

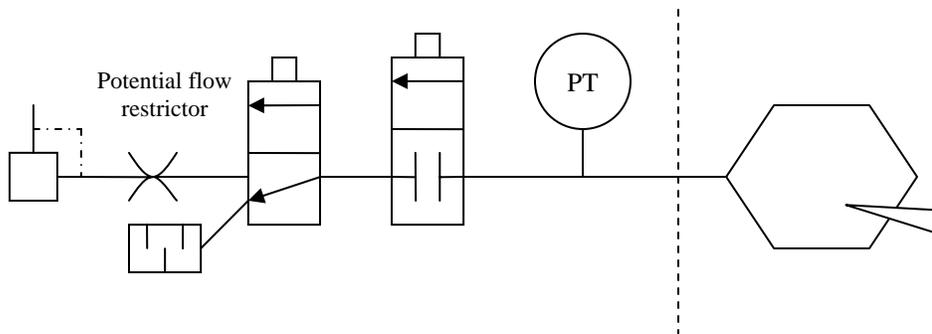


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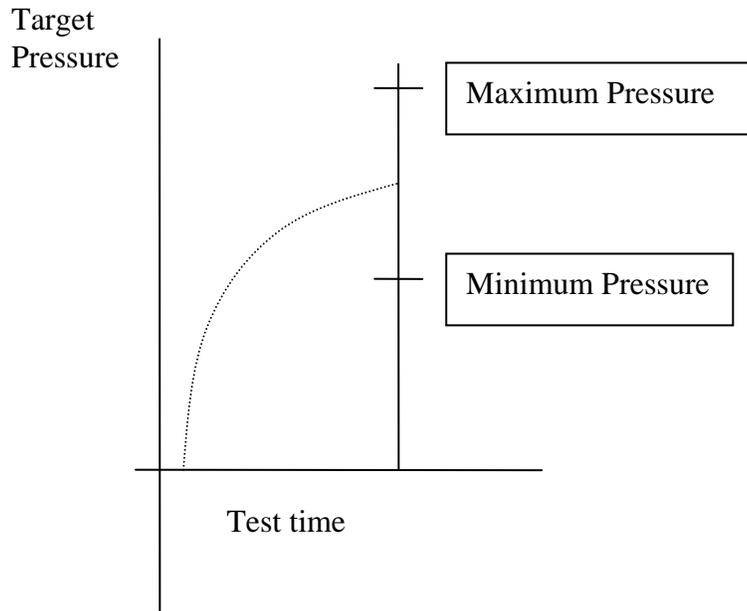
## Occlusion (Back Pressure) Tests

The Sentinel I24 instrument offers a test type option to check for blockage in parts. This is called an Occlusion or Back Pressure test. It is important to assure that the instrument can output more air than can pass through the part at its most unblocked state. This will allow the instrument to create some back pressure between the part and transducer in the instrument. If the instrument has too much flow capability, an appropriately sized flow restrictor can be installed between the regulator and the inlet to the test manifold. One way to estimate the flow capacity is to check the size of the part openings that are being tested versus the size of the valve ports in the Sentinel I24 instrument. The flow paths through the instrument are typically 1/8 to 1/4" diameter, therefore it is not practical to test for occlusions or restrictions of greater than 1/8 to 1/4" without using a custom pneumatic circuit with larger flow paths. The test circuit consists of a regulator that is set to the target pressure. It supplies high capacity air flow to the pneumatic manifold. The Sentinel I24 offers several manifold types with low (approximately 1/16"), standard (approximately 1/8"), and high (approximately 1/4") flow capabilities. The smallest restrictor in the source flow circuit will control the maximum flow or least restriction that be measured. Custom pneumatic circuits can be supplied with larger flow capacities.



For typical leak test applications, the part's restriction to flow is almost complete so that the target pressure of the regulator is quickly achieved for a leak test. If the flow line to the part is completely open, there will be no restriction and therefore impossible to create any pressure or back pressure. Therefore based on the part volume, part occlusion, target pressure, and flow capacity of the test manifold, the test pressure will ramp up to a back pressure. A minimum and maximum pressure window after a fixed filling (test) time will judge the relative opening of a hole in the part. The maximum pressure defines a small opening and a minimum pressure

defines a larger opening. The test evaluation setting defines in which region (Below Minimum Pressure, Between Pressure limits, and Above Maximum Pressure) the part test passes and fails.



Occlusion or back pressure testing is a simple test that can be conducted in connection with our pressure decay leak test to verify that a part was a known opening or flow capacity. It is a standard test type available in all Sentinel I24 pressure/vacuum decay test instruments.