

Data sheet

Thermostatic actuator RAVI

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

Controller closes on rising temperature.

The temperature controller is type-tested according to EN 14597.

Main data:

- DN 10-25
- kv 0.25 -4.0 m³/h
- PN 10
- Setting range: 43 ... 65 °C
- Temperature:
 - Circ. water / glycolic water up to 30%:
 - 2 ... 120 °C with RAV-/8, VMT-/8
 - 2 ... 130 °C with VMA valves
- Return mounting

Ordering

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

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

Option:

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

RAVI thermostatic actuator

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

¹⁾ DIN-tested. Type approval number TR 838

²⁾ Incl. Rp ½ sensor stuffing box

Ordering (continuous)
Valves

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	16	0.25	G 3/4 A		065F2030
				0.4			065F2031
				0.63			065F2032
	1.0			065F2033			
	1.4			065F2034			
2.2	065F2035						

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

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 stuffing 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

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	
VMT 25	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
Valve stuffing box ⁵⁾		RAV/VMT/VMA		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

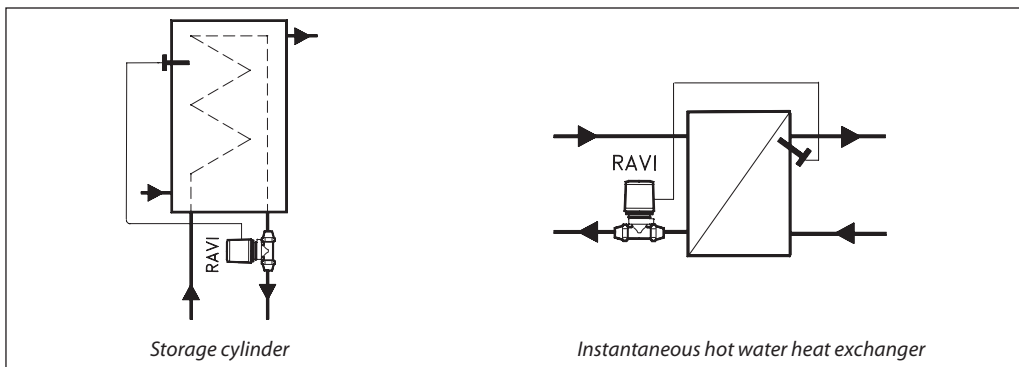
Technical data

Type RAVI	kv (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 (bar)	Δp ¹⁾ (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			
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 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

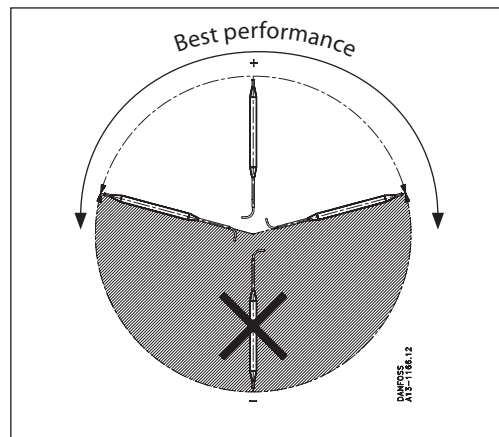
Temperature controller

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

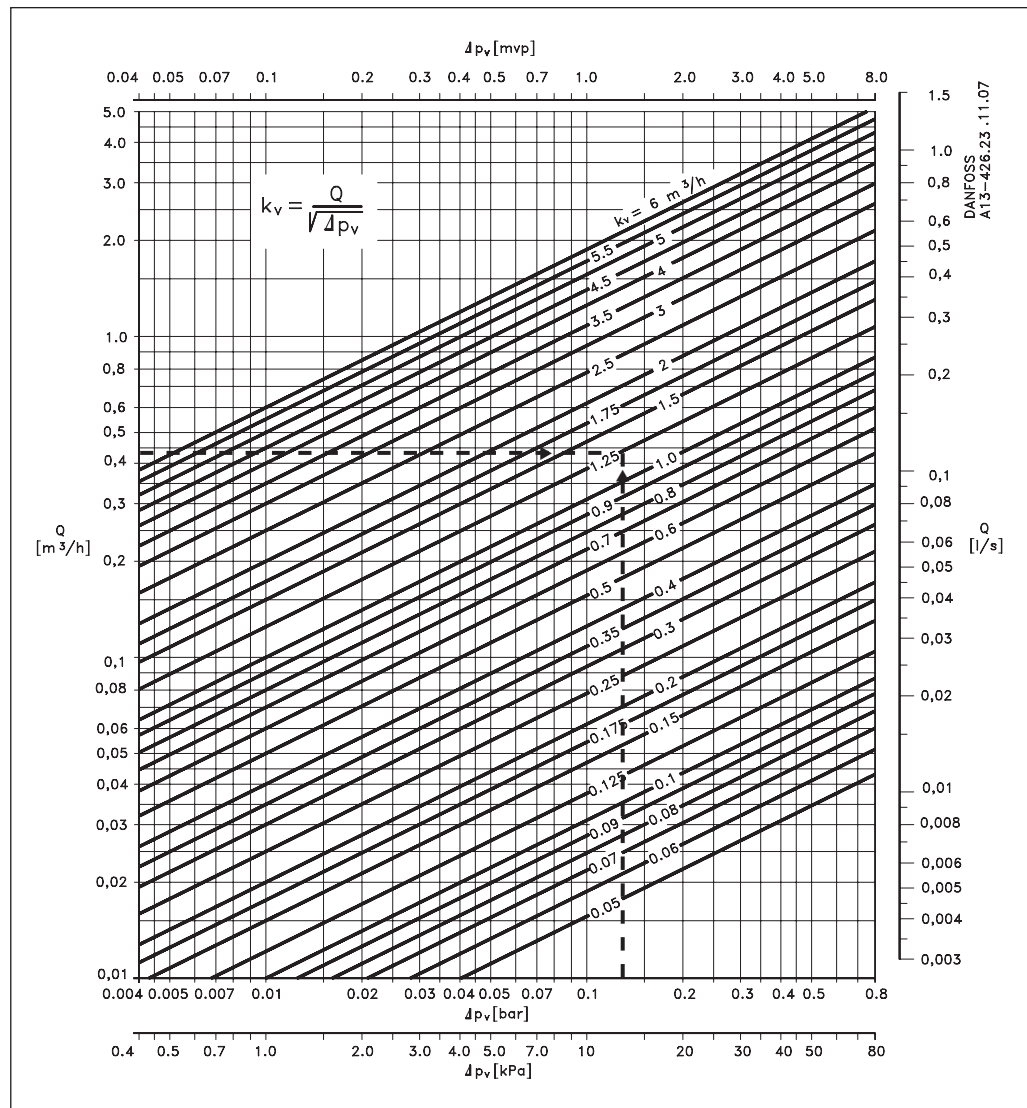
Temperature sensor

The sensor must always be placed warmer than the bellows.

For best performance it is recommended to install the sensor facing up.



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

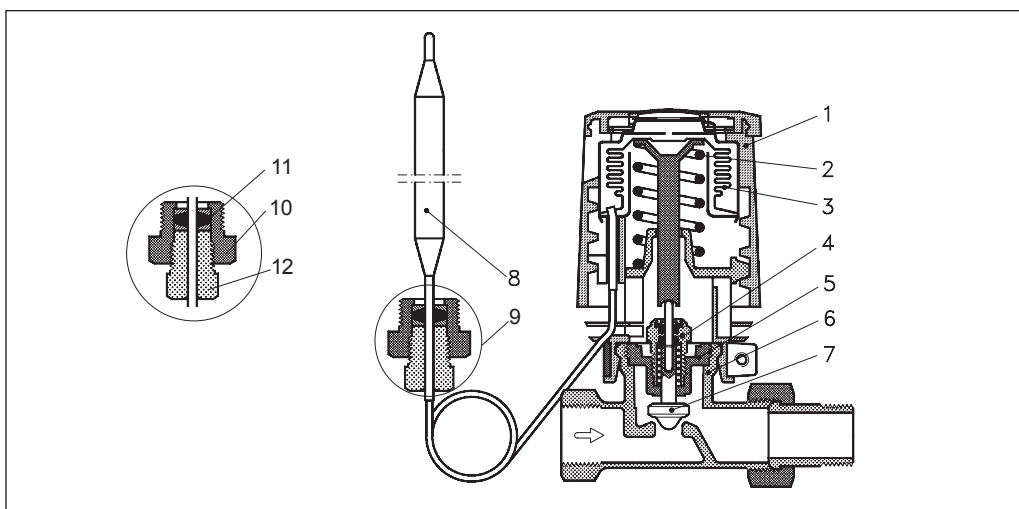
Method:

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

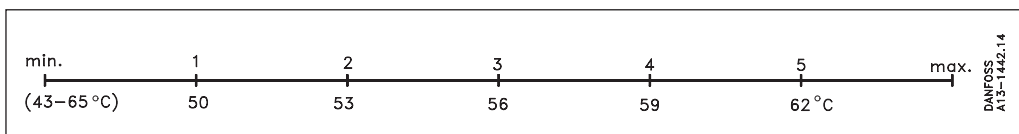


Settings

Temperature setting

Relation between scale numbers 1 - 5 and closing temperature.

The values given are approximate.



Dimensions

DANFOSS
A13-1194-12

DANFOSS
A85FT11.11

RAVI-VMA

RAVI-RAV-8

Type	D	d	L ₁	L ₂	H ₁	Width across flats	
			(mm)			S ₁ (mm)	S ₂ (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

DANFOSS
A13-1455-15

Immersion pockets

RAVI-VMT-8

Type	a	b	L ₁	L ₂	H ₁	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

Weld-on tailpieces

External thread tailpieces

G	Ød	L	Weight
(mm)			(kg)
15	15	35	0.18

G	R	L	Weight
(")		(mm)	(kg)
3/4	1/2	25.5	0.17

