

PEEK HPLC Fittings Do Not Fit All Receiving Ports - Compatibility Rules and Pressure Tips - HPLC Primer

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Do All PEEK HPLC Fittings Fit All Receiving Ports?

Short answer: No. PEEK HPLC fittings are not “one-size-fits-all.” A reliable, leak-tight connection depends on matching several mechanical attributes of the fitting to the instrument’s receiving port as well as the method’s operating pressure. MICROSOLV’s Knowledge Base emphasizes checking the items below before installation.

1) Thread System and Diameter

Confirm the port’s thread standard—English (10-32) is common on HPLC components, while many low-pressure accessories use 1/4-28; some devices (certain detectors, valves, or accessories) may use metric threads. A PEEK nut made for one system will not seat correctly in a different thread form or diameter, even if it appears to start threading.

2) Pilot Length (Nose Length) and Ferrule Geometry

Many receiving ports include a coned entrance and a defined distance to the sealing surface. If the fitting’s pilot/nose length is too long or short, the tubing tip will miss the sealing cone or bottom prematurely, creating dead volume or a weak seal. Always match the fitting’s nose to the port design; this is just as important as the thread match.

3) Thread Count / Pitch

English 10-32 and 1/4-28 have specific threads-per-inch; metric ports use a pitch (mm per thread). Cross-threading a PEEK nut can permanently damage both the port and the polymer threads, and it will not hold pressure. Verify pitch before use.

4) Pressure Rating and Application Zone

Even with the correct mechanical fit, the pressure rating of the PEEK fitting must exceed your method’s maximum pressure. Finger-tight PEEK connectors vary widely by brand/design; typical ratings are suitable for many HPLC applications but not all UHPLC conditions. Select high-pressure-rated polymer fittings (or metal fittings where appropriate) for the high-pressure zone (pump → column). When in doubt, consult the fitting and instrument/port manufacturer.

When to Ask the Manufacturer

MICROSOLV specifically recommends confirming with both the fitting maker and the receiving-port device manufacturer when compatibility is uncertain. This avoids costly leaks, ghost peaks from dead volume, or thread damage.

Before installing a PEEK fitting into a new device or accessory, verify:

1. Thread system matches (English 10-32 or 1/4-28 vs. metric).
 2. Thread diameter and pitch are exact matches.
 3. Pilot/nose length aligns the tubing tip at the coned sealing surface (no gap, no bottoming out).
 4. Pressure rating of the fitting \geq maximum system pressure.
 5. Tubing tip is square and burr-free to eliminate hidden dead volume (use proper cutters and techniques).
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When Problems Occur: Symptoms & Fixes

- Leak at the port → Re-check thread form and pitch; inspect ferrule seating and pilot length; verify pressure rating.
- Band broadening/ghost peaks → The tubing tip may not reach the sealing cone (pilot too short/long), creating dead volume. Replace with a fitting of the correct nose length and re-cut the tubing properly.
- Cross-threading feel → Stop immediately; verify English vs. metric and pitch, then replace the nut.

Click [HERE](#) for HPLC fittings ordering information and pictures.

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