

Nitrogen Layup Procedure

1. Seal the Steam Outlet of the boiler and close the feed water inlet valve. Confirm that the bottom blow down valve is shut as well.
2. Open the surface blow down valve at the water sample location.
3. Attach the Nitrogen Layup ASSY to the air release valve and open the valve after the assembly is attached.
4. Attach the Nitrogen Regulator to the Nitrogen Tank and attach the hose to the regulator. Then, attach the open end of the hose to the Nitrogen Layup ASSY inlet valve.
 - a. *With the Nitrogen Cylinder in a vertical position, remove the cylinder cap.*
 - b. *Momentarily “crack” the valve to blow out any dust or dirt from the valve.*
 - c. *Attach the regulator to the cylinder.*
 - d. *Turn the pressure key counter-clockwise until it feels free to make sure the regulator is closed.*
5. Open the Nitrogen Layup ASSY inlet valve.
6. Set the Nitrogen Regulator to 10 PSI to begin filling the boiler with Nitrogen.
 - a. *Slowly open the supply valve of the Nitrogen cylinder.*
 - b. *After full pressure is indicated on the cylinder side of the regulator, slowly turn the regulator’s pressure key clockwise to until the pressure is 10 PSI on the outlet side.*
7. As the boiler fills with Nitrogen, test the Oxygen content of the boiler as air leaves the boiler from the open surface blow down valve.
8. When the Oxygen content of the boiler decreases to 3%, close the surface blow down valve, sealing the boiler completely. *(The air bleed valve should be open for the pressure gauge from the Nitrogen Layup ASSY to read the pressure in the boiler.)*
9. Continue to fill the boiler with Nitrogen until the boiler is pressurized to 10 PSI.
10. Close the Nitrogen Layup ASSY inlet valve.
11. Follow the procedures below to remove the Nitrogen Tank and the hose from the Nitrogen Layup ASSY.
 - a. *Close the supply valve on the Nitrogen cylinder.*
 - b. *Remove the hose from the Nitrogen Layup ASSY.*
 - c. *Turn the regulator pressure key counter-clockwise until it feels free to close the regulator.*
 - d. *Remove the regulator from the cylinder if Nitrogen use is no longer required.*
12. Check for any leaks of Nitrogen and seal any leaks that are found.

**For boilers where the Bottom Blow Down is accessible within 5 feet of the boiler and is not piped together with other boilers, use the Bottom Blow Down instead of the Surface Blow Down to monitor the Oxygen concentration of the boiler.*

***For instances where the boiler is planned to be attached to the Nitrogen cylinder for a long duration, do not do steps 10 and 11; leave the Nitrogen cylinder attached so that it can maintain the pressure in case of leakage.*

****Please utilize proper safety procedures for handling pressurized tanks.*



Figure 1.
Hose to feed Nitrogen into the boiler.

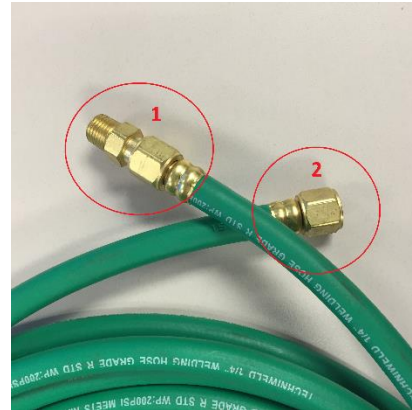


Figure 2.
#1 The end that attaches to the Nitrogen Layup ASSY.
#2 The end that attaches to the regulator.



Figure 3.
The Nitrogen regulator that controls the feed of Nitrogen into the boiler.

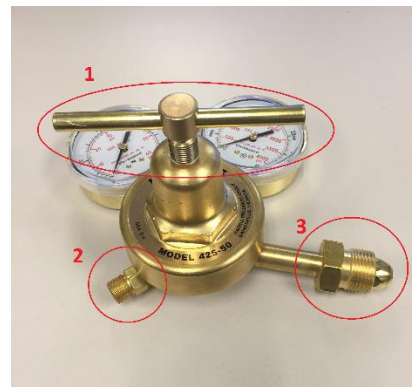


Figure 4.
#1 The pressure key used to open (clockwise) and close (counter-clockwise) the regulator.
#2 The end that attaches to the hose.
#3 The end that attaches to the nitrogen



Figure 5.
The Nitrogen Layup ASSY, used to fill the boiler with Nitrogen and monitor the pressure of the boiler.

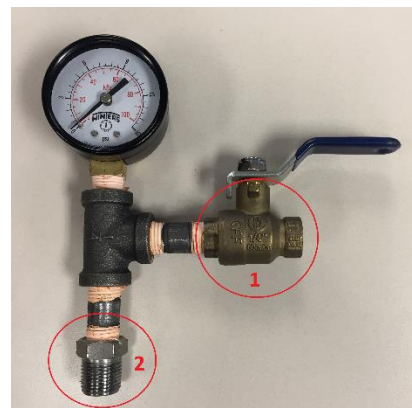


Figure 6.
#1 The inlet valve that attaches to the hose.
#2 The end that attaches to the boiler's vent valve.