

Pressure Maximum PEEK Column Coupler - Tech Information

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Understanding the Pressure Limits of ARE All-PEEK Column Couplers

ARE-brand all-PEEK HPLC column couplers—sold under Applied Research part numbers 47450-01, 47450-02, 47450-03, and 47450-04—are widely used as low-dead-volume unions for joining analytical components in an HPLC system. Despite their compact footprint and polymer construction, these couplers are engineered to perform reliably under a broad range of chromatographic conditions.

Pressure Capacity: Up to 6,000 psi

When installed properly and operated within standard HPLC temperatures and normal solvent systems, ARE all-PEEK couplers can tolerate operating pressures up to 6,000 psi. This rating makes them suitable for most conventional HPLC workflows, including high-pressure methods commonly encountered with modern shorter-length, smaller-particle columns.

Material Advantages of All-PEEK Construction

PEEK (polyether ether ketone) is well known for its excellent chemical compatibility and mechanical stability. Within an HPLC flow path, PEEK fittings offer several advantages:

- Chemical inertness across a wide range of aqueous and organic mobile phases
- Minimal risk of metal contamination, beneficial for LC-MS and low-abundance analytes
- Dimensional stability, allowing reliable sealing at elevated pressures
- Thermal tolerance appropriate for typical HPLC operating temperatures

These properties make all-PEEK unions an ideal choice for connecting columns, guard cartridges, detectors, and auxiliary components where robust, metal-free connections are required.

Proper Installation Is Critical to Achieving Rated Pressure

Although the couplers are designed to withstand up to 6,000 psi, achieving this performance depends on proper installation. To ensure the highest pressure integrity:

- Use compatible PEEK or stainless-steel tubing with fully seated ferrules.
- Verify that the tubing end is cleanly cut and free of deformation.
- Avoid overtightening, which may damage threads or distort ferrules.
- Confirm that the coupler is not exposed to temperatures beyond the recommended range.

Correct installation ensures consistent sealing performance and prevents micro-leaks or pressure-related failures.

Suitable Applications

ARE all-PEEK couplers are appropriate for:

- Joining analytical columns to guard holders
- Integrating in-line filters, back-pressure regulators, or detectors
- Creating metal-free flow paths for LC-MS
- Applications requiring moderate-to-high pressure tolerance

Ordering Information

Column coupler images and ordering options are available through our website: Click [HERE](#) for column coupler ordering information and pictures.

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