

Thermostatic Control Valves

Model J

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



J Valve

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

Key features

- Flow rates of 2 - 8m³/hr (8 - 35 US gpm)
- Aluminum or bronze housing
- 3/4" pipe size (DN 20)
- Threaded and flanged connections
- Tamper-proof temperature settings from 18°C to 113°C (65°F to 235°F)
- Pressure ratings up to 24 bar (350 psi)

Accreditations

- PED Suitable for Group 1 & 2 liquids (Ensure materials are compatible)
- ATEX  11 2 G X
- CE Complies with all relevant EU directives

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Thermostatic Control Valves - Model J

Contents

Overview	3
Applications	4
Valve Characteristics	5
Pressure drop	5
Available versions	5
Temperature & element characteristics	5
How to order	6
Recommended spares	7
Specification	8
Dimensions	9
Weights	9

Thermostatic Control Valves - Model J

Overview

AMOT model J 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 JO, JR and JE valves are suitable for oil temperature control in equipment such as engines, transmissions and

compressors. The JW is a special 2-way unit used for temperature control of cooling water supplies in 'water saver' applications.

All model J valves use a fully enclosed temperature element that is factory set and provides tamperproof operation.

Available housing material

- Aluminum
- Bronze

Element materials

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

Seal materials

- Buna-N/Nitrile
- Viton
- Neoprene

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 0.8mm to 6.3mm ($1/32''$ to $1/4''$). Please refer to the Temperature Control Valve

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

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 18°C to 113°C (65°F to 235°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.

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

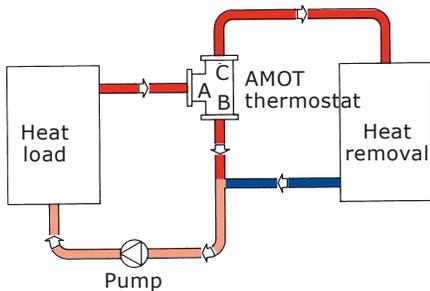
Elements and seals are available in a variety of materials. These materials are suitable for most applications. Please refer to the Temperature Control Valve Selection Guide (Datasheet_Temp_Control_Valve_Guide) for material compatibility information.

Thermostatic Control Valves - Model J

Applications

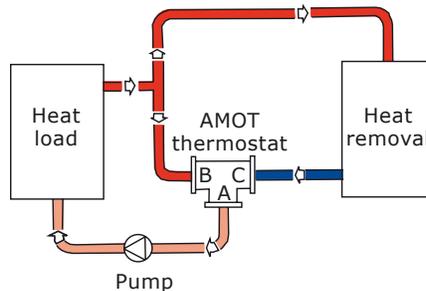
Diverting Applications

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.



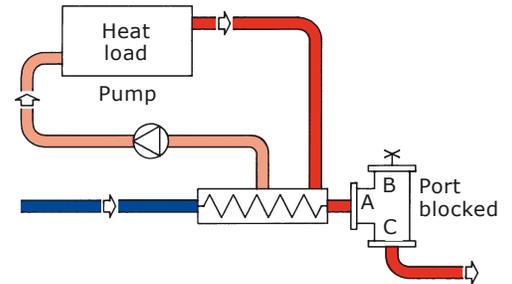
Mixing Applications

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.



AMOT model J thermostatic valve is available in various versions to fit different applications:

Model JO - The most commonly selected version because it is a 3-way low cost unit and fits most applications. Standard versions come in 3/4" size and use an aluminum body with stainless steel and bronze internals. Standard seals are Buna N.

Model JR - The JR model is a special version of the Model JO for diverting service. It has a pressure relieving feature which will relieve from Port A to Port B at differential pressures above 50 psi. For use in diverting systems when the valve attempts to divert full flow to the cooler but the cold oil in the cooler creates excessive pressure loss. The relief is activated allowing oil flow to bypass the cooler maintaining the oil pressure to the equipment. The model JR is not recommended for mixing service.

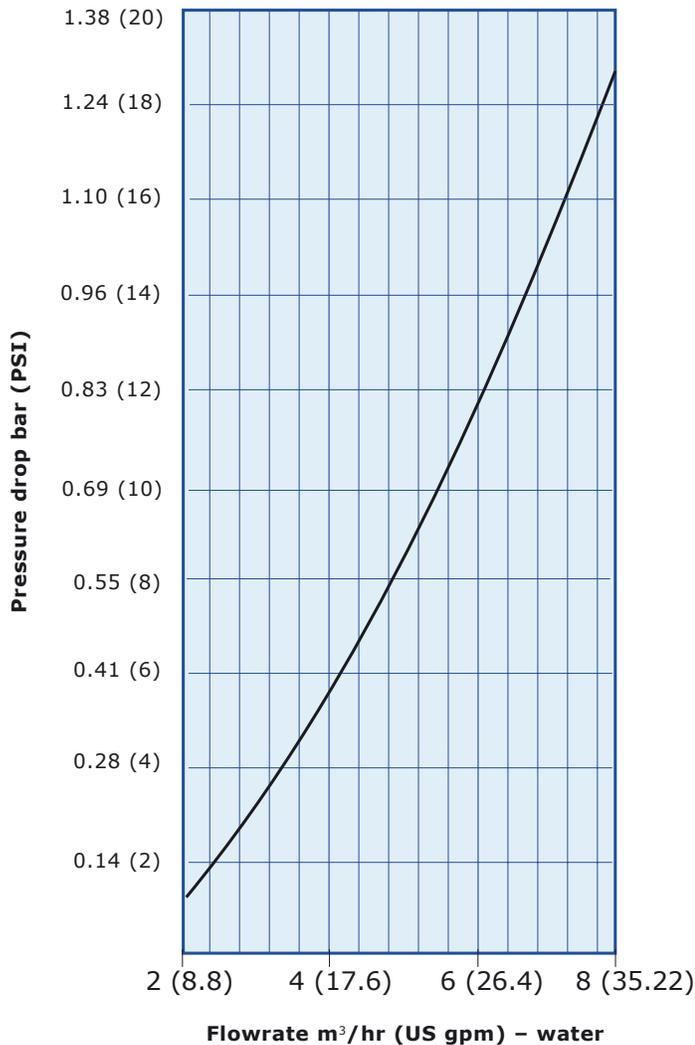
Model JW - The standard version is a 2-way bronze valve for open cooling systems using city, reservoir or river water as the cooling fluid. The valve provides direct temperature control while limiting the amount of water used.

Model JE - A special version of the JO with an external sensing probe. It is an excellent choice for sensing a process fluid temperature while controlling a separate heating or cooling line.

Thermostatic Control Valves - Model J

Valve characteristics

Pressure drop Metric units (English units)



Temperature & element characteristics

Code	Control temp.		Rated range				Max temp. cont.	
	°C	°F	Crack open		Full open		°C	°F
			°C	°F	°C	°F		
065	18	65	15	59	25	77	47	116
075	24	75	20	68	29	84	60	140
085	29	85	24	75	34	93	63	145
095	35	95	30	86	40	104	73	163
100	38	100	33	91	42	108	62	143
110	43	110	38	100	47	117	82	180
120	49	120	43	110	55	131	86	187
130	54	130	49	120	60	140	95	203
140	60	140	54	130	66	150	95	203
150	66	150	60	140	71	160	100	212
160	71	160	66	150	77	170	100	212
170	77	170	73	163	82	180	100	212
175	79	175	77	170	85	185	105	221
180	82	180	79	175	88	190	110	230
190	88	190	85	185	93	200	110	230
200	93	200	90	194	100	212	110	230
205	96	205	93	200	103	218	110	230
215	102	215	9	205	107	225	115	239
225	107	225	101	214	114	237	120	248
235	113	235	107	225	123	253	125	257

Available versions

Aluminum	Bronze
JO	JW
JR	
JE	

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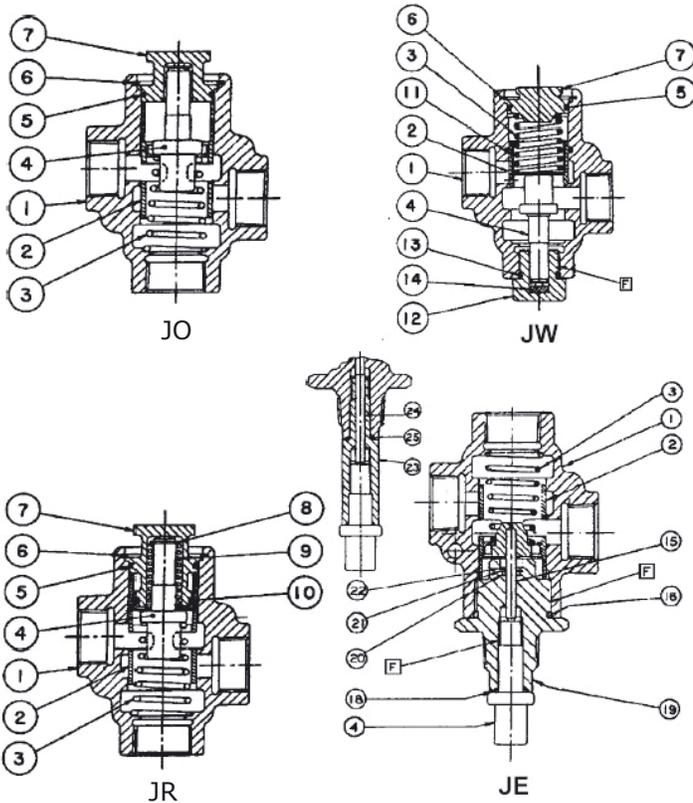
How to order

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

Example code	3/4	JO	A	T	140	01	N	0	-AA	Code Description
										Valve size
Valve size	3/4									3/4 inch
										Valve model
Valve model		JO								Standard version
		JR								Pressure relieving 50 psi
		JE								Externally sensing (3-way)
		JW								Water saver - 2 way
										Body material
Body material		A								Aluminum (JO, JR, JE)
		B								Bronze (JW only)
										Port connection
Port connection			T							Threaded NPT to USAS B2.1
			U							Threaded BSP (PL) to BS2.1
			V							Threaded BSP (TR) Japanese (JIS)
			W							Threaded to SAE J5 14H (straight thread, O-ring seal)
			K							Threaded to M26 x 1.5
										Control temperature °F (°C)
Control temperature				120						For temperatures available see Element Characteristics table on page 8. Model code temperature denoted in °F only
										Element type and seal material
Element type and seal material					01					Standard - Buna N
					02					Nickel plated - Viton
					03					Standard - Viton
					04					Electroless Nickel - Neoprene
					05					Standard - Neoprene
					06					Nickel plated - Neoprene
										Leakhole size inches (mm)
Leakhole sizes inches (mm)						N				None
						A				1/16" (2mm) (standard)
						B				3/32" (3mm)
						C				1/8" (4mm)
						D				1/32" (1mm)
										Extension (model JE) only - Installed Depth (mm)
Extension (Model JE only)						0				No extension 1 7/8" (47.6)
						4				3 15/16" (100)
						5				4 7/16" (113)
						6				4 15/16" (125)
						7				5 7/16" (138)
										Customer special option codes
Customer special requirements								-AA		Standard product
								-***		Customer special code assigned

Thermostatic Control Valves - Model J

Recommended spares



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.

Ref no.	Part no.	Description	Qty
4	9902X (Temp)	JO, JR, JW element standard	1
4	9902P (Temp)	JO, JR, JW element, Nickel plated	1
4	9902K (Temp)	JO, JR, JW element electroless nickel plated	1
4	9654X (Temp)	JE element, standard	1
5	11197L025	O-ring, Buna N (Std)	1
5	11198L025	O-ring, Viton	1
5	11199L025	O-ring, Neoprene	1
10	308	O-ring, Buna N, (Std)	1
10	308L001	O-ring, Viton	1

Ref no.	Part no.	Description	Qty
10	308L002	O-ring, Neoprene	1
11	11141L001	O-ring, Buna N	1
11	11141L002	O-ring, Viton	1
11	11141L003	O-ring, Neoprene	1
13	372	O-ring, Buna N	1
13	372L001	O-ring, Viton	1
13	372L002	O-ring, Neoprene	1
16	11198L126	O-ring, Viton	1
18	1462L001	O-ring, Viton	1
20	1392L001	O-ring, Viton	1
25	1462L001	O-ring, Viton	1

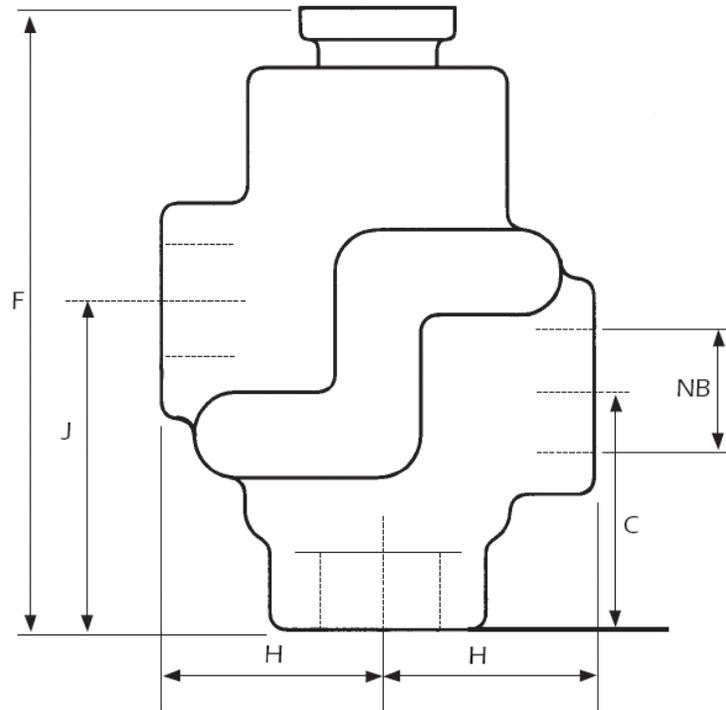
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Specification

Flow rate	2 – 8m ³ /hr	(8 - 35 US gpm)
Recommended pressure drop	0.14 to 0.5 bar	(2 to 7 PSI)
Body materials	Aluminium BS:1490 Grade :M25TF Bronze	For light weight
Seal materials	Nitrile Viton Neoprene	
Mounting position	Any orientation	
Max. working pressure	24 bar	(350 psi)
Ports	Below nominal temperature Above nominal temperature	Ports A and B connected Ports A and C connected
Port connections	Screwed	20 mm (³ / ₄ ") BSP, NPT, M26 x 1.5, JIS, SAE
Valve size (nominal bore)	20mm	(³ / ₄ ")
Control temperatures	18°C – 113°C See element characteristics table	(65°F to 235°F)
Accreditations	PED ATEX Complies with all relevant EU directives	Suitable for Group 1 & Group 2 liquids. Ensure materials are compatible. II 2 G X

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Valve dimensions



Dimensions mm (inches)

Basic model	Port thread	Material	F	H	J	NB	C
JO, JR	NPT, BSP, JIS, M26 x 1.5	Aluminum	116 (4 9/16)	41 (1 5/8)	59 (2 5/16)	20 (13/16)	44 (1 3/4)
JO, JR	SAE	Aluminum	125 (4 7/8)	51 (2)	68 (2 11/16)	20 (13/16)	54 (2 1/8)
JE	NPT, BSP, JIS, M26 x 1.5	Aluminum	119 (4 11/16)	41 (1 5/8)	5.91 (21/64)		44.8 (1 49/64)
JE	SAE	Aluminum	124 (4 7/8)	51 (2)	59 (2 5/16)		44 (1 3/4)
JW	All	Bronze	117 (4 5/8)	51 (2)	71 (2 13/16)		57 (2 1/4)

Weight Weights in kg (lbs)

Port Thread	NPT, BSP, JIS M26 x 1.5	SAE
Weight	0.6 (1.3 lbs)	0.6 (1.3lbs)

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 7700
Fax +86 (0) 21 5237 8560
Email shanghai@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