

## Self-Actuated Temperature Regulator RT-1010-A Series

### FEATURES

1. Extra large two-ply, seamless Robertshaw bellows used for long life and extra power.
2. Valve can be manually positioned or thermostatically operated alternately by hand crank as desired.
3. Over-temperature protection is standard feature.
4. EPT Rubber U-Cup packing is standard.
5. Quick-detach valve stem construction permits easy valve change.
6. Sturdy construction with cast iron frame.
7. Selection of bulb materials, etc. (See inside pages).
8. Setpoint adjustment wheel
9. Capillary selection (See inside pages).
10. All components from a single source.

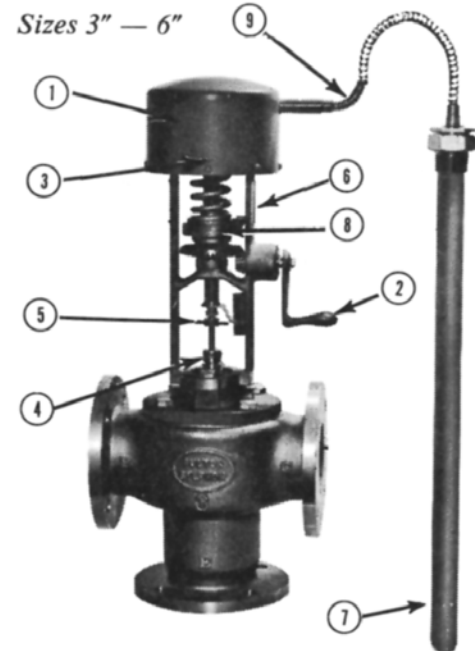
### GENERAL

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 SATR 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 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.



Manual Positioning Feature  
 3-Way Valve

### RT-1010-A SERIES

The RT-1010-A Series features a balanced 3-way valve and a means for manual valve positioning by hand crank as an alternate to the normal automatic control when desired or upon loss of thermal charge. The primary application is bypass or diverting cooling service for engines, gas turbines, etc. The RT-1010-A Series can also be used for rough mixing service (See inside pages) for process water.

### HOW TO ORDER

1. Quantity
2. Size
3. Series Number
4. Setpoint and/or setpoint range
5. Capillary specs
6. Sensing bulb specs
7. Other features
8. Shipping and invoicing instructions

**DESCRIPTION OF CATALOGED REGULATOR**

NOTE: Due to slight difference in regulator frame construction, the 3" size is designated as RT-1010-A1; size 4" as RT-1010-A2; and sizes 5" and 6" as RT-1010-A3.

These regulators have cast frames and manual valve positioning hand crank. Pinion and adjustment spring are steel. Other parts not listed in the following specifications are made of non-ferrous metals.

The following setpoint adjustment ranges are available for the RT-1010-A regulators. The range should be selected so that the setpoint falls within the upper third of the span.

**For 3" and 4" RT-1010-A1, A2**

5° - 25°F	110° - 140°F	220° - 245°F
25° - 50°F	115° - 145°F	220° - 250°F
45° - 75°F	120° - 145°F	240° - 265°F
70° - 90°F	150° - 175°F	260° - 280°F
100° - 125°F	165° - 185°F	285° - 310°F
105° - 135°F	185° - 210°F	305° - 335°F
110° - 135°F	195° - 215°F	370° - 405°F

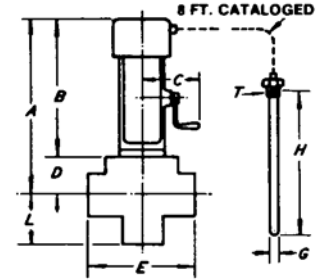
**For 5" RT-1010-A3**

15° - 25°F	115° - 145°F	240° - 265°F
25° - 50°F	120° - 145°F	260° - 285°F
50° - 70°F	150° - 175°F	285° - 310°F
70° - 95°F	165° - 185°F	305° - 340°F
100° - 130°F	190° - 210°F	370° - 410°F
105° - 135°F	195° - 215°F	
110° - 135°F	225° - 245°F	

**For 6" RT-1010-A3**

10° - 25°F	115° - 140°F	225° - 250°F
30° - 50°F	125° - 150°F	245° - 270°F
50° - 75°F	155° - 180°F	265° - 285°F
75° - 95°F	165° - 190°F	290° - 310°F
105° - 130°F	190° - 210°F	310° - 340°F
110° - 140°F	200° - 220°F	380° - 410°F

- Action** ..... Modulating. Opens one line, closes another.
- End Connections** ..... Flanged, Class 150 ANSI bronze.
- Valve Trim** ..... Brass poppet and integral seats.  
(May be re-faced in field).
- Valve Stem** ..... Stainless steel.
- Valve Stem Seal** ..... EPT Rubber U-Cup.
- Poppet Seal** ..... Large O-ring.
- Poppet Spring** ..... Stainless steel
- Body Material** ..... Bronze Maximum
- Supply Pressure** ..... 100 psi @ 100° F.
- Maximum Pressure Drop Rating** ..... Valve size 3", 40 psig;  
4" through 6", 25 psig.



**DIMENSIONS, SHIPPING WGT., SENSING BULB SIZES**

Regulator No.	RT-1010-A1	RT-1010-A2	RT-1010-A3	
Valve Size, In.	3	4	5	6
Valve Type	WD	WD	WD	WD
Ship. Wgt., Lbs.	130	220	300	530
A	18	19-1/8	21-1/2	21-1/2
B	14-3/8	15-15/16	15-15/16	15-15/16
C	6-1/2	6-1/2	6-1/2	6-1/2
D	3-5/8	3-3/16	5-9/16	5-9/16
E	10-1/2	15-7/8	19-1/4	23-1/2
L	6-3/4	8-9/16	11-5/8	13-7/16

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

G	1 1/4	1 1/4	1 1/4	1 1/2
H	24	24	24	30
T*	1 1/4	1 1/4	1 1/4	1 1/2

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

G	1 1/2	1 1/2	1 1/2	1 1/2
H	32	32	32	36
T*	1 1/2	1 1/2	1 1/2	1 1/2

- \* 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.

**VALVE SPECIFICATIONS**

**Type** - Three-way type "WD" with balanced sleeve type poppet. For complete details, see valve specification sheet.

**Sizes** - 3" (RT-1010-A1), 4" (RT-1010-A2), 5" and 6" (RT-1010-A3).

Full Open Cv	Valve Size In.	3"	4"	5"	6"
	E to B	115	220	344	506
	E to C	106	237	385	563

**ALTERNATE SPECIFICATIONS INCLUDE:**

**Capillary:**

*Material* ..... 304 stainless steel, plain or with armor.

**Sensing Bulbs:**

*Type* ..... 12BP, 316 SS

*Type* ..... 12B or 12BP with "dead extension"

*Type* ..... 6 Plain for open vessels, copper or 304 SS

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

*Type* ..... GA

*Material* ..... 316 SS

*Mounting Thread* ..... One size larger than nominal bulb size.

## TYPICAL APPLICATIONS

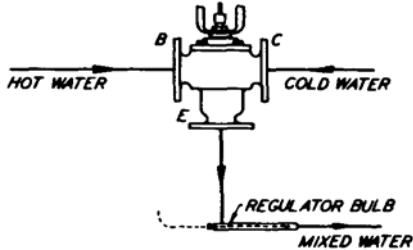


Fig. 1 - Illustrated is a simple means for mixing hot and cold water where a rough mixing is suitable.

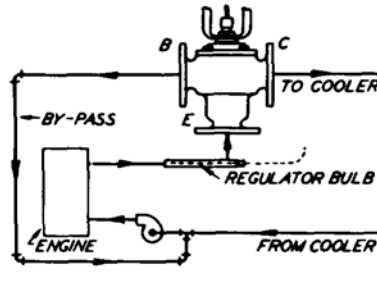


Fig. 2 - Illustrated is the most widely used method of cooling water control for internal combustion engines.

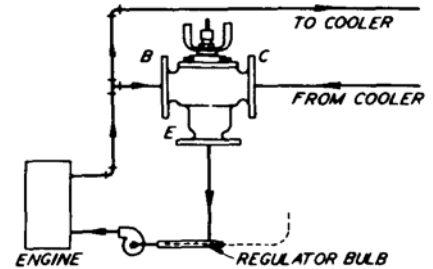


Fig. 3 - Illustrated is a method of controlling the cooling of engine lubricating oil.

### Valve Sizing

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 can frequently be satisfied by a smaller sized valve than the 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 WD valves: = 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 the E - B ports of the "WD" valve will be open while the E - C ports will be closed.



# Robertshaw

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