

Definition of Fitting for HPLC - HPLC Primer

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What Is a Fitting?

The general dictionary definition describes a fitting as “*a small, often standardized part used to join other parts together properly.*” This aligns closely with the way fittings are used in other fields, such as plumbing, but in HPLC the terminology is more specific.

Fittings in Chromatography

In HPLC and other chromatographic systems, a fitting is a component that creates a mechanical connection between tubing, system ports, and column hardware. These include:

- Nuts (internal or external threaded)
- Unions
- Crosses
- Tees
- Adapters
- Specialty connectors for high- and low-pressure environments

These components are engineered to tolerate the pressures, chemical compatibility requirements, and dimensional tolerances unique to HPLC systems.

One-Piece vs. Two-Piece Fittings

To promote clarity and consistency, we use the following definitions:

One-Piece Fitting (Integrated Ferrule)

A *one-piece fitting* is manufactured as a single component where the ferrule is permanently integrated into the connector body.

- This type is simply called a fitting.
- The ferrule cannot be removed or replaced.
- Alignment and sealing performance are built into the design.

Two-Piece Connection (Nut + Ferrule)

If **two separate pieces are required to make the connection**, the terminology changes:

- The nut is the threaded component that provides the mechanical compression.
- The ferrule is the component that creates the seal when compressed by the nut.
- Together, they form a two-piece connection—not a single fitting.

For example, part number 47320-33 is a nut designed for use in a two-piece connection. It must be paired with the corresponding ferrule to complete the assembly. While we often cross-link these components for convenience, we maintain the professional distinction between a one-piece fitting and a nut-and-ferrule connection.

Why the Terminology Matters

Using precise definitions ensures:

- Accurate part selection by chromatography users
- Clear technical communication
- Reduced risk of mismatched components
- Consistent documentation across catalogs, technical notes, and support materials

By standardizing this terminology, we help customers correctly identify the components needed for their systems and avoid performance issues related to improper connections.

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