



## Fill Line Recommendations on Polyethylene Tanks

A White Paper from Assmann

Fill lines are designed piping systems for introducing fluids into your storage tank. Fill lines are installed directly on your storage tank and they are generally constructed of PVC, CPVC, or 316SS. Fill line components normally consist of a Ball Valve, Camlock Quick Disconnect fittings and an Anti-Foam Elbow.

This document is to serve as a general guideline for filling polyethylene tanks. Questions are often asked regarding fill pressures, nozzle types and general guidelines that should be followed when specifying and ordering fill connections. Every application is different so there are many variables; consult the factory directly with specific questions on your applications.

**Nozzle Type:** Assmann offers many nozzle types. Bulkhead fittings, flange fittings, and metallic nozzles are all suitable for fill line connections. Commonly, fill connections are located on the top of the tank, so most often cost-effective bulkhead connections can be used.

**Fluid Flow and Foaming:** Many chemicals foam when they are flowing or free falling into the storage tank. Assmann offers anti-foam elbows as an option on the inside of your tank. These nozzles direct the liquid towards the tank wall and reduce the amount of foaming that occurs during the fill cycle. Many customers request an internal drop tube on fill line assemblies; however, this is not recommended by Assmann. Internal drop tubes cause the liquid to be forced to the bottom of the storage tank during the filling cycle. When pneumatically loading, this also causes the air being used to push the liquid to be forced to the bottom of the tank. This surge of air can cause rapid expansion of the tank and failure. An Anti-foam elbow is the preferred method to eliminate air being forced to the base of the tank and increase your tank's longevity.

**Fill Position:** Assmann recommends that our tanks are filled from the top. Sidewall fill ports can be dangerous to your tank, as air and chemical would be introduced below liquid level and could cause the tank to expand and possibly fail.

**Vent Sizing:** Assmann recommends that vents are sized a minimum of 2-3 times the largest inlet or outlet connection when tanks are filled by tanker that uses air unloading techniques. Vents should be sized 1 1/2 - 2 times the largest inlet or outlet nozzle when diaphragm pumps, or non-pressurized methods are used for filling. Over-pressurization is the main cause of failure with polyethylene tanks. You can never have too much venting.

These are items that should be considered and discussed when engineering your storage tank. You should always consult with your chemical supplier to get their requirements and recommendations.

