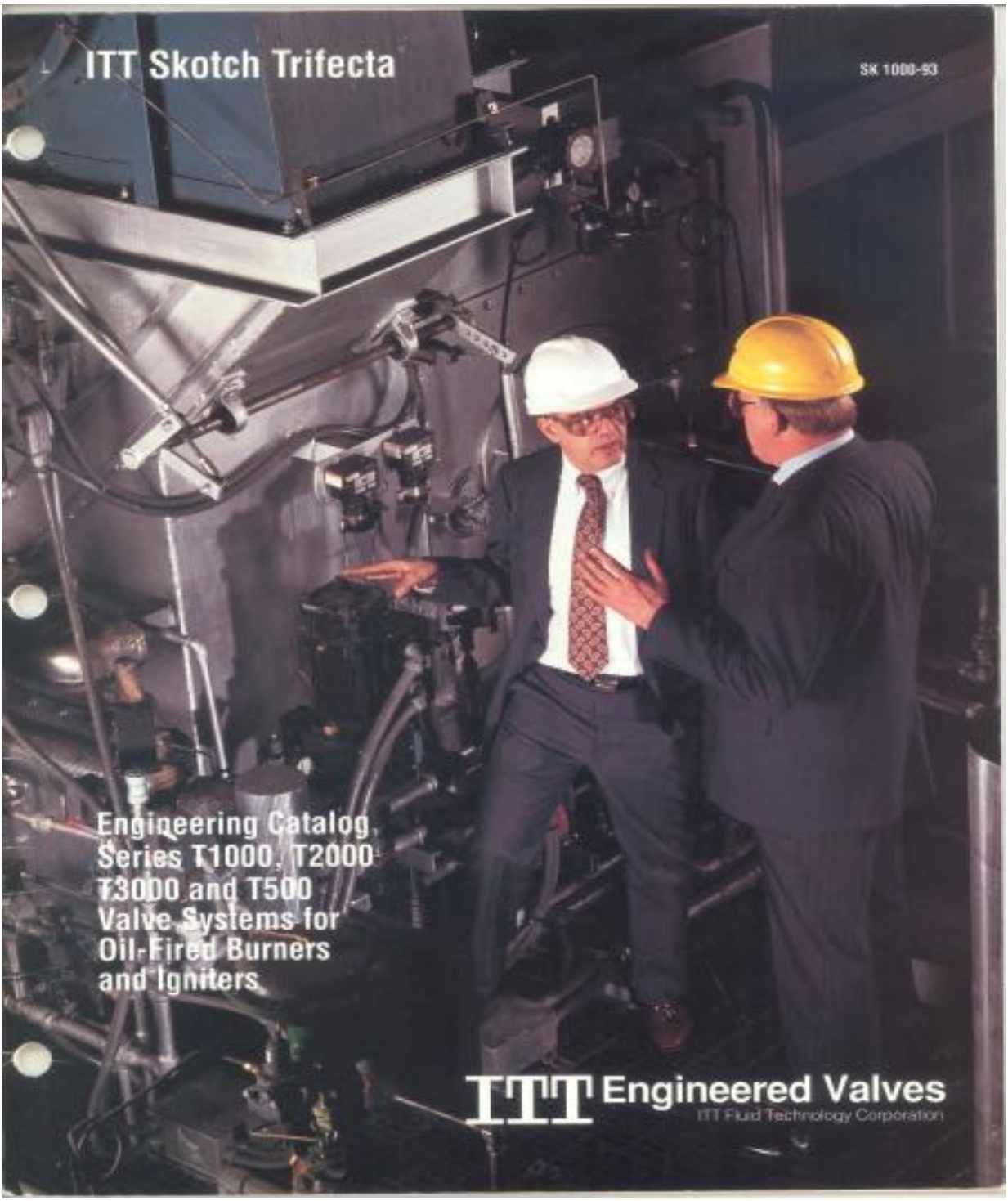

ITT Skotch Trifecta
SK 1000-93
Engineering Catalog
Series T1000, T2000
T3000 and T500
Valve Systems for
Oil-Fired Burners
and Igniters
ITT Engineered Valves
ITT Fluid Technology Corporation

Introduction

ITT Engineered Valves has been an innovator and producer of valves for over forty years. These valves have gained extensive usage in many industries particularly power generation, pulp and paper, refineries, chemical process, and pollution control.

In 1992 the Skotch Trifecta valve line was moved to the Engineered Valves facility pictured here. In this plant we produce the complete valve assemblies. Starting with raw material, through machining, welding, assembly, final inspection, and shipment, a commitment to quality is evident through out the process.

Unique Skotch Trifecta valve systems are specifically designed to provide safe, reliable oil shut off, atomizing, and purge for your oil fired burners and igniters.

Photo by D. Hunter

At last! A compact high-performance valve system for firing and purging oil-fired burners and igniters

Need a reliable, cost-effective solution for firing and purging oil burners and igniters? ITT Skotch has the answer. Our Trifecta valve systems offer a number of performance advantages over conventional valves, and work with all types of burners and igniters, including steam, air, and mechanically atomized.

ITT is a technology innovator in the design and manufacture of unique oil burner and igniter valves. ITT Engineered Valves is a leader in valves and actuators for power, refinery, chemical, paper, pharmaceutical, and many other industries.

WHAT IS THE TRIFECTA VALVE SYSTEM?

The Trifecta is an integral valve *system* with all components housed within a single valve body. The Trifecta's unique two-stem design enables it to perform all key functions including fuel sequencing, atomization by steam or air, and purging of the downstream piping.

ITT offers a complete line of Trifecta valves for every application. In retrofits, each model can be configured to match the valve operating logic of existing burner management systems. These valve systems are compatible with any type fuel oil. We have installations utilizing #2, #6, Bunker C, crude and waste oils.

When incorporating appropriate options/accessories, models T1003, T1006, and T506 are Factory Mutual approved for use as a "combination oil safety shutoff, atomizing, and purge valve."

The Trifecta is a complete valve system *that contains two valve stems integrated within a single compact housing.*

Factory Mutual System* Approved

* Valves which fail in the closed position and incorporate appropriate options.

The ITT Trifecta valve systems: A superior alternative for automated burner and igniter operation

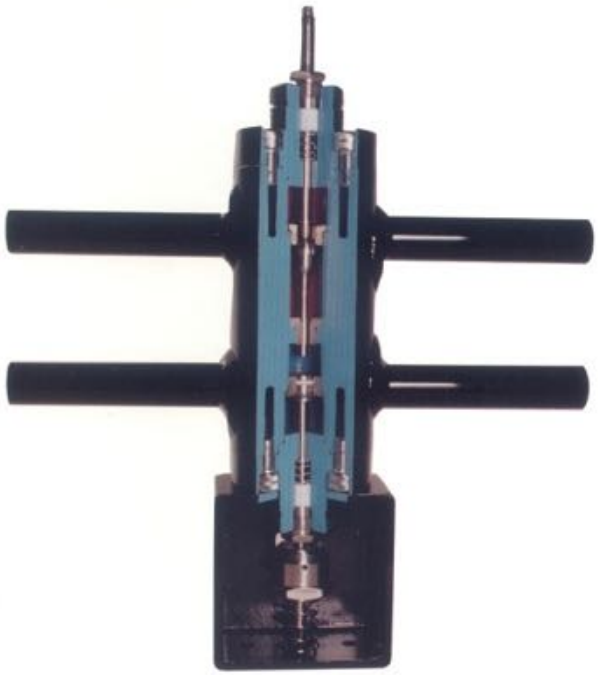
Strings of separate valves and packaged multiple valve systems are commonly used with oil burners and igniters. Problems inherent in such systems include the possibility of out-of-sequence operation, atomizing media contamination, leakage, and flame-out. Additionally, multiple valve packages can take lots of space and may be costly to install and maintain. Burner management logic may be more complex

At ITT Engineered Valves, we took a different approach with the Trifecta – a fully integrated *system* specifically engineered for oil-burner applications. The result is elimination of performance problems and a device that offers continuous, reliable, trouble-free service in your most important applications.

Conventional multiple valve packages (above) have separate actuators for each valve. Installation is complicated. The Trifecta (below) uses a single actuator to ensure in-sequence operation.

The ITT Trifecta valve systems offer these proven benefits

- Purge sequence is an integral part of oil valve closure, allowing instantaneous switching from firing to purging modes
- Constant pressure is maintained at the burner tip so that no flame-out or flame drawback occurs until all fuel is scavenged and burned
- Integral dual-stem design prevents out-of-sequence operation, eliminating contamination of the atomizing or purging media
- No sliding seals means no fluid leakage
- Simplified design – no precision adjustments required
- Compact unit takes less space
- Quick and easy installation reduces time and labor costs
- Unit can be completely disassembled in-line for ease of maintenance
- Oil valve over travel allows positive proof of closure

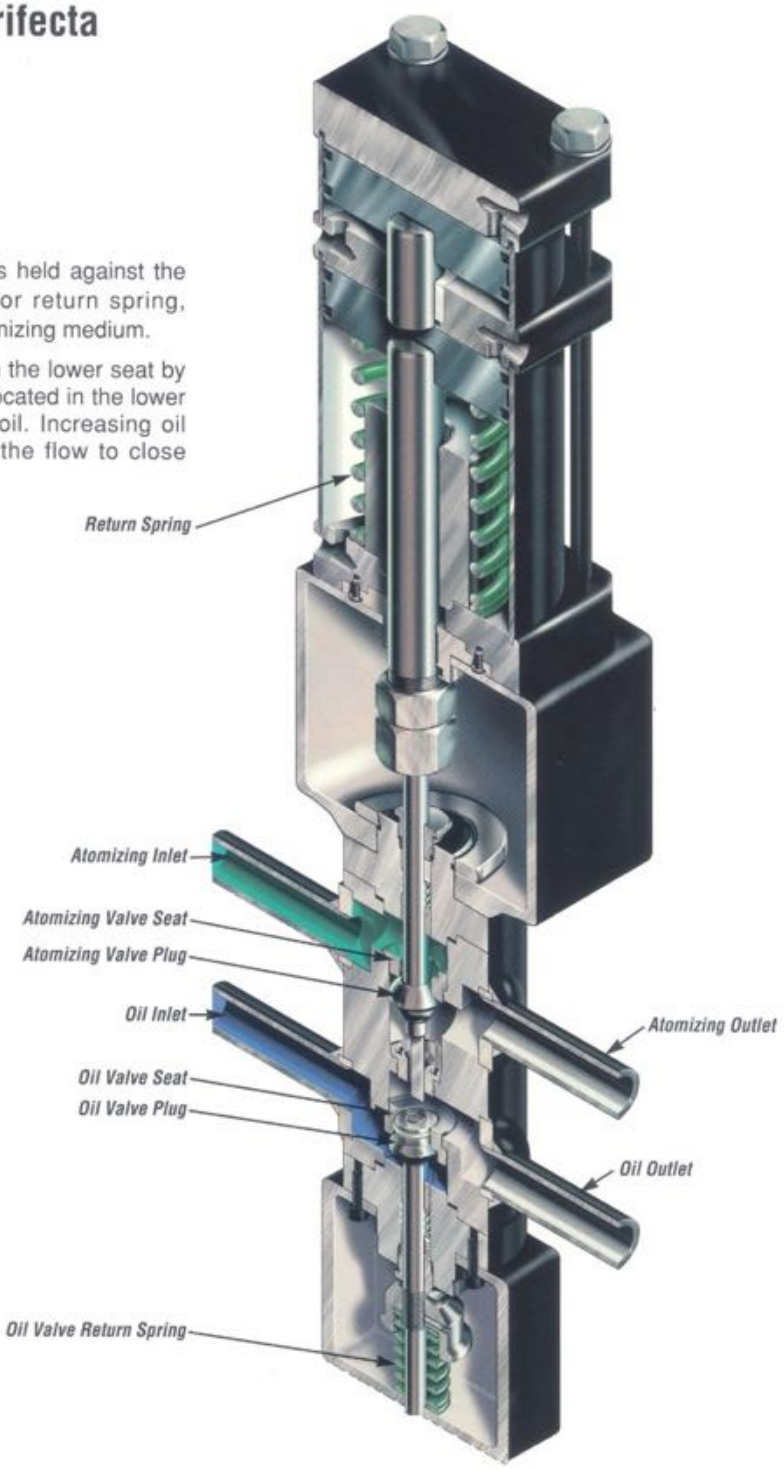


T1000 and T500 Trifecta valve systems

OPERATING POSITIONS

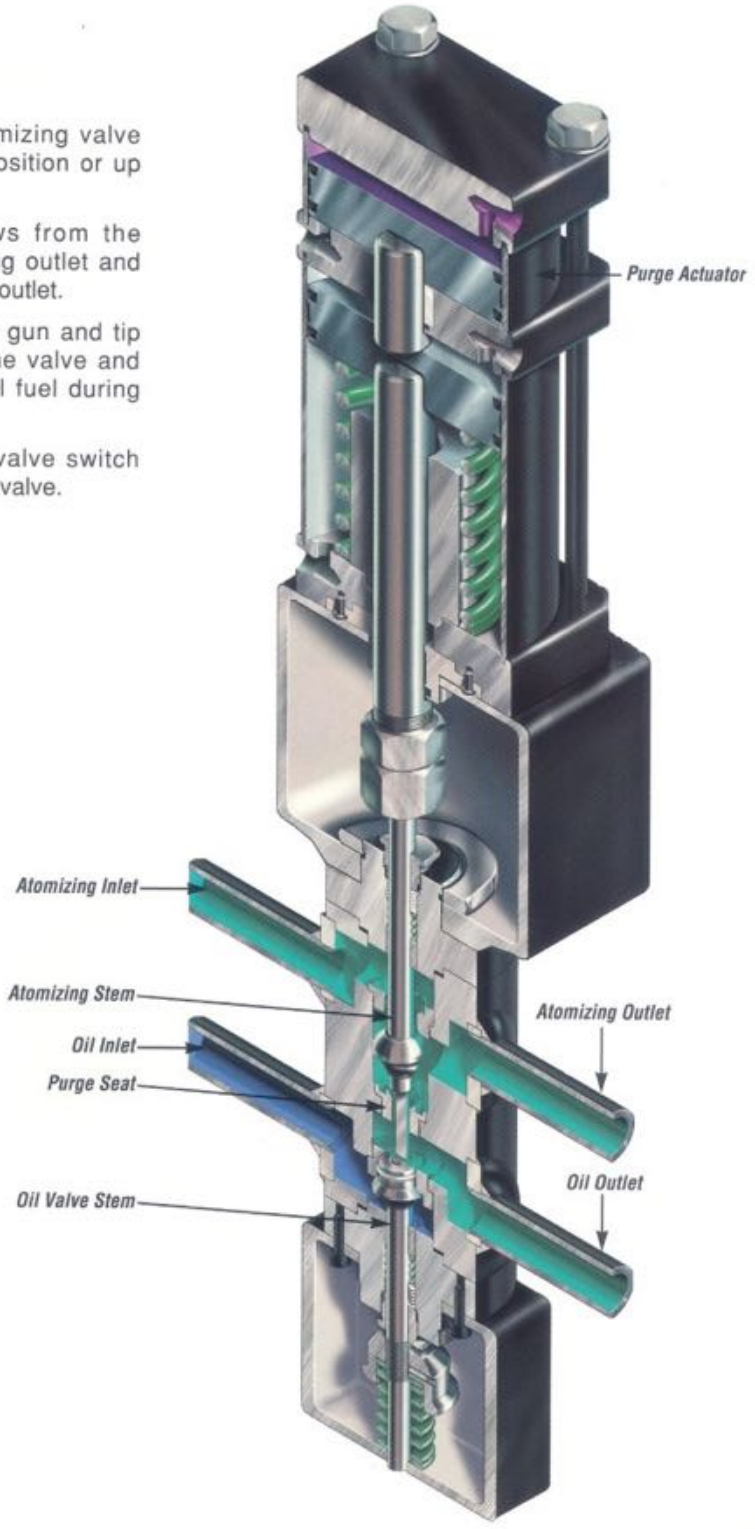
Closed

- The atomizing valve plug is held against the upper seat by the actuator return spring, blocking the flow of the atomizing medium.
- The oil valve plug is held in the lower seat by the oil valve return spring located in the lower box, blocking the flow of oil. Increasing oil pressure serves to force the flow to close plug tighter into its seat.



Purge

- The actuator pushes the atomizing valve stem down from the closed position or up from the fire position.
- The atomizing medium flows from the atomizing inlet to the atomizing outlet and through the purge seat to the oil outlet.
- The purge flow warms up the gun and tip before light-off, and purges the valve and downstream piping of residual fuel during burner shutdown.
- There is no oil flow. The oil valve switch proves positive closure of the oil valve.



Operating positions (continued)

FIRE

- The actuator pushes the atomizing valve stem down. The valve stem contacts the oil valve plug, pushing it out of its seat ring.
- The atomizing valve plug seats on the purge seat, stopping the purge flow. When the oil-side soft seat clears the seat ring, oil flow begins.
- When the oil stem begins movement, the oil valve switch deactuates, prior to the port actually opening.