

Large Pressure Relief Device Operating and Testing Instructions

Background

The Qualitrol Series 208/213/216/LPRD00 Large Pressure Relief Devices (PRD) are designed to be able to relieve large volumes of gas or insulating fluid rapidly when the pressure inside a transformer reaches a pre-determined limit. The purpose of this specification sheet is to supply customers with a means of replicating the factory test procedure, and to offer recommendations for application.

Operating Specifications (unless otherwise noted)

*At rate of rise of 2 psi/sec [.14 bar/sec] or greater:

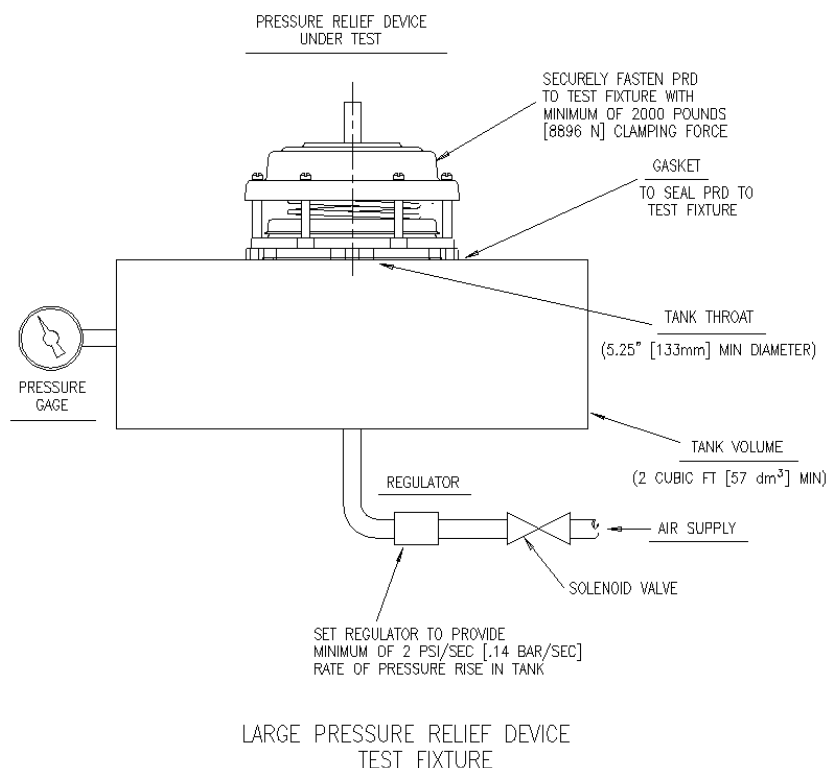
Nominal Operating Pressure	Tolerance
4 PSI – 14 PSI [.28 BAR - .97 BAR]	±1 PSI [±.07 BAR]
15 PSI – 20 PSI [1.03 BAR – 1.38 BAR]	±2 PSI [±.14 BAR]

The unit will exhaust rapidly with a loud, percussive “bang” and reseal at approximately one half its normal operating pressure. When testing, allow at least one hour between operations; the PRD may operate at a lower pressure if re-tested earlier.

*At rates of rise less than 2 psi/sec [.14 bar/sec] the tolerance on the operating pressure doubles and the unit may release pressure slowly (“hiss”) without actuating the indicator or optional alarm switch.

Verification Testing

The required testing apparatus is shown below.



Application Recommendations

Qualitrol pressure relief devices are usually mounted in the horizontal position, topside up. Although the horizontal position is recommended, the device may be mounted on its side (vertical plane) – the electrical connector should point down (see Figure 1). Any pressure head due to side mounting or to conservator tanks (approximately 0.38 psi/foot [.086 bar/meter] for petroleum based insulating oils) should be taken into consideration when determining operating pressure and allowance should be made for the tolerances of the slower rate of pressure rise. A tank opening of 5.25 inches [133mm] or larger is recommended to maximize operational response. Airflow through a 208/213/216/LPRD00 PRD with an operating pressure of 10 PSI [.69 bar] is approximately 8400 SCFM [14,441 Nm³/hr] at 15 PSIG [1.03 bar].

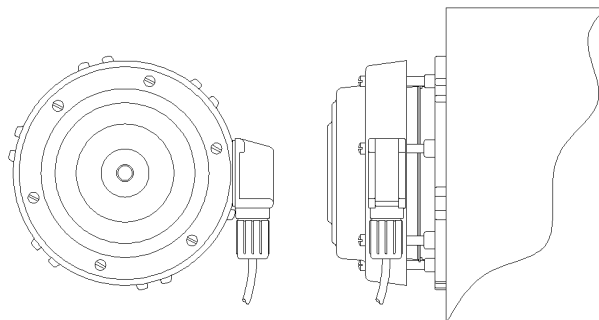


Figure 1: Switch orientation for vertical plane mounting.

The PRD may be subjected to full vacuum with no damage.

There is an optional shield available which allows the discharge flow to be vented in a single direction.

Mounting the PRD

Tighten the bolts in an alternating pattern and repeat the pattern several times until the flange is seated to the tank, mounting flange or plate. ***It is important that the PRD be tightened in an even fashion to prevent the flange from cracking.***