



# Self-Actuated Temperature Regulator RT-1001-BI & RT-1001-C1

**FEATURES:**

1. Two-ply, seamless bellows used for long life
2. Over-temperature protection is standard feature.
3. Chevron "Lifetime" stem packing made of Teflon or EPT Rubber U-Cup for water service.
4. Quick-detach valve stem construction permits easy valve change.
5. Sturdy construction with cast iron frame.
6. Variety of sensing bulb forms and materials available.
7. Valves in wide range of sizes, action, styles, materials, etc. for many services.
8. Capillary selection.
9. Setpoint Adjustment Wheel.

**GENERAL**

Without need for external power, Robertshaw Self-Actuated Temperature Regulators (SATR) offer final control of the temperature of a liquid, an air space or flow, or gas flow for domestic, equipment, process, space, etc. on heating or cooling service.

The SATR sensing bulb is installed in the medium being controlled while the SATR valve is located on the supply line of the medium used as the heating (steam, hot water) or cooling (water, ethylene glycol, brine) agent. The SATR regulates the heating or cooling medium flow to maintain the desired temperature at the sensing bulb location. Robertshaw SATRs are usually cataloged to detail the two-way direct acting (close on temperature rise) type valves for heating service. Two-way reverse-acting (open on temperature rise) and three-way valves are equally available for cooling service.

The Robertshaw SATR series offers a selection of: **Throttling bands, Temperature Indication, Fail-safe** to prevent overheating, Manual Positioning in addition to automatic control, **Corrosive atmosphere resistant type, Small overall size** and **instantaneous heat exchanger service.**

Most cataloged Robertshaw SATR specifications are starting points from which many alternates to cataloged capillary, sensing bulb, separable well and valve may be **FURNISHED TO MEET YOUR SPECIFIC** application's needs.



*Valve Sizes 1/2" through 4"  
 with Port Sizes down to 1/4"*

SMALL BULB SIZE - WIDE THROTTLING BAND

**HOW TO ORDER:**

1. Quantity
2. Size
3. Series Number
4. Setpoint and/or setpoint range
5. Capillary specs
6. Sensing bulb specs
7. Valve type, action, ends, etc.
8. Other Features
9. Shipping - Invoice instructions



**RT-1001-BI SERIES**

The RT-1001-BI series features a wide throttling band a small bulb size. It is particularly suited for applications where the heating surface is large while the storage capacity of the heated medium is small; such as a heat exchanger. It is designed for lower pressure drops when an unbalanced valve design is selected.

**RT-1001-CI SERIES**

The RT-1001-C1 series is a RT-1001-B1 series supplied with temperature indication.

For cataloging and pricing purposes, the RT-1001-B1 series is detailed with direct acting valves for heating service, 8 ft. capillary (copper tube/ brass armor), 12B type (threaded

bushing) copper sensing bulb and cast iron frame. Other non-listed parts are made of nonferrous materials. Alternate specifications are available.

Valve size, Inches	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
Valve type, Direct acting (closes with rising temperature at bulb)	Single-Seated, Unbalanced			Single-Seated, Balanced				Double Seated, Semi-Balanced			
	A	A	A	MA	MA	MA	MA	MA	FA	FA	FA
End Connections	1/2" Screwed Unions			Screwed Unions				Flanged (125 lbs. ANSI)			
Valve trim (poppet and seat), material	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.
Valve stem (highly finished), material	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.
Stem packing (spring loaded chevrons)	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon
Valve body material	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Body rating, psi	225	225	225	250	250	250	250	175	175	175	175
Pressure drop limit, psi (For higher pressures, consult our representative)	125	115	65	250	250	250	250	100	25	20	15
Approx. Full open Cv	1.0	1.6	2.1	9.5	13.0	18.6	26.0	47.8	82.5	130.0	226.0

The RT-1001-B1 series is available with any of the temperature ranges listed below. The range should be selected so that the setpoint falls within the upper third of the range span.

15° - 70° F.	125° - 190° F.	235° - 295° F.
40° - 100° F.	165° - 230° F.	255° - 315° F.
60° - 120° F.	175° - 230° F.	270° - 330° F.
85° - 145° F.	200° - 255° F.	
115° - 180° F.	205° - 265° F.	

**Alternates include:**

**Temperature indication:** on special order under RT-1001-CI Series.

**Capillary:**

**Length** ..... 1 ft. up to 50 ft. or more  
**Materials** ..... Copper tube with brass armor (standard) or 304 stainless steel tube with SS braid

**Sensing Bulbs:**

**Type 12B** .....Copper (standard)  
**Type 12 BP** .....316 stainless steel  
**Type 12B or 12BP** .....with dead extension  
**Type 54** ..... Copper, externally finned, plain (54A), bushed (54J) or flanged (54K)  
**Type 6** .....Plain for open vessels, Copper with copper tube and brass armor (6A), 316 SS with 304 SS tube and no braid (6AP)

**Separable Wells: (For sensing bulb protection or ease of removal)**

**Material** ..... 316 SS  
**Type GA or GA with Lagging Extension** ..... Mounting thread one size larger than bulb size

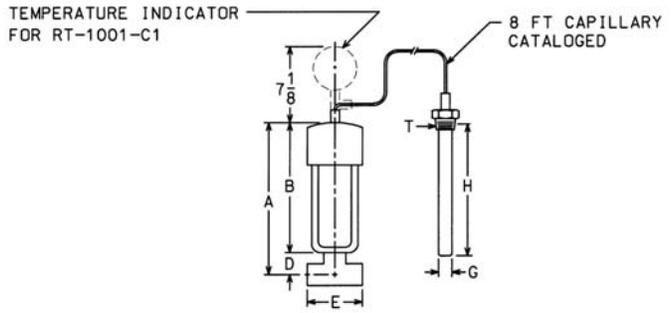
**Type GB** ..... Mounting thread same as bulb size

**Valves:** .... Types A, MA, MAS, FA, WA, WD as illustrated

**Note 1 - IMPORTANT** - If valve seat leakage can cause a problem or a hazard, the following should be taken into account, Maximum leakage of new valves: single-seated Types A, WA - 0.05% of full open valve capacity; single-seated balanced Types MA, MAS - 0.01% of full open valve capacity; double-seated Types FA - 0.5% of full open valve capacity; single seated Type WD – 1% of full open valve capacity. This leakage will usually increase somewhat as the valve seats wear in service.

**Note 2 - IMPORTANT** - Damage to, or failure of, the thermal element with loss of charge will ordinarily result in the regulator going to the "cold" position. The valve stem moves "up" (toward the bellows - thus a "direct-acting" valve will fully open, a "reverse-acting" valve will close, and a 3-way valve will open the Normally Open port).

Valve Sizing is critical to control and life of regulator. Use Robertshaw's "FLO-RULE" Valve Sizing Slide Rule and valve Cv chart or contact our representative or factory.



**RT-1001-BI Series**  
**Dimensions, Shipping Weights and Sensing Bulb Sizes**

Valve Size, Inches	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
Direct-Acting Valve, Type	A	A	A	MA	MA	MA	MA	MA	FA	FA	FA
Shipping wt., Lbs.	26	26	27	29	32	37	43	77	97	122	152
A	13-7/16	13-7/16	13-7/16	15-5/16	15-5/16	15-11/2	16	16-3/16	16-5/8	16-5/8	17-11/16
B	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8	11-7/8
D	1-9/16	1-9/16	1-9/16	3-7/16	3-7/16	3-5/8	4-1/8	4-15/16	4-3/4	4-3/4	5-13/16
E	4-3/4	4-3/4	4-3/4	6-15/16	7-1/8	7-1/2	8-1/2	7	7-3/4	8-5/8	10-1/4

**Standard bulb for temperature ranges beginning at 120°F. or above.**

G	3/4	3/4	3/4	3/4	3/4	1	1	1	1	1	1
H	10	10	10	10	10	11	11	11	11	11	11
T*	3/4	3/4	3/4	3/4	3/4	1	1	1	1	1	1

**\*\*Standard bulb for temperature ranges beginning below 120° F.**

G	1	1	1	1	1	1	1	1	1	1	1
H	14	14	14	14	14	18	18	18	18	18	18
T*	1	1	1	1	1	1	1	1	1	1	1

\* Standard pipe thread.

\*\* Bulb sizes for ranges beginning below 120° F. are necessary to provide "cross ambient" charge. This assures operation with ambient temperatures either above or below the control setting. Under some conditions, smaller bulbs may be used with lower ranges. If the larger bulb cannot be used, consult the factory or nearest representative.

**SATR Valves for RT-1001-BI Series**  
**(See Valve Spec Sheet for full details)**

Two Way			Three Way	
<b>Style A</b> Union Ends Single Seated Unbalanced Bronze Body SS Trim Direct Acting Sizes 1/4" – 1" Reverse Acting Sizes 1/4" – 1-1/2"	<b>Style MA &amp; MAS</b> Single Seated Fully Balanced Direct Acting only SS Trim MA Sizes 3/4" – 1-1/2" Union Ends, Bronze Body MA Size 2", Flanged Bronze or CI Body MAS Sizes 1" – 2" Flanged, Steel Body MAS Sizes 3/4" – 1-1/2" Threaded Ends, Steel Body	<b>Style FA</b> Double Seated, Semi-Balanced Rev. Acting: 3/4" – 1-1/2" Bronze unions, Bronze Body Bronze or Monel Trim Rev. Acting: 2", Flgd, Br Body Bronze or Monel Trim Rev. Acting: 2", Flgd, CI Body Bronze or SS Trim Rev. Acting: 2-1/2" – 4" Flgd, Br Body, Monel Trim Rev. Acting: 2-1/2" – 4" Flanged, CI Body, SS Trim Dir. Acting: 2-1/2" - 4" Flanged, CI Body, SS Trim	<b>Style WA</b> Union Ends (2) Threaded End (Bottom) Unbalanced Sizes 1/2" – 1-1/2" Bronze Body SS Trim	<b>Style WD</b> Balanced Sizes 2" – 2-1/2" Flanged Bronze Body Bronze Trim



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