



Self Actuated Temperature Regulator RT-1003-P, Q, R, S, T & U

FEATURES

1. Large two-ply, seamless bellows used for long life and extra power.
2. Over-temperature protection is standard feature.
3. Chevron "Lifetime" stem packing made of Teflon.
4. Quick-detach valve stem construction permits easy valve change.
5. Sturdy construction with cast iron frame.
6. Setpoint Adjustment Wheel
7. Type 12B (threaded bushing) copper sensing bulb for through-wall or over-the-side installation.
8. Single-seated, balanced valves in 3/4" - 2" sizes and 1/2" unbalanced size. Direct Acting.
9. 8 foot capillary - copper tube/brass armor.

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.

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). The SATR regulates the heating or cooling medium flow to maintain the desired temperature at the sensing bulb location.

The cataloged 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.

NON-INDICATING



FOR HEATING SERVICE ONLY

Sizes 1/2" - 2"

Medium Throttling Band

Fixed Specification

RT-1003-P, Q, R, S, T, & U series

The RT-1003-P, Q, R, S, T, & U series is essentially the same as the non-indicating RT-1003-D1 series. The difference is that the specifications are fixed with a selection of valve size and setpoint adjustment range combinations as determined on the back side.

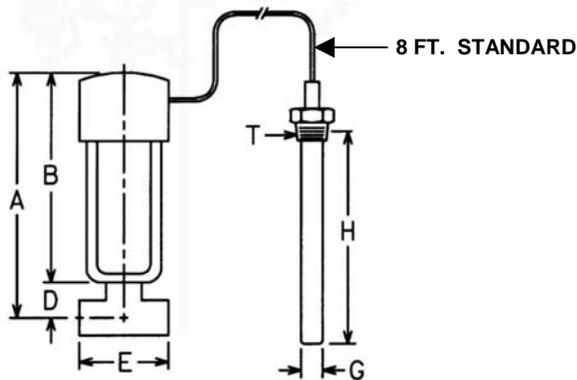
In general, the RT-1003 series is a versatile design which is suitable for most general applications involving heating service. The valve tends to close the heat source supply line as the temperature rises at the sensing bulb. The control normally modulates around the setpoint to maintain the desired temperature of the medium being heated.

HOW TO ORDER

1. Quantity
2. Size
3. Series Number
4. Setpoint adjustment range
5. Other Features
6. Shipping - invoice instructions

The RT-1003-P, Q, R, S, T and U series, for heating service only, is detailed below. The capillary length is 8 ft. (copper tube/ brass armor). The 12B type copper sensing bulb has a NPT threaded connection or the bushing can be removed for over-the-wall installation. The frame is cast iron while all non-listed parts are of non-ferrous metals.

| | | | | | | |
|---|----------------|--------|-------------------------|--------|--------|--------------------------|
| Valve size, Inches | 1/2 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 |
| Valve Type, Direct-acting (closes with rising temperature at bulb) | Single-Seated | | Single-seated, Balanced | | | |
| | A | MA | MA | MA | MA | MA |
| End Connections | Screwed Unions | | | | | Flanged (125 lb ANSI) |
| Valve Trim (poppet and seats), Material | 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. |
| Stem Packing (spring loaded chevrons) | Teflon | Teflon | Teflon | Teflon | Teflon | Teflon |
| Body Material | Bronze | Bronze | Bronze | Bronze | Bronze | Cast Iron |
| Body Rating, Pounds | 225 | 250 | 250 | 250 | 250 | 175 |
| Pressure Drop Limit, psi (For higher pressures, consult our representative) | 125 | 250 | 250 | 250 | 250 | 100 |
| Full open Cv | 2.1 | 9.5 | 13.0 | 18.6 | 25.0 | 45.0 |



Dimensions, Shipping Weights and Sensing Bulb Sizes

Dimensions

| | | | | | | |
|---------------------------|---------|---------|---------|--------|--------|---------|
| Valve Size, Inches | 1/2 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 |
| Direct-acting Valve, Type | A | MA | MA | MA | MA | MA |
| A | 13-7/16 | 15-5/16 | 15-5/16 | 15-1/2 | 16 | 16-3/16 |
| B | 11-7/8 | 11-7/8 | 11-7/8 | 11-7/8 | 11-7/8 | 11-7/8 |
| D | 1-9/16 | 3-7/16 | 3-7/16 | 3-5/8 | 4-1/8 | 4-15/16 |
| E | 4-3/4 | 6-15/16 | 7-1/8 | 7-1/2 | 8-1/2 | 7 |

Shipping Weight, Lbs.

| | | | | | | |
|--|----|----|----|----|----|----|
| | 27 | 29 | 32 | 37 | 43 | 68 |
|--|----|----|----|----|----|----|

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

| | | | | | | |
|----|----|----|----|----|----|----|
| G | 1 | 1 | 1 | 1 | 1 | 1 |
| H | 11 | 11 | 14 | 14 | 18 | 18 |
| T• | 1 | 1 | 1 | 1 | 1 | 1 |

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

| | | | | | | |
|----|-------|-------|-------|-------|-------|-------|
| G | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 |
| H | 18 | 18 | 20 | 20 | 24 | 24 |
| T' | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 |

Instrument Number Suffix Indication of Size and Range

Valve Size:

| Alphabetical Suffix | Size (Full Port) |
|---------------------|------------------|
| P | 1/2" |
| Q | 3/4" |
| R | 1" |
| S | 1-1/4" |
| T | 1-1/2" |
| U | 2" |

Setpoint Adjustment Range:

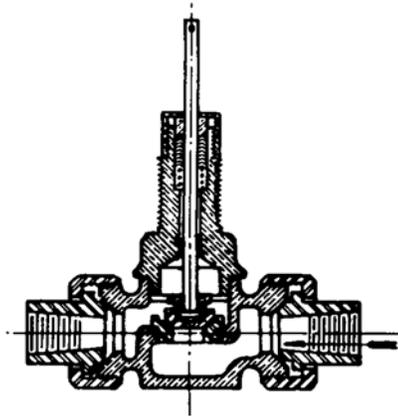
Note: Select span so that setpoint will fall in the upper third of range for the most sensitive control.

| Numerical Suffix | Corresponding Range |
|------------------|---------------------|
| 5 | 75° - 130°F |
| 9 | 105° - 165°F |
| 8 | 165° - 215°F |

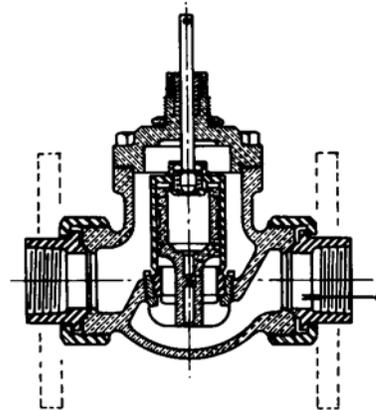
Example:

RT-1003-R8 would have a 1" valve and a 165° - 215° F range

**SATR Valves used on RT-1003-P, Q, R, S, T & U Series
(See Valve Specification Sheet for full details)**



Style A
 Union Ends
 Single Seated
 Unbalanced
 Direct Acting
 Size - 1/2"
 Bronze Body
 SS Trim



Style MA
 Single Seated
 Fully Balanced
 Direct Acting
 SS Trim
 Sizes 3/4" - 1-1/2"
 Union Ends
 Bronze Body
 Size 2"
 Cast Iron Body
 Flanged

NOTE: 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. The application requirement can frequently be satisfied by one or two sizes smaller valve than supply pipeline size.

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 Type A - 0.05% of full open valve capacity; single-seated balanced Type MA - 0.01% 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 result in the regulator going to the "cold" position. The valve stem moves "up" (toward the bellows)-thus the "direct-acting" valve will fully open.



U.S.A. & Canada

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