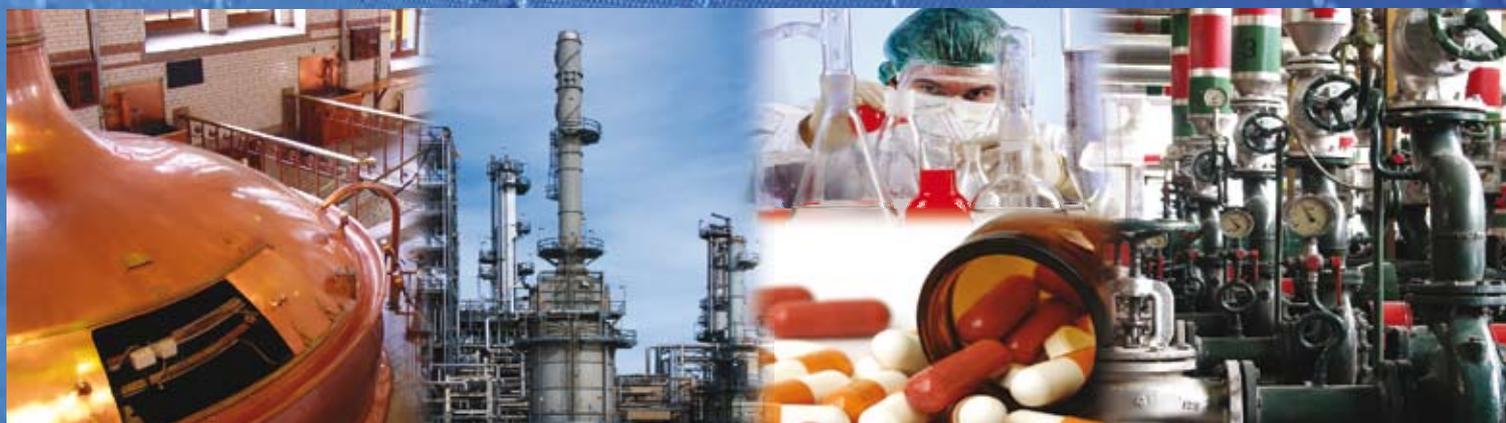




*flow & process solutions*





# ECONO/HAT-RA

## IN-LINE TEMPERATURE CONTROL

### DESIGN FEATURES

- ◆ Compact, low mass - Fast response
- ◆ Corrosion resistant - Long service life
- ◆ All Brass body, stainless steel spring and plug
- ◆ Ram-type plug for tight reliable shutoff
- ◆ Narrow temperature band
- ◆ Operating temperatures unaffected by pressure
- ◆ Wide choice of set points



### ADVANTAGES

The **ECONO/HAT-RA** valve continually senses liquid temperature and provides a low cost, effective means of accurate temperature control. The unique plug and seat design offers the most reliable, tight shutoff available. All brass **ECONO/HAT-RA** valves are factory tested and covered by an 18 month prorated warranty. Stainless steel **ECONO/HAT-RA** valves are covered by a 36 month prorated warranty.

### APPLICATIONS

The model **ECONO/HAT-RA** reverse acting valve can be used to regulate the flow of cooling water, glycol or other cooling media in applications requiring economical removal of heat from equipment or a process. Since the **ECONO/HAT-RA** valves open on rising temperatures, they can be used in many thermal relief valve applications.

### OPERATION

As the fluid temperature increases to within the operating range of the **ECONO/HAT-RA**, the thermal actuator modulates the valve open. If the fluid temperature is above the acceptable range, the valve will continue to modulate open allowing additional fluid discharge. As the outlet temperature falls slightly, the valve then modulates toward the closed position, reducing flow. This modulating action maintains a relatively constant fluid temperature even as operating conditions vary.

# ECONO/HAT-RA

## IN-LINE TEMPERATURE CONTROL



### PARTS AND MATERIALS

ITEM	DESCRIPTION	MATERIAL
1	BODY	BRASS or SS
2	THERMAL ACTUATOR	BRASS or SS
3	OPERATING SPRING	300 SERIES STAINLESS
4	RAM-TYPE PLUG	300 SERIES STAINLESS
5	SEAT FITTING	BRASS or SS
6	SEAT SEAL	PTFE
7	BODY SEAL	BUNA-N
8	CALIBRATION LOCKNUT	300 SERIES STAINLESS

### SPECIFICATIONS

SIZE (NPT)	D		L		Weight		C <sub>v</sub>	Maximum Pressure	Maximum Temperature
	in	mm	in	mm	Lb	Kg			
1/4" Brass	1.00	25	3.6	89	0.35	0.16	0.5	300 PSIG (20.7 BAR)	250°F (121°C)
1/4" Stainless								400 PSIG (27.6 BAR)	

### TO ORDER SPECIFY:

Part Number	Description
242 - 000000 - XXX	1/4" ECONO/HAT-RA M/F
242 - 010000 - XXX	1/4" ECONO/HAT-RA M/F S/S

### NOTES:

- Standard open temperatures "XXX" available: 040°F, 045°F, 050°F, 060°F, 070°F, 075°F, 085°F, 095°F, 100°F, 105°F, 110°F, 115°F, 120°F, 125°F, 130°F, 140°F, 150°F, 160°F, 170°F, 175°F, 180°F, 190°F, 200°F and 210°F.  
**Note:** Closing temperature is typically 10°F below opening temperature.
- A #20 mesh strainer is recommended for use with all port sizes.

Therm-Omega-Tech, Inc. reserves the right to change the design and specifications without notice



**THERM-OMEGA-TECH, INC.**





# HAT

## FIELD SERVICEABLE IN-LINE TEMPERATURE CONTROL VALVE



### PARTS AND MATERIALS

	ITEM	DESCRIPTION	MATERIAL
	1	BODY - INLET HALF (NOTE 3)	300 SERIES STAINLESS
	2	SEAT SEAL	PTFE
	3	OPERATING SPRING	300 SERIES STAINLESS
	4	BODY SEAL	EPDM/VITON
	5	RAM-TYPE PLUG	300 SERIES STAINLESS
	6	THERMAL ACTUATOR	BRASS or SS
	7	ACTUATOR CARRIER	BRASS or SS
	8	BODY - OUTLET HALF	300 SERIES STAINLESS

### SPECIFICATIONS

SIZE (NPTF)	D		L		Weight		Port Size	C <sub>v</sub>	Maximum Pressure	Maximum Temperature
	in	mm	in	mm	Lb	Kg				
1/2"	1.25	32	4.5	114	0.9	0.41	C	1.3	200 PSIG (13.8 BAR)	300°F (149°C)
3/4"	1.5	38	5.5	140	1.4	0.64	D	2		

### TO ORDER SPECIFY: (see note #1 for standard temperatures)

Part Number		Description
EPDM Seals	Viton Seals	
134-302100-XXX	134-302200-XXX	1/2" HAT C-Port
134-312100-XXX	134-312200-XXX	1/2" HAT C-Port, all SS
135-502100-XXX	135-502200-XXX	3/4" HAT D-Port
135-512100-XXX	135-512200-XXX	3/4" HAT D-Port, all SS

### NOTES:

1. Standard open temperatures "XXX" available: 040F, 050F, 055F, 060F, 065F, 075F, 085F, 090F, 095F, 100F, 105F, 110F, 125F, 130F, 140F, 150F, 155F, 160F, 170F, 180F, 190F and 200F.

**Note:** Closing temperature is typically 10°F above opening temperature

2. Seal Material compatability:
  - a. EPDM - air (to 300°F), water, steam, ketones and synthetic hydraulic oils.
  - b. Viton - air (to 450°F), fuel, oil, gas, petroleum-based hydraulic oils.
3. Flow direction is reversed in valves that close over 210°F
4. A #20 mesh stainer is recommended for use with all port sizes

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**THERM-OMEGA-TECH, INC.**





# HAT/RA

## IN-LINE TEMPERATURE CONTROL

### DESIGN FEATURES

- ◆ All stainless steel construction
- ◆ Compact, low mass - Fast response
- ◆ Corrosion resistant - Long service life
- ◆ Most clog-resistant design available
- ◆ Operates in narrow temperature band
- ◆ Unaffected by pressure variations
- ◆ Easy installation with pipe wrench
- ◆ Operates in any orientation
- ◆ Discharges the minimum amount of water required to keep water temperature within safe limits



### ADVANTAGES

These valves save space and are easy and inexpensive to install. The unique ram-type plug & seat provide reliable, tight shut off longer than any other design available. **HAT/RA** valves are covered with our standard 36 month prorated warranty & service policy to further reduce maintenance cost.

### OPERATION

As the fluid temperature increases to within the operating range of the **HAT/RA**, the thermal actuator modulates the valve open. If the fluid temperature is above the acceptable range, the valve will continue to modulate open allowing additional fluid discharge. As the outlet temperature falls slightly, the valve then modulates toward the closed position, reducing flow. This modulating action maintains a relatively constant fluid temperature even as operating conditions vary.

### APPLICATIONS

The model **HAT/RA** reverse acting valve can be used to regulate the flow of cooling water, glycol or other cooling media in applications requiring economical removal of heat from equipment or a process. Since the **HAT/RA** valves open on rising temperatures, they can be used in many thermal relief valve applications.

# HAT/RA

## IN-LINE TEMPERATURE CONTROL



### PARTS AND MATERIALS

	ITEM	DESCRIPTION	MATERIAL
	1	BODY - INLET HALF	300 SERIES STAINLESS
	2	SEAT SEAL	PTFE
	3	OPERATING SPRING	300 SERIES STAINLESS
	4	RAM-TYPE PLUG	300 SERIES STAINLESS
	5	BODY SEAL	EPDM/VITON
	6	THERMAL ACTUATOR	BRASS or SS
	7	ACTUATOR CARRIER	BRASS or SS
	8	BODY - OUTLET HALF	300 SERIES STAINLESS

### SPECIFICATIONS

SIZE (NPTF)	D		L		Weight		Port Size	C <sub>v</sub>	Maximum Pressure	Maximum Temperature
	in	mm	in	mm	Lb	Kg				
1/2"	1.13	29	4.5	114	0.7	0.32	B	1.1 (STD)	200 PSIG (13.8 BAR)	300°F (149°C)
							C	1.5 (OPT)	150 PSIG (10.33 BAR)	
3/4"	1.38	35	5.5	140	1.2	0.55	D	2.0 (STD)	70 PSIG (4.8 BAR)	

### TO ORDER SPECIFY:

Part Number		Description
EPDM	VITON	
144 - 202100 - XXX	144 - 202200 - XXX	1/2" HAT/RA B-Port
144 - 212100 - XXX	144 - 212200 - XXX	1/2" HAT/RA B-Port all SS
144 - 302100 - XXX	144 - 302200 - XXX	1/2" HAT/RA C-Port
144 - 312100 - XXX	144 - 312200 - XXX	1/2" HAT/RA C-Port all SS
145 - 502100 - XXX	145 - 502200 - XXX	3/4" HAT/RA D-Port
145 - 512100 - XXX	145 - 512200 - XXX	3/4" HAT/RA D-Port all SS

### NOTES:

1. Standard open temperatures "XXX" available:  
 040°F, 045°F, 050°F, 060°F, 070°F, 075°F, 085°F, 095°F, 100°F, 105°F, 110°F, 115°F, 120°F, 125°F, 130°F, 140°F, 150°F, 160°F,  
 170°F, 175°F, 180°F, 190°F, 200°F and 210°F.

Note: Closing temperature is typically 10°F below opening temperature.

2. Seal material compatibility:

a. EPDM - air (to 300°F), water, steam, ketones and synthetic hydraulic oils.

b. Viton - air (to 450°F), fuel, oil, gas and petroleum based hydraulic oils.

3. A #20 mesh strainer is recommended for use with all port sizes.

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**THERM-OMEGA-TECH, INC.**





# HAT/RA-HP

## HIGH PRESSURE IN-LINE TEMPERATURE CONTROL

### DESIGN FEATURES

- ◆ All stainless steel construction
- ◆ Compact, low mass - Fast response
- ◆ Corrosion resistant - Long service life
- ◆ Most clog-resistant design available
- ◆ Operates in narrow temperature band
- ◆ Unaffected by pressure variations
- ◆ Easy installation with pipe wrench
- ◆ Operates in any orientation
- ◆ Discharges the minimum amount of water required to keep water temperature within safe limits



### ADVANTAGES

These valves save space and are easy and inexpensive to install. The unique ram-type plug & seat provide reliable, tight shut off longer than any other design available. **HAT/RA-HP** valves are covered with our standard 36 month prorated warranty & service policy to further reduce maintenance cost.

### OPERATION

As the fluid temperature increases to within the operating range of the **HAT/RA-HP**, the thermal actuator modulates the valve open. If the fluid temperature is above the acceptable range, the valve will continue to modulate open allowing additional fluid discharge. As the outlet temperature falls slightly, the valve then modulates toward the closed position, reducing flow. This modulating action maintains a relatively constant fluid temperature even as operating conditions vary.

### APPLICATIONS

The **HAT/RA-HP** (Heat Actuated Trap/Reverse Acting - High Pressure) valve is commonly used as a thermal pump relief valve on high pressure water pumps. It can also be used to regulate the flow of glycol, water or other media in critical applications or to economically remove heat from equipment or a process.

# HAT/RA-HP

HIGH PRESSURE IN-LINE TEMPERATURE CONTROL



## PARTS AND MATERIALS

	ITEM	DESCRIPTION	MATERIAL
	1	VALVE BODY	300 SERIES STAINLES
	2	THERMAL ACTUATOR	300 SERIES STAINLES
	3	BODY SEAL	EPDM/Viton
	4	OPERATING SPRING	300 SERIES STAINLES
	5	PORT SEAL	PTFE
	6	SEAT SEAL	EPDM/Viton
	7	RAM-TYPE PLUG	300 SERIES STAINLES

## SPECIFICATIONS

SIZE (NPTF)	D		L		Weight		C <sub>v</sub>	Maximum Pressure	Maximum Temperature
	in	mm	in	mm	Lb	Kg			
1/2"	1.13	29	3.75	95	1	0.45	0.74	1000 PSIG (68 BAR)	Note 2

## TO ORDER SPECIFY:

Part Number	Description
154-010100-XXX	1/2" HAT/RA-HP-M/F (EPDM Seals)
154-010200-XXX	1/2" HAT/RA-HP-M/F (Viton Seals)

### NOTES:

1. Standard open temperatures "XXX" available: 090°F, 095°F, 100°F, 105°F, 110°F, 125°F, 130°F, 140°F.  
Other temperatures available, consult factory  
Note: Closing temperature is typically 10°F below opening temperature.

2. Seal material compatibility:  
a. EPDM - air (to 300°F), water, steam, ketones and synthetic hydraulic oils.  
b. Viton - air (to 450°F), fuel, oil, gas and petroleum based hydraulic oils.

3. A #20 mesh strainer is recommended.

*Therm-Omega-Tech, Inc. reserves the right to change the design and specifications without notice*



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**THERM-OMEGA-TECH**

**ISO 9001 CERTIFIED**

# HAT/RA-LP

IN-LINE TEMPERATURE CONTROL

## DESIGN FEATURES

- ◆ Stainless steel body, fittings, spring and plug
- ◆ Compact, low mass, fast response
- ◆ Corrosion resistant, long service life
- ◆ Most clog resistant design available
- ◆ Narrow temperature band
- ◆ Modulation throughout temperature range
- ◆ Sensitive to fluid temperature only
- ◆ Unaffected by pressure variations
- ◆ Easy to install with pipe wrench
- ◆ Operates in any orientation
- ◆ Control leakage for increased sensitivity



## ADVANTAGES

The **HAT/RA-LP** continually senses cooling water outlet temperature and automatically modulates to maintain desired temperature. Optimum equipment temperature improves efficiency, reduces wear and conserves cooling water. **Therm-Omega-Tech** valves are designed around our exclusive **Thermoloid®** sensor/controller which is the most advanced and reliable thermal actuator of its type available today. All **Therm-Omega-Tech** valves are factory tested and calibrated to assure unsurpassed accuracy, reliability and quality. **HAT/RA-LP** valves are covered with our standard 36 month prorated warranty.

## APPLICATIONS

**HAT/RA-LP** valves are perfect to control cooling water for compressors, engines, heat exchangers, welding equipment, electrical equipment, molding equipment, pump bearings

## OPERATION

The **HAT/RA-LP** is installed on the cooling water outlet of the equipment as an afterflow controller. At start-up, the valve is closed except for its control leakage, which allows a small flow so that the actuator inside the valve can sense the changing equipment temperature. As the outlet water temperature increases to within the operating range of the **HAT/RA-LP**, the thermal actuator modulates the valve open. If the cooling water temperature is above the acceptable range, the valve will continue to modulate open allowing additional coolant flow. As the outlet water temperature falls slightly, the valve then modulates toward the closed position, reducing flow. This modulating action maintains a relatively constant outlet water temperature even as the cooling load changes.

# HAT/RA-LP

## IN-LINE TEMPERATURE CONTROL



### PARTS AND MATERIALS

ITEM	DESCRIPTION	MATERIAL
1	BODY - INLET HALF	300 SERIES STAINLESS
2	ACTUATOR CARRIER	BRASS or SS
3	THERMAL ACTUATOR	BRASS or SS
4	RAM-TYPE PLUG	300 SERIES STAINLESS
5	BODY SEAL	EPDM/VITON
6	OPERATING SPRING	300 SERIES STAINLESS
7	WASHER	300 SERIES STAINLESS
8	BODY - OUTLET HALF	300 SERIES STAINLESS

### SPECIFICATIONS

SIZE (NPTF)	D		L		Weight		Port Size	C <sub>v</sub>	Maximum Pressure	Maximum Temperature
	in	mm	in	mm	Lb	Kg				
1/2"	1.25	32	4.5	114	0.9	0.41	B	1.44	200 PSIG (13.8 BAR)	300°F (149°C)
							C	1.75	150 PSIG (10.33 BAR)	
3/4"	1.5	38	5.5	140	1.4	0.64	D	2.0 (STD)	70 PSIG (4.8 BAR)	

### TO ORDER SPECIFY:

Part Number		Description	Part Number		Description
EPDM	VITON		EPDM	VITON	
144-202102-XXX	144-202202-XXX	1/2" HAT B-Port 1/4 GPM	145-502102-XXX	145-502202-XXX	3/4" HAT D-Port 1/4 GPM
144-212102-XXX	144-212202-XXX	1/2" HAT B-Port, all SS 1/4 GPM	145-502104-XXX	145-502204-XXX	3/4" HAT D-Port 1 GPM
144-302102-XXX	144-302202-XXX	1/2" HAT C-Port, all SS 1/4 GPM	145-512102-XXX	145-512202-XXX	3/4" HAT D-Port, all SS 1/4 GPM
144-312102-XXX	144-312202-XXX	1/2" HAT C-Port, all SS 1/4 GPM	145-512104-XXX	145-512204-XXX	3/4" HAT D-Port, all SS 1 GPM

### NOTES:

- Standard open temperatures "XXX" available: 040°F, 045°F, 050°F, 060°F, 070°F, 075°F, 085°F, 095°F, 100°F, 105°F, 110°F, 115°F, 120°F, 125°F, 130°F, 140°F, 150°F, 160°F, 170°F, 175°F, 180°F, 190°F, 200°F and 210°F.  
**Note:** Closing temperature is typically 10°F below opening temperature
- Leak port flow rate specifications:
  - 1/4 GPM established at 60 PSIG
  - 1 GPM established at 40 PSIG
- Seal material compatibility:
  - EPDM - air (to 300°F), water, steam, ketones, and synthetic hydraulic oils.
  - Viton - air (to 450°F), fuel, oil, gas, petroleum-based hydraulic oils.
- A #20 mesh stainer is recommended for use with all port sizes

*Therm-Omega-Tech, Inc. reserves the right to change the design and specifications without notice*



**THERM-OMEGA-TECH, INC.**





# HST

## HIGH SAMPLE TEMPERATURE VALVE

### DESIGN FEATURES

- ◆ Automatic: resets open when sample cools
- ◆ Self-Operating: no outside power or signal required
- ◆ Reliable shutoff: ram-type plug provides tight shutoff
- ◆ Rugged, compact design
- ◆ Easy installation
- ◆ Fast response
- ◆ Operating temperatures unaffected by variable inlet pressures
- ◆ Wide choice of setpoints available
- ◆ Corrosion resistant: all stainless steel construction
- ◆ Operates in any orientation
- ◆ Body rating: 3000 PSIG @ 600°F



### OPERATION

The **HST** (High Sample Temperature) safety shutoff valve is used to sense the sample temperature after the sample cooler. The sample passes through this normally open valve whenever the sample temperature is below the valve setpoint. If the sample temperature exceeds the valve setpoint, the **HST** closes to protect expensive and delicate analyzers and other instruments from overtemperature damage. When the **HST** cools\* below the setpoint, it will automatically reset open again. Low coolant flow or total loss of cooling water or unusually high sample temperatures are typical reasons why the **HST** self-operating protective device should be considered.

### APPLICATIONS

Excessively hot samples can cause damage to expensive and sensitive hardware and electronics. For process analyzers and similar instrumentation, it is important to assure that the process samples fluids are always below the maximum allowable temperature for such instruments. Sample coolers are commonly used to reduce sample temperatures to the acceptable limits. In the event of a loss of cooling fluid to the sample cooler, or if the desired sample temperature is exceeded for any reason, the **HST** valve will close to prevent equipment damage. **HST** valves are covered with our standard 36 month prorated warranty.

# HST

## IN-LINE HIGH SAMPLE TEMPERATURE VALVE



### PARTS AND MATERIALS

ITEM	DESCRIPTION	MATERIAL
1	VALVE BODY	300 SERIES STAINLESS
2	THERMAL ACTUATOR	300 SERIES STAINLESS
3	OPERATING SPRING	300 SERIES STAINLESS
4	RAM-TYPE PLUG	300 SERIES STAINLESS
5	ENGINE SEAL	EPDM/Viton (-012) (note 2)
6	SEAT SEAL	PTFE

### SPECIFICATIONS

SIZE (NPTF)	D		L		Weight		C <sub>v</sub>	Maximum Pressure	Maximum Temperature
	in	mm	in	mm	Lb	Kg			
1/2"	1.38	35	3.4	86	1.14	0.52	0.075	3000PSIG (207 BAR)	Note 2

### TO ORDER SPECIFY:

Part Number	Description
254-000000-XXX	1/2" HST (EPDM Seals)
254-001000-XXX	1/2" HST (Viton Seals)

### NOTES:

- Standard temperatures "XXX" available:  
100°F, 105°F, 115°F, 125°F, 130°F, 140°F, 170°F, 185°F.
- Seal material compatibility:
  - EPDM - air (to 300°F), water, steam, ketones and synthetic hydraulic oils.
  - Viton - air (to 400°F), fuel, oil, gas and petroleum based hydraulic oils.
  - Optional seal materials available, consult factory.

*Therm-Omega-Tech, Inc. reserves the right to change the design and specifications without notice*



**THERM-OMEGA-TECH, INC.**





# 1/2" M/D

## TEMPERING, MIXING AND DIVERTING

### DESIGN FEATURES

- ◆ Cooling water control-Radiator
- ◆ Cooling water control-Heat Exchanger
- ◆ Hydraulic fluid cooling systems
- ◆ Direct cooling with raw water
- ◆ Lube oil cooling control
- ◆ Constant temperature baths, wash basins & sinks
- ◆ Loop-type circulation systems
- ◆ Direct injection water heating
- ◆ Hot water washdown stations
- ◆ Make-up water
- ◆ Electric system cooling
- ◆ Air conditioning
- ◆ Water conservation

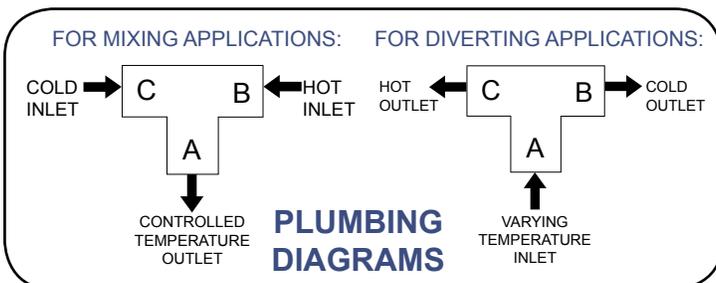


### OPERATION

Therm-Omega-Tech's 1/2" M/D temperature control valve is designed for 3-way mixing or diverting applications. For fast response, the valve is compact and low mass. Therm-Omega-Tech's valves are designed around our exclusive Thermoloid sensor/controller that automatically and accurately proportions the flow in response to fluid temperature. The Thermoloid sensor/controller is the most advanced and reliable thermal actuator of its type available today.

For mixing applications, the 1/2" M/D will proportion the flow from two inlet ports to produce the desired outlet port temperature.

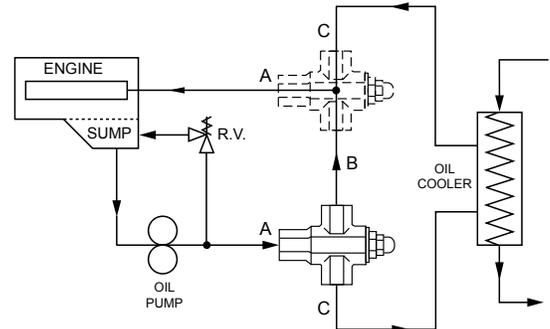
For diverting applications, the 1/2" M/D will divert or switch the inlet flow to either of two outlet ports depending on the fluid temperature.



### SAMPLE APPLICATIONS

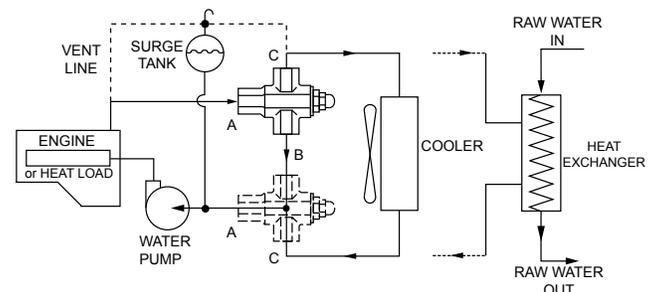
#### LUBE OIL CONTROL

Valve shown in "diverting" position to control oil sump temperature. In dotted position, valve will "mix" to control oil temperature to bearings or manifold.



#### COOLING WATER CONTROL USING RADIATOR OR HEAT EXCHANGER

Valve shown in "diverting" position to control outlet temperature. In dotted position, valve will "mix" to control inlet water to engine.

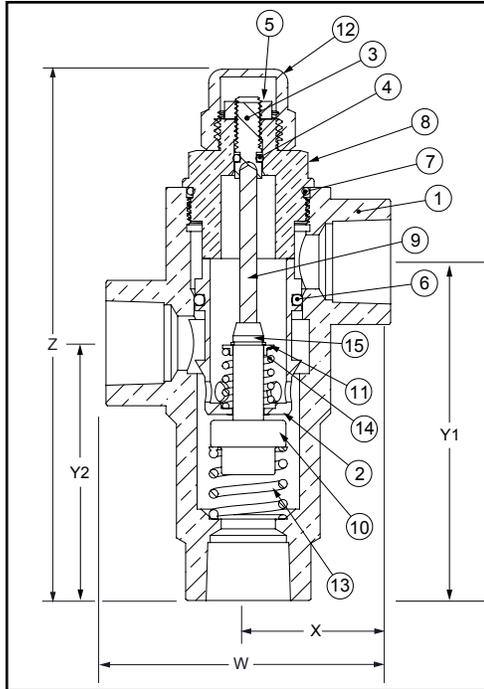


# 1/2" M/D

## TEMPERING, MIXING AND DIVERTING



### PARTS AND MATERIALS



ITEM	DESCRIPTION	MATERIAL
1	BODY	300 SERIES SS
2	SPOOL	300 SERIES SS
3	CALIBRATION STEM	300 SERIES SS
4	O-RING	See note 1
5	JAM NUT	300 SERIES SS
6	O-RING	See note 1
7	O-RING	See note 1
8	CAP	300 SERIES SS
9	PISTON	300 SERIES SS
10	ACTUATOR	300 SERIES SS
11	OVERTRAVEL SPRING	300 SERIES SS
12	ADJUSTMENT CAP	300 SERIES SS
13	OPERATING SPRING	300 SERIES SS
14	OVERTRAVEL SPRING	300 SERIES SS
15	RETAINING RING	300 SERIES SS

### SPECIFICATIONS

SIZE (NPTF)	W		X		Y1		Y2		Z		Weight		C <sub>v</sub>	Maximum Pressure	Maximum Temperature	Body Rating
	in	mm	Lb	Kg												
1/2"	2.62	67	1.31	33	3.12	79	2.38	60	4.90	124	2.5	1.14	2.7	350 PSIG (24 BAR)	250°F (121°C)	A.N.S.I. 300 Class

### TO ORDER SPECIFY:

Part Number	Description
353-00X000-XXX	1/2" M/D Valve - 316 S/S

### NOTES:

1. Seal material compatibility "X" available (replace X portion of part number with number below)

0- Buna-N: for air (to 250°F), water, fuel, oil, gas and petroleum-based hydraulic oils.

1- Viton: for air (to 450°F), fuel, oil, gas and petroleum-based hydraulic oils.

2- EPDM: for air (to 300°F), water, steam, ketones and synthetic hydraulic oils

3- Fluorosilicone: for air (to 400°F), aerospace industry petroleum oils / fuels and diester-based lubricants.

2. Standard set point temperatures "XXX" available: 035F, 045F, 050F, 060F, 070F, 085F, 090F, 100F, 105F, 110F, 120F, 135F, 147F (+/-8°F), 152 (+/-8°F), 160F, 170F, 190F, 200F, 205F, 210F.

Note: Unless noted, all set points listed have a +/-5°F tolerance range. During operation, the valve will modulate the Cold side (C port) closed at 5°F below the set point and the Hot side (B port) closed at 5°F above the set point.

*Therm-Omega-Tech, Inc. reserves the right to change the design and specifications without notice*



**THERM-OMEGA-TECH, INC.**





# TV/HAT

## IN-LINE TEMPERATURE CONTROL

### DESIGN FEATURES

- ◆ Compact, low mass for fast response
- ◆ Corrosion resistant - Long service life
- ◆ Stainless steel body, fittings, spring and plug
- ◆ Ram-type plug for tight reliable shutoff
- ◆ Eliminates live steam losses
- ◆ Operates in narrow temperature band
- ◆ Downstream actuator for greater sensitivity
- ◆ Unaffected by pressure variations
- ◆ Wide choice of set points
- ◆ Easy to install
- ◆ Operates in any position



### ADVANTAGES

These valves save space and are easy and inexpensive to install. The unique ram-type plug & seat provide reliable, tight shut off longer than any other design available. **TV/HAT** valves are covered with our standard 36 month prorated warranty & service policy to further reduce maintenance cost. Since **TV/HAT** valves discharge condensate well below steam temperature, live steam losses are eliminated. For heating of temperature sensitive instruments or process fluids, the reduced temperature available for tracing simplifies operations and eliminates overheating problems. For other heat transfer fluids, **TV/HAT** valves maintain a constant discharge temperature, thus providing benefits of accurate process temperature control and improved efficiency.

### OPERATION

The **TV/HAT** valve responds only to temperature. After condensate forms and cools to near the setpoint, the **TV/HAT** valve modulates the flow to maintain a constant condensate discharge temperature. **TV/HAT** valves are wide open at start-up for rapid venting and initial heat-up. **TV/HAT** valves are self-draining after shutdown, to eliminate freeze damage.

### APPLICATIONS

**TV/HAT** (Tube Valve/Heat Actuated Trap) valves are ideal for use in conjunction with tracer tubing and tracing systems using pretraced tubing bundles. These versatile valves are compatible and are made to be used in combination with the Therm-Omega-Tech TV series valves as well as standard tubing and tubing fittings. Therm-Omega-Tech **TV/HAT** valves are ideal for replacing conventional steam traps on winterization tracing, instrument tracing, condensate return system freeze protection, tracing for processes under 150°F (65°C), and other applications requiring in-line flow control based on temperature.

# TV/HAT

## IN-LINE TEMPERATURE CONTROL



### PARTS AND MATERIALS

ITEM	DESCRIPTION	MATERIAL
1	TUBING NUT (Note 2)	300 Series Stainless
2	FERRULE (Notes)	300 Series Stainless
3	SEAT HOUSING	300 Series Stainless
4	SEALING O-RING	EPDM
5	OPERATING SPRING	300 Series Stainless
6	SEAT SEAL	PTFE
7	LOCKNUT	300 Series Stainless
8	RETAINER	300 Series Stainless
9	VALVE BODY	300 Series Stainless
10	ACTUATOR	Brass or SS

### SPECIFICATIONS

Size (Tube OD)	D		L		Weight		C <sub>v</sub>	Maximum Pressure	Maximum Temperature
	in	mm	in	mm	Lb	Kg			
1/4"	1.0	25	3.6	91	0.30	0.14	0.5	300 PSIG (20.7 BAR)	300°F (149°C)
3/8"	1.0	25	3.6	91	0.33	0.15			
1/2"	1.0	25	3.9	99	0.35	0.16			

### TO ORDER SPECIFY:

Part Number	Description
212-000000-XXX	1/4" TV/HAT
212-100000-XXX	1/4" TV/HAT-SS (Note 5)
212-010000-XXX	1/4" TV/HAT (Note 2)
212-110000-XXX	1/4" TV/HAT-SS (Notes 2 and 5)
213-000000-XXX	3/8" TV/HAT
213-001000-XXX	3/8" TV/HAT-LP 1/8 GPM Leak Port (Note 3)
213-002000-XXX	3/8" TV/HAT-LP 1/4 GPM Leak Port (Note 3)
213-100000-XXX	3/8" TV/HAT-SS (Note 5)
213-010000-XXX	3/8" TV/HAT (Note 2)
213-110000-XXX	3/8" TV/HAT-SS (Notes 2 and 5)
214-000000-XXX	1/2" TV/HAT
214-100000-XXX	1/2" TV/HAT-SS (Note 5)
214-010000-XXX	1/2" TV/HAT (Note 2)
214-110000-XXX	1/2" TV/HAT-SS (Notes 2 and 5)

### NOTES:

- Standard temperatures "XXX" available: 040°F, 050°F, 055°F, 060°F, 065°F, 075°F, 085°F, 090°F, 095°F, 100°F, 105°F, 110°F, 125°F, 130°F, 140°F, 150°F, 155°F, 160°F, 170°F, 180°F, 190°F and 200°F.  
**Note:** Closing temperature is typically 10°F above opening temperature.
- Swagelok fittings replace standard Parker fittings.
- Leak port discharge rate determined @ 60 PSIG.
- A #20 mesh strainer is recommended for use with all port sizes.
- All stainless steel construction except seals.

Therm-Omega-Tech, Inc. reserves the right to change the design and specifications without notice



**THERM-OMEGA-TECH, INC.**





# TV/HAT-RA

## IN-LINE TEMPERATURE CONTROL

### DESIGN FEATURES

- ◆ Compact, low mass for fast response
- ◆ Corrosion resistant - long service life
- ◆ Stainless steel body, fittings, spring and plug
- ◆ Operates in narrow temperature band
- ◆ Most clog - resistant design available
- ◆ Sensitive to fluid temperature only
- ◆ Unaffected by pressure variations
- ◆ Easy to install
- ◆ Operates in any orientation
- ◆ Wide choice of setpoints



### ADVANTAGES

The **TV/HAT/RA** continually senses fluid temperature and automatically modulates to maintain desired temperature. Optimum operating temperature improves efficiency, reduces wear and conserves energy. Therm-Omega-Tech valves are designed around our exclusive **Thermoloid®** sensor/controller which is the most advanced and reliable thermal actuator of its type available today. All Therm-Omega-Tech valves are factory tested and calibrated to assure unsurpassed accuracy, reliability and quality. **TV/HAT/RA** valves are covered with our standard 36 month prorated warranty.

### APPLICATIONS

The **TV/HAT/RA** reverse acting valve can be used to regulate the flow of cooling water, glycol or other cooling media in applications requiring economical removal of heat from equipment or a process. Since the **TV/HAT/RA** valves open on rising temperatures, they can be used in many thermal relief valve applications.

### OPERATION

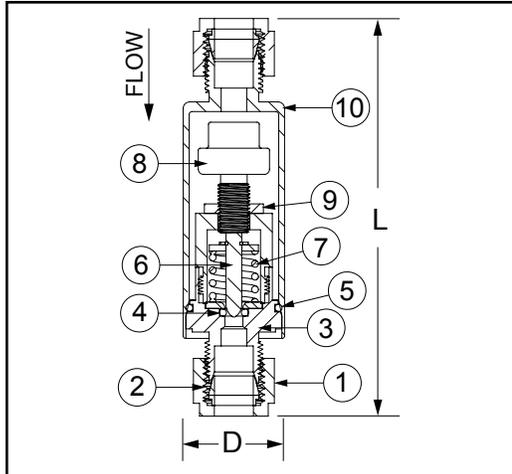
As the fluid temperature increases to within the operating range of the **TV/HAT/RA**, the thermal actuator modulates the valve open. If the fluid temperature is above the acceptable range, the valve will continue to modulate open allowing additional fluid discharge. As the outlet temperature falls slightly, the valve then modulates toward the closed position, reducing flow. This modulating action maintains a relatively constant fluid temperature even as operating conditions vary.

# TV/HAT-RA

## IN-LINE TEMPERATURE CONTROL



### PARTS AND MATERIALS



ITEM	DESCRIPTION	MATERIAL
1	TUBING NUT (note 2)	300 SERIES STAINLESS
2	FERRULES (note 2)	300 SERIES STAINLESS
3	SEAT HOUSING	300 SERIES STAINLESS
4	SEAT SEAL	PTFE
5	SEALING O-RING	EPDM
6	RAM-TYPE PLUG	300 SERIES STAINLESS
7	OPERATING SPRING	300 SERIES STAINLESS
8	ACTUATOR	BRASS or SS
9	LOCK NUT	300 SERIES STAINLESS
10	VALVE BODY	300 SERIES STAINLESS

### SPECIFICATIONS

SIZE (NPTF)	D		L		Weight		C <sub>v</sub>	Maximum Pressure	Maximum Temperature
	in	mm	in	mm	Lb	Kg			
3/8"	1.0	25	3.6	91	0.33	0.15	0.5	150 PSIG (10 BAR)	150°F (66°C)
1/2"	1.0	25	4.0	102	0.35	0.16	0.9		

### TO ORDER SPECIFY:

Part Number	Description
223-000000-XXX	3/8" TV/HAT-RA (Note 2)
223-010000-XXX	3/8" TV/HAT-RA-SW (Swagelock)
223-100000-XXX	3/8" TV/HAT-RA-SS (all SS)
223-110000-XXX	3/8" TV/HAT-RA-SS-SW (Swagelock, all SS)
224-000000-XXX	1/2" TV/HAT-RA (Note 2)
224-010000-XXX	1/2" TV/HAT-RA-SW (Swagelock)
224-100000-XXX	1/2" TV/HAT-RA-SS (all SS)
224-110000-XXX	1/2" TV/HAT-RA-SS-SW (Swagelock, all SS)

### NOTES:

- Standard temperatures "XXX" available: 040°F, 045°F, 050°F, 060°F, 070°F, 075°F, 085°F, 095°F, 100°F, 105°F, 110°F, 115°F, 120°F, 125°F, 130°F, 140°F, 150°F, 160°F, 170°F, 175°F, 180°F, 190°F, 200°F and 210°F.  
**Note:** Closing temperature is typically 10°F below opening temperature.
- Parker fittings standard unless noted.
- A #20 mesh strainer is recommended for use with all port sizes.

*Therm-Omega-Tech, Inc. reserves the right to change the design and specifications without notice*



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# TV/HAT/RA-LP

## IN-LINE TEMPERATURE CONTROL

### DESIGN FEATURES

- ◆ Control Leakport for Increased Sensitivity
- ◆ Compact, Low Mass-Fast Response
- ◆ Corrosion Resistant - Long Service Life
- ◆ Stainless Steel Body, Fittings, Spring and Plug
- ◆ Operates in a Narrow Temperature Band
- ◆ Most Clog - Resistant Design Available
- ◆ Sensitive To Fluid Temperature Only
- ◆ Unaffected By Pressure Variations
- ◆ Easy To Install
- ◆ Operates In Any Orientation



### ADVANTAGES

The **TV/HAT/RA-LP** continually senses cooling water outlet temperature and automatically modulates to maintain desired temperature. Optimum equipment temperature improves efficiency, reduces wear and conserves cooling water. Therm-Omega-Tech valves are designed around our exclusive **Thermoloid®** sensor/controller which is the most advanced and reliable thermal actuator of its type available today. All Therm-Omega-Tech valves are factory tested and calibrated to assure unsurpassed accuracy, reliability and quality. **TV/HAT/RA-LP** valves are covered with our standard 36 month prorated warranty.

### APPLICATIONS

**TV/HAT/RA-LP** valves are perfect to control cooling water for compressors, engines, heat exchangers, welding equipment, electrical equipment, molding equipment, pump bearings

### OPERATION

The **TV/HAT/RA-LP** is installed on the cooling water outlet of the equipment as an afterflow controller. At start-up, the valve is closed except for the "control leakage", which allows a small amount of flow so that the actuator inside the valve can sense the changing equipment temperature. As the outlet water temperature increases to within the operating range of the **TV/HAT/RA-LP**, the thermal actuator modulates the valve open. If the cooling water temperature is above the acceptable range, the valve will continue to modulate open allowing additional cooling flow. As the outlet water temperature falls slightly, the valve then modulates toward the closed position, reducing flow. This modulating action maintains a relatively constant outlet water temperature even as the cooling load changes.

# TV/HAT/RA-LP

## IN-LINE TEMPERATURE CONTROL



### PARTS AND MATERIALS

	ITEM	DESCRIPTION	MATERIAL
	1	TUBING NUT (Note 2)	300 SERIES STAINLESS
	2	FERRULE (Note 2)	300 SERIES STAINLESS
	3	SEAT HOUSING	300 SERIES STAINLESS
	4	SEALING O-RING	EPDM
	5	RAM-TYPE PLUG	300 SERIES STAINLESS
	6	OPERATING SPRING	300 SERIES STAINLESS
	7	ACTUATOR	BRASS or SS
	8	LOCK NUT	300 SERIES STAINLESS
9	VALVE BODY	300 SERIES STAINLESS	

### SPECIFICATIONS

D		L		Weight		C <sub>v</sub>	Maximum Pressure	Maximum Temperature
in	mm	in	mm	Lb	Kg			
1.0	25	3.6	91	0.33	0.15	0.5	200 PSIG (14 BAR)	150°F <sup>o</sup> over setpoint

### TO ORDER SPECIFY:

Part Number	Description
223-002000-XXX	3/8" TV/HAT/RA-LP 1/4" GPM (Notes 2, 3)
223-012000-XXX	3/8" TV/HAT/RA-LP 1/4" GPM (Swagelock) (Note 3)
223-102000-XXX	3/8" TV/HAT/RA-LP 1/4" GPM (all SS) (Note 3)
223-112000-XXX	3/8" TV/HAT/RA-LP 1/4" GPM (Swagelock, all SS) (Note 3)

### NOTES:

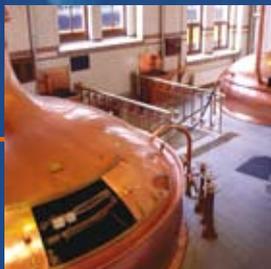
- Standard temperatures "XXX" available: 040°F, 045°F, 050°F, 060°F, 070°F, 075°F, 085°F, 095°F, 100°F, 105°F, 110°F, 115°F, 120°F, 125°F, 130°F, 140°F, 150°F, 160°F, 170°F, 175°F, 180°F, 190°F, 200°F and 210°F.  
**Note:** Closing temperature is typically 10°F below opening temperature.
- Parker fittings standard unless noted.
- Leak port discharge rate determined @ 60 PSIG.
- A #20 mesh strainer is recommended for use with all port sizes.

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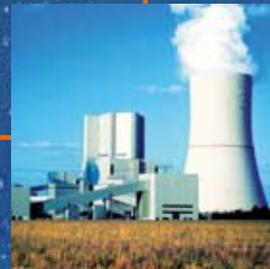


**THERM-OMEGA-TECH, INC.**





Potravinářský průmysl  
Farmaceutický průmysl  
Biotechnologie  
Petrochemie  
Chemický průmysl  
Energetika  
Úprava vody  
Papírenství a zpracování celulózy  
Plynárenský průmysl  
Keramický průmysl  
Zpracovatelský průmysl



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