



MARSHALL ENGINEERED PRODUCTS CO.

Form 15804

MEPCO Thermostatic Valves (THV) Product Range





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MEPCO Thermostatic Valves

The MEPCO Thermostatic Valves and associated actuators offer the specifier, installer and owner the best features necessary to achieve accurate and efficient room temperature control of hydronic and steam heating systems.

MEPCO Thermostatic Valves (THV series) feature forged brass-bronze, nickel plated construction with integral union tailpieces. Valves are available in straight (S), angle (A), reverse angle (R) and double angle (D) configurations with either female sweat (S) or male NPT (T) tailpieces. A variety of valve inserts (H, F, Z) allow either full open or full closed operation. The valves can be used on industrial, commercial and residential heating systems. They are designed for comfort, energy efficiency and durability. MEPCO self-contained actuators feature either liquid (L) or wax (W) elements. They are available with internal sense (I), remote bulb (R), wall mounted (B) and wall mounted/remote bulb (C - dual capillary) configurations. All sensors use expansion and contraction of the liquid/wax elements to gradually open and close the associated thermostatic valve. Liquid actuators include hidden temperature limits/lock and setpoint memory indicator (shows your preferred setpoint). Wax actuators are more compact and include hidden setpoint minimum or maximum limit/lock capability. Electric (E24) actuators are available for use with low voltage electric thermostats.

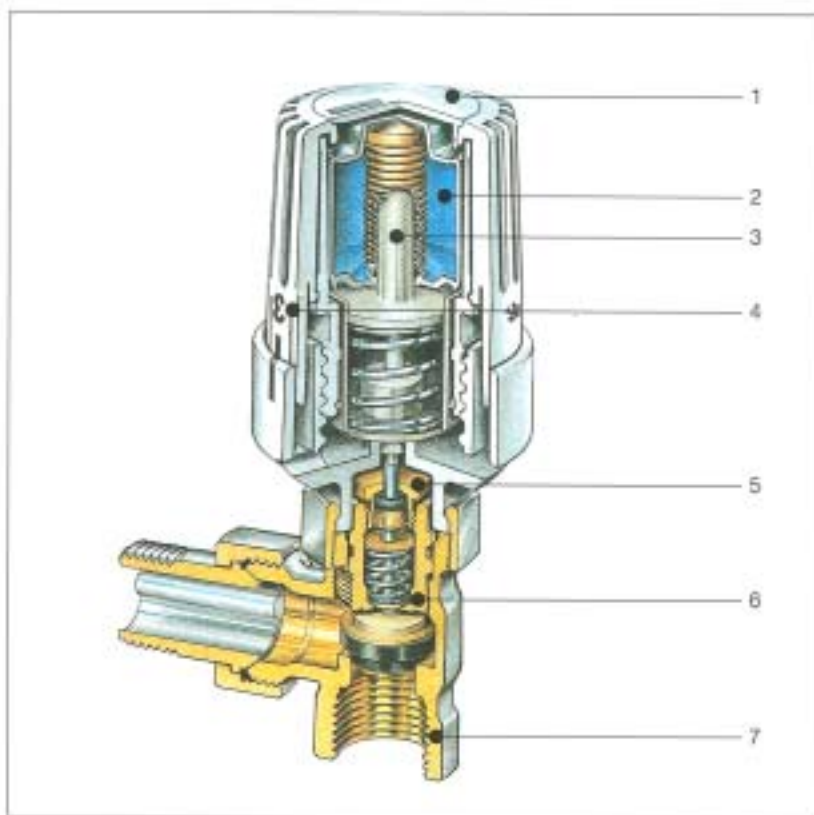
1. Internal liquid thermostat (LI) on straight thermostatic valve and thread tailpiece (THVXST)
2. Internal wax thermostat (WI) on straight thermostatic valve and thread tailpiece (THVXST)
3. Remote bulb liquid thermostat (LR) on straight thermostatic valve and thread tailpiece (THVXST)
4. Remote bulb wax thermostat (WR) on straight thermostatic valve and thread tailpiece (THVXST)
5. Wall mounted thermostat (LB) and dual capillary thermostat (LC)
6. 3/8" angle valve (V) with 1/8" MPT inlet and 1/8" FPT outlet for thermostatic control of 1-pipe steam radiators. Also shown, insert/adaptor (M) to convert Macon valves to MEPCO thermostats
7. 24VAC Electric actuator (E24)
8. Valves with internal liquid thermostat (LI) and internal wax thermostat (WI) and guards (LG) and (WG)



Operational Overview: (Liquid sensor shown – fail open insert)

On a falling temperature, the liquid sensing element contracts, moving the integral bellows upward into the sealed liquid chamber. The overload spring and pushrod are also moved upward by the valve stem/return spring. The attached valve plug opens the valve to flow. On a rising temperature, the reverse occurs. Wax sensor has similar action.

1. Memory Disc - slot on disc can be rotated to mark the position of your desired setpoint. It is always easy to verify desired setpoint or to return to the desired setpoint after temporary adjustments.
2. Sealed sensor element
3. Integral overload spring and pushrod assembly
4. Setpoint scale
5. Valve gland
6. Valve insert (includes gland and return spring)
7. NPT threaded inlet to valve body



Service Tool and Hydronic Relief Valve

The MEPCO EXTRACTOR tool allows field removal and replacement of THV valve inserts without draining the piping or taking the associated coil/radiator out of service. All valve inserts are available for use in all valve bodies. For example, it is easy to replace a fail open valve insert with a fail closed valve insert and reuse the original actuator.

The MEPCO Hydronic relief valve (HRV) is used when continuous flow to the end of a hydronic heating loop with THV valves is desired, or when supply-return water pressure differential exceeds maximum closeoff pressure for the THV. The HRV is placed at the end of the loop and is set to gradually open when the loop supply-return differential pressure rises as THV valves close.



TECHNICAL DESCRIPTION

Application: Hot water and steam heating systems

Standard Valve Insert:

Standard insert (fail open) (Z)
Cv Table vs. Pattern (Kv = Cv/1.16):

----- Valve Pattern -----				
Size	S	A	R	D
1/2"	2.1	4.1	2.1	3.2
3/4"	3.2	4.1	2.4	n/a
1"	4.1	4.1	n/a	n/a
1-1/4"	4.8	4.8	n/a	n/a

Optional Valve Inserts:

Fail close insert with 5% bleed (F)
Cv = 0.8

Fail open stainless trim insert (H)
Cv = 0.7

Accessories:

"LI-LR" actuator anti-tamper guard (LG)
"L" actuator limit clips
"L" actuator locked clip removal tool
"WI-WR" actuator anti-tamper guard (WG)
Insert EXTRACTOR tool
Extra sweat or thread tailpieces
Dunham-Bush manual to MEPCO
thermostatic conversion kits
Macon valve body to MEPCO
thermostatic conversion kit (M)

Valve Bodies (THV) with each insert:

Max. temp:	H	Z or F
DEGF	250	232
(DEGC)	(120)	(110)

Max. steam press:	H	Z or F
PSIG	15	7
(BAR)	(1)	(0.5)

Max. water pressure: 150 psig (300 kPa)
Max. pressure drop: 15 psig (1 bar)

Material -

body	brass/bronze
bonnet	brass
stem	stainless steel
seal	double O-ring EPDM
"Z" & "F" disc	EPDM rubber
"H" disc	stainless steel

Patterns & Sizes -

straight (S)	1/2" - 1-1/4"
angle (A)	3/8" - 1-1/4"
reverse angle (R)	1/2" - 1"
double angle (D)	1/2"

Connections -

inlet*	FPT
outlet (union)*	F Sweat (S), M NPT (T)
*3/8" 1-pipe steam radiator vent valve (V) has 1/8" MPT inlet & 1/8" FPT outlet	

Actuators:

Setpoint range:	0 + 1 - 5 (numerical) 45 - 82 DEGF (7 - 28 DEGC)
Setpoint at "3":	68 DEGF (20 DEGC)
Proportional band:	3.6 DEGF (2 DEGC)
Max. ambient:	122 DEGF (50 DEGC)
Color:	White
Material:	FRP

Liquid (L) Element -

fluid	ethyl acetate
styles -	
internal (LI)	
remote bulb (LR) -	6' (2M) cap. 16' (5M) cap. 32' (5M) cap.
wall (LB) -	6' (2M) cap. 16' (5M) cap. 32' (5M) cap.
wall/dual cap. (LC) -	6' (2M) cap. 16' (5M) cap.

Wax (W) Element -

styles -	
internal (WI)	
remote bulb (WR) -	6' (2M) cap.
Electric	- 24VAC (3VA, 17VA max) power open (E24O) power close (E24C)

TYPICAL SPECIFICATION

MEPCO THERMOSTATIC VALVES

1/2" (DN15) - 1 1/4" (DN32)

1.0 General - Furnish and install, as shown on the drawings, specifications and/or schedules, MEPCO Thermostatic Valves with self-contained actuators, for space temperature control of the hydronic or steam heating system.

2.0 Valve/Actuator Characteristics - Valves shall be available in sizes 1/2" (DN15) through 1-1/4" (DN32), in straight, angle, reverse angle and double angle patterns with double O-ring gland, union nut sweat or thread outlet tailpiece and FPT inlets. It shall be possible to replace/exchange the valve bonnet, gland, disc and stem assembly (valve insert) without isolation or system shutdown. Valves shall be available to either fail open to flow (normal) or fail closed to flow (special - high abuse areas) as specified. Fail close inserts shall allow 5% normal flow to prevent freezing if actuator is removed or destroyed. Actuators shall be self-contained and shall be available in attached, remote bulb (max. 32' cap.), wall (max. 32' cap.) and wall mounted/dual capillary (max. 16') styles. Actuators may have concealed setpoint

limit/lock feature and setpoint memory disc. Optional thermostat guards shall reinforce installation strength and prevent tampering (for high abuse areas). All thermostatic valves shall be manufactured by the company with international quality standard ISO 9001.

3.0 Material Characteristics - All valves shall have forged bronze bodies, brass or stainless trim, stainless steel stems and EPDM seals. Actuators shall have sealed liquid or wax elements with high impact white plastic covers.

4.0 Valve Sizing - All balancing valves shall be sized to perform at specified flows with a maximum 1 atmosphere pressure drop and at fluid temperatures below 232-250 DEGF.

5.0 Manufacturer - MEPCO (Marshall Engineered Products Company).

6.0 Warranty - Valves shall be free from material and workmanship defects for a period of 12 months from date of installation or from 18 months from date of shipment, whichever comes first.



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