



Model 2470

Thermostatic Valve



FEATURES

- 2-WAY VALVE
- EXTERNAL SENSING
- FOR LIQUID OR STEAM SERVICE
- OPEN OR CLOSE ON RISING TEMPERATURE
- TAMPER-PROOF TEMPERATURE SETTINGS 70°F TO 250°F
- CONSERVES WATER AND STEAM

APPLICATIONS

- ENGINE & COMPRESSOR COOLING SYSTEMS
- LUBE OIL SYSTEMS
- COGENERATION HEAT RECOVERY SYSTEMS
- PROCESS CONTROL

AMOT Model 2470 is a 2-way self-actuated temperature regulating valve with external sensor. The valve senses temperature via an expanding-wax element, located external to the valve body. Flow through the valve is modulated or shutoff in response to the temperature sensed by the element which may be located in the fluid circuit being controlled (Figure 2), or in a separate fluid circuit, as in remote sensing applications (Figure 3).

The valve will either open or close on rising temperature, depending on configuration selected. The highly reliable expanding wax-element encased in bronze retaining cup produces exceptional valve travel per unit of temperature change. Metal seats and O-ring seal of ethylene propylene rubber minimize leakage in steam applications.

Body housing of cast iron with bronze seats and sliding valve, and stainless steel element adapter provide rugged performance. When the sensed circuit is corrosive or fluid containment is necessary, stainless steel wells are available. Extended insertion lengths are also available, see Table D.

MODEL 2470B(-)1

This valve opens as the sensed temperature rises above the setpoint, and closes as temperature falls. Valve seat of Buna-N rubber can withstand 125 psi liquid pressure in closed position. Commonly used in cooling water control, as shown in Figure 2.

MODEL 2470B(-)2

This valve closes as the sensed temperature rises above the setpoint, and opens as temperature falls. Metal-to-metal bronze seat will handle up to 50 psi saturated steam or 80 psi liquid pressures. The valve will function to 125 psi maximum liquid pressure, but shutoff will not be leak-tight. Commonly used in heating applications, see Figure 3.

MODEL 2470B(-)3

This valve operates the same as the 2470B(-)2 except it has Buna-N rubber seat which will seal leak-tight up to 125 psi in liquid heating applications.

Typical Applications

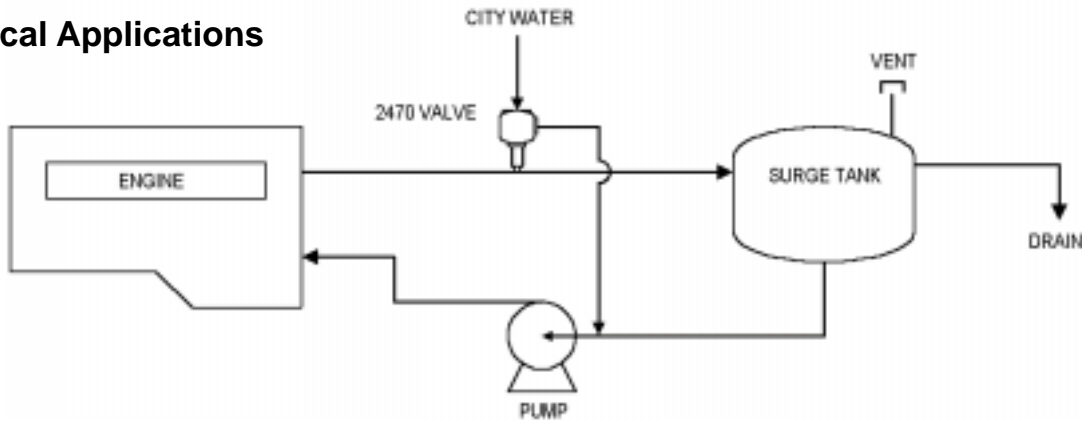


Figure 2
Cooling of Standby Engine or Generator Set

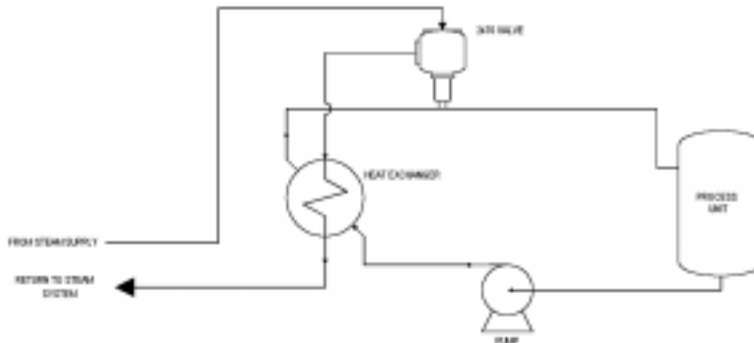


Figure 3
Heating of Process Fluid - Remote Sensing Application

Installation

Model 2470 Thermostatic Valves can be mounted in the position best suited for your installation. As with all valves, a strainer or filter should be placed ahead of the inlet port to prevent entry of foreign matter. Care should be exercised to see that the element is not damaged by dropping the valve or banging it against a sharp object. For best results the temperature element must be completely immersed in the fluid line.

IMPORTANT! Do not use the housing assembly to tighten valve when installing in the line. Use the hex on the temperature element adapter. If the 3250L Well is used, remove it from the 2470 Valve and install it separately. Then mount the 2470 Valve. Do not use the valve to support long runs of pipe.

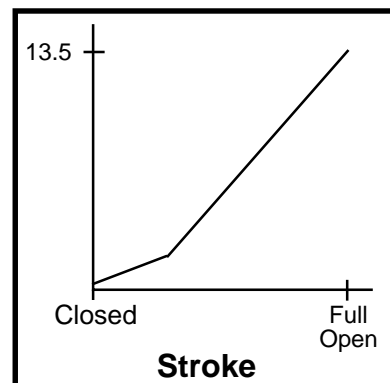
Operation

To obtain maximum long life from the temperature element, the valve must not be operated continuously at more than 50°F above the opening point on the 2470B(-)1; or more than 30°F above the closing point on the 2470B(-)2 and 2470B(-)3. If it is necessary to operate at a continuous over-temperature, the factory should be consulted for alternate elements. The available valve opening and closing ranges are shown in Table C. Limited field adjustment of temperature setting can be achieved by turning the Adjusting Nut (14) located inside the valve. If a different temperature range is required after initial use of the valve, the Temperature Element (5) must be changed and the valve recalibrated. If the valve gives an indication of sticking or binding, check O-ring (2) for excessive swelling and replace if necessary.

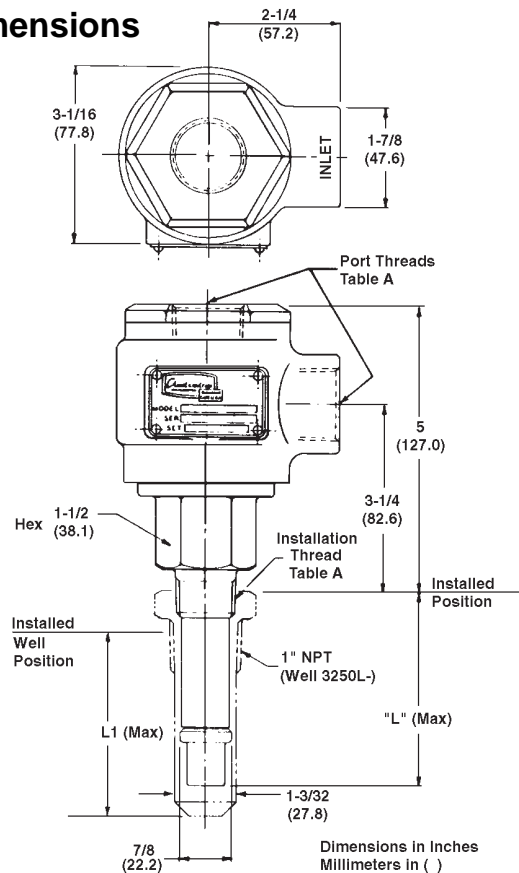
Specifications

Housing (1)	Cast Iron
Internal Parts	Bronze
Temperature element (5) & Extensions (11)	Brass
Adapter Assembly (3)	Stainless Steel
Dynamic Seal (2)	EPR
Maximum Pressure on Element	800 psi
Maximum Pressure on Well	*5000 psi
Flow Coefficient, Cv	13.5
Maximum Shutoff Pressure	
2470B(-)1	125 psi Liquid
2470B(-)2	50 psi Steam
2470B(-)2	80 psi Liquid
2470B(-)3	125 psi Liquid
Net Weight	4.6 lbs (2.1 kg)

* Pressure shown is maximum allowable. To obtain working pressure, factors of safety should be applied as required by appropriate codes or regulations. In certain adverse conditions, a corrosion or erosion allowance should also be made.



Dimensions



Stainless Steel Well

Model 3250L Stainless Steel Well is available for the 2470 Thermostatic Valve. If valves and wells are ordered together to permit shipment at the same time, they will be assembled at the factory using AMOT 907L002 Heat Transfer Compound. When valves and wells are ordered separately, AMOT 907L002 Heat Transfer Compound should be ordered and inserted in well before installing the 2470 Valve. Sufficient compound should be used to fully cover the element extension. Excess pressure due to compound expansion will be vented via the small relief hole in the 3250L Well. If compound is not used, an excessive temperature lag between the sensed fluid and valve operating point may be experienced.

Installed Depth Dimensions			
Element Extension Code No.	Element Installed Depth - L	Well Installed Depth - L1	Well Part No.
0	2	Not Available	Not Available
3	3-7/16	3-1/8	3250L004
4	3-15/16	3-5/8	3250L005
5	4-7/16	4-1/8	3250L006
6	4-15/16	5-5/8	3250L007
7	5-7/16	Not Available	Not Available

Model Code Table

2470B 1 1 E 0 - - ()

Special Requirements (MTO) Made to Order

Add "V" if calibrated in a Well.

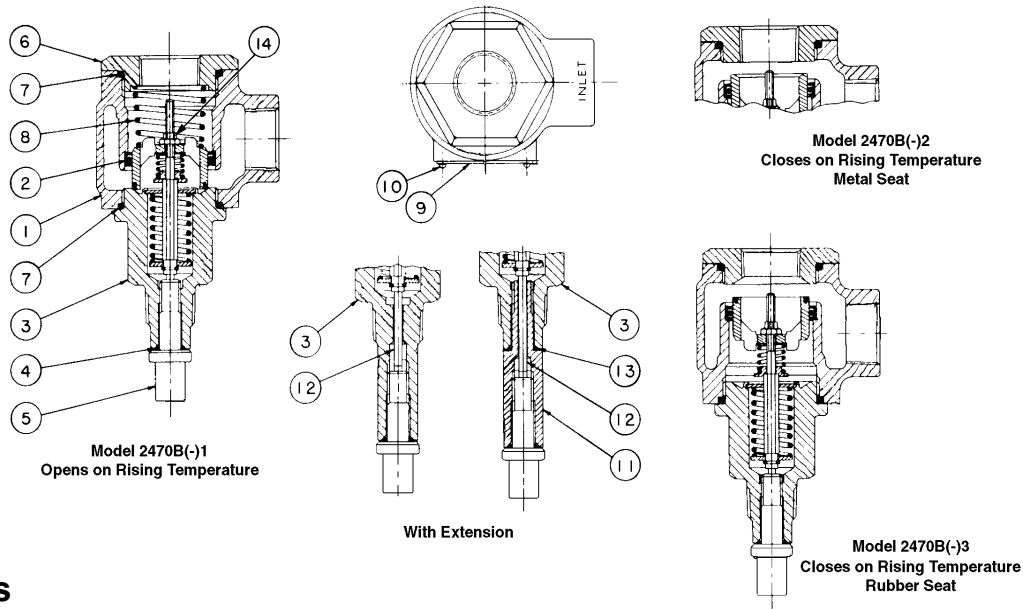
Table A			Table B		Table C				Table D	
Threads & Material			Function		Operating Temperatures*†, °F				Element Extensions	
Code No.	Port Threads	Installation Threads	Code No.	Description	Temp. Code	Table B, Code 1	Open	Closed	Code No.	Installed Depth - L (in)
						Table B, Code 2 & 3	Open	Closed		
1	1" NPT	3/4" NPT	1	Opens on Rising Temp. Rubber Seat	A		70	85	0	2 (standard)
3*	1" BSP (PL)	3/4" BSP (Tr)			B		85	105	3	3-7/16 (87.3)
					C		100	115	4	3-15/16 (100)
					D		110	130	5	4-7/16 (112.7)
5*	1" BSP (PL)	3/4" BSP (Tr)	2	Closes on Rising Temp. Metal Seat for steam applications	E		120	140	6	4-15/16 (125.4)
	DIN 3852 Form X				F		130	150	7	5-7/16 (138.1)
					G		140	160		
					H		155	170		
					K		165	180		
			3	Closes on Rising Temp. Rubber Seat	M		170	185		
					N		185	200		
					P		200	215		
					R		205	225		
					S		215	235		
					T		225	250		

* Available from U.K. Factory Only † Add 10 °F to all temperatures if well is used.

Indicates Non Standard, Special Charges May Apply

NOTE: Letters or numbers in the MTO space, other than nothing, A1 or AA, indicate the unit is built to special requirements and some of the other code numbers may not be valid. Check with the factory for full specification of such models.

Cut-Away



Service Parts

Ref. No.	Part No.	Qty.	Description
2	11142L001	1	O-Ring, EPR Table B Codes 1 & 3
2	727	1	O-ring, EPR Table B Code 2
4	1462	1	O-ring
5	9654X075	1	Temperature Element Table C Code A
5	9654X095	1	Temperature Element Table C Code B
5	9654X110	1	Temperature Element Table C Code C
5	9654X120	1	Temperature Element Table C Code D
5	9654X130	1	Temperature Element Table C Code E
5	9654X140	1	Temperature Element Table C Code F
5	9654X150	1	Temperature Element Table C Code G
5	9654X160	1	Temperature Element Table C Code H
5	9654X170	1	Temperature Element Table C Code K
5	9654X175	1	Temperature Element Table C Code M
5	9654X190	1	Temperature Element Table C Code N
5	9654X205	1	Temperature Element Table C Code P
5	9654X215	1	Temperature Element Table C Code R
5	9654X225	1	Temperature Element Table C Code S
5	9654X235	1	Temperature Element Table C Code T
7	552	2	O-ring
13	1462	1	O-ring - Table D Code 3, 4, 5, 6 & 7

Maintenance

Periodic inspection and cleaning is the only maintenance normally required with your AMOT Thermostatic Valve. It is recommended that O-rings (7) and (2) be replaced when reassembling valve.

Notice: Model 2470 is furnished with an O-ring seal (2) around the sliding valve made of EPR rubber, which is primarily for steam and water applications. For use with oil or other fluids not compatible with EPR, use Buna-N O-ring Part No. 516. Contact factory for special model coding using Buna-N.

AMOT designs and tests all its products to ensure that high quality standards are met. For good product life, carefully follow AMOT's installation and maintenance instructions; failure to do so could result in damage to the equipment being protected or controlled.

When communicating with AMOT regarding operation of a control, always give the Model No. and Serial No. If ordering service parts, also include the Description, Part No., and quantity desired. If any parts are ordered by Reference No. only, please also include the Form No., Revision No., and date of this brochure.

Temperature Element Replacement

The temperature element (5) is threaded into the valve assembly (3). It can be removed simply by unscrewing it. The use of pliers such as "Channel Lok" may be required since "Locktite #222" is used on the temperature element threads.

Before installing the new temperature element (5), it is recommended that a new O-ring (4) be installed. "Locktite #222" should be put on the temperature element threads to maintain the vibration resistance of the valve. Screw the temperature element (5) into the valve assembly (3) until tight.

The temperature setting can then be recalibrated by turning the adjustment nut (14). To decrease the setting, turn the nut counter clockwise. To increase the setting, turn the nut clockwise.

This parts list effective with Serial No. D851

AMOT USA

8824 Fallbrook Dr
Houston, TX 77064
Tel: +1 281 940-1800
Fax: +1 281 668-8802

AMOT

Western Way
Bury St. Edmunds IP33 3SZ
Suffolk England
Tel: +44 1284 762222
Fax: +44 1284 760256

AMOT SINGAPORE

10 Eunos Road 8 # 12-06
Singapore Post Centre
Singapore 408600
Tel: +65 6293 4320
Fax: +65 6293 3307