

PROINERT VALVE OPERATION

Fike developed the first pressure/flow regulating valve for fire suppression systems in 2003. Since that time Fike ProInert systems have been safely applied to thousands of hazards to protect vital assets, critical processes, and protect against business interruption.

A key feature that is designed into the Fike valve is the ability to control the discharge pressure/flow of the agent with the use of a wave spring and cross-sectional areas of the valve. The Fike ProInert Valve was applied for United States Patent in February 2003 and received in March 2005.

The major benefits of the Fike ProInert valve are:

- The ability to minimize peak room pressure compared to traditional inert gas systems that have a heavily constructed manifold and orifice plate.
- Cost savings because a heavy walled manifold and restrictor plate is not required to reduce the pressure/flow of the system.
- The Fike ProInert valve opens to allow more inert gas to flow from it as the pressure in the cylinder decays during system discharge
- Smaller room vents to protect the room from over-pressurization. In order to reach adequate inert gas design concentration approximately 50% of the room volume must be discharged into the protected hazard. Controlling this flow like the Fike valve does allows for smaller room vents.

How the valve works

Many people have asked how the Fike ProInert valve works and many of Fike's competitors have done their best to design valves that replicate the operation of the Fike valve. The basic principle of the valve method is that if the system pressure/flow increases beyond a set point, the valve detects this and closes the discharge port. If the pressure/flow is below a set point, the valve detects this and opens.

An important feature of the Fike ProInert valve is how it would operate if discharged into a closed system. Fike does not recommend that systems are designed to have the potential to discharge into a closed system and we recommend that systems that incorporate selector valves be equipped with vent and safety relief valves. If a Fike ProInert valve is discharged into a closed pipe network, the valve will close itself automatically at a pressure of approximately 70 bar. If you are familiar with the Fike valve you know that to fill the valve you are required to have a special tool to hold the valve open during the fill process. This is because if the discharge port of the valve sees the pressure of 70 bar then the valve will be closed and not able to be filled to the 200 or 300 bar system pressure.

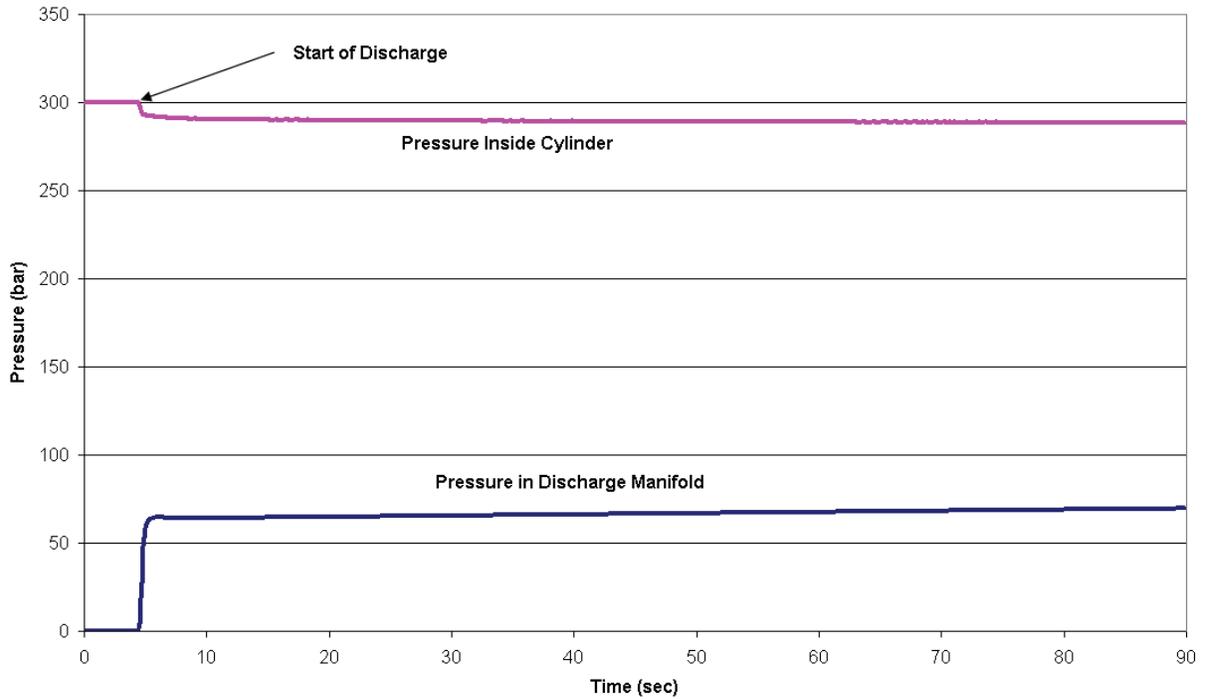
I have attached a graph of a test where a ProInert cylinder was discharged into a closed manifold so you can see the results.

I hope this technical bulletin clarifies any questions you have regarding the valve operation. If you have further technical questions regarding the valve please contact Fike Technical support at (816)229-3405.

Best Regards,

Brad Stilwell
Director, Facilities Protection Mechanical Products

**Prolnert™ Valve
Dead Head Test**



Graph of Prolnert Discharge into a Closed Manifold
(This is not recommended)