



**Vaporless Manufacturing, Inc.**  
**Quality Petroleum Equipment**  
**Solutions for Over 20 Years**

**How Pressure Relief Valves Work in Series**

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Both the VMI Models 99 LD-2000 and 99 LD-3000 line leak detectors have an integrated check valve with pressure relief valve. The pressure relief valve is incorporated to relieve high pressure build up when thermal expansion is occurring. Both models relieve at approximately 24 psi.

Most submersible pumps also have a check valve with pressure relief valve.

Anytime you have two or more relief valve installed in a series, it is necessary to add the relief valve settings together to determine your final holding pressure in the line when the pump is turned off.

In the attached example below we are showing a man (the pump relief valve spring) pushing against Door # 1 (pump relief valve). He is pushing against the door at 10 psi trying to hold the door closed. This means that it will take a minimum of 10 psi to begin to open Door # 1.

To the right we are showing a second man (VMI leak detector relief valve spring) pushing against Door # 2 (VMI leak detector relief valve). He is pushing against the door at 24 psi trying to hold the door closed.

On the outside of Door # 2, we are also showing a third man trying to open the door. This third man (line pressure) must push at a minimum of 34 psi to open both doors.

