

## 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

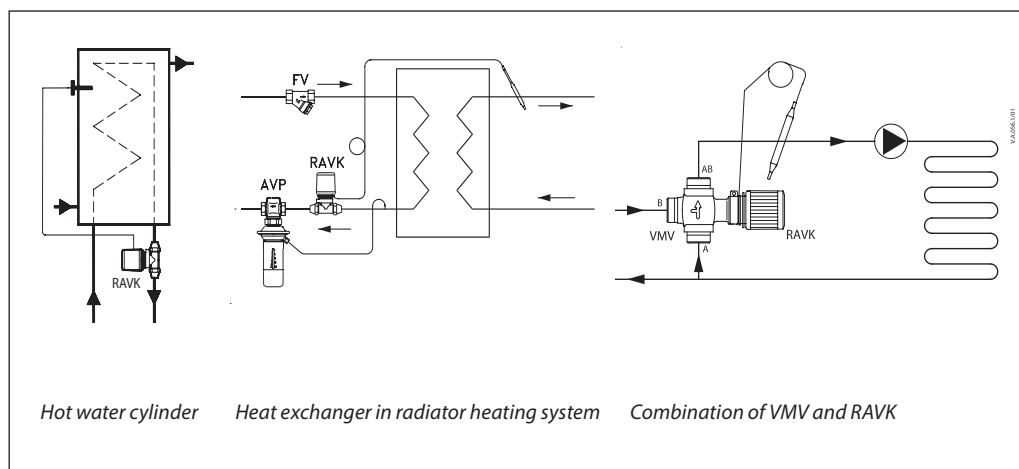
<sup>4)</sup> For steel and copper pipe

<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						16
VMA 15 ( $k_{vs}=0,4$ )	0,1	0,3	0,3	0,3	0,3	3,0					
VMA 15 ( $k_{vs}=0,63$ )	0,2	0,5	0,6	0,6	0,6	1,5					
VMA 15 ( $k_{vs}=1,0$ )	0,2	0,5	0,7	0,7	0,7	1,5					
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	0,5	16	25	120		
VMV 15 ( $k_{vs}=2,5$ )	0,45	0,9	1,3	1,75	2,2	16					0,2
VMV 20 ( $k_{vs}=4,0$ )	0,7	1,4	2,1	2,8	3,6						
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										

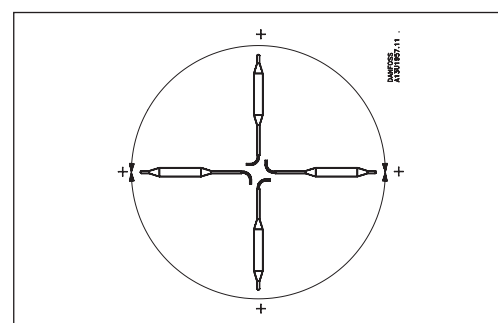
Application principles



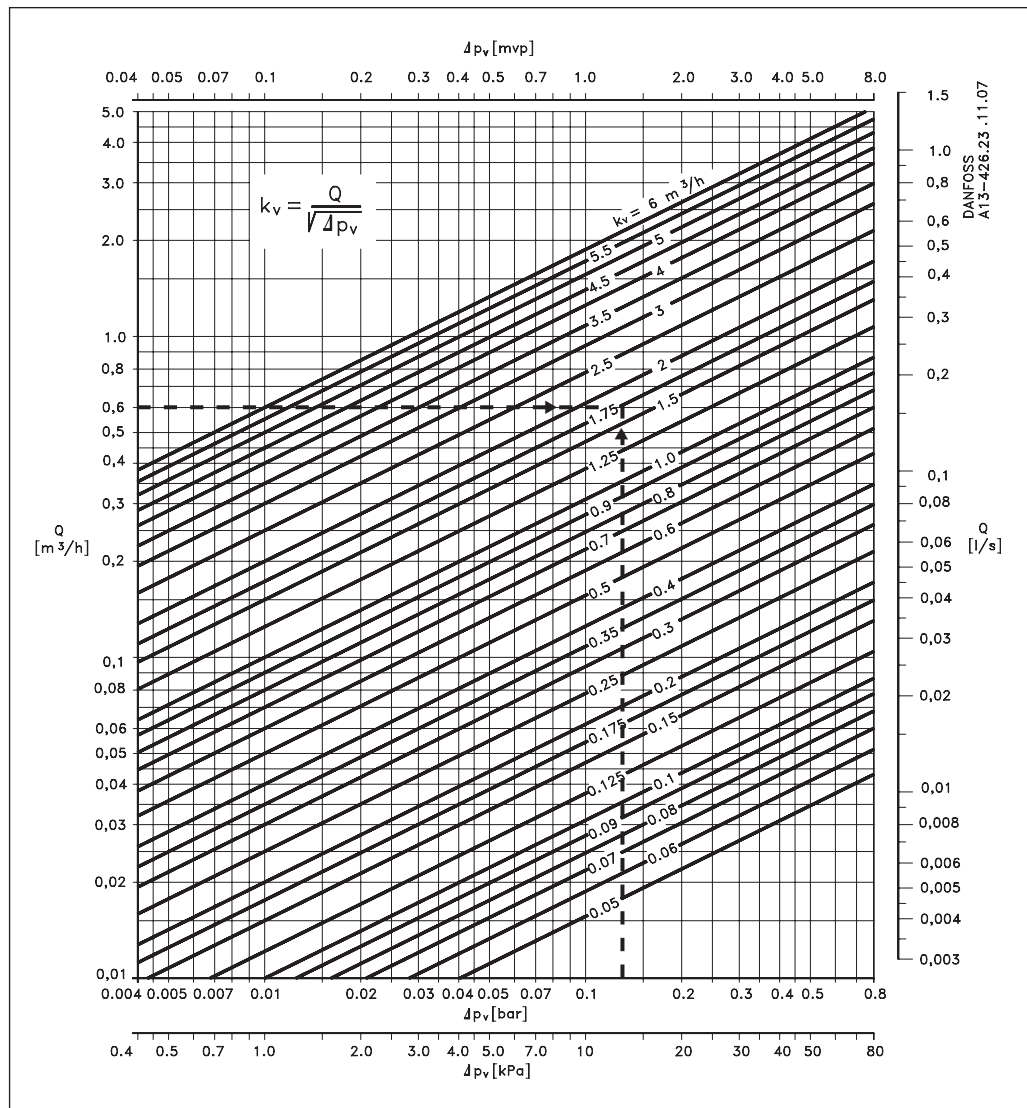
Installation positions

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

Differential pressure

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

Required:

Correct valve size

**Solution:**

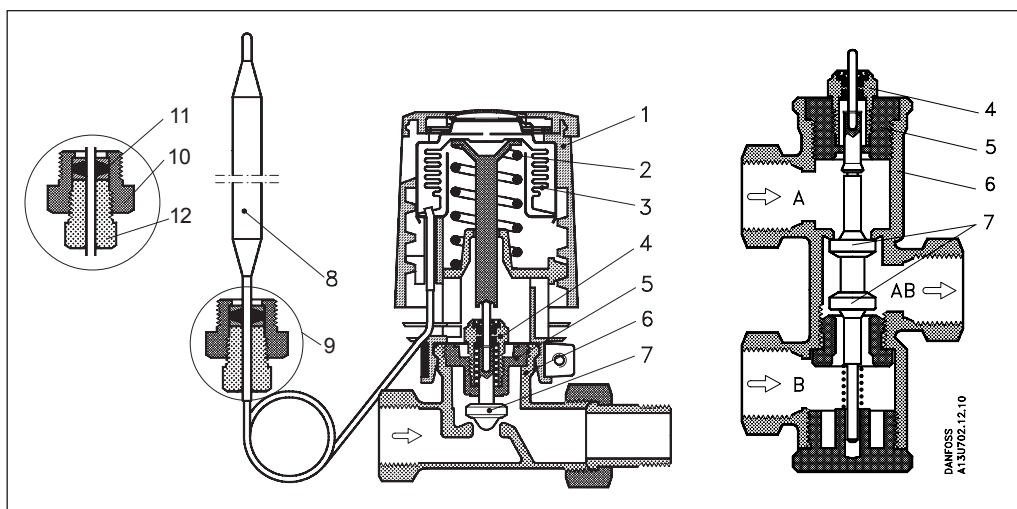
From water volume (0,6  $m^3/h$ ) and differential pressure (0,12 bar), read off the necessary  $k_v$  value in diagram = 1,75.

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 1,8.

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

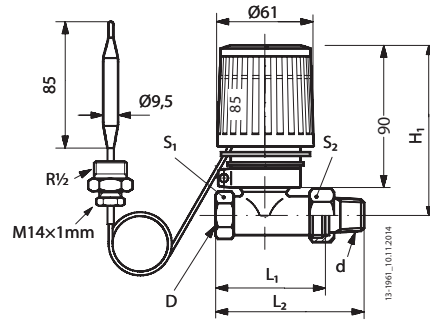
Temperature setting

Relation between scale numbers 1-5 and closing temperature.

The values given are approximate.

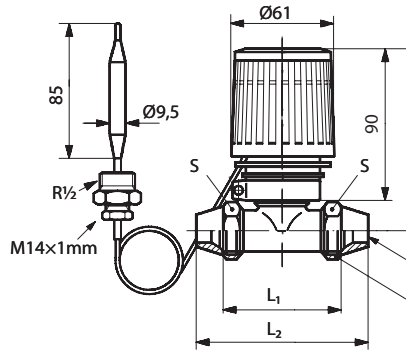
<i>RAVK 10° ... 30°C with RAV, VMT, VMA and KOVM valves</i>						
min.	1	2	3	4	5	max.
(10...30 °C)	12	16	22	27	32	°C
<i>RAVK 25° ... 45°C with VMV valve</i>						
min.	1	2	3	4	5	max.
(25...45 °C)	25	30	35	40	45	°C
<i>RAVK 25° ... 65°C with RAV, VMT, VMA and KOVM valves</i>						
min.	1	2	3	4	5	max.
(25...65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



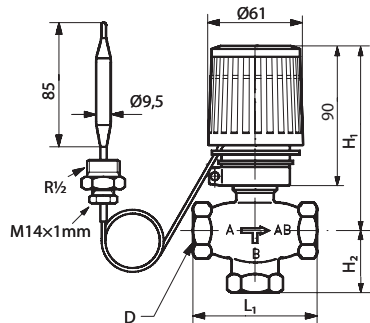
RAVK-RAV-8

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)

