

What is the back pressure limit created when using tubing unions - FAQ

Unions can normally withstand about 600 bar, it will be the nut and ferrule connection and the tubing which will be the weakest link and restricting part. That is where a leak could occur before the union fails.

When using tubing unions in HPLC, they can generally withstand pressures up to around 600 bar. However, the integrity of the entire system is not solely dependent on the union. The connections involving the nut and ferrule, along with the tubing itself, are often the more vulnerable components. These areas are prone to weakening and restricting issues.

Here are additional components to take into account regarding pressure limits:

- **Nut and Ferrule Connection:** This part relies on a tight mechanical grip to ensure a seal. Over time, due to wear and tear or improper installation, the seal may degrade, leading to potential leakage before the union itself fails.
- **Tubing:** Depending on the material and thickness of the tubing, it may have lower pressure tolerance compared to the union. This means under high-pressure conditions, the tubing could be more likely to deform or fail, causing leaks.

Leaks are more likely to occur in these connections and tubing because they experience stress and strain more directly than the union itself, which is designed to be the strongest part of the system.