

Tees and Crosses Unions Requires Ferrules - Tech Information

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Overview

HPLC tee fittings used in high-pressure areas are actually unions, and these require ferrules to create a proper compression seal.

Low-pressure tee junctions rely instead on flat-bottom flangeless fittings, which function well without ferrules due to the minimal pressure involved.

High-Pressure Zones – Use Ferrules

Characteristics

- These “tee fittings” are technically unions.
- They operate in parts of the system experiencing high HPLC operating pressure.
- They rely on ferrules to ensure a leak-free, stable connection.

Why Ferrules Are Required

1. Compression sealing: Ferrules deform to create a robust seal that handles high system pressures.
2. Pressure stability: Prevents leaks that may produce shifting baselines or inconsistent retention times.
3. Mechanical integrity: Compression fittings maintain long-term reliability under continuous pressurization.

Low-Pressure Zones – Use Flat-Bottom Flangeless Fittings

Where These Are Used

- Solvent selection valves
- Waste lines
- Atmospheric or auxiliary flow junctions

Why Ferrules Are Not Needed

- Minimal pressure: Low-pressure conditions allow a simple flat-bottom seal to function effectively.
- Simplified fittings: Flangeless designs reduce hardware complexity.
- Adequate sealing: Surface-contact seals are sufficient at low pressure without compression ferrules.

Correct Fitting Selection

Problems When Using the Wrong Fitting

- Leaks in high-pressure regions
- Pressure drops
- Signal baseline instability
- Risk of fitting blowout

Match the Fitting to the System Zone

- High pressure → Use ferrule-based unions
- Low pressure → Use flat-bottom flangeless fittings

Additional Resources

Ordering information and reference images for the appropriate HPLC unions are available. Click [HERE](#) for unions for HPLC ordering information and pictures



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Tee, High Pressure, Standard Size,
Hand Tighten.

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