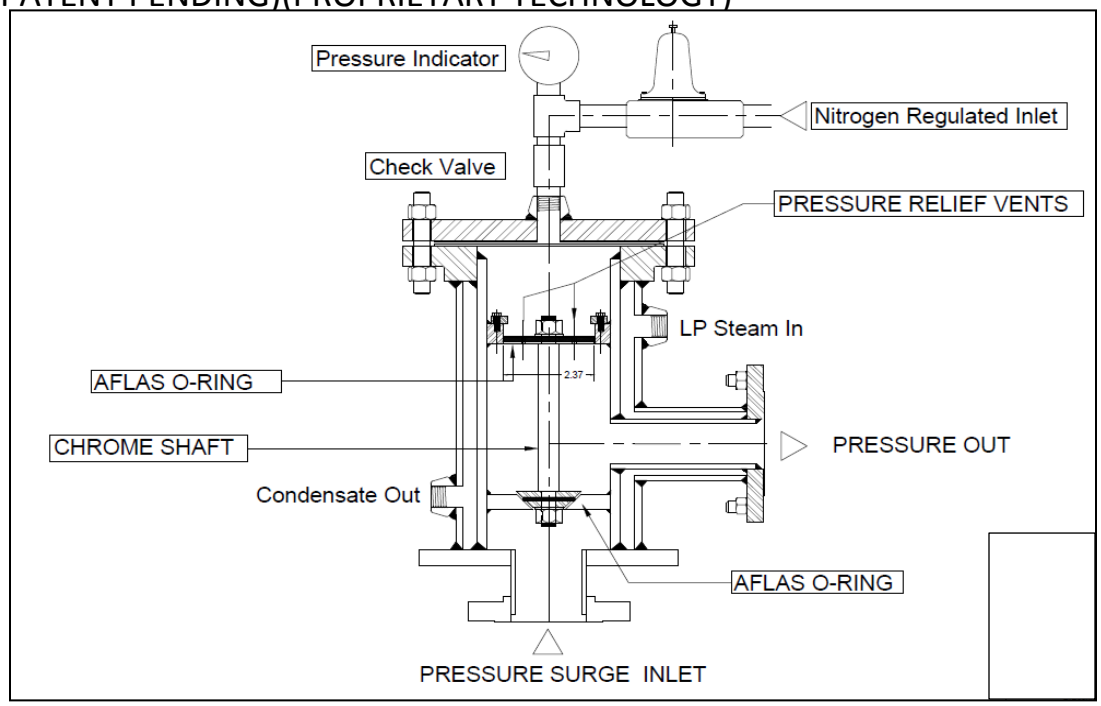
Sulfur Operations Support

PRESSURE SURGE RELIEF DEVICE

(PATENT PENDING)(PROPRIETARY TECHNOLOGY)



1. *The following is an over pressure relief system that has applications in many areas. However it is being proposed for application on SulTraps in Sulfur Service.*

2. *The top chamber has a nitrogen or instrument air pad. The gas pressure supplied through a small instrument back pressure regulator.*

3. *The set pressure is based on the overall cross section area between the top plate and the seat cross section area of the lower plug.*

For example; if the lower plug has a diameter of 4 inches, the upper plate would have a diameter of 6 inches.

If the design pressure for relief is 20 psig, then nitrogen/IA pad would have a chamber pressure of 9 psig.

At any pressure below the 20 psig relief point, the upper chamber would maintain a downward force to maintain the seal on the plug preventing the pressure from the inlet from escaping.

Once the pressure exceeds the 20 psig set point, then shaft would rise allowing the gas to escape and exit the pressure out.

Once the pressure drops below the 20 psig, the pressure in the upper chamber would force the shaft to close preventing additional relief.

4. *In the upper chamber, the upper plate has small weep holes, these holes allow a small volume of nitrogen/IA to continuously purge the relief chamber and exit out the pressure out nozzle.*

5. *The upper plate has a maximum travel of one inch.*

6. *The advantage is the total available area for relief. The total relief area is the circumference of the lower plug time the one inch rise. A 4 inch diameter plug would have a circumference of 12.5 areas of open upon a one inch rise.*

7. *This is a large volume relief system. Most relief systems that can permit this area are rupture systems that cannot reseal themselves.*

8. *Guides are provided to ensure a direct up and down action.*

9. *The seals indicated are AFLAR material. However, the material selection is based on operating parameters.*

10. *The entire shaft can be removed for inspection by removing the upper plate limiting stops.*