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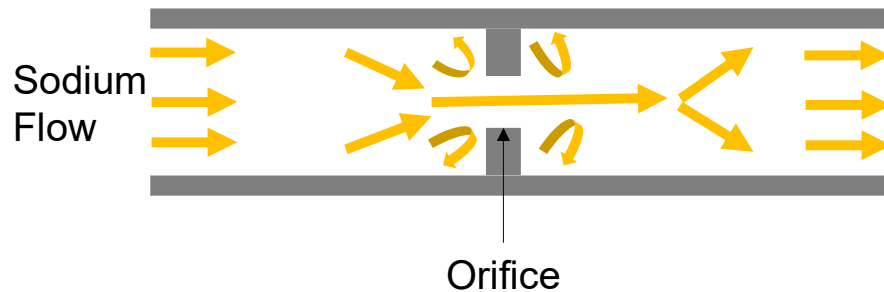
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Liquid Sodium Velocity Limits

Motivation

- Liquid Sodium used as heat transfer fluid is associated with corrosion, erosion, and cavitation.
- Rates are impacted by temperature and pressure as well as sodium velocity, especially when flowing through orifice plates



Flow velocity increases through orifice and results in higher corrosion at this testing location

- Acceptable sodium flow rates must be determined to establish standards for sodium fast reactor design

Objectives

- Design and build a new sodium loop to facilitate corrosion testing through orifices at varying velocities and temperatures
 - Loop will use multiple flow paths to allow for testing of multiple flow rates in one trial
- Test new alloys that may offer improvements in performance or economics over current materials
 - Determine maximum allowable flow velocity as a function of temperature and pressure based on corrosion rates from testing