

*General
Isolation
Tool Safety*

- ▶ “Monitoring Isolations”

Monitoring Isolations

Ensure the following:

- ▶ While the tool is installed, at no time can parts (vent gauges or hoses) be removed. Welders and Pipefitters may request to have the venting apparatus temporarily removed so that they can perform their hot work in and around the piping system being isolated.

NOTE: When the venting assembly is removed from the isolation tool, you have essentially created a donut in the line, instead of an isolation. No hot work can be performed in the affected area unless isolation pressure gauge and vent (back pressure) gauge is monitored.

- ▶ **This practice strictly Prohibited. There is no way to prove isolation or monitor back pressure behind the tool!**

Monitoring Isolations

- ▶ Monitoring Isolations Safely
- ▶ **WHEN** - We monitor both the Isolation Pressure Gauge (20 - 50 psi) and the Vent Gauge (0 psi) during all hot work operations. We must monitor the Isolation while hot work is being performed!
- ▶ **WHERE** - Most hot work operations in the field will consist of a fire blanketed tent to contain sparks. Typical monitoring practice will be to don Respiratory Protection (PPE) due to the welding and grinding dust/fumes inside the tent. The Isolation Monitor will be inside the tent performing their duties.
- ▶ If space in the working area is not adequate, then additional hoses can be attached to both the isolation pressure gauge line and the vent gauge line, running them outside the hot work tented area to a safe respiratory protection free zone.

Monitoring Isolations

- ▶ Monitoring Isolations Safely -Cont'd
- ▶ **HOW** - The *Isolation Monitor* will continuously watch both the Isolation Pressure Gauge maintaining 20 - 50 psi ensuring that the hydrostatic barrier is isolating between any potential hydrocarbons in the piping system and the hot work. The *Isolation Monitor* will the monitoring Vent Gauge for any back pressure behind the SCIT Tool.
- ▶ **WHAT** - *Loss of pressure* shown on the isolation pressure gauge represents one seal has failed. Work is to be stopped until the Isolation seal is rechecked and proven.
- ▶ *Increase of pressure* shown on the isolation pressure gauge represents an increase of temperature of the pipe. If pressure is increased too high, it is possible one of the seals may leak. Reduce the pressure to maintain a pressure between 20-50 psi by slowly opening the fill line block valve.
- ▶ *Pressure increase on vent gauge* represents a build-up of back pressure or product behind the Isolation Tool. ***Work is to stop immediately, and area cleared until upstream pressure is reduced to original levels, prior to starting work in the area.***

Monitoring Isolations

- ▶ **WHY** - We monitor the isolation tool to ensure that the hydrostatic barrier is maintained between any potential hydrocarbons and the hot work being performed. We also monitor isolation from any back pressure build up behind the isolation tool in the piping system.

REMEMBER - Only trained installers are authorized to monitor isolation.

- ▶ **At NO TIME shall any workers be standing or monitor gauges directly in front of the isolation tool. All workers are to remain off to the side and out of the “LINE OF FIRE.”**

Leaving Isolations Unattended

- ▶ All isolations must be monitored at the isolation pressure gauge and vent gauge for the complete duration of the hot work/job. (VITAL Industrial Solutions Standard).
- ▶ When an Isolation Tool is left unattended, a warning sign should be placed in the area to alert plant personnel and contractors that an Isolation is in place.
- ▶ The following shall identify the procedures and instructions used when an installed Isolation Tool is left unattended:
- ▶ The installer technician must hang a **WARNING SIGN** at any location where an Isolation Tool will be left unattended (unmonitored) within a customer plant.

“This sign should, as a minimum, be readable at 10 feet from the open pipe area and state the following:

Leaving Isolations Unattended

WARNING

Unattended Isolation in place!

Hot work should not proceed without
authorization from the installer.

At no time should the customer or other plant contractors perform hot work without a gas test and without authorization from the isolation installer

Re-activate an unattended Isolation Tool

- ▶ Installing Technician to request a gas test prior to entering the area.
- ▶ Installing Technician to visually inspect Isolation pressure gauge/vent gauge and confirm hydrostatic barrier isolation and seals.
- ▶ A new pressure test must be applied to the Isolation Tool and must be visually inspected for leaks.
- ▶ Adjustments to the isolation tool are to be made at this time until a new isolation seal is proven. **(before hot work resumes)**

Re-activate an Unattended Isolation Tool

- ▶ Installer Technician will notify the customer representative (Operations or Contractor) that it is safe to begin hot work in the area.
- ▶ They will monitor the isolation while work is in progress and until the work has been stopped or has been completed.

***General
Isolation Tool
Safety***

▶ **“Technician Error”**

Technician Error

1. Dirty Pipe.

Clean the inside of the pipe wall where the Isolation is being installed. The seals of the tool will conform to pits, seamed pipe, oval pipe and oily surfaces, however the seals of the tool will not seal if the seals are located on scale, coke on any other for of solids that have built up on the pipe wall.

Generally speaking if the tool is not holding pressure and there is sufficient torque on the tool then you must remove the tool and clean it again.

Technician Error

2. Insufficient torque.

If the tool is leaking into the inner chamber of the tool the medium is passing behind the seal. If this is the case re-torque the tool applying additional torque being careful not to exceed the maximum allowable torque value for that tool.

If the seals are leaking on the pipe wall then and the pipe is clean, re-torque the tool being careful not to exceed the maximum allowable torque value for that tool.

Technician Error

3. Not checking the dimensions of the new flange before welding.

Always check the dimension of the flange to ensure that the pipe schedule and the flange schedule match. If the flange has a heavier wall thickness then make sure the SCIT tool OD is less than the ID of the new flange.

Technician Error

4. Improper Use of N₂.

The SCIT tools are designed for zero backpressure conditions however, from time to time it becomes necessary to blanket a process system with nitrogen to keep humidity levels low and/or to displace any O₂ that has entered the system. To avoid an over pressure condition, careful planning and special monitoring procedures should be put into place to avoid an undesired pressure condition. At no point should a N₂ blanket exceed 5 psi.

Technician Error

5. Plugging the vent pipe.

- ✓ The *Installer Technician* should never plug the vent pipe.
- ✓ Never install a valve on a vent pipe or line.
- ✓ Always vent to a safe area where no hot work is being performed.