

**Verification of
Net Positive Suction Head available (NPSHa) and
Net Positive Suction Head required (NPSHr)
for Pump System**

This Technical Bulletin outlines best practices for selecting piping to and from the sidestream injection system, and provides guidance on locating crucial pump design criteria within Mazzei's documentation. The dynamics of the piping system are critical to the sidestream injection process, and require thorough verification of operating conditions and facility infrastructure for proper functionality.

To ensure accurate sidestream booster pump calculations, it is vital to verify both Net Positive Suction Head available (NPSHa) and Net Positive Suction Head required (NPSHr) to prevent cavitation and equipment damage. Collaboration with relevant parties, including manufacturing and engineering experts, is recommended along with incorporating the latest data, for an accurate representation of the operating environment.

Mazzei, to assure proper performance, typically displays estimated NPSHa at the suction side of the sidestream pump(s) in the Sidestream Injection Design Basis table. Detailed pump design criteria, including NPSHr at the maximum design flow and discharge pressure, will be provided in our equipment submittal package. Evaluation and confirmation during the submittal review process are crucial to identify and agree upon necessary changes before receiving formal Notice to Proceed.

Additionally, Mazzei Injector Company recommends the following water velocity limits for injection skid supply and return piping.

- Velocity should not exceed 8 ft/s in supply piping.
- Velocity should not exceed 10 ft/s in return piping between the venturi injector and the mainline reinjection point.

Following these recommendations and verifying your pump head loss calculations will significantly contribute to the overall success and efficiency of the Mazzei sidestream injection systems.