



THE IMPORTANCE OF A » PIGTAIL ON A STEAM PRESSURE GAUGE

The pigtail was invented to prevent the internal parts of steam pressure gauges, particularly the materials of the responsive element and of any fusible joints, from being subjected to high steam temperatures. Steam pressure gauges are highly sensitive instruments that, if not properly cared for, can be easily damaged or destroyed.

To ensure steam pressure gauges are highly reliable, it is essential to use a steam gauge pigtail, which will prevent damage to the gauge from direct exposure to high steam temperatures.

The pigtail allows steam to change phase from a gas into a liquid by dissipating the latent heat energy of steam and allowing the steam to condense, thus providing a loop seal of liquid. The loop seal of liquid prevents the transfer of the heat energy from the steam to the gauge. The pigtail loop also protects the gauge from any pressure surges in the system.



Figure 1. Pressure Gauge Pigtail Installation

SELECTION PROCESS:

1. Review the pressure and temperature rating.
 - a. The pigtail, which is typically made from tube material, needs to be rated for the maximum pressure and temperatures.
 - i. Example: 0.035, 0.049, 0.065, or 0.109
 - b. Check the pigtail's wall thickness to ensure it complies with the code requirements.
 - i. B31.1 or B31.3
2. Connect the pigtail to the steam pipe.
 - a. Welding is the preferred method.
 - b. Tube connection is the second choice.
 - c. Thread is the least desirable choice because of a possible steam leakage point in the future.
3. Check the loop diameter.
 - a. The loop diameter should be sufficient to provide enough surface area to dissipate the latent and sensible energy from the steam and create a cool liquid seal.
4. Choose the right isolation valve.
 - a. The isolation valve should be a valve with a low internal leakage rate: it should meet the FCI standard of Class IV or higher or be an API internal

leak rated valve of 3 bubbles per minute or less. Ball valves (cast steel or stainless steel) are the preferred valve for this application.

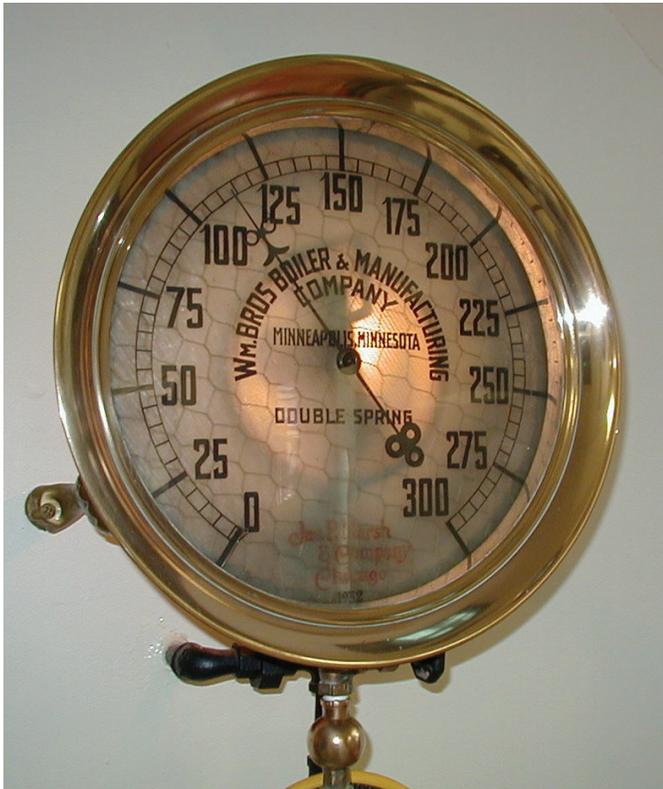


Figure 2. Pressure Gauge Pigtail Installation

COIL SIPHON: VERTICAL AND HORIZONTAL INSTALLATIONS

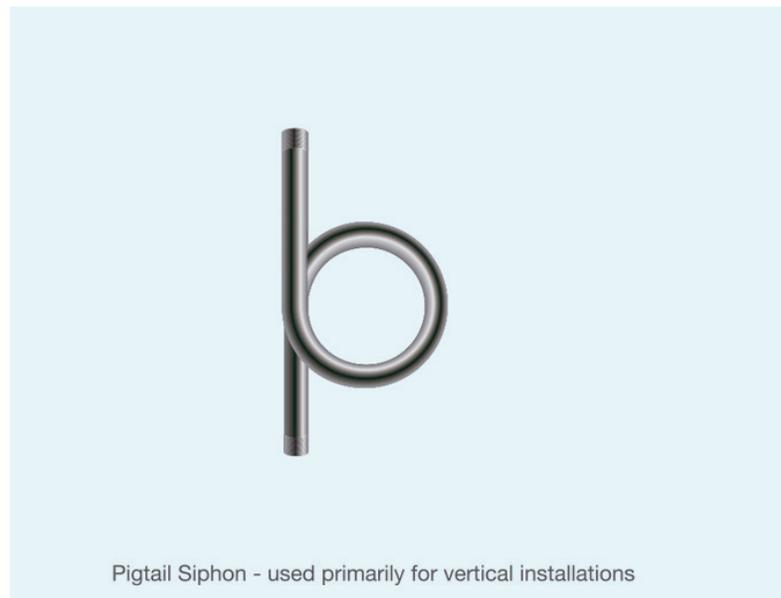
The pressure medium forms a condensate and is collected inside the coil or pigtail portion of the siphon. The condensate prevents the hot media from coming into direct contact with the pressure instrument. When the siphon is first installed, it should be filled with water or any other suitable separating liquid.

Figure 3 and Figure 4 show the different configurations that can be used. The typical installation is the vertical installation with the isolation valve located near the pressure gauge.



Coil Siphon - used primarily for horizontal installations

Figure 3. Coil Siphon Horizontal Installation



Pigtail Siphon - used primarily for vertical installations

Figure 4. Vertical Installation

Conclusion: All steam pressure gauges need to have pigtails and proper isolation valves.