Xtra Protection Relief Device
Operating and Testing Instructions

Background

The Qualitrol Series XPRD00 Xtra Protection Relief Device (PRD) is 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 and to provide a means for controlling and collecting any effluent. It has the same mounting footprint as the LPRD00 Series for ease of upgrade and retrofit. 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]

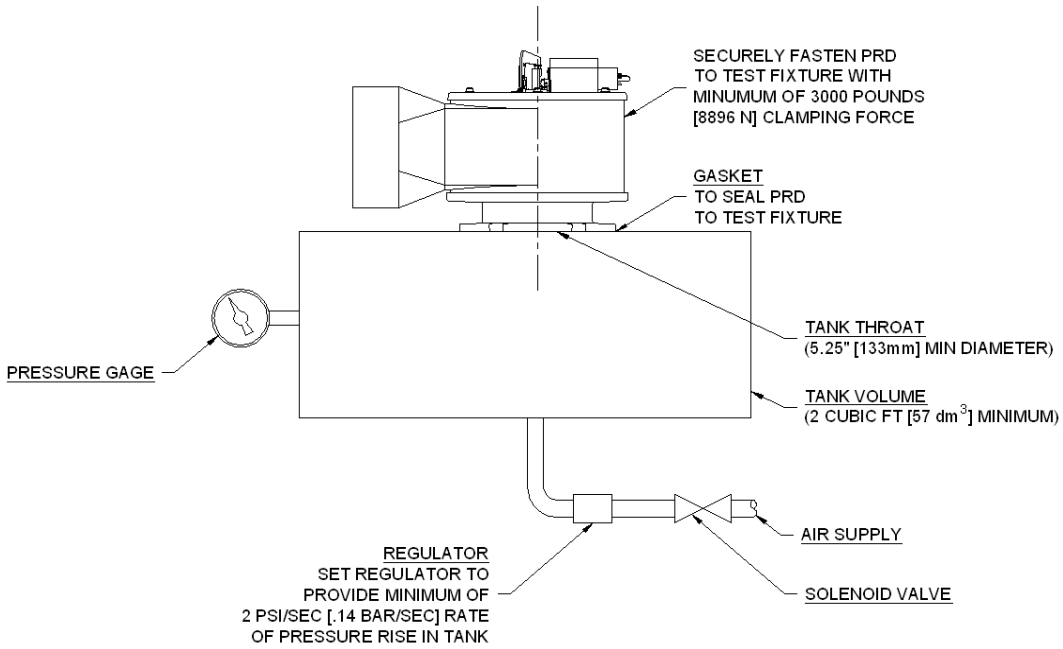
The unit will exhaust rapidly with a loud, percussive “bang” and reseal at approximately one half its normal operating pressure. When testing, allow at least one hour between operations; the PRD may operate at a lower pressure if re-tested earlier.

*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.

XPRD PRESSURE RELIEF DEVICE TEST FIXTURE



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) – both the electrical connector and the large vent should point down, and the terminal box or standard shell connection styles must be used. 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 6.75 inches [171.5 mm] is recommended to maximize operational response. Airflow through an XPRD00 with an operating pressure of 10 PSI [.69 bar] is approximately 12,600 SCFM [21,661 Nm^3/hr] at 15 PSIG [1.03 bar].

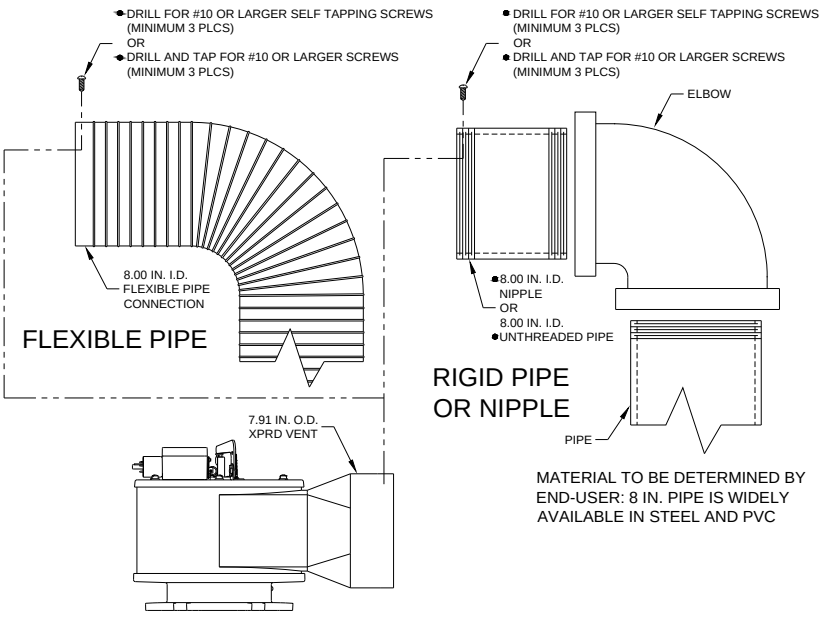
The XPRD00 Series comes equipped with an integral shield which can be rotated 360 degrees. It is vented to prevent moisture build-up and during operation a small amount of fluid may exit through the vents and rotating assembly. The 8 inch [203mm] round vent may be mated inside standard 8 inch [203mm] pipe, threaded or unthreaded. Fasten securely after assembly by drilling and then riveting, bolting, or screwing pipe and vent together. ***Any attached pipe must be independently supported. Verify that proper electrical clearances are obtained with associated pipe in place.***

When the PRD and optional switch have operated the indicator is raised up. The switch is reset by pushing the indicator back down. The switch may be tested after assembly by pulling up on the indicator. ***The indicator should never be subjected to any perpendicular force while extended and must* be *fully re-seated after test to reset PRD to the non-alarm condition.*** The PRD comes equipped with a semaphore. Mount with the supplied screw in the tapped hole next to the raised boss on the cover, making sure to center the semaphore over the yellow indicator. Tighten to approximately 30 in-lbs [3.4 N-m].

Mounting the PRD

The mounting gasket should be centered in the gasket recess. Gasket cement or similar adhesive is recommended. 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.***

XPRD: FASTENING THE OPTIONAL PIPING



FOR ADDITIONAL SEALING AFTER FASTENING: