

Data sheet

Thermostatic actuator RAVI

- 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



RAVI is self-acting thermostatic actuator primarily for use for temperature control of small hot water cylinders - either storage type cylinders or instantaneous hot water heaters.

RAVI can be combined with:

- 2-way valves RAV-/8, VMT-/8 and VMA, or
- 3-way valves VMV and KOVM.

Controller closes on rising temperature.

Main data:

- DN 10 - 25
- k_v 0.25 - 4.0 m³/h
- PN 10
- Setting range: 43 ... 65 °C
- 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
- Connections:
 - Internal and external thread
- Return mounting

Ordering

Example:
Temperature controller, DN 15,
 k_v 1.6, PN 10, setting range 43 ... 65 °C,
 t_{max} 130 °C, 2-way valve with ext.
thread

- 1x RAVI thermostatic actuator,
43 ... 65 °C
Code No: **013U8008**
- 1x VMA DN 15 valve
Code No: **065F2034**

Option:

- 1x Imm. pocket, brass
Code No: **013U0290**
- 1x Weld-on tailpieces
Code No: **003H6908**

RAVI thermostatic actuator

Picture	Setting range	Capillary tube length	Max. sensor temp.	Code No.
	43 ... 65 °C	2.0 m	70 °C	013U8008 ^{1), 2)}

¹⁾ DIN-tested. Registration number TR 37779

²⁾ Incl. R_p 1/2 sensor stuffing box

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	1.3		R _p 1/2	R 1/2	013U0017	
	RAV 20/8		20	2.4		R _p 3/4	R 3/4	013U0022	
	RAV 25/8		25	2.6		R _p 1	R 1	013U0027	
	VMT 15/8 ²⁾		15	1.3		R _p 3/4		065F0115	
	VMT 20/8 ²⁾		20	2.4		R _p 1		065F0120	
	VMT 25/8 ²⁾		25	2.6		R _p 1 1/4		065F0125	
	VMA 15 ³⁾			15	0.25	16	G 3/4 A		065F2030
					0.4				065F2031
					0.63				065F2032
					1.0				065F2033
					1.4				065F2034
	2.2	065F2035							
	VMV 15	3-way	15	2.3	10	R _p 1/2	R _p 1/2	065F0015	
VMV 20	20		3.5	R _p 3/4		R _p 3/4	065F0020		
KOVM 15	15		0.6	R _p 1/2		R _p 1/2	013U3014		
		1.5	R _p 1/2	R _p 1/2	013U3015				
		2.0	R _p 1/2	R _p 1/2	013U3020				

¹⁾ The capacity (k_v) applies with a P-band of 6 °C. For other P-bands, see Technical data.

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	R _p 1/2 x M14 x 1 mm, brass 182 mm, without sens. stuff. box	013U0290
		R _p 1/2 x M18 x 1.5 mm, st. steel 182 mm, with sens. stuff. box	003N0196
	Housing of sensor stuffing box	R 1/2 x M14 x 1 mm, rubber EPDM Ø 12.6 x 4 x 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 x 1	013G4125	
			Ø 16 x 1	013G4126	
			Ø 18 x 1	013G4128	
		VMT 20	Ø 18 x 1	013U0134	
			Ø 22 x 1	013U0135	
	VMT 25	Ø 28 x 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)}	KOVM 15 (G 1/2 A)	Ø 12 x 1	013G4112	
			Ø 14 x 1	013G4114	
Ø 15 x 1			013G4115		
Ø 16 x 1			013G4116		
Valve stuffing box ⁵⁾	RAV/VMT/VMA/VMV/KOVM		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

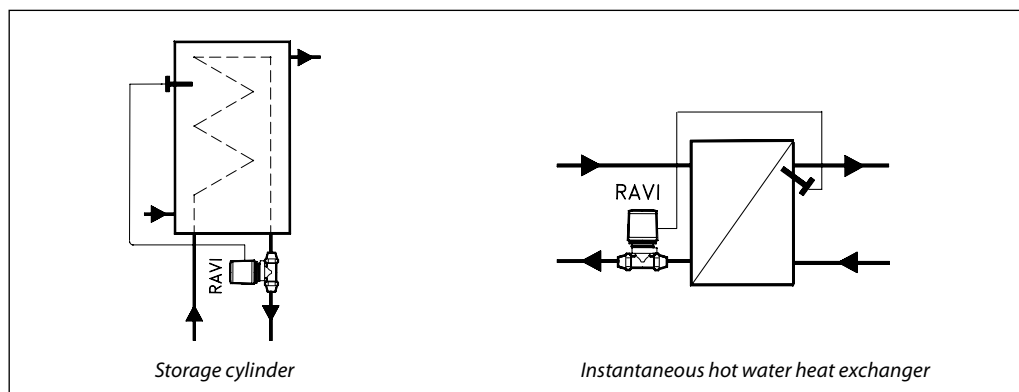
Technical data

Type RAVI	k_v (m ³ /h) with a P-band in °C of			Max. pressure		Test pressure (bar)	Max. flow temp. (°C)	Max. adm. temp. at sensor (°C)
	2	4	6	PN	$\Delta p^1)$			
				(bar)	(bar)			
RAV 10/8	0.70	1.00	1.20	10	0.8	16	120	70
RAV/VMT 15/8	0.70	1.10	1.30					
RAV/VMT 20/8	1.00	1.80	2.40					
RAV/VMT 25/8	1.20	2.00	2.60					
VMA 15 ($k_{vs} = 0.25$)	0.23	0.24	0.25	16	5	25	130	
VMA 15 ($k_{vs} = 0.4$)	0.35	0.38	0.40		5			
VMA 15 ($k_{vs} = 0.6$)	0.53	0.63	0.63		2			
VMA 15 ($k_{vs} = 1.0$)	0.60	0.85	1.00		2			
VMA 15 ($k_{vs} = 1.6$)	0.64	1.20	1.40		2			
VMA 15 ($k_{vs} = 2.5$)	1.00	1.55	2.20		1			
VMV 15 ($k_{vs} = 2.5$)	0.70	1.50	2.30	16	0.6	25	120	
VMV 20 ($k_{vs} = 4.0$)	0.90	2.10	3.50		0.5			
KOVM 15 ($k_{vs} = 0.63$)	0.30	0.50	0.60	10	0.8	16	90	
KOVM 15 ($k_{vs} = 1.5$)	0.70	1.20	1.50					
KOVM 15 ($k_{vs} = 2.0$)	0.90	1.60	2.00					
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			
Temperature sensor	Cu							
Immersion pocket	Brass or stainless steel							
Capillary tube	Cu							

¹⁾ In installations where quiet function is required, the differential pressure across the valve should not exceed 1 bar.

Application principles

The actuator RAVI must be installed in the return pipeline only.



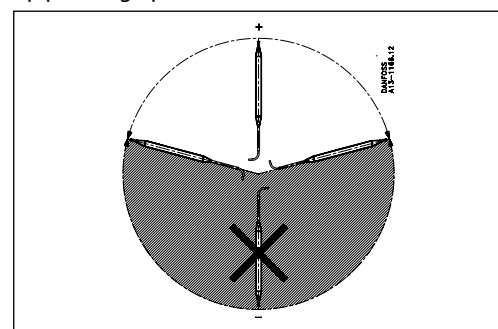
Installation positions

Temperature controller

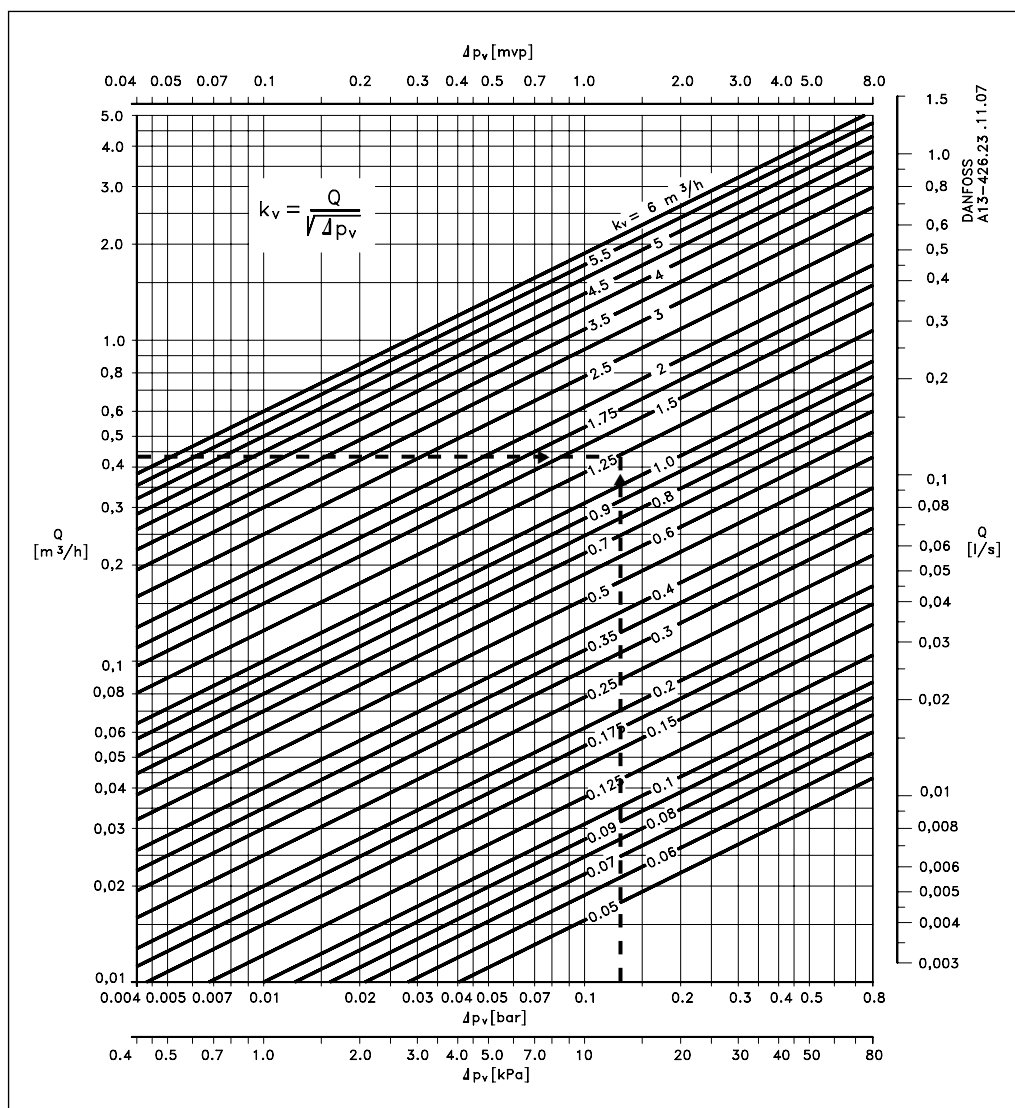
The valve body must be installed in the return pipeline with flow in the direction indicated by the cast-in arrow.

Temperature sensor

The sensor must always be placed warmer than the bellows. The sensor must be installed with its tip pointing upwards.



Sizing



Example:

Temperature control of service hot water

Given data:

Tank output: 10 kW (8600 kcal/h)
Cooling (flow – return): 20 °C

Flow: $\frac{8.6}{20} = 0.43 \text{ m}^3/\text{h}$

Differential pressure
Δp across valve: 0.12 bar

Required:

Correct valve size

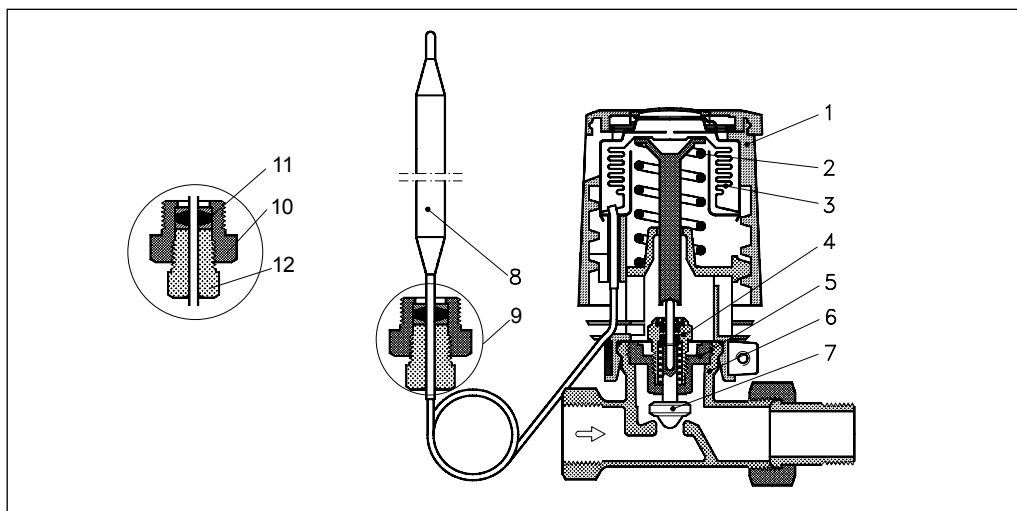
Method:

Use the water quantity (0.43 m³/h) and differential pressure (0.12 bar) to read off the necessary k_v-value = 1.25

In this case, sizing is for a P-band of 6 °C. In the table of k_v-values, look under 6 °C and find the valve body having the necessary k_v-value. In this case the valve body most suitable is the RAV 15/8 or VMT 15/8 with a k_v-value of 1.3.

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

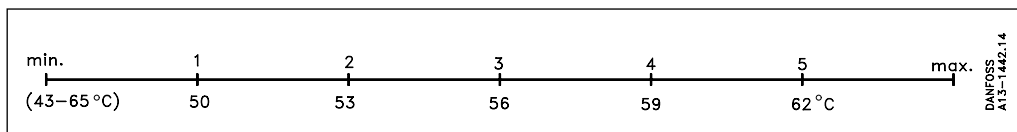


Settings

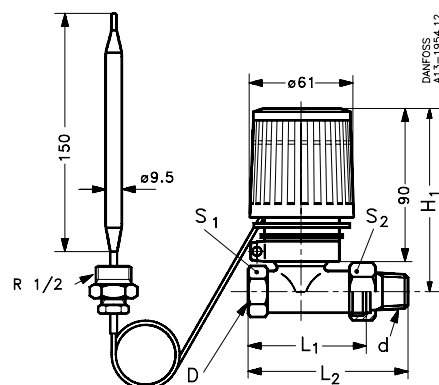
Temperature setting

Relation between scale numbers 1 - 5 and closing temperature.

The values given are approximate.

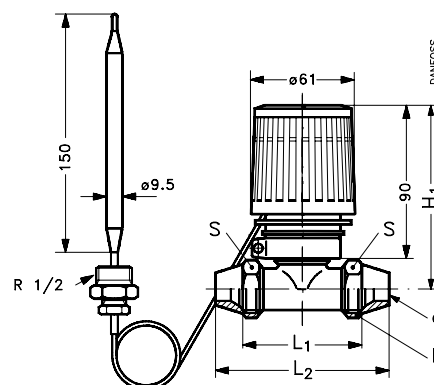


Dimensions



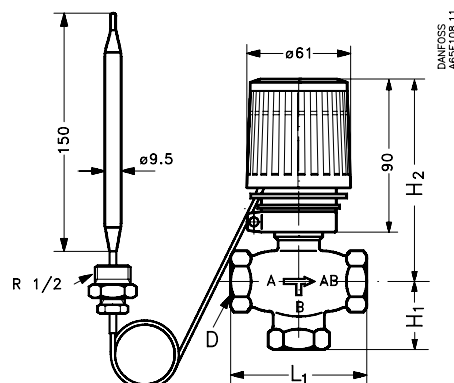
RAVI-RAV-8

Type	D	d	L1 (mm)	L2 (mm)	H1 (mm)	Width across flats	
						S1 (mm)	S2 (mm)
RAVI-RAV 10/8	R _p 3/8	R 3/8	59	85	103	22	27
RAVI-RAV 15/8	R _p 1/2	R 1/2	66	95	103	27	30
RAVI-RAV 20/8	R _p 3/4	R 3/4	74	106	103	32	37
RAVI-RAV 25/8	R _p 1	R 1	90	125	116	41	46



RAVI-VMT-8

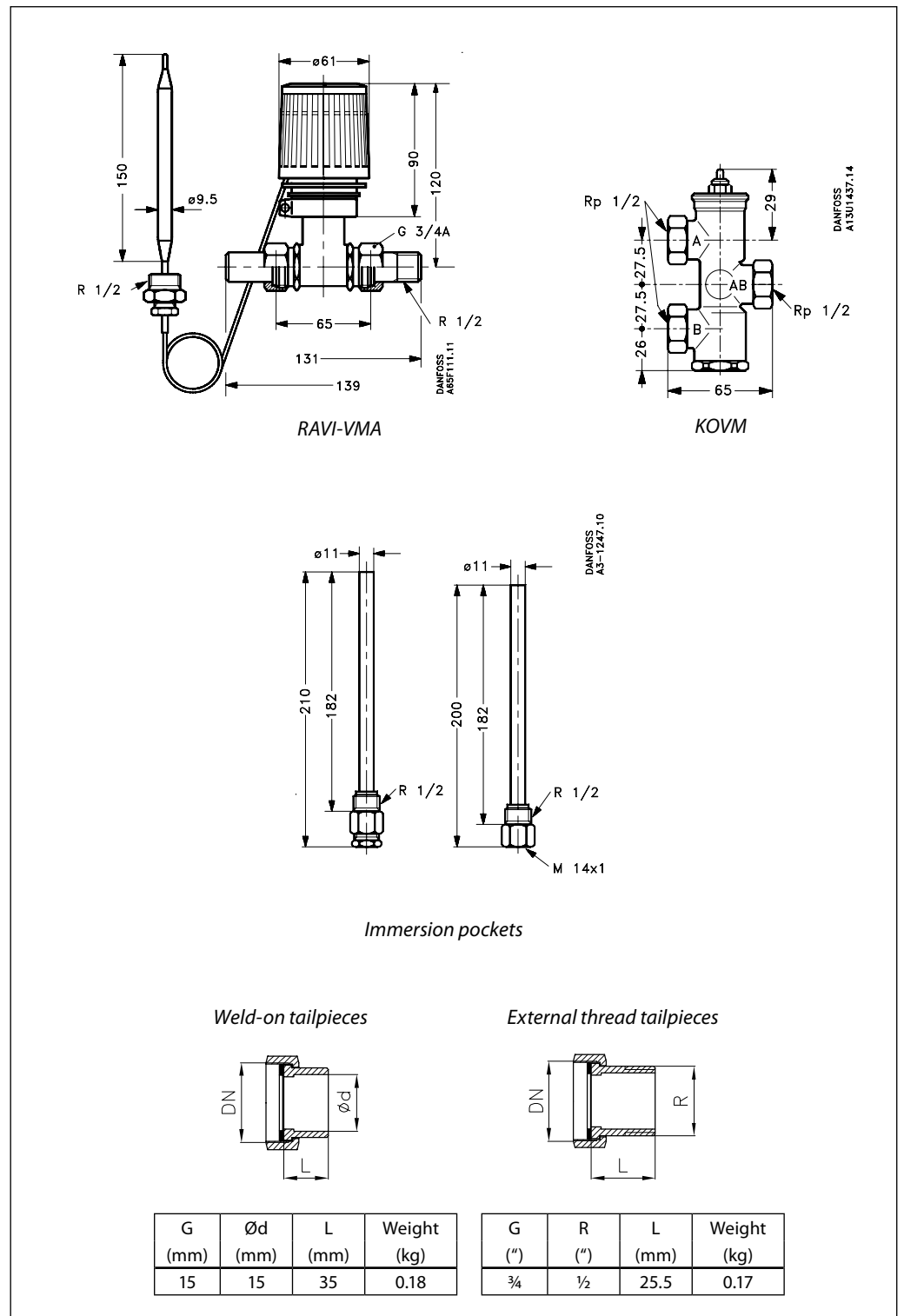
Type	a	b	L1 (mm)	L2 (mm)	H1 (mm)	S (mm)
RAVI-VMT 15/8	Ø 15/ Ø 16/ Ø 18	R 3/4	66	90	103	30
RAVI-VMT 20/8	Ø 18/ Ø 22	R 1	74	101	103	37
RAVI-VMT 25/8	Ø 28	R 1 1/4	90	120	116	45



RAVI-VMV

Type	L1 (mm)	H1 (mm)	H2 (mm)	D
VMV 15	70	35	100	R _p 1/2
VMV 20	80	40	100	R _p 3/4

Dimensions (continuous)



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