

Whether performing hydrostatic or pneumatic testing, using appropriate safe work practices will help keep you and others safe from pressure testing hazards.

Types of Pressure Testing

- **Hydrostatic:** Using water or another approved liquid to test piping systems for leaks
- **Pneumatic:** Using air or another approved inert gas to test piping systems for leaks

How to Prevent Common Pressure Testing Failures

Over-pressurizing

- Follow standard operating procedures; consult your supervisor for safe test pressure and duration
- Install an appropriate pressure relief valve
- Increase pressure gradually; NEVER exceed safe test pressure
- Use established hold points consistently

Inadequate or Improper Pressure Testing Equipment

- Use equipment made by a reputable manufacturer
- Inspect equipment for poor quality and damage; replace damaged equipment immediately
- Ensure all test gauges register zero prior to installation
- Use brand new properly calibrated gauges, or check calibration stickers for acceptable professional calibration within the past 12 months

Improper System Design

- Verify proper system design prior to testing; consult your supervisor if system cannot handle pressure

Operator Error

- Adhere to standard operating procedures, safe work practices, and equipment and materials manufacturers' recommendations
- NEVER participate in pressure testing without proper training

Inadequate Repairs or Modifications

- Inspect entire piping system for misalignments, improper fittings, rolled or cut gaskets, and correct before pressurizing

Improper Isolation of Non-test Parts and Equipment

- Review the piping system's 3D models or drawings and pretest safety planning procedures before pressurizing
- Create a pretest checklist that includes equipment isolation and specific parts to be isolated or blocked

Perform a "Walk Down"

Before the test, perform a thorough "Walk Down" (detailed inspection) to make sure the system has been properly prepared.

- Identify any equipment that could be affected by a failed test and take steps to protect it
- Ensure all joints and connections are exposed and visible
- Verify that lockout/tagout procedures have been properly completed
- **Hydrostatic only:** Ensure system is properly vented; establish proper water drainage and collection points and make adjustments for freezing temperatures
- **Pneumatic only:** Verify test medium is neither flammable nor toxic

General Safe Work Practices

- Wear protective equipment (e.g., hardhat, safety glasses, gloves, face shield, hearing protection)
- Install a pressure relief valve and gradually release pressure after testing
- Use two pressure gauges: one at the pressure source, the other at the highest or farthest point
- Choose gauges that place the test pressure as close to the 12 o'clock position as possible
- Barricade the test area with red "danger" tape
- Inform all affected personnel when testing will start
- Before pressurizing the system, clear the test area and surrounding areas of all unnecessary personnel