Thermostatic Control Valves

Model H

Typical applications

- Lubricating oil temperature control
- Jacket water high temperature (HT)
- Secondary water low temperature (LT)
- Heat recovery
- Water saving applications
- Boiler inlet temperature control
- Co-generation, cooling towers
- Temperature mixing or diverting
- Engine and compressor cooling system

Key benefits

- No external power source required simple, low cost installation
- No user setting needed 'fit and forget' solution
- Small number of parts simple maintenance and low cost of ownership
- Robust design capable of high vibration and shock applications
- Easy installation, operates in any mounting position
- Automatic self-sensing control with positive proportional valve action

Accreditations available

- PED* Suitable for Group 1 & 2 liquids (Ensure materials are compatible)
- ATEX* 舷 11 2 G X
- **c€*** Complies with all relevant EU directives
- * Contact AMOT



H Valve

Key features

- Flow rates of 56 280m³/hr (245 - 1232 US gpm)
- Combinations available: Housings in steel, stainless steel
- DN100 DN150 (4 6") pipe size
- Flanged connections
- Tamper-proof temperature settings from 13°C to 116°C (55°F to 240°F)
- Pressure ratings: 45 bar (655 psi) 4" only 16 bar (230 psi)



Datasheet_H_Thermostatic_Control_Valve_0812_Rev4

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Overview

AMOT model H thermostatic valves are available in a wide selection of sizes and settings to fill a multitude of fluid temperature control requirements. These valves may be mounted in any position and use the proven expanding wax principle to actuate the 3-way temperature element assemblies. The model H valves may be used for diverting or mixing service. They make

Available housing materials

- Steel
- Stainless steel

Element materials

- Bronze, brass and stainless steel
- Nickel plated/Stainless steel

Leakholes

In some applications, it is necessary to have leak holes drilled in the element to ensure a small flow between ports A and C. Leak holes are available in sizes ranging from 6.3mm to 19mm (1/4 to 3/4"). Please refer to the Temperature Control Valve

Temperature settings

A wide selection of element materials, seals, and temperatures are available. Follow the equipment manufacturers' guidelines for heating/cooling systems.

Temperature settings are available from 13°C to 116°C (55°F to 240°F). Refer to the Temperature & Element Characteristics table on page 6 for specific temperature settings. In general the temperature quoted is the nominal operating temperature in diverting mode on water systems.

For long life, AMOT valves should not be operated continuously at temperatures in excess of 14°C (25°F) of their maximum continuous rating. If this condition is anticipated then consult AMOT for suitable alternatives.

very economical temperature limiting valves to prevent scalding in home, motel or hotel hot water supply systems. Radiant heating systems can use these valves in limiting water temperature to prevent surface cracking and over-heating of plastic piping. Other applications include electronic and battery cooling circuits, pump temperature relief valves etc.

Seal materials

- Buna-N/Nitrile
- Viton

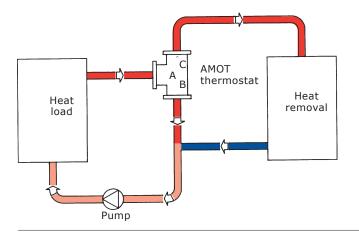
Selection Guide (Datasheet_Temp_Control_Valve_ Guide) to determine the hole size required for specific applications.

For mixing and oil circuits the temperature may be one to two degrees higher due to flow, viscosity and other system parameters.

Elements and seals are available in a variety of materials. These materials are suitable for most applications. Please refer to the Temperature Control Valve Selection Guide (Datasheet_Temp_ Control_Valve_Guide) for material compability information.

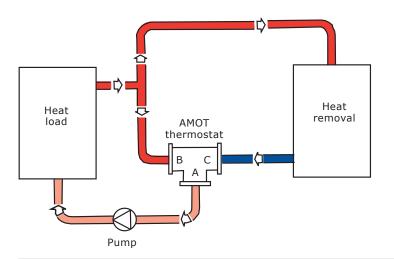
Applications

Diverting Applications



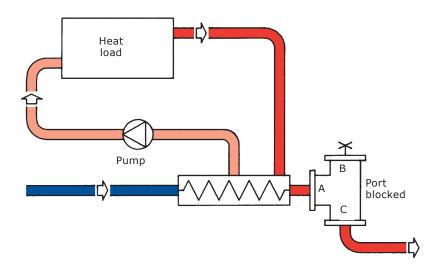
When valves are used for diverting service, the inlet is Port A (temperature sensing port), with Port C being connected to the cooler, and Port B connected to the cooler by-pass line.

Mixing Applications



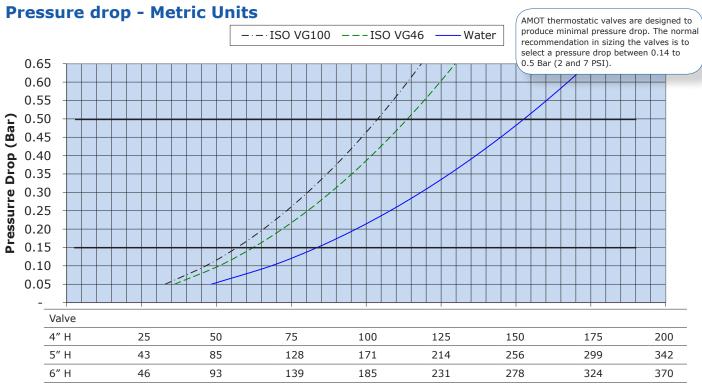
When valves are used for mixing service, Port C is the cold fluid inlet port from the cooler, Port B is the hot by-pass fluid inlet, and Port A the common outlet. Port A is the temperature sensing port and will mix the hot and cold fluids in the correct proportion so as to produce the desired outlet temperature leaving Port A.

2-way Water Saving Applications

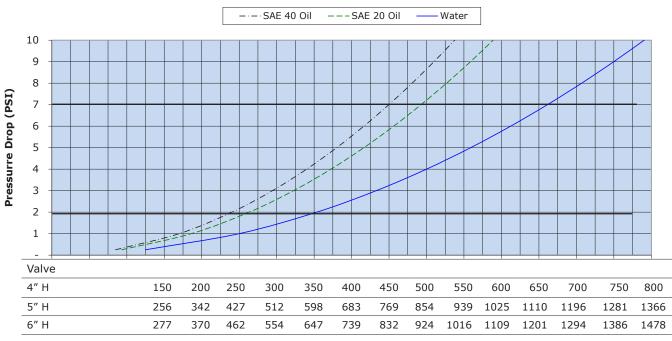


Valve as shown maintains minimum flow through cooler to conserve water. Requires internal leak hole to permit small flow for sensing.

Valve characteristics



Flow Rate for Water (m³/hr)



Pressure drop - English units

Flow Rate for Water (US gpm)

Valve characteristics

Flow coefficient

Flow coefficie (calculated)		
Size	Kv	Cv
4H	200	232
5H	400	464
6H	400	464

Kv is the flow coefficient in metric units. It is defined as the flow rate in cubic meters per hour (m^3/h) of water at a temperature of 16° Celsius with a pressure drop across the valve of 1 bar. The basic formula to find a valve's Kv is shown below:

$$DP = \left(\frac{Q}{Kv}\right)^2 SG \qquad Q = Kv \sqrt{\frac{DP}{SG}} \qquad \begin{array}{l} Q = Flow \text{ in } m^3/hr \\ DP = Pressure drop (Bar) \\ SG = Specific gravity of fluid (Water = 1.0) \\ Kv = Valve flow coefficient \end{array}$$

 \mathbf{Cv} is the flow coefficient in English units. It is defined as the flow rate in US Gallons per minute (gpm) of water at a temperature of 60° Fahrenheit with a pressure drop across the valve of 1 psi. The basic formula to find a valve's Cv is shown below:

$$DP = \left(\frac{Q}{Cv}\right)^2 SG \qquad Q = Cv \sqrt{\frac{DP}{SG}}$$

Q = Flow in US gallons DP = Pressure drop (Psi) SG = Specific gravity of fluid (Water = 1.0) Cv = Valve flow coefficient

Temperature & element characteristics

Code	Con ten		I	Rated	Max temp. cont.			
	°C	°F	Crack open				°C	°F
			°C	°F	°C	°F		
055	13	55	8	47	20	68	35	95
075	24	75	20	68	30	86	38	100
090	32	90	27	81	35	95	43	110
095	35	95	29	85	41	105	49	120
100	38	100	34	94	42	108	50	122
105	41	105	35	95	45	113	55	131
110	43	110	38	100	47	117	56	133
115	46	115	40	104	50	122	61	142
120	49	120	43	110	54	130	66	150
130	54	130	51	124	60	140	68	155
135	57	135	54	129	63	145	71	160
140	60	140	57	135	66	151	74	165
150	66	150	63	145	72	161	82	180
155	68	155	66	150	74	165	85	185
160	71	160	68	155	78	173	88	190
165	74	165	71	160	79	175	88	190
170	77	170	74	165	83	181	93	200
175	79	175	77	170	85	185	102	215
180	82	180	79	175	88	191	104	220
195	91	195	86	188	98	209	107	225
205	96	205	93	200	102	215	108	226
215	102	215	98	209	107	225	115	239
230	110	230	104	219	116	239	118	244
240	116	240	108	227	122	252	123	254

Available versions

Steel and stainless steel ANSI 150 lb flanges	Steel and stainless steel ANSI 300 lb flanges
4HOSJ	4HOSH
4HMSJ	4HMSH
5HOSJ	
5HMSJ	
6HOSJ	
6HMSJ	

Thermostatic Control Valves - Model H

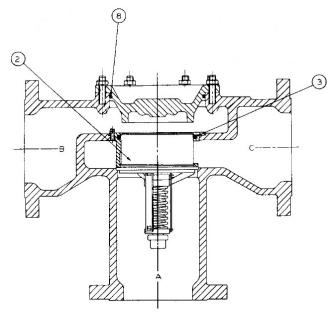
How to order

Use the tables below to select the unique specification of your H Valve.

Valve Size Valve Size Valve Size 5 100 mm 4° Valve Model 125 mm 5° Valve Model Valve Model Material Note Connection Port Connection 1 4 Planged ANI3 100 b B 6 Planged PN16 Control Temperature 055 13°C (55°F) 055 13°C (55°F) 056 35°C (10°F) 100 38°C (10°F) 110 44°C (110°F) 120 44°C (110°F) 130 55°C (10°F) 130 55°C (10°F) 130 55°C (10°F) 130 55°C (10°F) 130 57°C (11°F) <	Example Code	4	HO	S	Н	120	03	-0	-AA	
Valve Size 4 0 100 mm 4'' 4 0 125 mm 5'' Valve Model HO 2 Standard Valve Model HO 2 Standard Housing Material S S Stell S S C Standard Housing Material S S C Standard Port Connection J S C Flanged ANSI 00 (4''orly) B 0 Flanged ANSI 00 (4''orly) Flanged PNI0 Control Temperature 075 24''c? (75'F) O''of'P) 10 2 4''o?'(15'F) O''of'P) 135 27''c? (10'P) O''of'P) O''of'P) 135 27''c? (10'P) O''of'P) O''of'P) 135 57''c? (15'F) O''of'P) O''of'P) 135 49''c? (15'F) O''of'P) O''of'P) 135 57''c? (15'F) O''of'P) O''of'P) 136 57''c? (15'C') </th <th>-</th> <th></th> <th>i</th> <th>i</th> <th></th> <th></th> <th></th> <th>·i</th> <th></th> <th>Valve Size</th>	-		i	i				·i		Valve Size
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6 130 nm 6° Valve Model HO 1 Standard Housing Material S Standard Housing Material S Steel Housing Material S Steel Port Connection Part Connection J Control Temperature 000 33°C (30°F) 100 45°C (10°F) 110 41°C (10°F) 113 47°C (10°F) 120 46°C (120°F) 130 55°C (35°F) 130 55°C (35°F) 130 55°C (35°F) 130 65°C (130°F) 130 65°C (130°F) 130 65°C (130°F) 130 65°C (150°F) 130	Valve Size	5								125 mm 5"
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Recommended spares

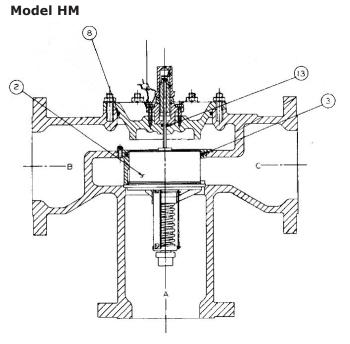
Model HO



Replacement parts include:

- 2 Element
- 3 O-ring
- 8 Housing O-ring seal

Ref no.	Part no.	Qty	Description
2	9760X (temp)	1 or 2	Element assembly
2	9760P (temp)	1 or 2	Element assembly, plated
2	9844 (temp)	1 or 2	Element assembly, manual override
3	11009L001	1 or 2	O-ring, element, Buna N (Std)
3	11009L002	1 or 2	O-ring, element Viton
8	11007L001	1 or 2	O-ring, housing, Buna N
8	11007L002	1 or 2	O-ring, housing, Viton
13	11148	1 or 2	O-ring, stem seal, Buna N
13	11148L001	1 or 2	O-ring, stem seal, Viton



Replacement parts include:

- Element
- ③ O-ring
- ® Housing O-ring seal, Buan N, Viton
- O-ring, stem seal, Buna N, Viton

When properly applied and installed, AMOT thermostatic valves should operate for years with minimal maintenance. An inspection at two or three year intervals is adequate to detect and make provision for normal wear. The frequency of element replacement will depend on the operating conditions and the type of fluid being controlled. Because of the diaphragm and plug construction of the wax actuated element, calibration will be maintained over thousands of cycles. Whenever elements are replaced, the O-ring seals should also be replaced. For convenience, elements and O-ring seals may be ordered together in the service kits listed below. The parts may also be ordered individually by their part number.

Thermostatic Control Valves - Model H

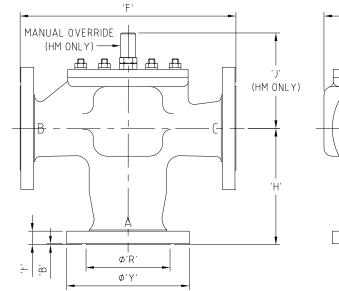
Specification

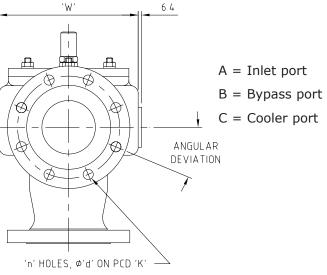
Flow rate	56 to 280m³/hr	(245 to 1232 US gpm)
Recommended pressure drop	0.14 to 0.5 bar	(2 to 7 PSI)
Body materials	Steel (BS: 3100 A1, WCB)	For high strength/pressure ratings
	Stainless steel	
Seal materials	Nitrile	
	Viton	
Mounting position	Any orientation	
Ports	Below nominal temperature	Ports A and B connected
	Above nominal temperature	Ports A and C connected
Port connections	ANSI flanges	
Maximum working		
pressures	ANSI 150 lb	16 bar (230 psi)
	ANSI 300 lb	45 bar (655 psi) 4″ valve only
Valve size (nominal bore)	100mm, 125mm and 150mm	(4", 5" and 6")
Control temperatures	13°C to 116°C See element characteristics table	55°F to 240°F
Accreditations*	PED	Suitable for Group 1 & 2 liquids. (Ensure materials are compatible.)
	ATEX	11 2 G X
	(€	Complies with all relevant EU directives

* Contact AMOT

Valve dimensions

Model HO and HM





Dimensions (mm)

Dimension (mm)	4HOSJ/ HMSJ	4HOSH/ 4HMSH	5HOSJ/ 5HMSJ	6HOSJ/ HMSJ
Nominal bore	100	100	125	150
Y	229	254	254	279
R	157	157	186	216
В	1.5	1.5	1.5	1.5
F	403	414	489	489
t	24	32	24	26
Н	218	224	279	279
W	260	260	463	463
J (HM only)	178	178	184	194

Flange drilling (mm)

Flange	4HOSJ/ HMSJ	4HOSH/ 4HMSH	5HOSJ/ 5HMSJ	6HOSJ/ HMSJ
d	19	22	22	22
К	191	198	216	241
n	8	8	8	8
Angular deviation	22.5°	22.5°	22.5°	22.5°

Weight Weights in kg (lbs)

Material	4HOSJ/ 4HMSJ	4HOSH/ 4HMSH	5HOSJ/ 5HMSJ	6HOSJ/ 6HMSJ	
Weight	68 (150)	68 (150)	91 (200)	120 (265)	

Americas

AMOT USA 8824 Fallbrook Dr Houston, TX 77064 USA

Tel +1 (281) 940 1800 Fax +1 (713) 559 9419 Email general: sales@amotusa.com orders: orders@amotusa.com customer service: cs@amotusa.com

Asia and Australasia

AMOT Shanghai Rm 4102 - 4104 United Plaza 1468 Nanjing Road West Shanghai 200040 China

Tel+86 (0) 21 6279 7700Fax+86 (0) 21 5237 8560Emailshanghai@amot.com

AMOT Singapore 10 Eunos Road 8 #12-06 Singapore Post Centre Singapore 408600

Tel +65 6408 6265 Fax +65 6293 3307 Email singapore@amot.com

Europe, Middle East and Africa

AMOT Western Way Bury St Edmunds Suffolk, IP33 3SZ England Tel +44 (0) 1284 762222 Fax +44 (0) 1284 760256 Email info@amot.com

AMOT Controls GmbH Rondenbarg 25 22525 Hamburg Germany Tel +49 (0) 40 8537 1298

Fax +49 (0) 40 8537 1331 Email germany@amot.com

AMOT Russia #34 Shabolovka Street Building 2 Moscow 115419 Russia

Tel +7 495 617 12 93 Fax +7 495 913 97 65 Email russia@amot.com

