# End Fitting Hardware and Dimensions for TYPE-C Columns - Tech Information

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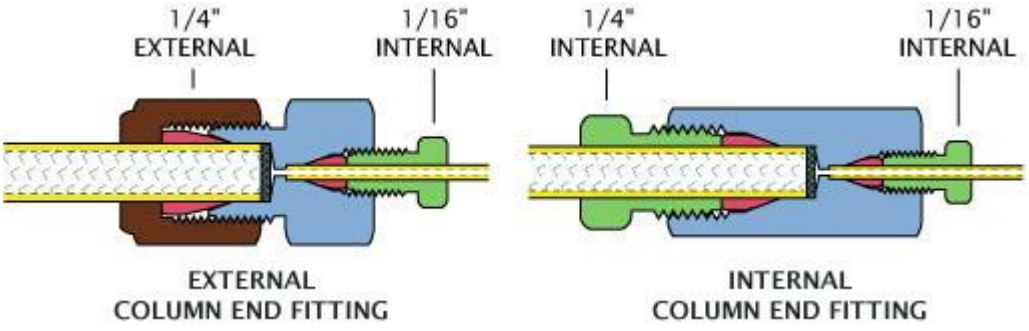
**Cogent TYPE-C™ Column End-Fitting Hardware, Dimensions & Best-Practice Connections**

Selecting and installing the correct end-fitting hardware is critical to preserving efficiency and minimizing extra-column band broadening in HPLC.

Cogent TYPE-C™ analytical columns and guard holders use ***industry-standard Valco® sealing depths***, with Type 316 stainless-steel end fittings and a 0.4 mm bore on analytical formats. These specifications ensure broad instrument compatibility and robust, leak-free operation when connections are assembled correctly.

End-Fitting & Material Specifications (Analytical Columns)

- Sealing depth: Valco® standard (industry standard) for reliable, reproducible seating across systems.
- End-fitting bore: 0.4 mm for analytical columns, balancing low dead-volume with mechanical robustness.
- Material: Type 316 stainless steel to provide corrosion resistance and pressure stability typical of modern LC systems.




| Fitting size | Bore | Column ID |
|---|---|---|
| **EXTERNAL ANALYTICAL COLUMN END FITTINGS** | | |
| 1/4" to 1/16" | 0.4 mm | 2.1 mm |
| | | 4.6 mm |

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**Recommended Connectors: Direct Adaptive Di-Ad™ Column Connectors**

For routine column installation and column-to-guard or column-to-column coupling, Cogent recommends Direct Adaptive Di-Ad™ connectors. Unlike ferrule-based fittings that permanently

swage onto tubing, Di-Ad™ connectors do not lock to a single pilot depth, helping prevent dead-volume traps and allowing you to make repeatable, zero-gap connections every time.

**Why Di-Ad™ helps method integrity**

- No permanent swage → the same piece of tubing can be reseated without changing cut length.
- Adaptive pilot depth → minimizes the risk of creating a mixing chamber at the joint.
- Consistent low dead-volume at critical interfaces (injector ↔ column; column ↔ detector).

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***Tip:*** *If you need a compact, color-coded way to put columns in series or attach guards, MICROSOLV's column couplers provide universal fit for 10-32 ports and keep through-holes matched to tubing IDs to protect efficiency.*

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**Seating Depth: The #1 Cause of Connection-Induced Problems**

When using traditional ferrule fittings, reusing a pre-swaged tube on a different port can misalign the tube's pilot depth relative to the new connector. This is a common root cause of leaks, micro-mixing, and accidental frit/tube damage.

- Too deep: the fitting may fail to seal; tightening can damage the tubing end.
- Too shallow: the tubing tip doesn't meet the end-fitting seat, leaving a mixing chamber (dead volume) that broadens peaks and distorts early-eluters.

Because these critical connections govern band dispersion, always verify proper pilot depth at the injector-to-column and column-to-detector interfaces.

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**Installation Pitfalls & How to Avoid Them**

- Over- or under-tightening finger-tight or standard fittings can create leaks or gaps. Tighten to the manufacturer's guidance; avoid "just a bit more" turns after first resistance.
- Re-using swaged tubing on a different brand/port risks depth mismatch. If you must reuse, re-cut the end square, deburr, and reset ferrules for the new port—better yet, use Di-Ad™.
- Guard systems: match the stationary phase and ID to your analytical column so protection does not alter selectivity; use the correct guard holder to maintain low-dead-volume geometry.

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**Quick Checklist for Low-Dispersion Connections**

1. Confirm end-fittings: Valco® seating depth; analytical bore 0.4 mm; 316 SS.
2. Prefer Di-Ad™ connectors to avoid permanent swaging and pilot-depth errors.
3. If ferrules are used, re-cut/deburr tubing and set ferrules fresh for each new port.
4. Inspect for leaks at injector↔column and column↔detector after first pressurization.
5. Guard correctly: match phase/ID and install with the recommended holder.

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*Click HERE for ordering information and pictures of the Di-Ad™ column connectors.*

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