

FireChek® Series

FireChek® Heat Activated Pneumatic Shut-off Valves and Pilot Valves



FireChek® Valves

When the FM approved **FireChek®** valve senses excessive heat from a nearby fire, it immediately vents the pneumatic actuator and closes the actuator air supply line. Because the **FireChek®** valve responds to heat, not flame, it offers dramatically improved protection compared with conventional plastic tubing burn-through. The testability and reset ability of the **FireChek®** valve make it a preferred choice over fusible link-based shutoffs or plastic burn-through tubing. The **FireChek®** valve triggers quickly to shut off the air supply, preventing plant air from feeding oxygen to a fire.

The shape-memory element senses the ambient temperature and, through a phase induction change, rapidly produces the force and motion to trigger the **FireChek®** valve. The element is 100% reliable because the shape-memory effect is intrinsic to the alloy. Shape-memory alloys have performed successfully for many years in military, industrial, and consumer product applications.

The **FireChek®** valve's manual reset allows routine performance testing for safety maintenance programs. A hot-air gun will quickly actuate the **FireChek®** valve. After cooling briefly, the **FireChek®** valve can easily be reset without the use of tools, for continued protection.

FireChek® valves install easily between the pneumatic supply and spring return actuator via two female threaded connections.

FEATURES

- Rapidly responds to temperature rise, not flames
- Vents actuator air pressure
- Closes actuator air supply line
- Needs no power source, self-activates
- Compatible with all pneumatic actuators
- No contact with process fluids
- Easy to test and reset
- Reliable, intrinsic triggering
- Easy to retrofit, installs in minutes
- FM approved

SPECIFICATIONS

Actuation Time: 25 sec. or less at a temperature rise rate of 30°F/min.

Fill and Discharge Capacity: 1 liter of air in under 1 sec. at 125 PSI (8.62 bar); 0.49 Cv.

Dimensions: 2.59" length, 1.00" diameter.

Weight: 0.482 lbs.

Cv: see chart on page 6

MATERIALS

Shape-memory Alloy Actuator and Sensor: MEMRY®

Thermal Insulators: DELRIN®

O-rings: BUNA-N

Body Cover, Reset, Shuttle Cap, Pin, and Bias Spring: 300 stainless steel

FireChek® Valve MODEL NUMBERING

Model Number

Connection Type: _____

NPT = 1/4" NPT female

Initiation Temperature: _____

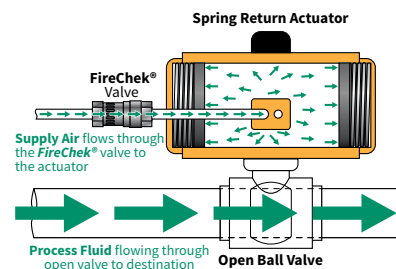
135 = 135°F

150 = 150°F

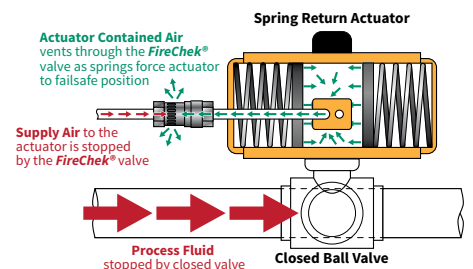
165 = 165°F

FC4XX

NORMAL OPERATION



EMERGENCY OPERATION



FireChek® Valves with Quick Exhaust

Testable and Resettable Heat Activated Pneumatic Shut-off Valves

(Female 1/4" NPT port for supply, Female 3/8" or 3/4" NPT exhaust port)



FireChek® with Quick Exhaust

The **FireChek®** valve with Quick Exhaust provides the same protection and functionality as the **FireChek®** valve, with the added benefit of a larger exhaust port. During normal operation, the **FireChek®** valve functions exactly the same way as it does when installed by itself, however, when the emergency operation is triggered by excessive heat, the actuator exhaust air is diverted to a larger port by the Quick Exhaust valve. This allows for the spring return actuator to move to the failsafe position faster.

The addition of the Quick Exhaust valve increases the exhaust Cv from 0.56 to 3.3 or 8.8!

(see C_v Values chart on page 5)

MATERIALS

Valve Body: 316SS

Seals: FKM

MODEL NUMBERING

Model Number **FC4NPTXQA**

Initiation Temperature: _____

135 = 135°F

150 = 150°F

165 = 165°F

Quick Exhaust: _____

QSA = NPT 1/4" x 3/8" Exhaust

QSC = NPT 1/2" x 3/4" Exhaust

NORMAL OPERATION



EMERGENCY OPERATION



FireChek® Valve with SIL III High Flow Pilot Valves

Testable and Resettable Heat Activated Pneumatic Shut-off Valves
(Compression fitting or NPT ported pilot valves without solenoid valve)

FireChek® Valve with High Flow Pilot Valves

These **FireChek®** Pilot Valve assemblies add the **FM approved FireChek®** thermal shutoff valve to a SIL Class III High Flow Pilot Valve without a solenoid valve. They are available with either NPT ported connections, or with a compression fittings for easy retrofitting inline. **FireChek®** Pilot Valves are available for actuators with port sizes from 1/4" to 1" to accommodate most pneumatic actuator sizes. The assembly has the **FireChek®** valve installed on the external pilot of a high flow spool valve, thus causing a chain reaction where the **FireChek®** valve vents the pilot valve, which in turn vents the actuator. See the next page for similar assemblies that include a solenoid valve.

Inline NPT Ported Mounting

Mounts inline on 1/4", 3/8", 1/2" or 1" pipe using NPT female ports. Can be installed anywhere inline, including before or after a solenoid valve, making these units operate as a larger version of the **FireChek®** valve itself.



CONNECTION SIZES

1/4", 3/8", 1/2", 1" NPT female

Cv VALUES

1/4" NPT: 1.8

3/8" NPT: 2.0

1/2" NPT: 5.5

1" NPT: 11.1

MODEL NUMBERING

See Page 6

Inline Mounting with Compression Fittings

Mounts inline on 1/4", 3/8", 1/2" or 1" tubing using compression fittings. Can be installed anywhere inline, including before or after a solenoid valve, making these units operate as a larger version of the **FireChek®** valve itself.



CONNECTION SIZES

1/4", 3/8", 1/2", 1" Compression

Cv VALUES

1/4" NPT: 1.8

3/8" NPT: 2.0

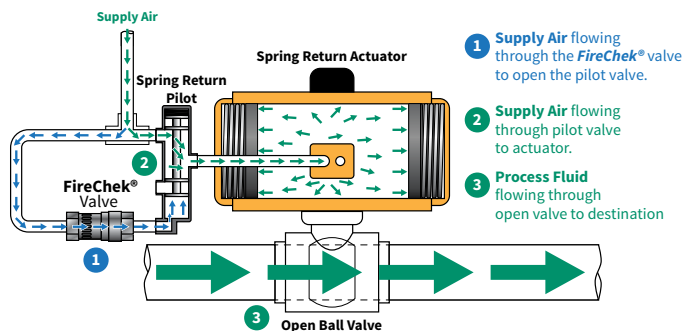
1/2" NPT: 5.5

1" NPT: 11.1

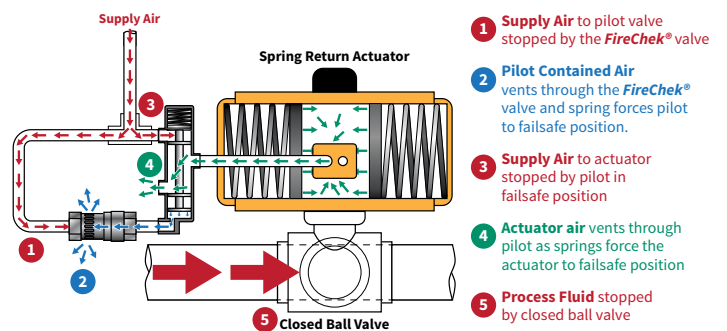
MODEL NUMBERING

See Page 6

NORMAL OPERATION



EMERGENCY OPERATION



FireChek® Valve with SIL III High Flow Pilot Valves with Solenoid

Testable and Resettable Heat Activated Pneumatic Shut-off Valves
(NAMUR or NPT ported pilot valves with a solenoid valve)

FireChek® with Solenoid Operated High Flow Pilot Valves

These **FireChek®** assemblies add the **FM approved FireChek®** thermal shutoff valve to a solenoid operated SIL Class III High Flow Pilot Valve. These assemblies are available with either an NPT ported connection to the actuator, or with a NAMUR mounting interface for direct mount of the pilot valve to the actuator. **FireChek®** Pilot Valves are available for actuators with port sizes from 1/4" to 1" to accommodate most pneumatic actuator sizes. available for actuators with port sizes from 1/4" to 1" to accommodate most pneumatic actuator sizes. The assembly has the **FireChek®** valve installed on the external pilot of a high flow spool valve, thus causing a chain reaction where the **FireChek®** valve vents the pilot valve, which in turn vents the actuator.

NAMUR Mounting

Mounts directly to a 1/4" NAMUR style pneumatic valve actuator. Can be installed as a new installation, or to replace an existing NAMUR solenoid in the field.



CONNECTION SIZES

To Actuator:
1/4" NAMUR
To Supply Air:
1/4" NPT Female

SOLENOID VOLTAGES

12vDC, 24vDC, 120vAC, 240vAC

SOLENOID RATINGS

Nema 4/4x/7/9
Class I, Div. 1 Groups C & D
Class I, Div. 2 Groups A, B, C & D

Cv VALUES

Inlet: 1.6
Exhaust: 1.6

MODEL NUMBERING

See Page 6

NPT Ported Mounting

Mounts directly to actuator using a SS plate. Can be special ordered without plate and either no actuator connection tube or custom length tube for remote mounting.



CONNECTION SIZES

To Actuator:
1/4", 3/8", 1/2", or 1" NPT male
(or none as special order)
To Supply Air:

1/4", 3/8", 1/2", 1" NPT female

SOLENOID VOLTAGES

12vDC, 24vDC, 120vAC, 240vAC

SOLENOID RATINGS

Nema 4/4x/7/9
Class I, Div. 1 Groups C & D
Class I, Div. 2 Groups A, B, C & D

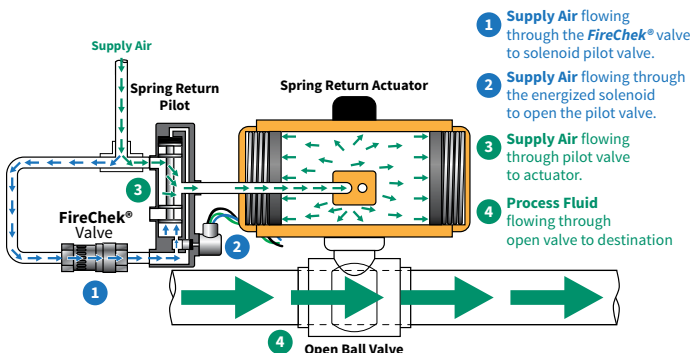
Cv VALUES (inlet & Exhaust)

1/4" NPT: 1.8
3/8" NPT: 2.0
1/2" NPT: 5.5
1" NPT: 11.1

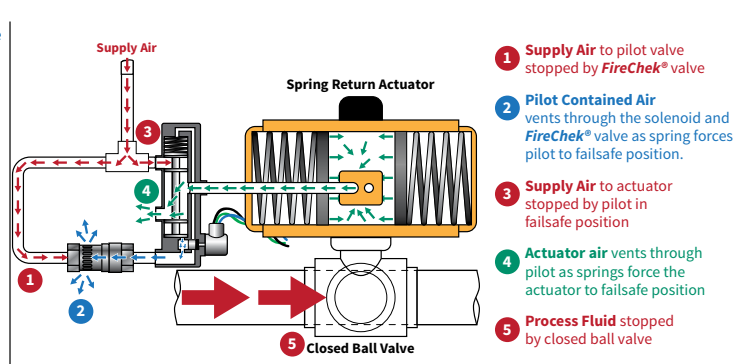
MODEL NUMBERING

See Page 6

NORMAL OPERATION


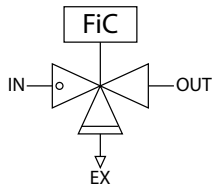
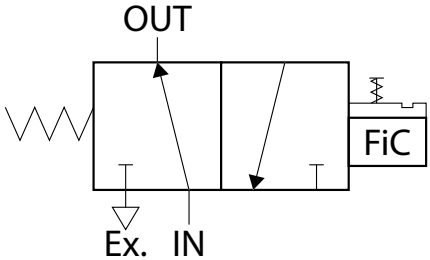

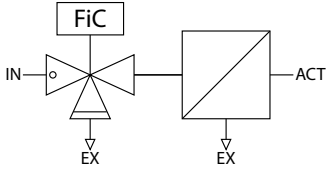
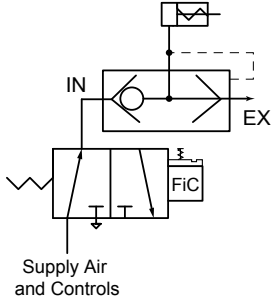
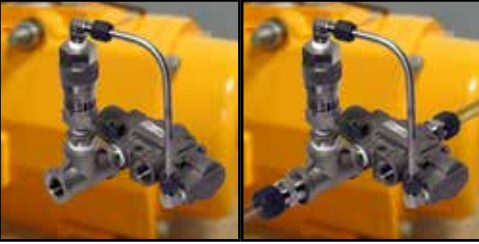
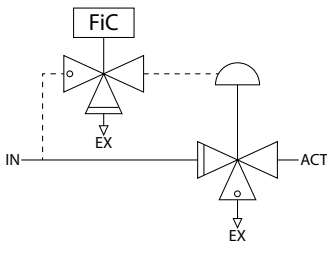
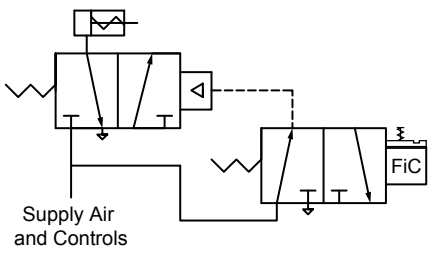

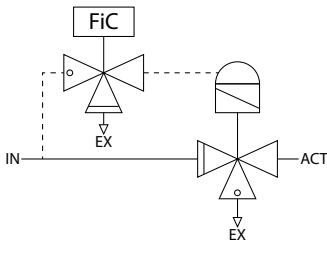
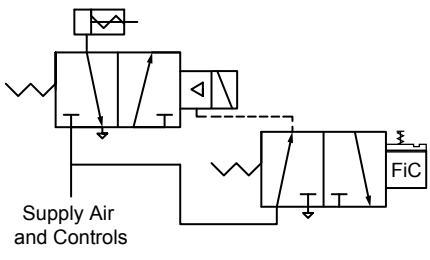


EMERGENCY OPERATION



FireChek® Series

Testable and Resettable Heat Activated Pneumatic Shut-off Valves

Shut-off Valve Type	P&ID Symbol	Pneumatic Schematic Symbol
 <p>FireChek®</p>		
 <p>FireChek® with Quick Exhaust</p>		 <p>Supply Air and Controls</p>
 <p>FireChek® with High Flow Pilot</p>		 <p>Supply Air and Controls</p>
 <p>FireChek® with Solenoid Operated High Flow Pilot</p>		 <p>Supply Air and Controls</p>

FireChek® with High Flow Pilot Valves

Testable and Resettable Heat Activated Pneumatic Shut-off Pilot Valves

MODEL NUMBERING

Model Number _____ **FC4NPT** X **PS3** X X X X

Series: _____
FC4NPT = FireChek® Heat Activated Pneumatic Shut-off Valve

Initiation Temperature: _____
135 = 135°F (special order)
150 = 150°F (special order)
165 = 165°F (standard)

Pilot Valve: _____
PS3 = Stainless Steel, 3-way, SIL III High Flow Pilot Valve

Size of Pilot Valve Ports: _____
A = 1/4"
B = 3/8"
C = 1/2"
E = 1"

Pilot Valve Mounting Connection: _____
N = NAMUR (1/4" only)
P = Plate Mounted (for Electric Pilots) Inline NPT Ported (FNPT inlet and outlet)
C = Inline Compression fittings (not available on Electric Pilots)

Note: All models come with NPT exhaust port

Pilot Type: _____
E = with explosion proof electric solenoid valve
P = without solenoid valve

Pilot Solenoid Voltage: _____
A = 120vAC
B = 24vDC Standard electrical solenoid version comes with a UL, CSA explosion proof
C = 240vAC potted coil with 1/2" NPT conduit connection with 18" wire leads.
F = 12vDC Class I Div I Groups C & D; Class I Div II Groups A, B, C, & D; NEMA 4/4x/7/9

P = None (if P is chosen above for Pilot Type)

Cv VALUES

Shut-off Valve Type	1/4"		3/8"		1/2"		1"		Air Pressure (min - max)
	Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust	
FireChek® Valve	0.45	0.56	-	-	-	-	-	-	0 - 125 psi
FireChek® valve with Quick Exhaust	0.45	3.3	-	-	0.45	8.8	-	-	5 - 125 psi
FireChek® Valve with NAMUR Pilot	1.6	1.6	-	-	-	-	-	-	25 - 125 psi
FireChek® Valve with Ported Pilot	1.8	1.8	2.0	2.0	5.5	5.5	11.1	11.1	50 - 125 psi