

# APPLICATION PROFILE #2

## MANUAL VS. AUTOMATIC CONTROL OF STEAM TRACING SUPPLY USING US/A OR TV/SC-A VALVES

### EXAMPLE:

A winterizing steam tracing system in a plant located in Philadelphia, PA consumes about 500 pounds per hour of steam.

This system was manually turned on when danger of freezing temperatures approached (mid-September) and turned off in late Spring when danger of freezing had passed (mid-April). Total operating hours are 5,088:

$$212 \text{ days} \times 24 \text{ hours} = 5,088 \text{ hours in potential freeze season.}$$

The plant's steam cost is \$ 8.00 / 1,000 pounds of steam. The operating cost of this system can be calculated as follows:

### COST OF MANUALLY OPERATED SYSTEM:

$$500 \text{ pounds per hour} \times 5,088 \text{ hours} \times \$ 8.00/\text{thousand pounds} = \$20,352.00 \text{ per winter season.}$$

### COST OF AUTOMATICALLY OPERATED SYSTEM:

When using Therm-Omega-Tech® ambient sensing TV/SC-A or US/A valves, steam tracing will be turned off automatically whenever ambient temperatures rise above 45°F (other closing temperatures can also be specified). Based on U.S. Weather Bureau data for Philadelphia, steam will be on for only 2,895 hours each winter.

$$500 \text{ pounds per hour} \times 2,895 \text{ hours} \times \$ 8.00/\text{thousand pounds} = \$ 11,580.00 \text{ per winter season.}$$

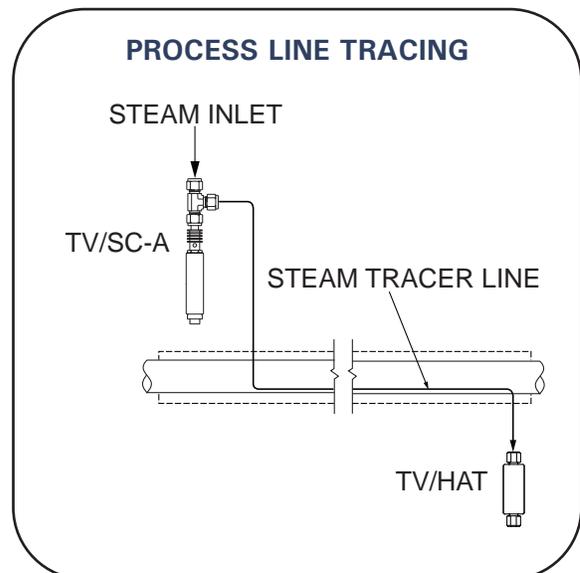
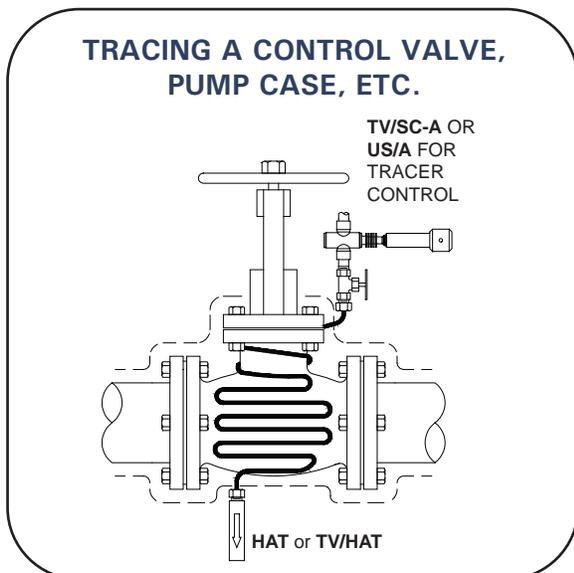
### SAVINGS REALIZED PER WINTER SEASON BY USING THERM-OMEGA-TECH® VALVES:

$$\$20,352.00 \text{ less } \$11,580.00 = \$ 8,772.00 \text{ per year}$$

### SIMPLIFIED PAYBACK (R.O.I. RETURN ON INVESTMENT)

Assuming an installed cost of \$ 500.00 for the Therm-Omega-Tech® valve to control the above system, the simplified payback on investment for this application is:

$$\$8,772.00 \div \$ 500.00 = 17.5 \text{ R.O.I.}$$



# ESTIMATED SAVINGS PER TRACER

Location	Number of Months Annually That Air Temperature Can Fall to 32°F or Lower <sup>(1)</sup>	Normal Hours Below 45°F <sup>(2)</sup>	% Of Steam Saved During Months Freeze Can Occur <sup>(3)</sup>	Dollars Saved Annually, With Tracers on During Months Freezing Can Occur <sup>(4)</sup>				Dollars Saved Annually, With Tracer on 12 Months <sup>(5)</sup>			
				Winterization Steam Use, lb/hr				Winterization Steam Use, lb/hr			
				10	20	30	50	10	20	30	50
Great Falls, MT	9	4152	36	186.62	373.25	559.87	933.12	359.42	546.05	732.67	1105.92
Buffalo, NY	8	3829	34	156.67	313.34	460.42	783.36	387.07	543.74	690.82	1013.76
Charleston, WV	7	2716	46	185.47	370.94	556.42	927.36	473.47	658.94	844.42	1215.36
Charlotte, NC	6	1769	59	203.90	407.81	611.71	1019.52	549.50	753.41	957.31	1365.12
Chicago, IL	8	3838	33	152.06	304.13	456.19	760.32	382.46	534.53	686.59	990.72
Cleveland, OH	8	3499	39	179.71	359.42	539.14	898.56	410.11	589.82	769.54	1128.96
Houston, TX	5	229	94	270.72	541.44	812.16	1353.60	673.92	944.64	215.36	1756.80
Los Angeles, CA	2	117	92	105.98	211.97	317.95	529.92	739.58	787.97	893.95	1105.92
Memphis, TN	6	1829	58	200.45	400.90	601.34	1002.24	546.05	746.50	946.94	1319.04
Mobile, AL	4	759	74	170.50	340.99	511.49	852.48	631.30	801.79	972.29	1313.28
New Orleans, LA	4	468	84	193.54	387.07	580.61	967.68	654.34	847.87	1041.41	1428.48
New York, NY	6	2856	34	117.50	235.01	352.51	587.52	463.10	580.61	436.32	933.12
Philadelphia, PA	7	2895	43	173.38	346.75	520.13	866.88	461.76	634.75	808.13	1154.88
Pittsburgh, PA	7	3512	30	120.96	241.92	362.88	604.80	408.96	529.92	650.88	892.80
Portland, ME	8	4140	28	129.02	258.05	387.07	645.12	359.42	488.45	617.47	875.52
St. Louis, MO	7	2838	44	177.41	354.82	532.22	887.04	465.41	642.82	820.22	1175.04
Seattle, WA	6	2915	33	114.05	228.10	342.14	570.24	460.48	573.70	687.90	915.84
Tulsa, OK	6	2127	51	176.26	352.51	528.77	881.28	521.86	698.11	874.37	1226.88

## NOTES

1. U.S. Weather Bureau Data. It is assumed that tracers for winterization are normally left on during this time.
2. Therm-Omega-Tech® valves automatically turn on steam to tracers.
3. Based on number of hours ambient air temperature is above 45°F. Therm-Omega-Tech® valves automatically turn off steam to tracers.
4. Steam Cost Assumed: \$8.00/1,000 lb. Steam Load should include needed heat plus losses due to leaks.
5. Steam Cost Assumed: \$8.00/1,000 lb. It is assumed that steam use is a constant 10 lb/hr during "Summer".  
*Example: Winterization steam may average 30 lb/hr during 7 months when freezing can occur. For the balance of the year (5 months), if tracer is allowed to remain active, it has been assumed steam use is 10 lb/hr.*



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