12/05

Internally Sensed Valves

Installation & Operation Instructions for types B, C, D, E, H and J

AMOT thermostatic valves are manufactured and tested to the highest possible standard. If the valve is correctly applied and installed, it will give many years of reliable, trouble-free service.

This operating guide gives service information for most normal operating conditions, but for unusual situations, it may be necessary to consult your local AMOT representative or AMOT facility.

All AMOT internally sensed thermostatic valves work on the 'expanding wax' principle. The temperature elements are set to a pre-determined temperature under very strictly controlled conditions; they are not adjustable. If system temperatures need to be changed, then replacement elements must be fitted.

Inspection

Upon receipt, the valve should be checked for damage sustained in shipping. All AMOT valves have nameplates attached, which are stamped with the valve model number and serial number.

Maintenance

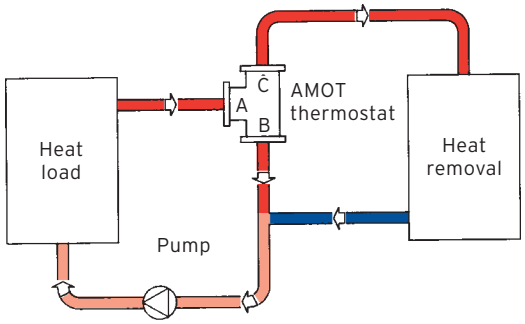
Properly applied and installed, AMOT thermostatic valves require minimal maintenance.

Installation

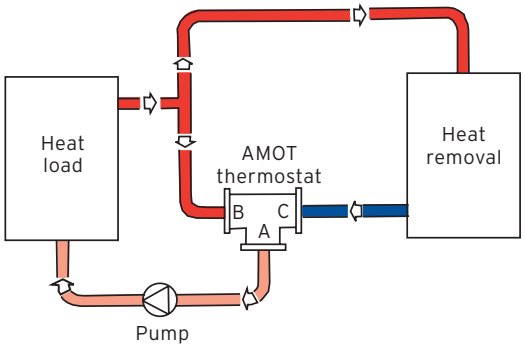
There are several ways of installing AMOT thermostatic valves, but the two most common applications are 'mixing' and 'diverting'. When diverting the fluid, temperature into the valve is controlled. When mixing the fluid, temperature from the valve is controlled. Experience has shown that in mixing mode the valve may run at 1 - 2 °C (1.8 - 3.6°F) higher than the normal set temperature. All AMOT internally sensed valves have the same port identification ie A, B and C.

Applications

Diverting applications



Mixing applications



Port Nomenclature

'COLD' position: A-B connected, C closed.
'HOT' position: A-C connected, B closed.

AMOT, Western Way, Bury St Edmunds, Suffolk, IP33 3SZ, UK
tel: +44 (0)1284 762222 fax: +44 (0)1284 760256 www.amot.com

Operation

The valve is supplied with the temperature element assembly factory-set to the nominal temperature setting. Temperature is sensed at Port A, which remains open to Port B (bypass) until the fluid temperature reaches a point 8 - 10°F below the nominal setting. As the temperature continues to rise, the sliding valve moves to close off Port B and open Port C (connected to the cooler or heat exchanger). Port B is fully closed 8 - 10°F above the nominal setting. The valve continually modulates the fluid flow to maintain the nominal temperature. For optimum control, the system should be sized so about half the total fluid flow is passing through the cooler at full load.

For long life, AMOT Model E valves should not be exposed to continuous temperatures exceeding 18°C (65°F) above their nominal temperature setting. For occasional short periods such as half an hour, they can be exposed to temperatures of 32°C (90°F) above their nominal temperature setting, but 121°C (250°F) maximum.

Upon installation and on start up of the system, all parts of the circuit should be closely monitored to ensure correct performance.

A system in which the valve has been properly selected for the anticipated flows should operate very closely to the valve's nominal temperature rating.

Water cooling systems will usually operate at or slightly below the nominal temperature. Lubricating oils and most other higher viscosity fluids will operate at or slightly above the nominal temperature.

In any system where the indicated temperatures are more than 2.7°C (5°F) from the nominal temperature, then an effort should made to locate the cause.

Any system operating at an indicated 5.5°C (10°F) or more from the nominal anticipated temperatures is probably malfunctioning and the cause should be located and rectified immediately. See trouble-shooting guide for possible causes.

Installation Guides

Electrolysis - if expected or encountered in the system, a zinc or magnesium waste plug should be fitted as close as possible to Port A.

Salt water - for direct sea water cooled applications, bronze valves with plated elements should be used.

Venting - if the valve is mounted at the high point of the system, then care must be taken to ensure that the system is properly vented to prevent trapping air at the elements. A leak hole within the unit may be necessary.

Environmental conditions - ensure protection against frost and direct sunlight.

Over-temperature - ensure maximum continuous temperatures of element assemblies are not exceeded; this can increase risk of premature failures.

Pipe alignment - ensure good alignment of pipes prior to tightening of all connections. No pipe strain or loading should be applied to the valve body.

Flange gaskets - use full face gaskets.

Threaded ports - valves having threaded connections, use a thread sealant to prevent leakage rather than excessive tightening force.

AMOT, Western Way, Bury St Edmunds, Suffolk, IP33 3SZ, UK
tel: +44 (0)1284 762222 fax: +44 (0)1274 760256 www.amot.com