



RTN51



RTN71 with remote sensor



RTN81 with remote adjuster



Thermostatic Actuators

for radiator valves VDN..., VEN..., VUN..., VPD... and VPE...

RTN51
RTN71
RTN81

- Self-acting, without auxiliary power
- High-quality fluid-filled sensor with fast acquisition of room temperature changes
- Direct mounting with union nut, no tools required
- Robust construction, maintenance-free, noiseless operation
- Protection against dismantling (optional)

Use

- For use with Siemens radiator valves type VDN..., VEN... and VUN...
- For use with Siemens MiniCombiValves (MCV) type VPD... and VPE...
- For radiator valves supplied by Heimeier, Cazzaniga, Oventrop M30 x 1.5, Honeywell-Braukmann, MNG, TA type TBV-C, Junkers and Beulco new (all without adapter)
- For radiator valves with actuators secured with an M30 x 1.5 union nut, nominal closing dimension 11.6 ± 0.3 mm and nominal stroke 1.5 mm (without adapter)
- With the appropriate AV adapters, the actuators can be used with valves from other manufacturers (refer to «Type summary / Accessories»)

Type summary

Type reference	Description
RTN51	Standard version
RTN71	Version with remote sensor
RTN81	Version with remote adjuster

Accessories

Adapter type	For valve makes	Adapter type	For valve makes
AV52	Comap	AV57	Herz
AV53	Danfoss RA-N (RA2000)	AV58	Oventrop alt (M30x1.0)
AV54	Danfoss RAVL	AV59	Vaillant
AV55	Danfoss RAV	AV60	TA ¹⁾
AV56	Giacomini	AV61	Markaryd

¹⁾ No adapter required for type TBV-C

Type reference	Description
ATN2	Fitting to prevent dismantling of actuator

Ordering

When ordering, please give quantity, product name and type reference.

Example: 6 actuators RTN51 and
6 adapters AV57

Delivery

The actuators, valves and accessories are supplied in separate packages.

Equipment combinations

Valve type reference	Description	k_{vs} [m ³ /h]	$\dot{V}$ [l/h]	PN class	Data Sheet
VDN..., VEN..., VUN...	Radiator valves	0.09...1.4		PN10	2105, 2106
VPD..., VPE...	MCV radiator valves		45...200		2185
For other radiator valves with type AV... adapters, refer to «Type summary / Accessories»					
Radiator valves (M30 x 1.5) from other manufacturers, without adapter:					
• Heimeier • Cazzaniga • Oventrop M30 x 1.5 (from 2001) • Honeywell-Braukmann • MNG • TA-type TBV-C • Junkers • Beulco new					

k_{vs} = Nominal flow rate of cold water (5 to 30 °C) through the fully open valve (H_{100}) at a differential pressure of 100 kPa (1bar)

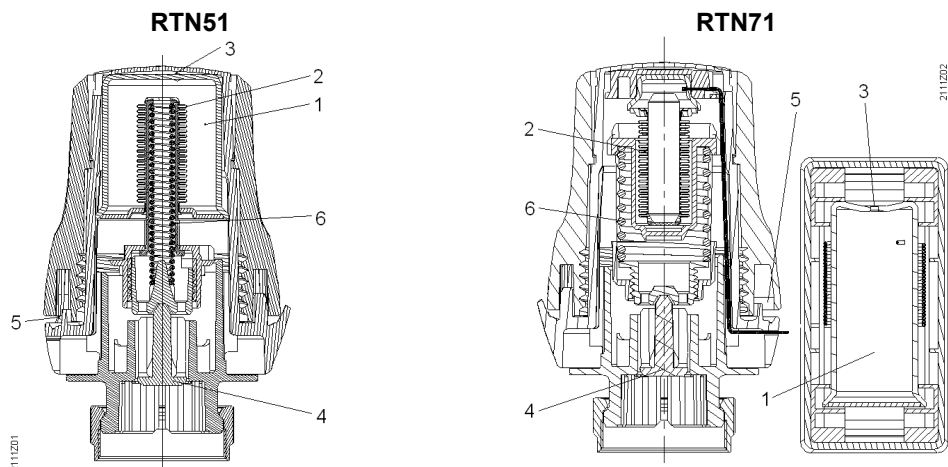
$\dot{V}$ = Volumetric flow at 0.5 mm stroke

Technical design / mechanical design

Mode of operation

The fluid-filled sensor responds to deviations from the room temperature setpoint. When the room temperature rises, the fluid inside the metal capsule expands, exerting pressure on the bellows and the stem, which causes the valve to continuously close so that the radiator's heat output will be reduced. When the room temperature falls, the bellows expands, thereby opening the valve so that the radiator's output will be increased again.

This design allows the radiator valve to be continuously operated, thus achieving smooth regulation of the flow of heating water to the radiator, resulting in a constant room temperature in accordance with the room temperature setpoint.



- 1 Fluid-filled sensor
- 2 Bellows
- 3 Overtravel mechanism
- 4 Stem
- 5 Limit tappet
- 6 Closing spring

The head of the actuators and the remote adjuster have a scale and symbols that correspond to the following room temperature setpoints:

0	*	1	2	3	4	5
Valve fully closed (only with RTN51 and RTN71)	Frost protection at 8 °C	12 °C	16 °C	20 °C	24 °C	28 °C

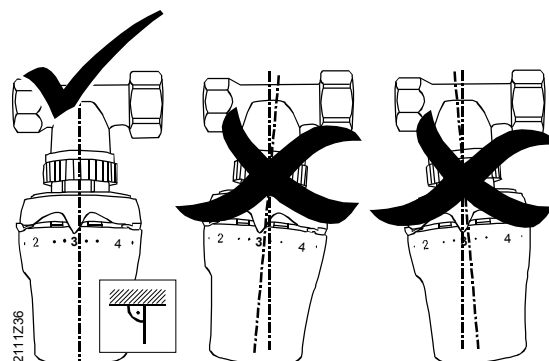
If, from the frost protection symbol, the head is turned in the direction of 0, a click can be heard, indicating that frost protection is no longer ensured.

Setting setpoint range

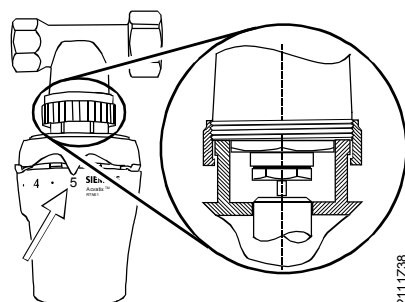
2 easily adjustable captive tappets are used to set the required setpoint setting range:

	Turn tappet until stop is reached (at the setpoint indicator)	Push on tappet	- Turn head until required stop is reached - Release tappet
Setting maximum limitation			
Setting minimum limitation			

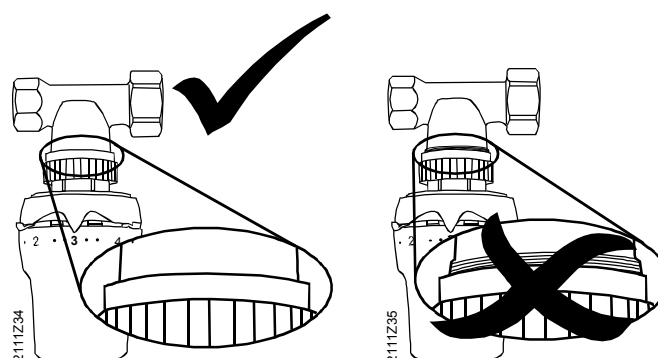
Important:



When mounting the actuator to the valve, ensure that valve and actuator form a right angle.



For that, select scale number 5 and ensure that the actuator rests correctly.



Then, tighten the actuator correctly.

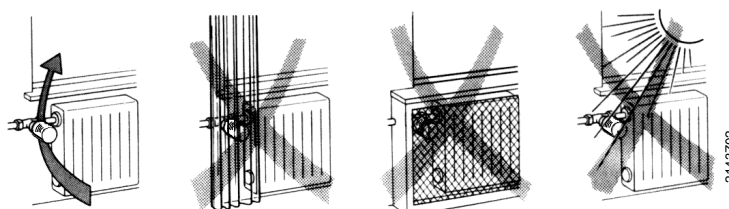
The sensing element of the thermostatic actuator must always be able to acquire the temperature of circulating room air.

The type of thermostatic actuator (RTN51 / RTN71 / RTN81) is selected based on this criterion.

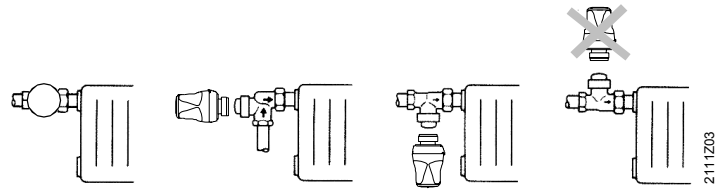
RTN51

Standard version with built-in sensing element

The actuator must not be covered by radiator enclosures, furniture or curtains and it must not be affected by direct solar radiation or air drafts.



The actuator must not be fitted in the upright position to ensure that measurement of the room air will not be affected by rising air from the hot water pipe.

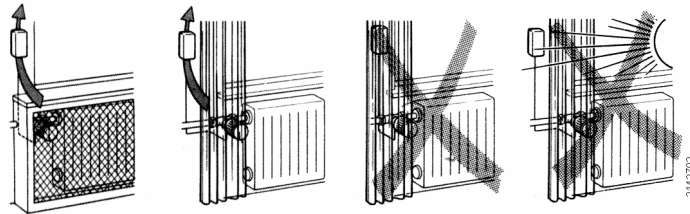


Mounting Instructions are printed on the package.

RTN71

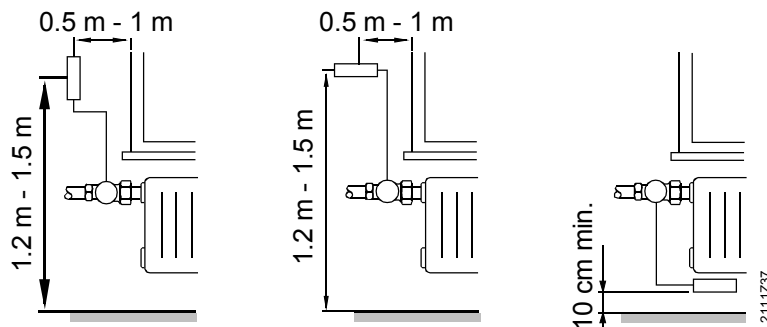
Version with remote sensing element and capillary tube

This type of actuator is for use on applications where the criteria of the RTN51 standard version are not satisfied. This actuator can be fitted in any position. The sensing element must not be covered and it must not be affected by direct solar radiation or air drafts.



In case of unknown conditions (especially in new buildings), it is always advisable to use this version.

For comfort reasons, the sensing element should be located as shown in the following illustration:



When mounted on poorly insulated outer walls, a thermally insulating layer should be fitted in between.

Mounting Instructions are printed on the package.

RTN81

Version with remote sensing element and remote adjuster

For applications where the radiator or convector valve is not accessible or not easily accessible. The actuating section can be fitted in any position. For the sensing element, the same criteria apply as for the RTN71 (location of the remote adjuster is to be considered).

Mounting Instructions no. 74 319 0466 0 are enclosed with the packaging.

Maintenance

Repair

The thermostatic actuators are maintenance-free.

The actuators, sensors and remote adjusters cannot be repaired. The complete units must be replaced.

Disposal



The device must not be disposed of together with domestic waste.

Legislation may demand special handling of certain components, or it may be sensible from an ecological point of view.

Current local legislation must be observed.

Warranty

Application-related technical data are only warranted when used in connection with the valves listed under «Equipment combinations».

When using the RTN... actuators in connection with valves from other manufacturers, proper functioning must be ensured by the user.

Technical data

		RTN51	RTN71	RTN81	
Design	Conformity	CEN standard EN 215-1			
	Drive principle	liquid expansion			
	Remote sensor		✓	✓	
	Remote adjuster			✓	
	Capillary tube		2 m (stainless steel 18/8)		
Functional data	Setpoint setting range	8...28 °C			
	Setting scale	0, *, 1...5		*, 1 ... 5	
	Frost protection position	✓			
	Minimum / maximum limitation	captive tappets			
	Perm. medium temperature	120 °C			
	Perm. sensor temperature	40 °C			
	Influence of water temperature	≤ 1.5 K	≤ 0.75 K		
	Influence of differential pressure	≤ 1 K			
	Hysteresis	≤ 1 K			
	Proportional band	2 K			
	Dimensions / weight	Dimensions	refer to «Dimensions»		
		Fixing on valve	union nut M30 x 1.5		
		Weight	0.157 kg	0.202 kg	0.227 kg
Housing colors		- Actuator	- RAL9016		
	- Sensor	- RAL9016			
	- Remote adjuster	- RAL9016			
Materials	- Union nut	- brass, nickel-plated			
	- Stem	- PBT, 30 % glass			
	- Manual knob	- ABS			

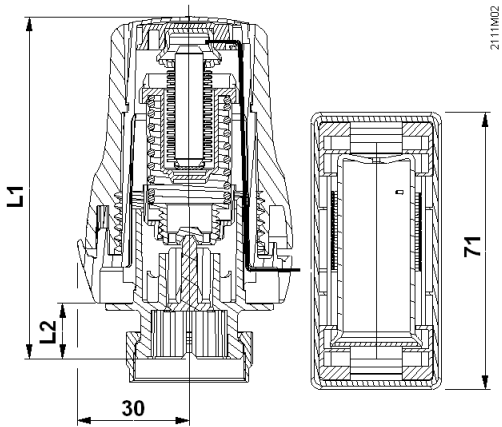
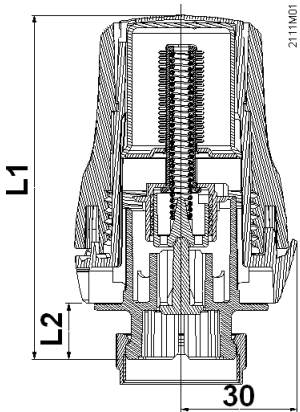
General ambient conditions

	Operation IEC 721-3-3	Transport IEC 721-3-2	Storage IEC 721-3-1
Environmental conditions	Class 3K3	Class 2K3	Class 1K3
Temperature	+1...+40 °C	−25...+70 °C	−5...+50 °C
Humidity	5...85 % r.h.	< 95 % r.h.	5...95 % r.h.

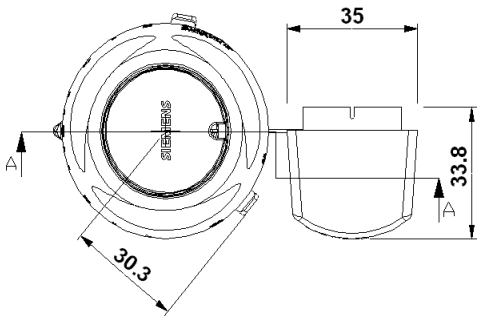
Dimensions

Dimensions in mm

RTN51	RTN71
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Position	L1	L2
*	84.9	11.5
3	87.6	14.2
5	89.5	16.1



RTN81

