

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 m³/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. ¹⁾
	RAV / VMT / VMA / KOVM	VMV			
	10 ... 30		2,0	120	003L3530
	25 ... 65				013U8063
	35 ... 75				003L3531
		25 ... 45			013U8072

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

Ordering (continuous)
Valves

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

¹⁾ Capacity (k_v) is max. value

²⁾ For ordering of Cu fittings, see Accessories,

³⁾ For ordering ext. thread tailpieces, see Accessories,

Accessories for thermostat

Picture	Type designations	Connection	Code No.
	Immersion pocket	Brass - R _p 1/2 × M14 × 1mm, Ø 12 × 170 mm	065-4414
	Immersion pocket	Stainless steel - R _p 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 ¹⁾

¹⁾ Code includes housing and gasket of sensor stuffing box

Accessories for valves

Picture	Type designations	For valve	Dimensions	Code No.	
	Compression fittings ^{1), 2), 5)}	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 ^{3), 4), 5)}	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 ⁵⁾	RAV/VMT/VMA/VMV/KOVN		065F0006		

¹⁾ Compression fitting consist of compression ring and union

²⁾ For copper pipe

³⁾ Compression fitting consist of compression ring and nut

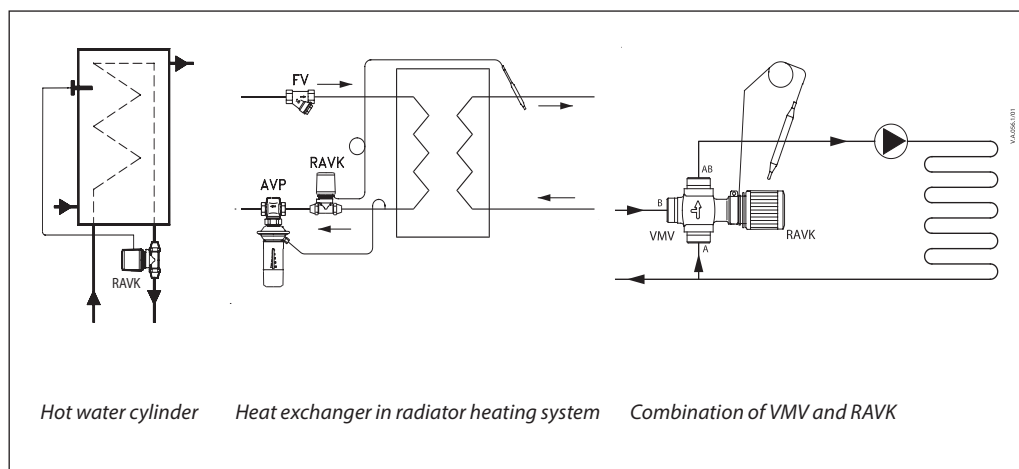
⁴⁾ For steel and copper pipe

⁵⁾ The products can only be ordered in multiple packing containing 10 pieces each

Technical data

Type RAVK	k_v (m ³ /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)	Δp (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	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					
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					
Materials	RAV/VMT		VMA			VMV		KOVM		
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									

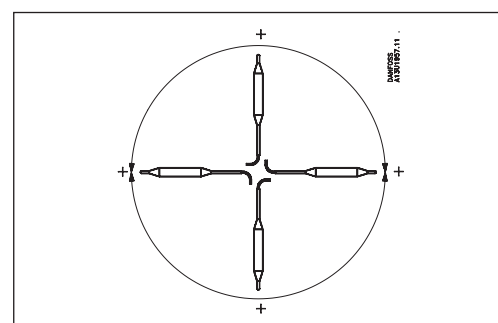
Application principles



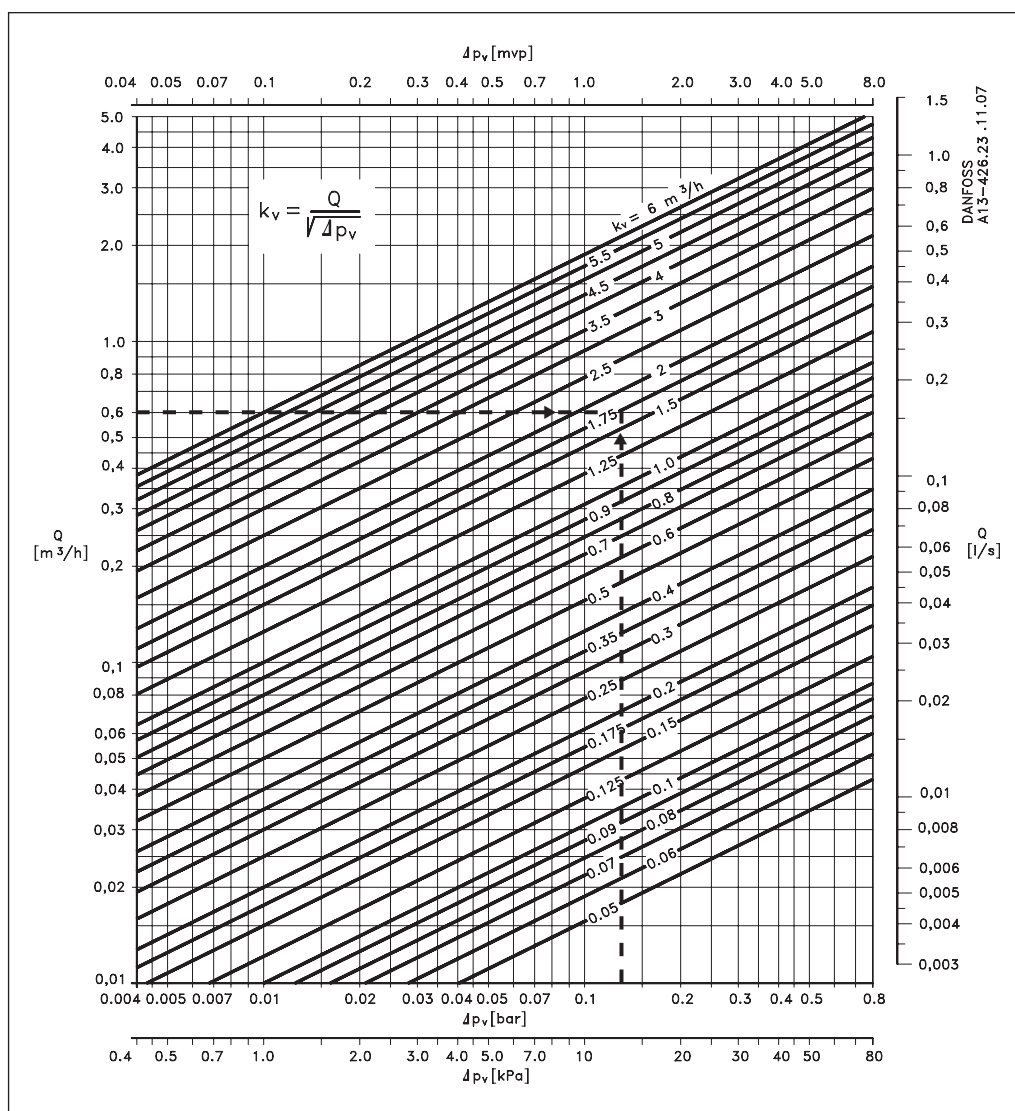
Installation positions

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

Δp across valve: 0,12 bar

Required:

Correct valve size

Solution:

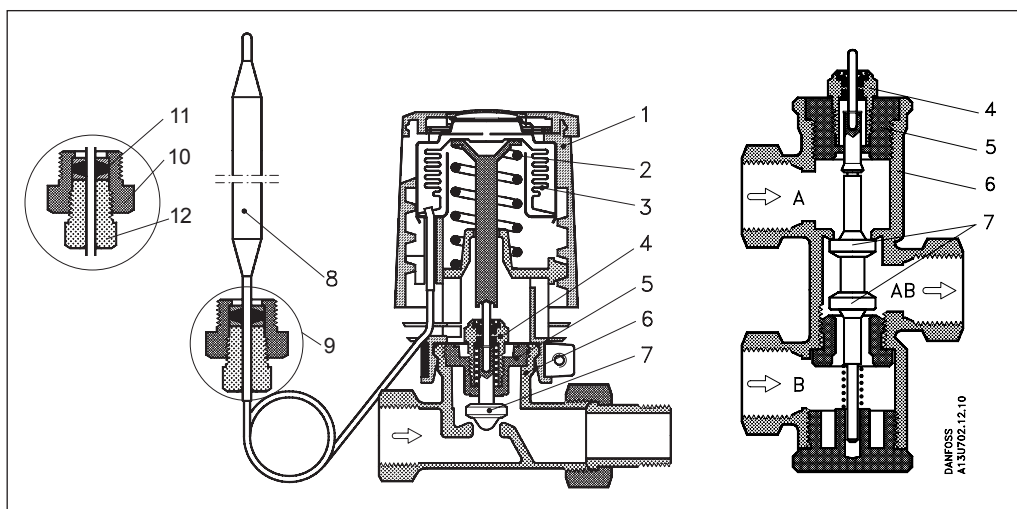
From water volume (0,6 m^3/h) and differential pressure (0,12 bar), read off the necessary k_v value in diagram = 1,75.

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

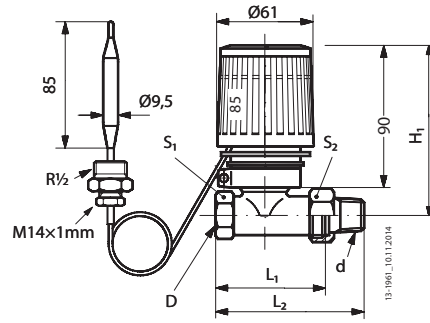
Temperature setting

Relation between scale numbers 1-5 and closing temperature.

The values given are approximate.

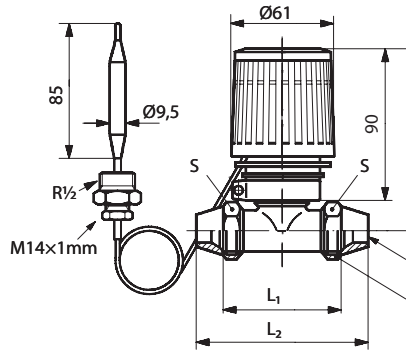
<i>RAVK 10° ... 30°C with RAV, VMT, VMA and KOVM valves</i>						
min.	1	2	3	4	5	max.
(10...30 °C)	12	16	22	27	32	°C
<i>RAVK 25° ... 45°C with VMV valve</i>						
min.	1	2	3	4	5	max.
(25...45 °C)	25	30	35	40	45	°C
<i>RAVK 25° ... 65°C with RAV, VMT, VMA and KOVM valves</i>						
min.	1	2	3	4	5	max.
(25...65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



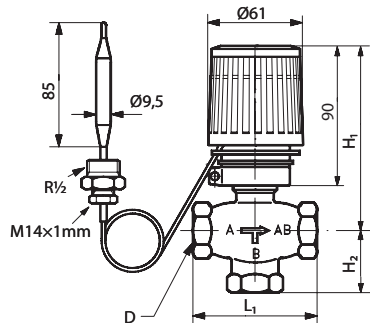
RAVK-RAV-8

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



RAVK-VMT-8

Type	a	b	L ₁	L ₂	H ₁	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 ₁	H ₁	H ₂	D
VMV 15	70	35	100	R _p 1/2
VMV 20	80	40	100	R _p 3/4

Dimensions (continuous)

