Oil Valve Systems

ITT

ENGINEERED FOR LIFE

Skotch® Trifecta Oil Valve System

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? Engineered Valves has the answer. Our Trifecta valve systems offer a number of advantages over conventional valves, and work with all types of burners and igniters - including steam, air, or mechanically atomized.

The result is elimination of performance problems and a device that offers continuous, reliable, trouble-free service in your most important applications.

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, or flame out. Additionally, multiple valve packages require more space and may be costly to install and maintain. Burner management logic may be more complex, increasing the cost of the system.

The Skotch Trifecta is a valve system with all components housed within a single valve body. Conventional systems require at least three valves and actuators to accomplish what we provide with a single valve system. We perform all key functions including fuel sequencing, atomizing and purging of the down stream piping. They are designed to comply with NFPA and IRI guidelines. This unique arrangement has been proven in years of trouble-free service on installations worldwide.

Engineered Valves offers a complete line of Skotch 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, 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 shut off, atomizing, and purge valve."

The Skotch Trifecta is a complete valve system that provides oil shutoff, purging and atomizing in a single valve

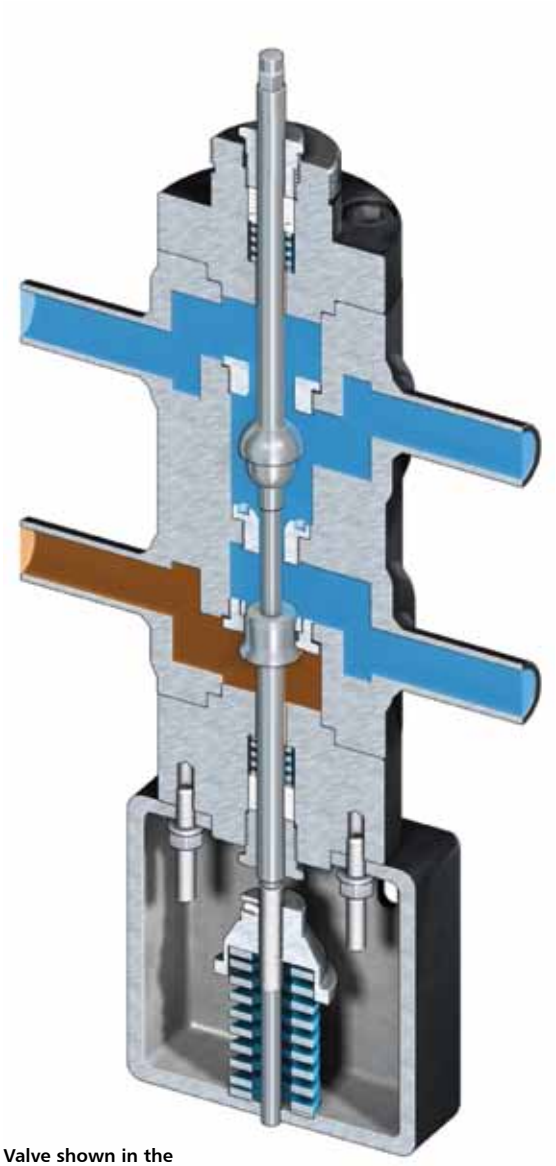
FM APPROVED

FM Approved for valves which fail in the closed position and incorporate appropriate options.

Skotch® Trifecta Oil Valve System

The Skotch Trifecta Valve Systems offer these proven benefits:

- Designed to comply with NFPA and IRI guidelines
- Purge sequence is an integral part of oil valve closure, allowing almost instantaneous switching from firing to purge modes
- Prevents out-of-sequence operation, eliminating contamination of the atomizing or purging media
- Only four piping connections required to install
- Class VI soft seat and metal-to-metal back up seat on the oil side
- Simplified design – no precision adjustments required
- Flexibility in designs to accommodate either retrofits or new installations
- Compact unit takes less space
- Quick and easy installation reduces time and labor cost
- Unit can be completely disassembled in-line for ease of maintenance
- Oil valve over travel allows positive proof of closure
- Models that fail close and contain appropriate accessories are Factory Mutual approved



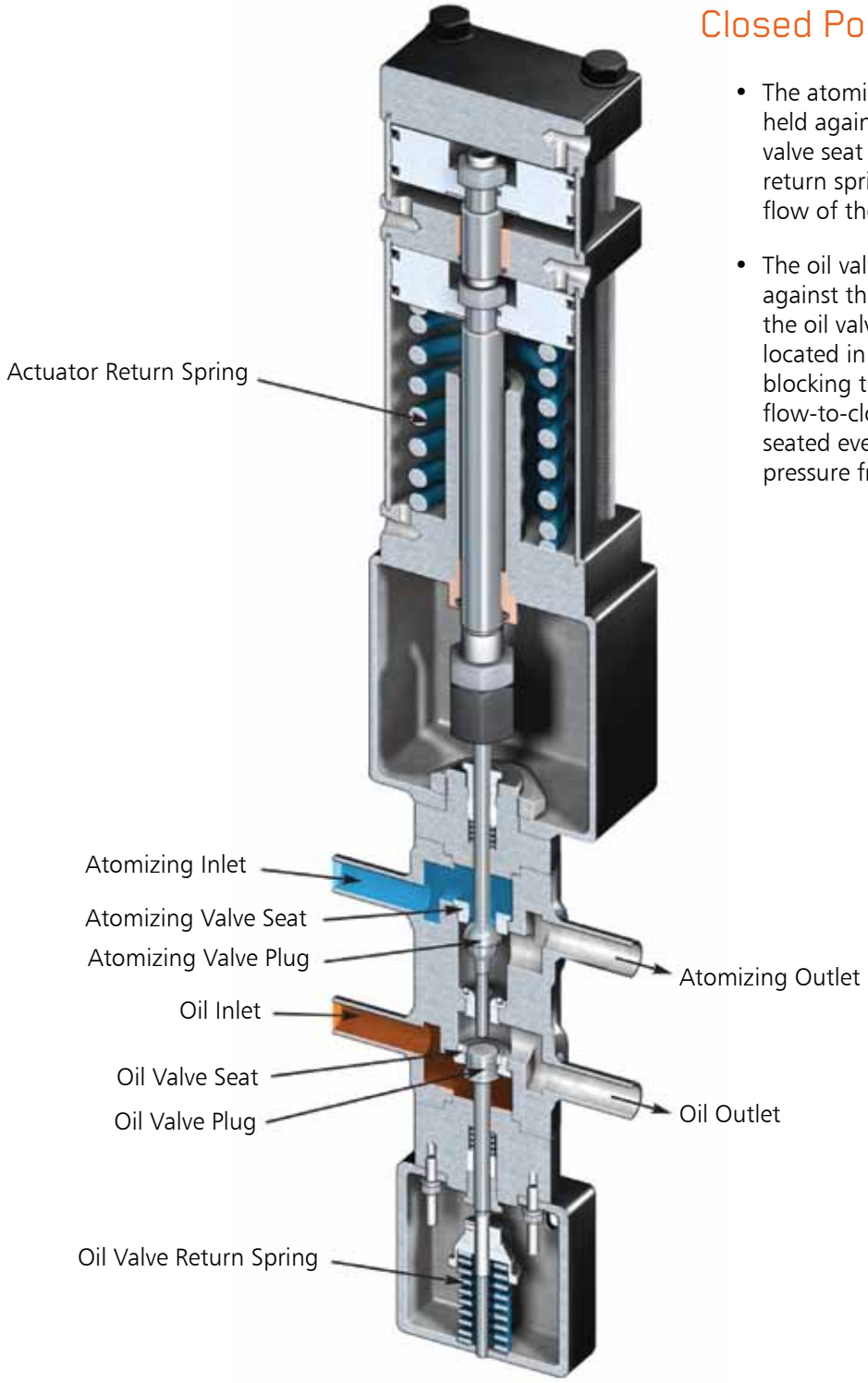
Skotch Valve shown in the purge (or scavenge) mode.

FM APPROVED

FM Approved for valves which fail in the closed position and incorporate appropriate options.

Skotch® Trifecta Oil Valve System

Operating Sequence for the T1000 and T500 in Closed Position

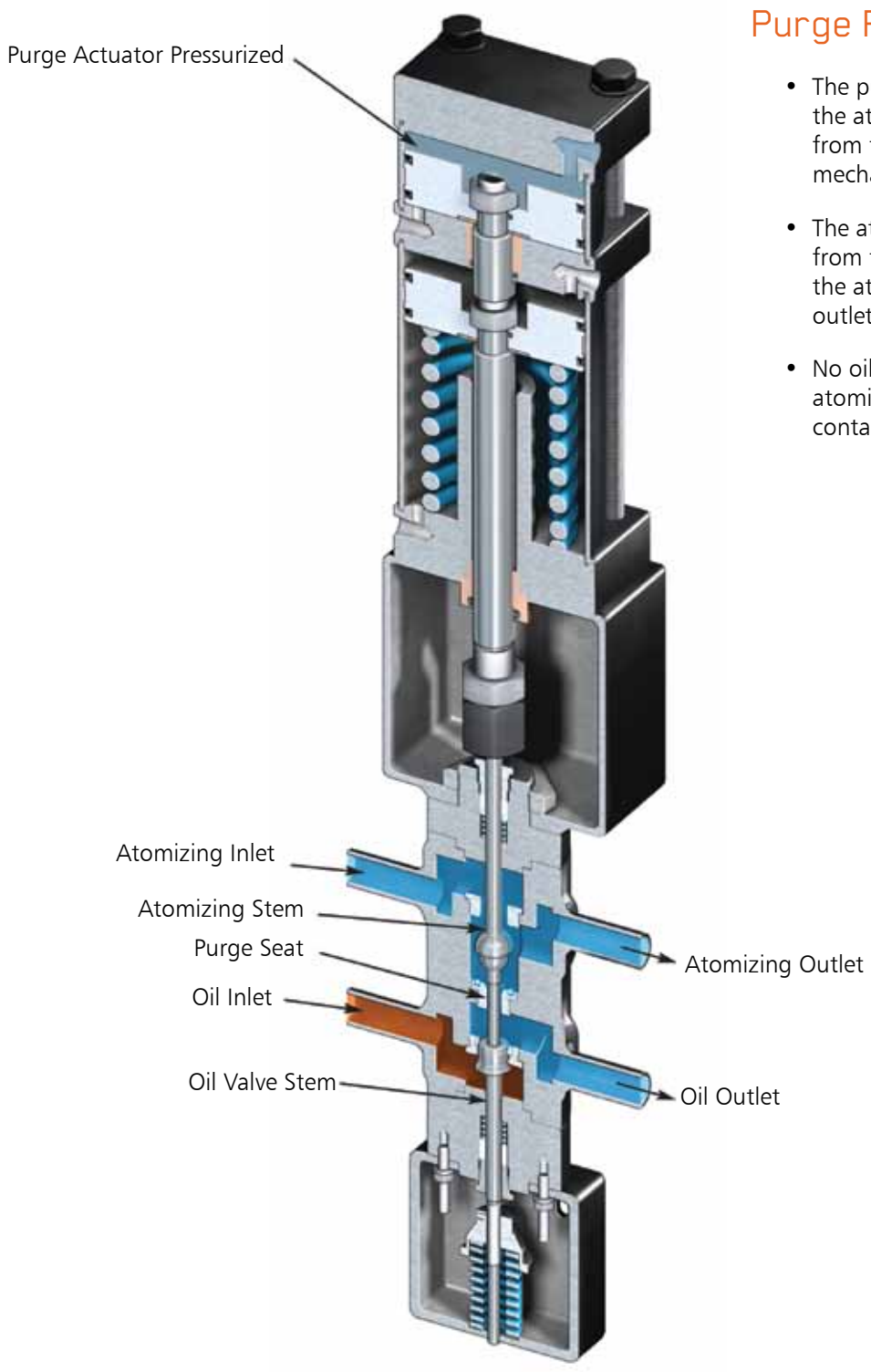


Closed Position

- The atomizing valve plug is held against the atomizing valve seat by the actuator return spring, blocking the flow of the atomizing media.
- The oil valve plug is held against the oil valve seat by the oil valve return spring located in the lower box, blocking the flow of oil. The flow-to-close plug valve is seated even tighter by the oil pressure from the oil inlet.

Skotch® Trifecta Oil Valve System

Operating Sequence for the T1000 and T500 in Purge Position

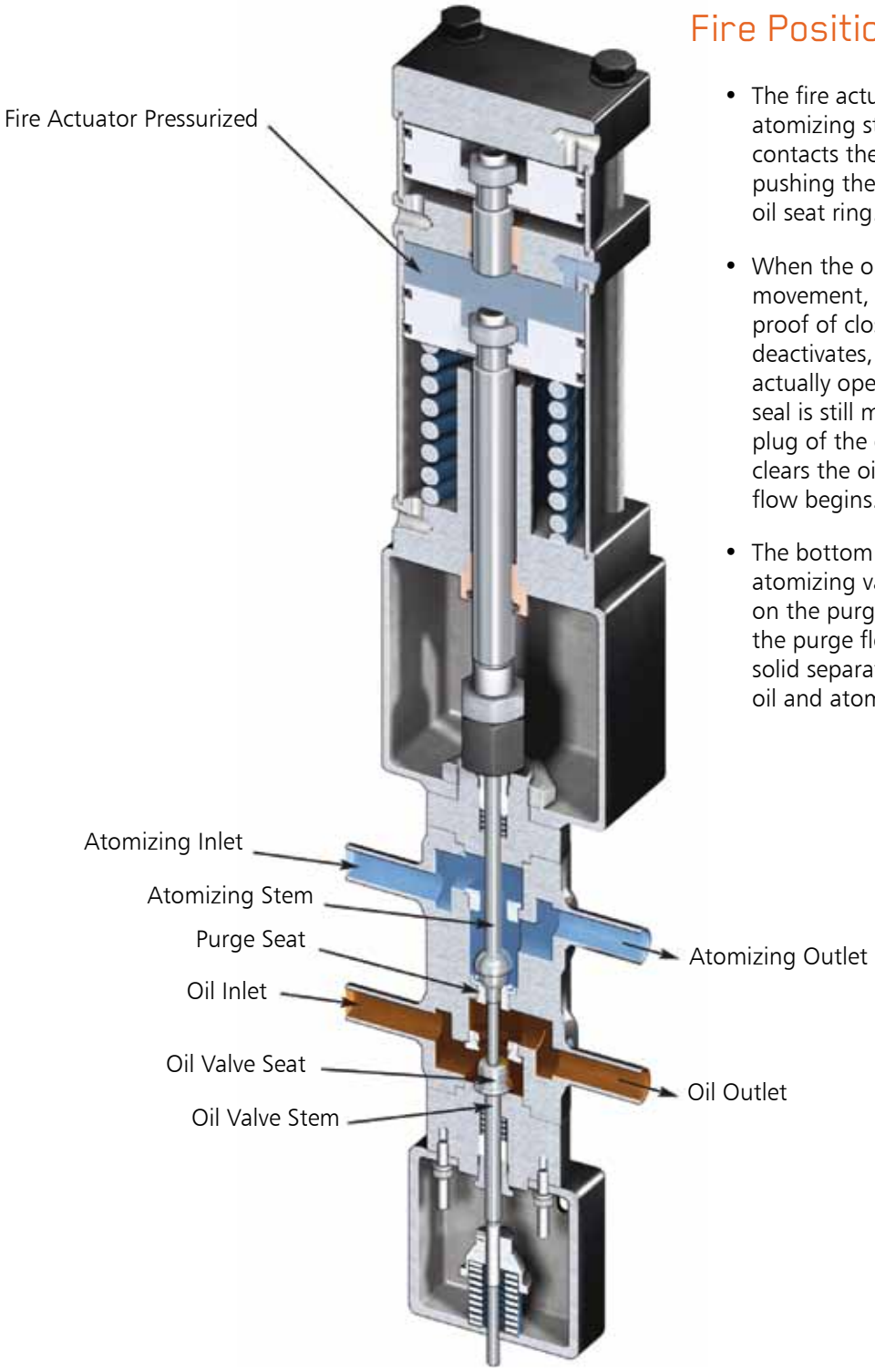


Purge Position

- The purge actuator pushes the atomizing stem down from the closed position to a mechanical stop position.
- The atomizing medium flows from the atomizing inlet to the atomizing outlet and oil outlet (scavenge/purge).
- No oil flow occurs since the atomizing stem has not yet contacted the oil valve stem.

Skotch® Trifecta Oil Valve System

Operating Sequence for the T1000 and T500 in Fire Position



Fire Position

- The fire actuator pushes the atomizing stem down and contacts the oil valve stem, pushing the plug out of its oil seat ring.
- When the oil stem begins movement, the oil valve proof of closure switch deactivates, prior to the port actually opening. The soft seal is still made. When the plug of the oil valve stem clears the oil soft seal, oil flow begins.
- The bottom side of the atomizing valve plug seats on the purge seat, stopping the purge flow and provides solid separation between the oil and atomizing medium.

Skotch® Trifecta Oil Valve System

Principles of Operation

Closed

- The atomizing valve plug is held against the atomizing valve seat by the actuator return spring, blocking the flow of the atomizing media. (Figure 1)
- The oil valve plug is held against the oil valve seat by the oil valve return spring located in the lower box, blocking the flow of oil. The flow to close plug valve is seated even tighter by the oil pressure from the oil inlet. (Figure 1)
- The oil valve plug and seat consist of two independent seals. A soft seal provides the required overtravel for positive proof of closure indication and class VI shutoff. A flow-to-close metal to metal seal provides a backup to the soft seal for further safety and Class IV shutoff. (Figure 1)

Purge (Scavenge)

- The purge actuator pushes the atomizing stem down from the closed position. (Figure 2)
- The atomizing medium flows from the atomizing inlet through the open atomizing valve seat to the atomizing outlet. It also passes through the open purge seat to the oil outlet providing a full purge from the center of the valve out.
- The purge flow purges the valve and downstream piping of residual fuel during burner shutdown. It can also be used for downstream warm up when used before light off.
- There is no oil flow since the oil valve stem is still fully seated in the oil valve seat. The oil valve proof of closure switch provides positive indication of oil valve closure.

FM APPROVED

FM Approved for valves which fail in the closed position and incorporate appropriate options.

Fire

- The fire actuator pushes the atomizing stem down. The atomizing stem contacts the oil valve stem, pushing the plug out of its oil seat ring.
- The bottom side of the atomizing valve plug seats on the purge seat, stopping the purge flow. When the plug of the oil valve stem clears the oil soft seat, oil flow begins. (Figure 3)
- When the oil stem begins movement, the oil valve proof of closure switch deactivates, prior to the port actually opening. The soft seal is still made.
- The full force of the fire actuator pushes the atomizing valve plug against the purge seat, providing solid separation between the oil and atomizing medium.

Figure 1

Figure 2

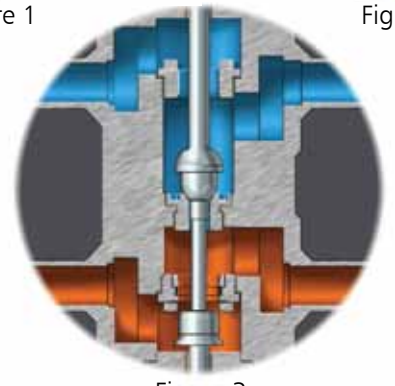
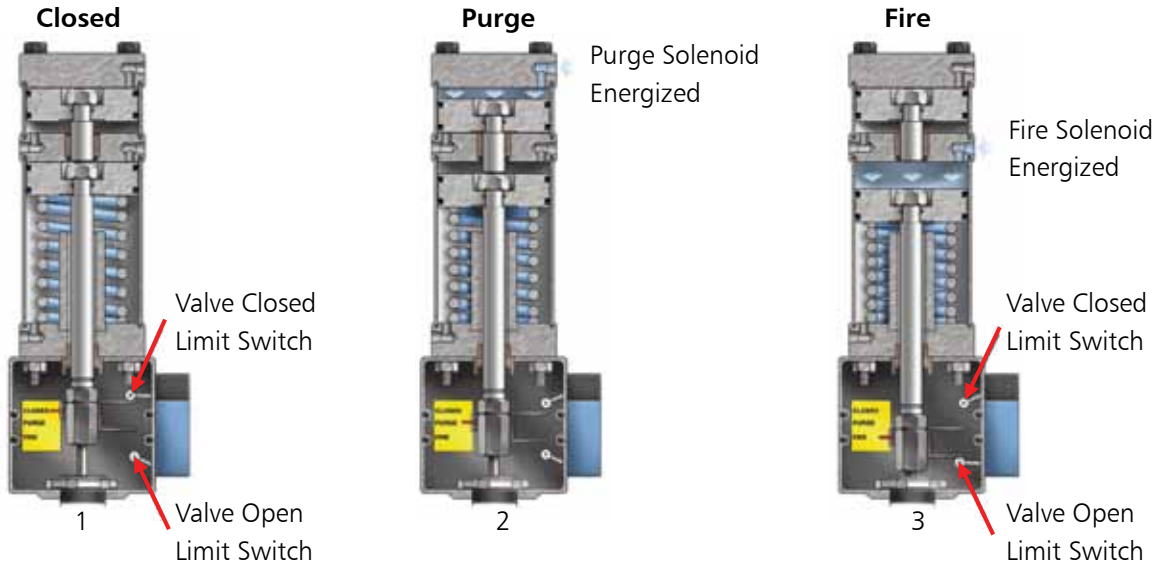


Figure 3

Skotch® Trifecta Oil Valve System

Pneumatic Actuation / Limit Switches



Actuation

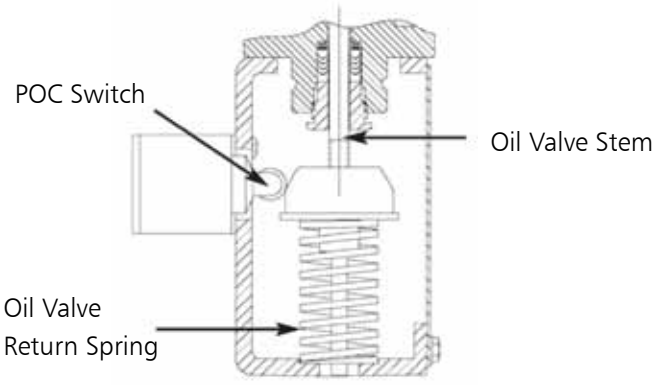
The T505/T506/T507, T1005/T1006/T1007, and T2005/T2006/T2007 valves use a spring-return tandem cylinder for electropneumatic operation with an air supply of 70 to 120 PSI as follows:

- Pressurizing the upper cylinder (Position 2) strokes the Trifecta valve 1/4" to the purge position. No adjustment is needed to achieve proper purging.
- Pressurizing the lower cylinder (Position 3) strokes the valve until the purge plug contacts the purge seat, putting the system in the fire position.
- Exhausting both cylinders (Position 1) allows the actuator spring to return the valve to the closed position. Two pilot solenoid valves control cylinder pressurization.
- Model T505/T1005/T2005 uses dual-coil momentary contact solenoids for energize-to-trip, fail-in-last position operation.
- Model T506/T1006/ uses single-coil, spring return maintained contact solenoids for de-energize to trip, failed-closed operation, and is Factory Mutual approved, when incorporating appropriate accessories. T507/T1007/T2006/T2007 are non-FM.

Valve Limit Switches

1. Position (1) shows valve in closed position. Valve closed limit switch is activated.
2. Position (2) shows valve in purge position. Neither the valve closed limit switch or valve open limit switch are activated.
3. Position (3) shows valve in fire position. Valve open limit switch is activated.

Note: Additionally, Oil "Proof of Closure (POC)" switch is indicated from oil valve stem and would be activated while in position (1). See section of main oil stem below.



Skotch® Trifecta Oil Valve System

Custom Engineered Solutions

Specialty Components

ITT Corporation, Engineered Valves has been an industry leader in providing customized solutions to meet the changing requirements of our customers. Since Skotch Trifecta systems are custom built for each project, we are able to accommodate most non-standard requests.

Oil Valve Rack Systems

Oil valve rack systems provide greater savings in installation time and money. The Skotch valve system is attached to the free-standing rack such that the height can be adjusted in the field. The base is drilled for bolt mounting or welding to decking. Engineered Valves can provide strainers, manual shut-off valves, gauges, check valves, and recirculation valves as required. As a result the full system can be hydrotested and all welds verified at the factory.

In addition to rack systems, Engineered Valves can provide specialty materials to suit your specific needs. Specialty components such as proximity switches, feedback position transmitters and components utilized in corrosive and hazardous conditions are also available.

Cooling Steam Option

A cooling steam option provides drilled orifices in the atomizing seat ring providing a constant cooling steam (or air) flow requirement while a burner is not in service. While the valve is closed a small amount of atomizing media flows through the atomizing and oil outlets, as shown in the view to the right. Our patented cooling steam option was a result of a custom-engineered design that removed the need for an extra valve and/or operator interface.

Please consult our factory for your custom-engineered design application.

Skotch® Trifecta T505 / T506 / T507 Oil

Pneumatic Actuated - Igniter and Smaller Main Oil Burner Systems

System Description

The Skotch Trifecta is a valve system with all components housed within a single valve body. Conventional systems require at least three valves and actuators to accomplish what we provide with a single valve system. We perform all key functions including fuel sequencing, atomizing, and purging of the down stream piping.

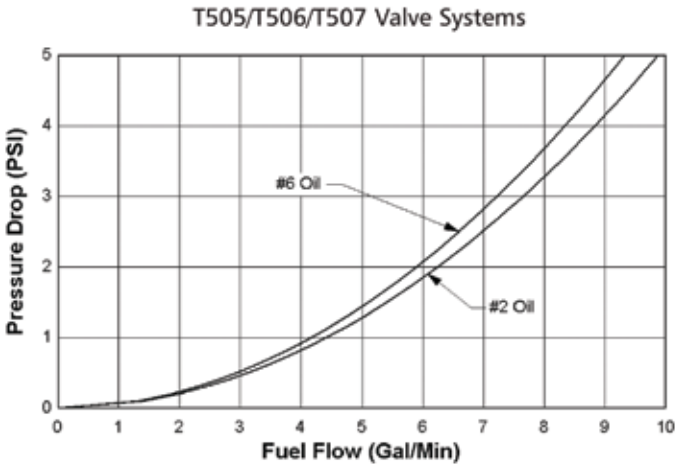
Model T505 is a fail-in-last-position precision-built switching valve system, while Models T506/T507 are designed to fail in the closed position. Both offer Trifecta's proven performance advantages over separate valves or packaged multiple valve systems, including:

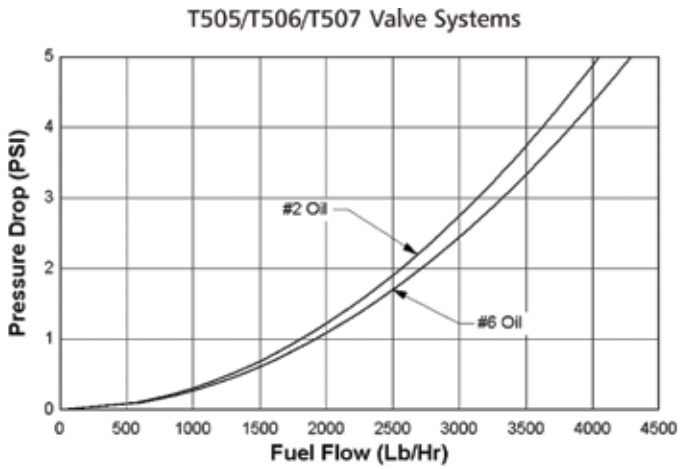
- Prevention of out-of-sequence operation, eliminating contamination of the atomizing or purging media.
- Purge sequence is an integral part of our valve closure, allowing almost instantaneous switching from firing to purging modes.

Application

The compact T500 valves are used with oil fired igniters and smaller main burners requiring steam or air atomization. All models are completely self contained, and all necessary accessories are provided, including position indication switches and junction box.

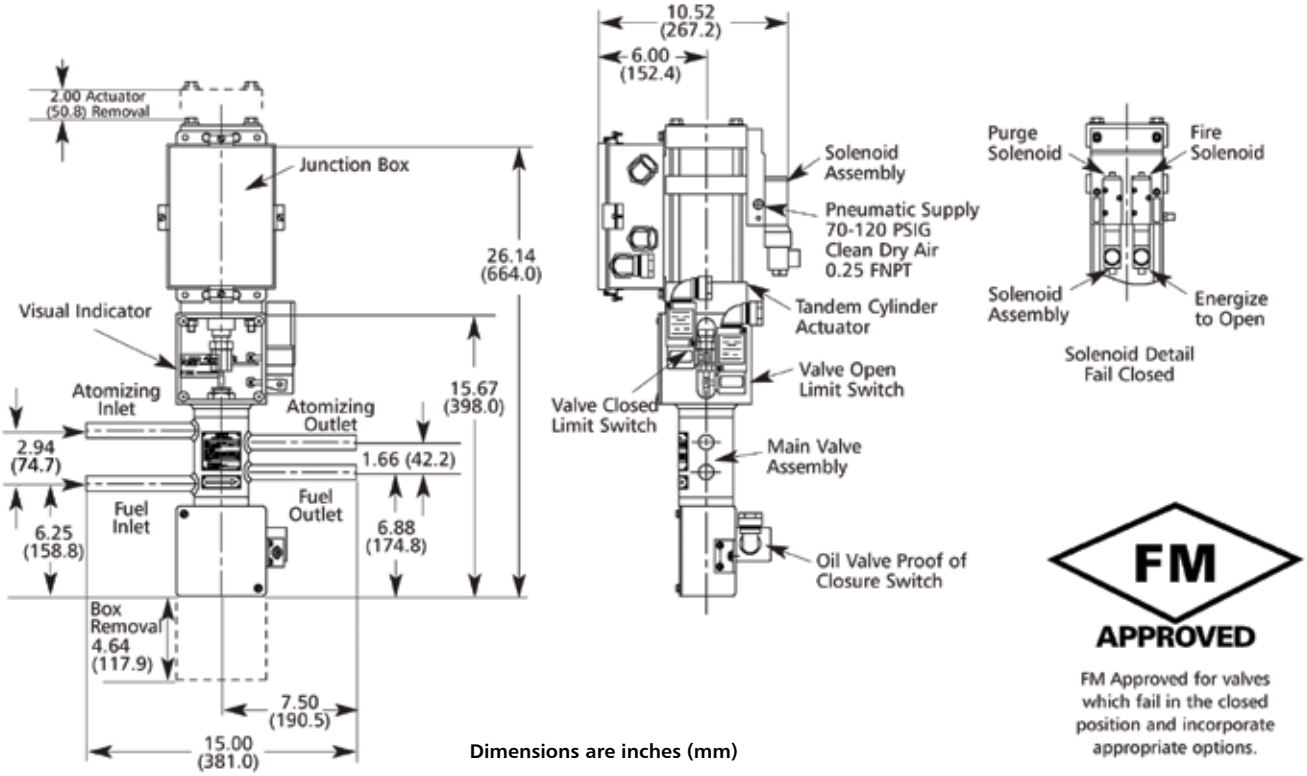
When incorporating appropriate options/accessories, model T506 is Factory Mutual approved for use as a "combination oil safety shutoff, atomizing, and purge valve."





Skotch® Trifecta T505 / T506 / T507

Dimensional Specifications for the T505/T506/T507



Dimensions are inches (mm)

FM APPROVED

FM Approved for valves which fail in the closed position and incorporate appropriate options.

Specifications for the T505 / T506 / T507

Design Pressure and Temperature:
Standard Valve: 300 PSIG @ 450°F
Shutoff Classification:
Per ANSI/FCI 70-2
Atomizing seat – Meets or exceeds CL. IV
Purge seat – Meets or exceeds CL. IV
Fuel seat – Meets or exceeds CL. VI
Durability: Meets or exceeds FM 7400 standard for safety shutoff valves (SSOV)
Weight: Approximately 42 lbs per valve assembly
CV Rating:
Atomizing Cv – 4.2
Purge Cv* – 1.8
Fuel Cv – 4.0
End Connections:
Sch. 40 or 80 Spigot, Butt Weld,
Male NPT in Sch. 80, Socketweld
Actuation:
T50**5**: Fail Last (non-FM approved)
T50**6**: Fail Closed (FM approved)
T50**7**: Fail Closed (non-FM approved)
Flow Direction: Left-to-right or right-to-left.
Field reversible (consult factory)

Air Supply Pressure: 70-120 PSIG – Clean, dry air
Ambient Temperature Rating:
Standard: 140°F (FM approved)
Optional: 180°F (FM Approved)
Switch / Solenoid Electrical Ratings:
Standard: Nema 1, 3, 4, 13
Optional: Nema 7, (Class Div 2, consult factory)
Solenoid Supply Voltages:
110 VAC, 220 VAC, 50/60 Hz
12, 24, 48, 125 VDC
Switch Rating:
10 Amps at 125 VAC
Ingress Protection: Nema 4, 4X
Stroke: 7/8" for both models
Operating Speed:
Opening – Approximately 0.6 seconds, maximum determined by speed control option.
Closing – Oil valve closure in approximately 1 second, full closure in approximately 2 seconds
Failure Mode:
Closed or last position upon electric or pneumatic failure.

*Note: Total Atomizing flow in Purge position is limited to the atomizing Cv.

Skotch® Trifecta T1005 / T1006 / T1007 Oil

Pneumatic Actuated - Main Burner Oil Valve Systems

System Description

The Skotch Trifecta is a valve system with all components housed within a single valve body. Conventional systems require at least three valves and actuators to accomplish what we provide with a single valve system. We perform all key functions including fuel sequencing, atomizing and purging of the down stream piping.

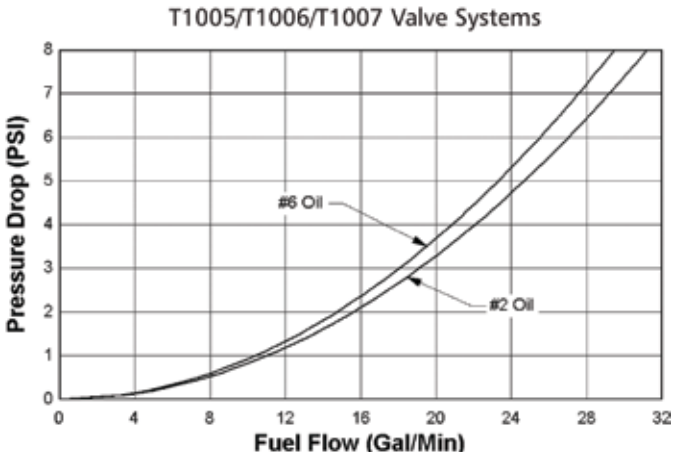
Model T1005 is a fail-in-last-position precision switching valve system, while Models T1006 and T1007 are designed to fail in the closed position. Both offer Trifecta's proven performance advantages over separate valves or packaged multiple valve systems, including:

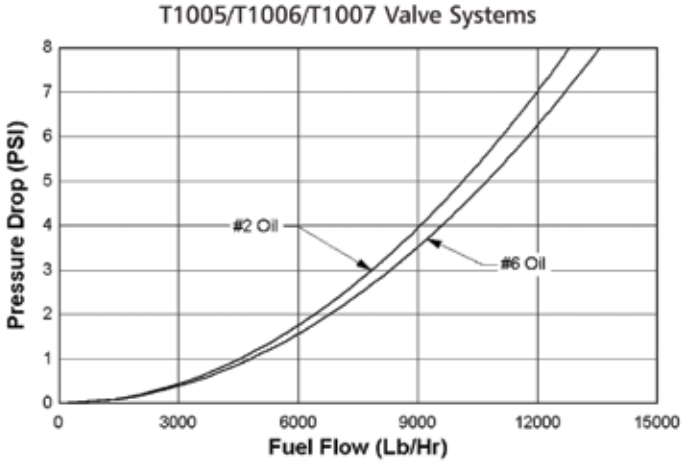
- Prevention of out-of-sequence operation, eliminating contamination of the atomizing or purging media.
- Purge sequence is an integral part of our valve closure, allowing almost instantaneous switching from firing to purging modes.

Application

The T1005/T1006/T1007 valves are used with oil fired burners requiring steam or air atomization. All models are completely self contained, and all necessary accessories are provided, including position indication switches and junction box.

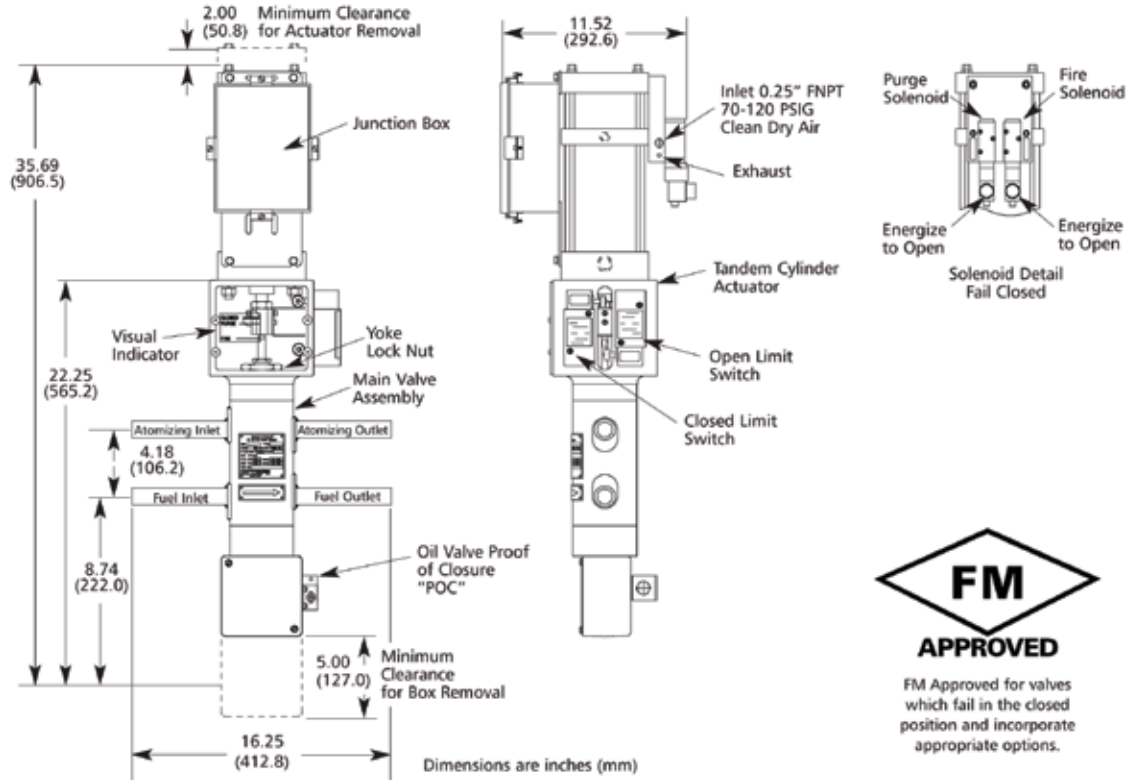
When incorporating appropriate options/accessories, model T1006 is Factory Mutual approved for use as a "combination oil safety shutoff, atomizing, and purge valve."





Skotch® Trifecta T1005 / T1006 / T1007

Dimensional Specifications for the T1005 / T1006 / T1007



Specifications for the T1005 / T1006 / T1007

Design Pressure and Temperature:
Standard Valve: 300 PSIG @ 450°F
Optional: 600 PSIG (fuel) @ 450°F
Shutoff Classification:
Per ANSI/FCI 70-2
Atomizing seat – Meets or exceeds CL. IV
Purge seat – Meets or exceeds CL. IV
Fuel seat – Meets or exceeds CL. VI
Durability: Meets or exceeds FM 7400 standard for safety shutoff valves (SSOV)
Size: 3/4" or 1"
Weight: Approximately 85 lbs per valve assembly
CV Rating:
Atomizing Cv – 10.2
Purge Cv* – 3.5
Fuel Cv – 10.0
End Connections:
Sch. 40 or 80 Spigot, Butt Weld, ANSI CL. 300
Raised Face Flange, socketweld,
Male NPT in Sch. 80
Actuation:
T10**5**: Fail Last (non-FM approved)
T10**6**: Fail Closed (FM approved)
T10**7**: Fail Closed (non-FM approved)

Flow Direction: Left-to-right or right-to-left.
Field reversible (consult factory)
Air Supply Pressure: 70-120 PSIG – Clean, dry air
Ambient Temperature Rating:
Standard: 140°F (FM approved)
Optional: 180°F (FM Approved)
Switch / Solenoid Electrical Ratings:
Standard: Nema 1, 3, 4, 13
Optional: Nema 7 Class 1 Div 2
Nema 7 Class 1 Div 1 (consult factory)
Solenoid Supply Voltages:
110 VAC, 220 VAC, 50/60 Hz
12, 24, 48, 125 VDC
Switch Rating:
10 Amps at 125 VAC
Ingress Protection: Nema 4, 4X
Stroke: 1 1/4" for both models
Operating Speed:
Opening – Approximately 0.8 seconds, maximum determined by speed control option.
Closing – Oil valve closure in approximately 1 second, full closure in approximately 2 seconds
Failure Mode:
Closed or last position upon electric or pneumatic failure.
Maximum Differential Pressure: Equal to design rating

*Note: Total Atomizing flow in Purge position is limited to the atomizing Cv.

Skotch® Trifecta T1001 / T1003 / T1004 Oil

Electrohydraulic Actuated - Main Burner Oil Valve Systems

System Description

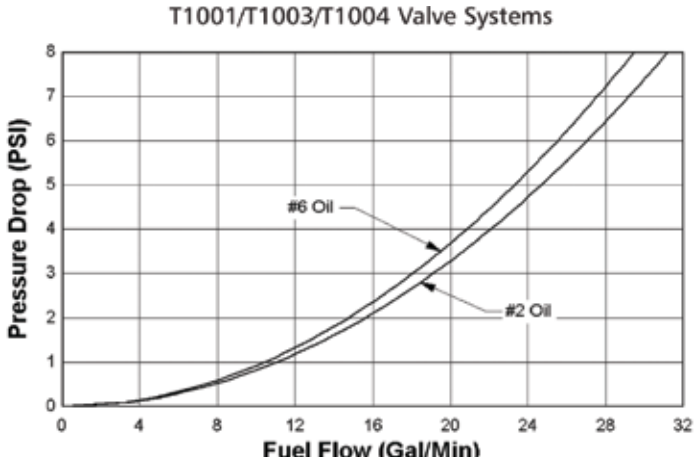
The Skotch Trifecta is a valve system with all components housed within a single body utilized with oil fired burners requiring steam or air atomization. Model T1001 is a fail-in-last-position precision built switching valve system, while Models T1003 and T1004 are designed to fail in the closed position. Both offer Trifecta's proven performance advantages over separate valves or packaged multiple valve systems, including:

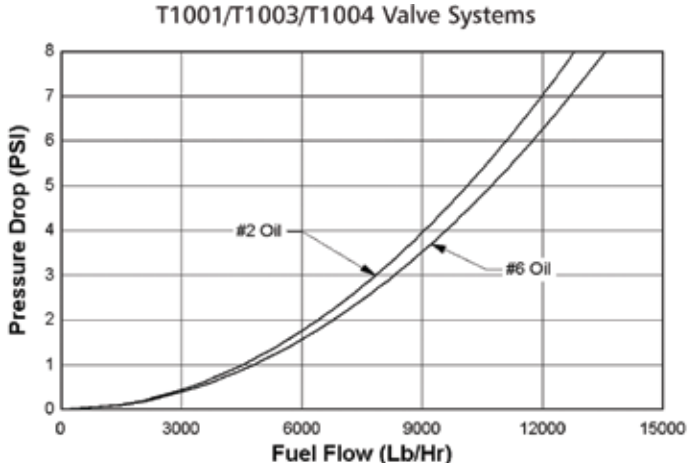
- Prevention of out-of-sequence operation, eliminating contamination of the atomizing or purging media.
- Purge sequence is an integral part of our valve closure, allowing almost instantaneous switching from firing to purging modes.

Application

The T1001/T1003/T1004 valves use an electrohydraulic actuator requiring only 110VAC power Operation is as follows:

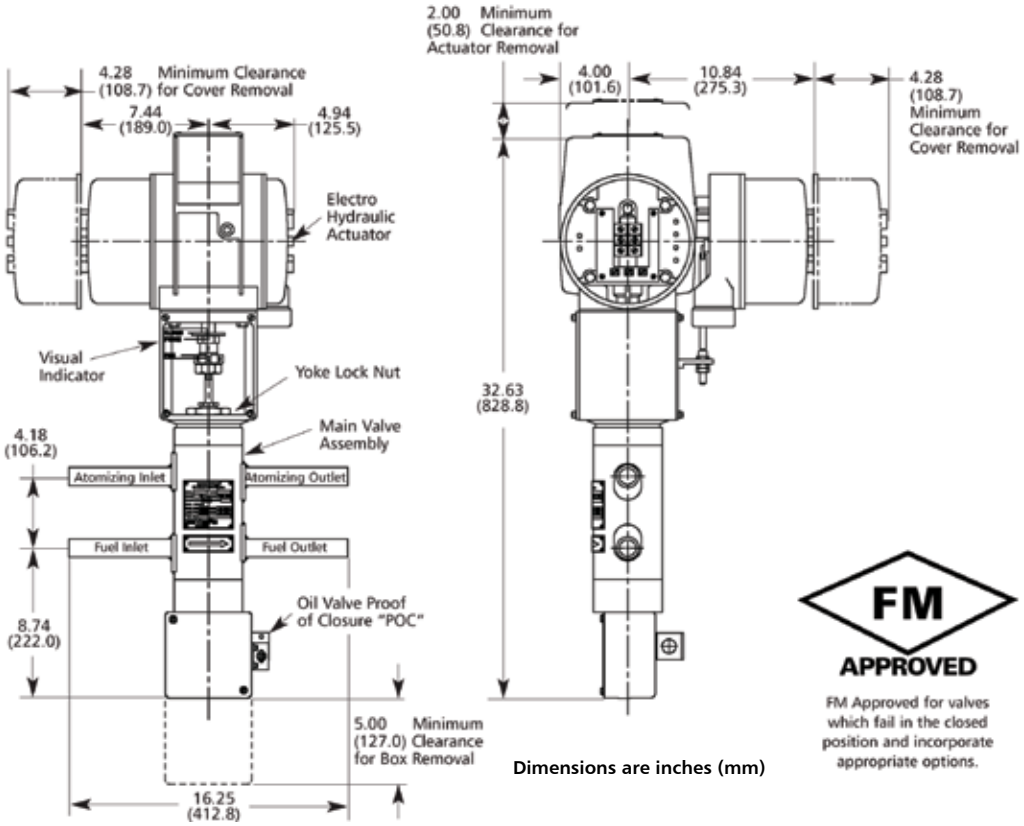
- Signaling the valve to move from closed to purge or fire causes an internal pump to pressurize a cylinder and push the atomizing valve stem down.
- A force limit stops the actuator when the atomizing valve contacts the purge seat and the valve is in the fire position.
- Signaling the valve to move from fire to purge or closed causes two dump valves to open, relieving hydraulic pressure and allowing a spring to move the valve stem up.
- Model T1001 uses normally closed dump valves for energize to trip, fail-in-last-position operation.
- Model T1003 uses normally open dump valves for deenergize to trip, fail closed operation. This version is Factory Mutual approved, when incorporating appropriate accessories.





Skotch® Trifecta T1001 / T1003 / T1004

Dimensional Specifications for the T1001 / T1003 / T1004



FM APPROVED

FM Approved for valves which fail in the closed position and incorporate appropriate options.

Specifications for the T1001 / T1003 / T1004

Design Pressure and Temperature:
Standard Valve: 300 PSIG @ 450°F
Optional: 1100 PSIG (fuel) @ 450°F
Shutoff Classification:
Per ANSI/FCI 70-2
Atomizing seat – Meets or exceeds CL. IV
Purge seat – Meets or exceeds CL. IV
Fuel seat – Meets or exceeds CL. VI
Durability: Meets or exceeds FM 7400 standard for safety shutoff valves (SSOV)
Size: 3/4" or 1"
Weight: Approximately 85 lbs per valve assembly
CV Rating:
Atomizing Cv – 10.0
Purge Cv* – 3.5
Fuel Cv – 10.0
End Connections:
Sch. 40 or 80 Spigot, Butt Weld, ANSI CL. 300
Raised Face Flange, socketweld,
Male NPT in Sch. 80
Actuation:
T100**1**: Fail Last (non-FM approved)
T100**3**: Fail Closed (FM approved)
T100**4**: Fail Closed (non-FM approved)

Flow Direction: Left-to-right or right-to-left.
Field reversible (consult factory)
Ambient Temperature Rating: Standard: 175°F (FM approved)
Switch / Solenoid Electrical Ratings: Nema 4 and 13 standard
Solenoid Supply Voltages:
Auxiliary Switches SPDT – 15 Amps @ 125 VAC
Proof of Closure Switch – 10 Amps @ 125 VAC
Ingress Protection: Nema 4, 4X
Stroke: 1 1/4" for both models
Operating Speed:
Opening – Approximately 25 seconds
Closing – Oil valve closure in approximately 1 second, full closure in approximately 2 seconds
Failure Mode:
Closed or last position upon electric or pneumatic failure.
Maximum Differential Pressure: Equal to design rating
Voltages: 110 VAC, 50/60 Hz

*Note: Total Atomizing flow in Purge position is limited to the atomizing Cv.

Skotch® Trifecta T2005 / T2006 / T2007 Oil

Mechanically Atomized Main Burner Oil Valve System with Pneumatic Actuator

System Description

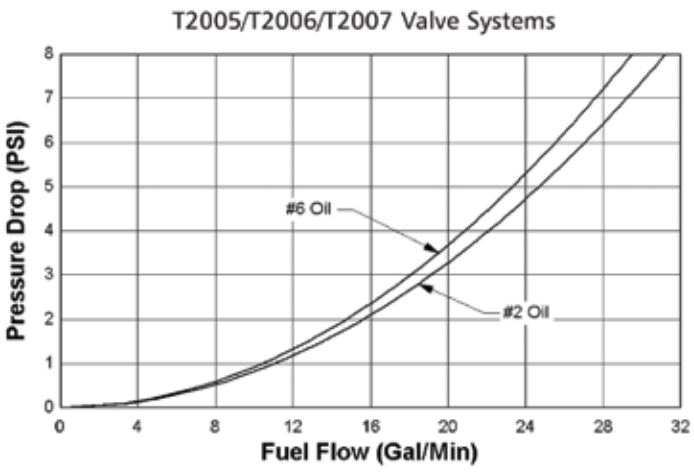
The Skotch Trifecta is a valve system with all components housed within a single valve body. Conventional systems require multiple valves and actuators to accomplish what we provide with a single valve system. We perform all key functions including fuel sequencing and purging of the down stream piping.

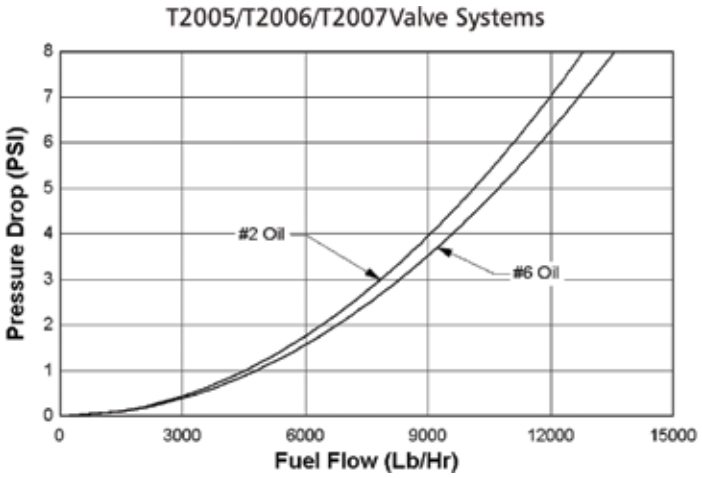
An extension of the successful T1005/T1006/T1007 series, the T2000 valve system provides the same proven performance advantages over separate valves, or packaged multiple valve systems, including:

- Prevention of out-of-sequence operation, eliminating contamination of the purging media.
- Purge sequence is an integral part of our valve closure, allowing almost instantaneous switching from firing to purging modes.

Application

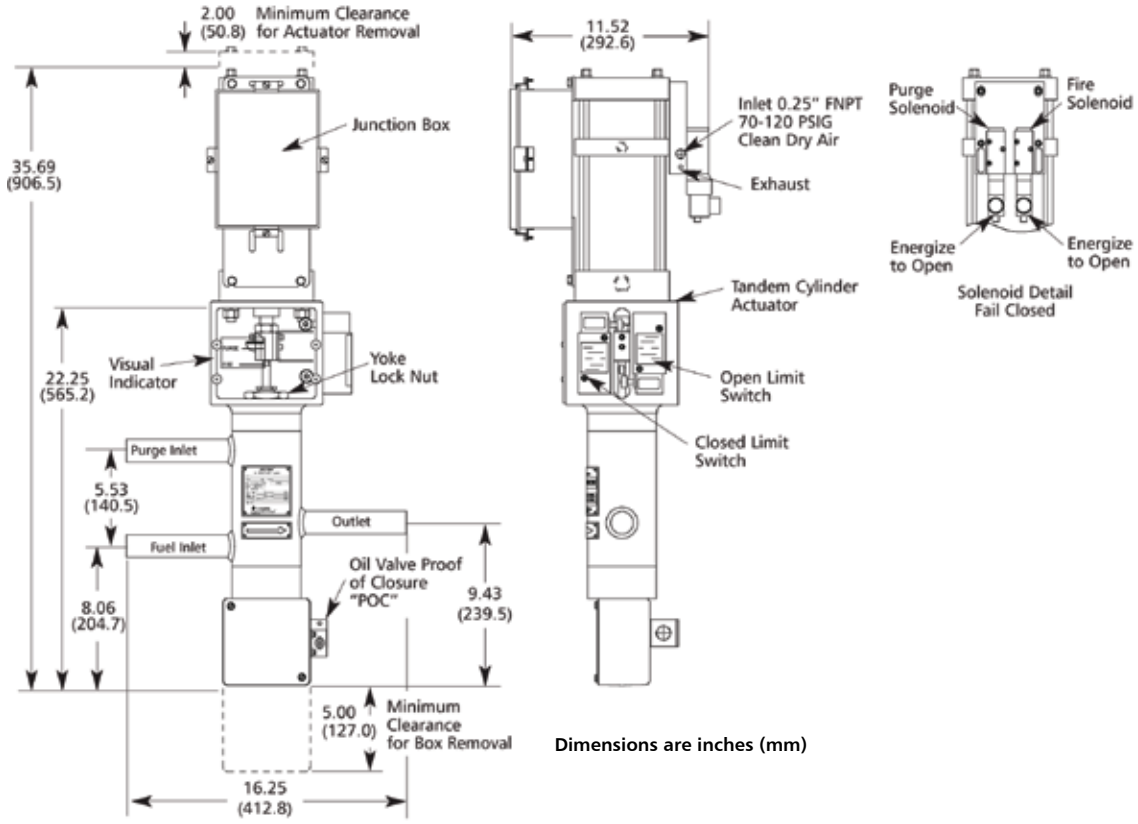
The T2000 valve systems are used with oil fired burners requiring straight Mechanical Atomization. These valve systems are completely self contained, and Engineered Valves provides all necessary accessories, such as indicator switches and junction boxes. While the straight mechanically atomized system is shown here, we can also provide systems for Wide Range Tip Return systems employing return and recirculation of the oil. Please consult factory for more information.





Skotch® Trifecta
T2005 / T2006 / T2007

Dimensional Specifications for the T2005 / T2006 / T2007



Dimensions are inches (mm)

Specifications for the T2005 / T2006 / T2007

Design Pressure and Temperature:
Standard Valve: 300 PSIG @ 450°F
Optional: 600 PSIG (fuel) @ 450°F
Shutoff Classification:
Per ANSI/FCI 70-2
Atomizing seat – Meets or exceeds CL. IV
Purge seat – Meets or exceeds CL. IV
Fuel seat – Meets or exceeds CL. VI
Size: 3/4" or 1"
Weight: Approximately 85 lbs per valve assembly
CV Rating:
Purge Cv – 3.5
Fuel Cv – 10.0
End Connections:
Sch. 40 or 80 Spigot, Butt Weld, ANSI CL. 300
Raised Face Flange, socketweld,
Male NPT in Sch. 80
Actuation:
T200**5**: Fail Last (non-FM approved)
T200**7**: Fail Closed (non-FM approved)
Flow Direction: Left-to-right or right-to-left.
Field reversible (consult factory)

Air Supply Pressure: 70-120 PSIG – Clean, dry air
Ambient Temperature Rating:
Standard: 140°F (non-FM approved)
Optional: 180°F (non-FM Approved)
Switch / Solenoid Electrical Ratings:
Standard: Nema 1, 3, 4, 13
Optional: Nema 7, Class 1 Div 2
Nema 7, Class 1 Div (consult factory)
Solenoid Supply Voltages:
110 VAC, 220 VAC, 50/60 Hz
12, 24, 48, 125 VDC
Switch Rating: 10 Amps at 125 VAC
Ingress Protection: Nema 4, 4X
Stroke: 1 1/4" for both models
Operating Speed:
Opening – Approximately .8 seconds, maximum determined by speed control.
Closing – Oil valve closure in approximately 1 second, full closure in approximately 2 seconds
Failure Mode:
Closed or last position upon electric or pneumatic failure.
Maximum Differential Pressure: Equal to design rating

Skotch® Trifecta T2001 / T2003 / T2004 Oil

Mechanically Atomized Main Burner Oil Valve System with Electrohydraulic Actuator

System Description

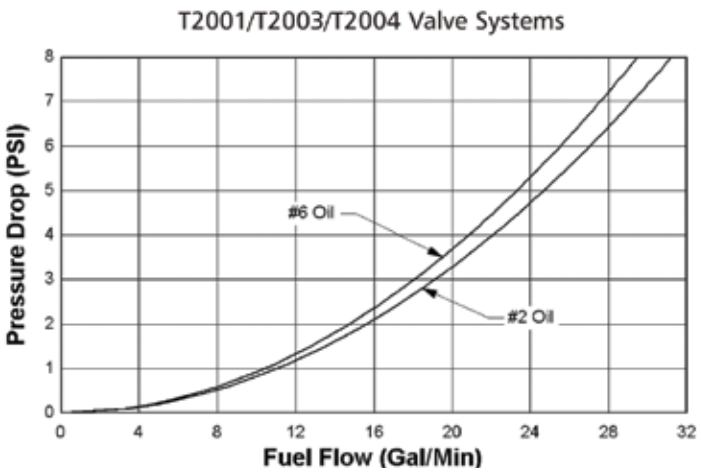
The Skotch Trifecta is a valve system with all components housed within a single valve body. Conventional systems require multiple valves and actuators to accomplish what we provide with a single valve system. We perform all key functions including fuel sequencing and purging of the down stream piping.

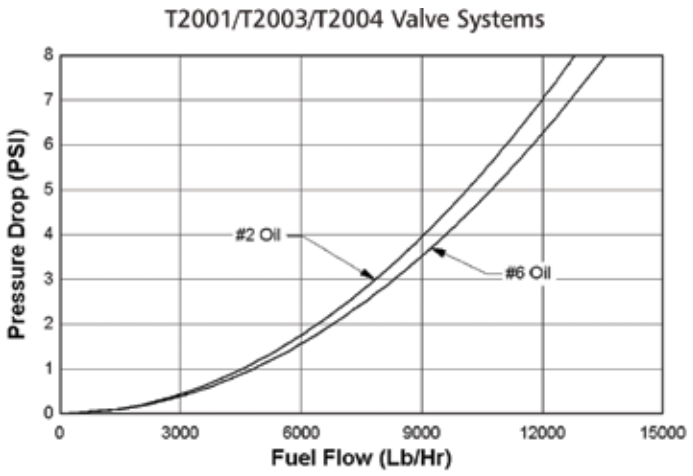
An extension of the successful T1005/T1006/T1007 series, the T2000 valve system provides the same proven performance advantages over separate valves, or packaged multiple valve systems, including:

- Prevention of out-of-sequence operation, eliminating contamination of the purging media.
- Purge sequence is an integral part of our valve closure, allowing almost instantaneous switching from firing to purging modes.

Application

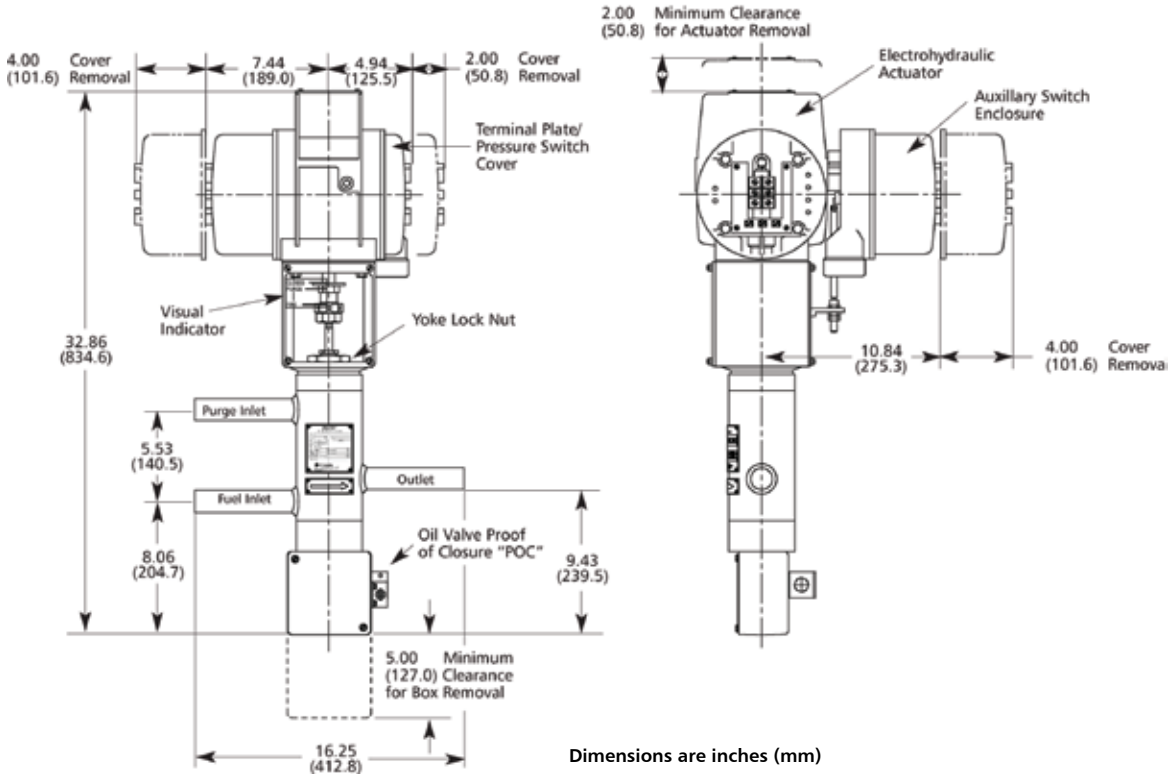
The T2000 valve systems are used with oil fired burners requiring straight Mechanical Atomization. These valve systems are completely self contained, and all necessary accessories are provided, such as indicator switches and junction boxes. While the straight mechanically atomized system is shown here, we can also provide systems for Wide Range Tip Return systems employing return and recirculation of the oil. Please consult factory for more information.





Skotch® Trifecta T2001 / T2003 / T2004

Dimensional Specifications for the T2001 / T2003 / T2004



Dimensions are inches (mm)

Specifications for the T2001 / T2003 / T2004

Design Pressure and Temperature:
Standard Valve: 300 PSIG @ 450°F
Optional: 1400 PSIG (fuel) @ 450°F
Shutoff Classification:
Per ANSI/FCI 70-2
Atomizing seat – Meets or exceeds CL. IV
Purge seat – Meets or exceeds CL. IV
Fuel seat – Meets or exceeds CL. VI
Size: 3/4" or 1"
Weight: Approximately 85 lbs per valve assembly
CV Rating:
Purge Cv – 3.5
Fuel Cv – 10.0
End Connections:
Sch. 40 or 80 Spigot, Butt Weld, ANSI CL. 300
Raised Face Flange, socketweld,
Male NPT in Sch. 80
Actuation:
T200**1**: Fail Last (non-FM approved)
T200**4**: Fail Closed (non-FM approved)

Flow Direction: Left-to-right or right-to-left.
Field reversible (consult factory)
Ambient Temperature Rating: Standard: 175°F (non-FM approved)
Switch / Solenoid Electrical Ratings: Standard: Nema 4, 13
Solenoid Supply Voltages:
110 VAC, 220 VAC, 50/60 Hz
12, 24, 48, 120 VDC
Switch Rating: 10 Amps at 125 VAC
Ingress Protection: Nema 4, 4X
Stroke: 1 1/4" for both models
Operating Speed:
Opening – Approximately 25 seconds
Closing – Oil valve closure in approximately 1 second,
full closure in approximately 2 seconds
Failure Mode:
Closed or last position upon electric or pneumatic failure.
Maximum Differential Pressure: Equal to design rating