ThermOmegaTech®

A Temperature *SOLUTION* for a Temperature *PROBLEM*

ThermOmegaTech®'s Thermostatic Actuators - where temperature control is critical!

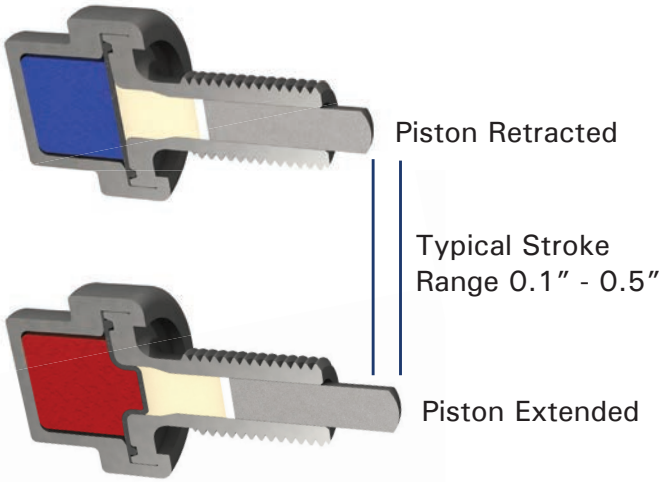
THERMAL ACTUATOR TECHNOLOGY

To address the demands of crucial temperature control requirements, ThermOmegaTech's thermal actuators are designed to respond to temperature change alone to control flow or operate a device; no outside power source is required.

Our thermal actuators contain our Thermoloid® paraffin wax blend material, sealed within a diaphragm, which changes phase in response to a narrow range of temperature variations.

As temperature increases above the melting point of the Thermoloid® material, it begins to expand and push on the diaphragm, which in turn pushes on the piston. In its "hot position", the piston acts as a valve stem, opening or closing the valve.

"Cold Position" - Wax in Solid State



"Hot Position" - Wax in Liquid State

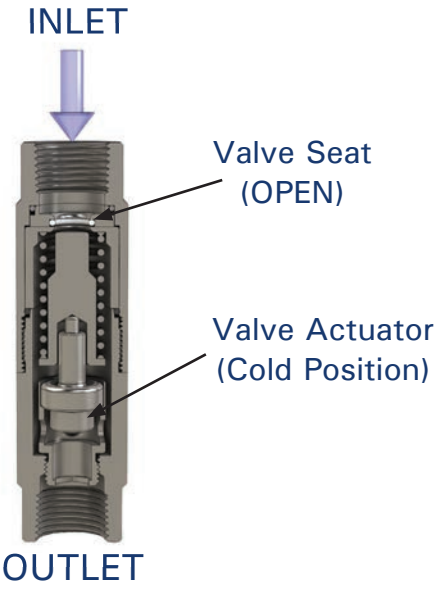
As the Thermoloid® material cools below its melting point, it compresses, and a spring returns the piston and diaphragm to its "cold position". The piston movement produces a usable stroke which can control a myriad of components, including valve poppets, trip cams, release latches, etc.

Our Thermoloid® material operates at temperatures ranging from 15°F to 300°F (-9.44°C to 149°C). Since the operating temperature of these phase change actuators is determined by the Thermoloid® material properties (i.e., melting and solidification temperatures), it is extremely stable, repeatable, and accurate.

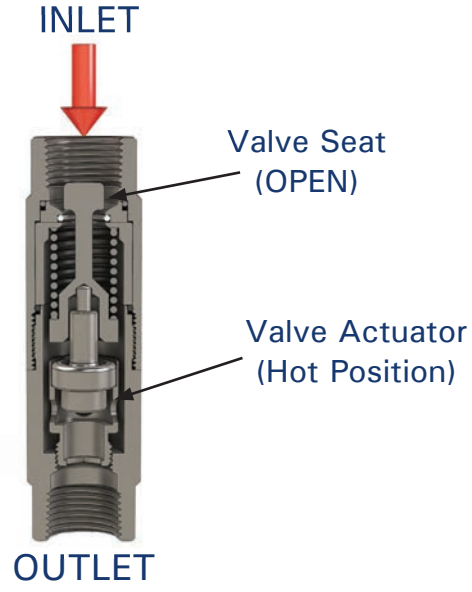
DIRECT ACTING VS. REVERSE ACTING

Because of the gradual transition from solid to liquid of this Thermoloid® material, these valves act more like modulating valves rather than quick opening/closing valves. Our Direct Acting Valves are designed to be open when the actuator is in the “cold position” while Reverse Acting Valves are open in the “hot position”.

DIRECT ACTING



REVERSE ACTING



BENEFITS

- **Self-Actuating:** No need for an external power source
- **Maintenance-Free:** No periodic calibration or service requirements
- **Predictable:** Piston moves in relation to specific temperatures
- **Simplistic Design:** Increases service life and minimizes part failures
- **High Power to Weight Ratio (PTW):** Small, light-weight designs
- **No Electric Power:** Ideal for applications in explosion-proof environments
- **Integrations:** Can be paired with PTC self-regulating heaters

APPLICATIONS

Thermal actuators are implemented in a variety of aerospace and defense, industrial, railroad, and commercial plumbing applications such as:

- Thermostatic control
- Thermostatic balancing
- Drain tempering
- Freeze & scald protection
- Steam tracing/steam traps
- Thermal bypass
- Thermal relief
- Tepid water delivery
- Washdown systems
- Triggers for latch release mechanisms
- Backup control for powered systems
- And countless more

CUSTOM SOLUTIONS

Thermostatic wax valve actuator technology is incredibly flexible, its parameters able to be molded to fit your unique temperature control project and individual vision. In addition to our comprehensive catalog of standard valve and actuator configurations, we offer custom-design engineering services to satisfy unique application requirements including custom opening/ closing temperatures, flow rates, threads , materials, and more. Contact us for more information.

For more information on ThermOmegaTech®’s Thermal Actuator Technology, visit www.ThermOmegaTech.com