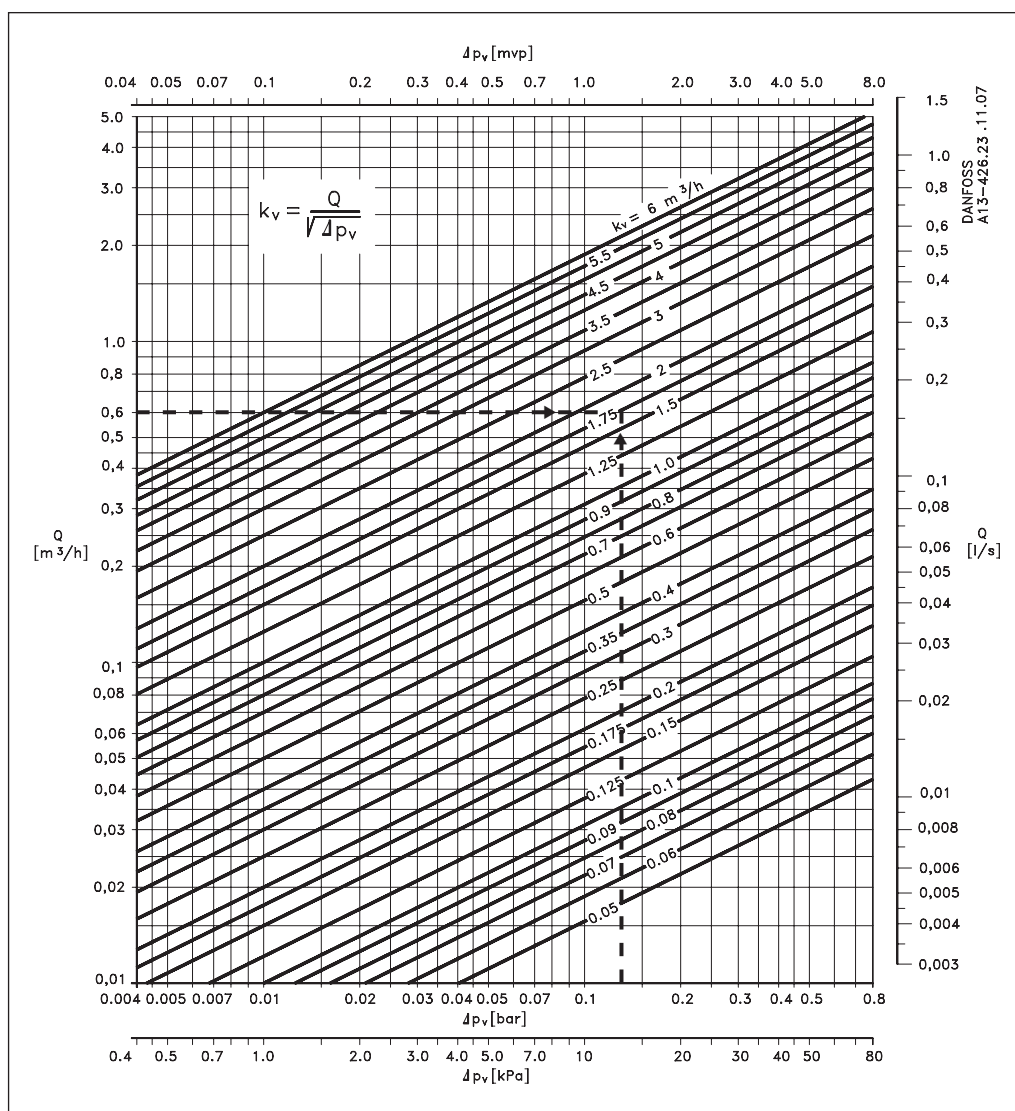
The valve body could be installed in the flow or return pipeline with flow in the direction indicated by the cast-in arrow.

Temperature sensor

The sensor could be installed in any position.



Sizing



**Example:**

Temperature control of service hot water

Given data:

Tank output: 14 kW (12.000 kcal/h)

Cooling (flow – return): 20 °C

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

Differential pressure

$\Delta p$  across valve: 0,12 bar

Required:

Correct valve size

**Solution:**

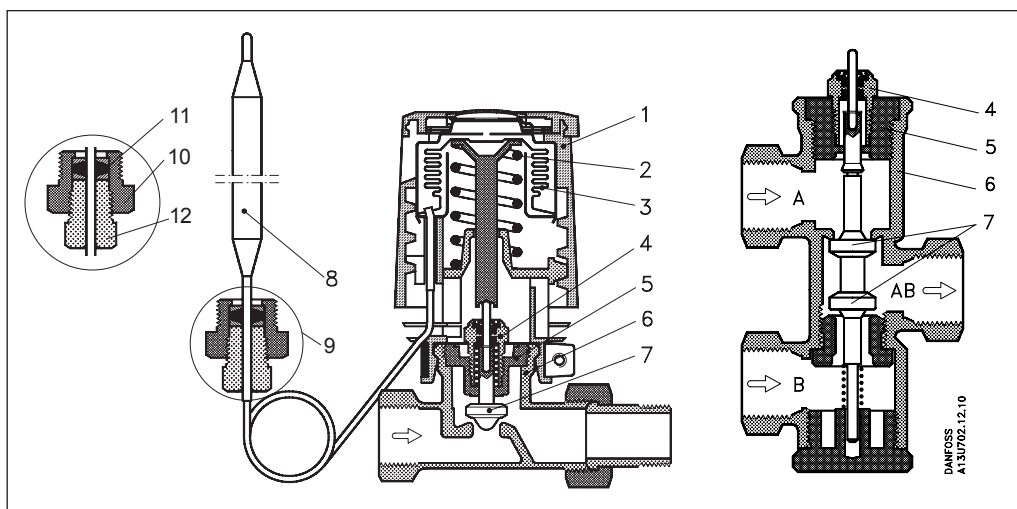
From water volume (0,6 m<sup>3</sup>/h) and differential pressure (0,12 bar), read off the necessary k<sub>v</sub> value in diagram = 1,75.

In this example, a P-band of 6 °C is required.

From the kv 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<sub>v</sub> value of 1,8.

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

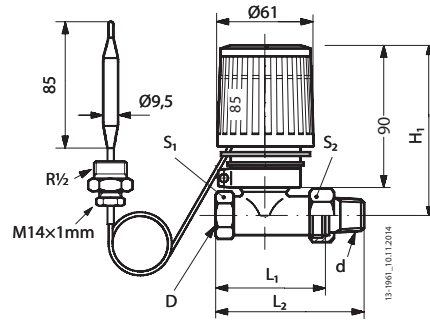
Temperature setting

Relation between scale numbers 1-5 and closing temperature.

The values given are approximate.

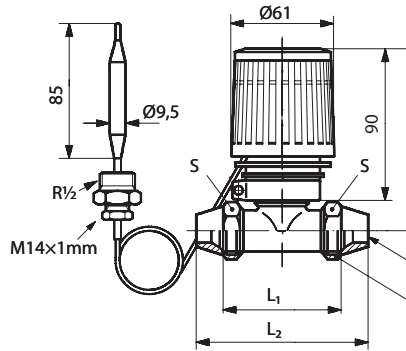
<i>RAVK 10° ... 30°C with RAV, VMT, VMA and KOVM valves</i>						
min.	1	2	3	4	5	max.
(10...30 °C)	12	16	22	27	32	°C
<i>RAVK 25° ... 45°C with VMV valve</i>						
min.	1	2	3	4	5	max.
(25...45 °C)	25	30	35	40	45	°C
<i>RAVK 25° ... 65°C with RAV, VMT, VMA and KOVM valves</i>						
min.	1	2	3	4	5	max.
(25...65 °C)	25	35	45	55	65	°C
<i>RAVK 25° ... 75°C with RAV, VMT, VMA and KOVM valves</i>						
min.	1	2	3	4	5	max.
(35...75 °C)	30	40	52	64	76	°C

Dimensions



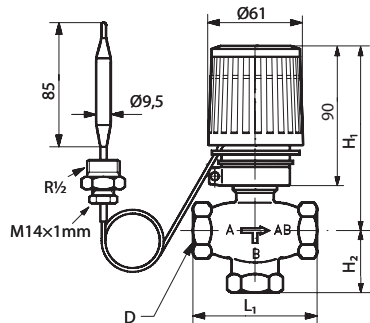
**RAVK-RAV-8**

Type	D	d	L <sub>1</sub>	L <sub>2</sub>	H <sub>1</sub>	Width across flats	
						S <sub>1</sub> (mm)	S <sub>2</sub> (mm)
RAVK-RAV 10/8	R <sub>p</sub> 3/8	R 3/8	59	85	103	22	27
RAVK-RAV 15/8	R <sub>p</sub> 1/2	R 1/2	66	95	103	27	30
RAVK-RAV 20/8	R <sub>p</sub> 3/4	R 3/4	74	106	103	32	37
RAVK-RAV 25/8	R <sub>p</sub> 1	R 1	90	125	116	41	46



**RAVK-VMT-8**

Type	a	b	L <sub>1</sub>	L <sub>2</sub>	H <sub>1</sub>	S
RAVK-VMT 15/8	Ø 15/Ø 16/Ø 18	R 3/4	66	90	103	30
RAVK-VMT 20/8	Ø 18/Ø 22	R 1	74	101	103	37
RAVK-VMT 25/8	Ø 28	R 1 1/4	90	120	116	45



**RAVK-VMV**

Type	L <sub>1</sub>	H <sub>1</sub>	H <sub>2</sub>	D
VMV 15	70	35	100	R <sub>p</sub> 1/2
VMV 20	80	40	100	R <sub>p</sub> 3/4

Dimensions (continuous)

