



# HOW TO TROUBLESHOOT Thermal Fluid System Problems

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## Thermal Fluid System Performance Problems

*Use this checklist to troubleshoot flow-related problems.*

Controlling the temperature of a process heated by thermal fluids is theoretically simple— increase the heater outlet temperature (on single-user systems) and/or adjust the thermal fluid flow control valve (on multiple-user systems). Control valves also must maintain flow though the heater under all process conditions. This usually is accomplished by installing either two-way valves with a back-pressure control regulator between the feed and return header or by three-way valves. Use one system or the other—don't try to combine them in one loop.

Typically, only an orifice meter is capable of accurately and continuously monitoring high temperature thermal fluids. But, fortunately,

accurate flow measurement of thermal fluids is not absolutely necessary because the control valves only need to respond to signals from the process thermocouples.

Sudden drops in process performance are 99.9 percent due to changes in fluid flow. Period. There often is a tendency to blame these changes on the condition of the thermal fluid. However, short of the heater going up in flames,

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## HOW TO CHECKLIST

*Checklist for troubleshooting flow-related problems.*

- Install pressure gauges in key locations.
- A compound pressure/vacuum gauge installed at the pump suction can detect a blocked Y-strainer.
- A differential pressure gauge straddling the feed and return headers can detect malfunctioning control valves.
- Installing a simple pressure gauge on the bypass leg of a three-way control valve can improve the temperature control response of that user.
- Installations should include enough connecting tubing to dissipate heat from the piping.
- A gauge should be installed on a block valve, allowing removal for maintenance and testing.
- An accumulation of solids in the line should be discussed with the thermal fluid supplier.

it is almost impossible for thermal fluids to undergo rapid degradation.

Troubleshooting flow-related problems can be simplified greatly if pressure gauges are installed in key locations. For example, a compound pressure/vacuum gauge installed at the pump suction can detect a blocked Y-strainer. A differential pressure gauge straddling the feed and return headers can detect malfunctioning control valves. Installing a simple pressure gauge on the bypass leg of a three-way control valve can improve the temperature control response of that user.

Installations should include enough connecting tubing to dissipate heat from the piping. The gauge itself should be installed on a block valve to allow removal for maintenance and testing. An accumulation of solids in the line should be discussed with the thermal fluid supplier.



Founded in 1988, Paratherm—Heat Transfer Fluids has become a leading U.S. manufacturer of specialized heat transfer fluids and system cleaners. The firm offers a wide range of heat transfer fluids (currently 8 fluids and 3 cleaners) covering temperatures from -137°F to +650°F. The company has a network of distributors and warehousing locations throughout North America and globally to offer regional service and quick delivery.

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