

Selecting the Right HPLC Guard Column

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HPLC guard columns (cartridges) are installed in front of an analytical column in order to protect it from strongly retained impurities. Understanding the significant factors that affect guard column performance can help you protect your analytical column and save money by extending column lifetime.

Packing & Dimensions

It is best to use a guard column that contains the same packing material as the analytical column. In other words, the best guard column for a Pinnacle™ II C18 analytical column is a Pinnacle™ II C18 guard column. Trident guard cartridges come in two lengths, 10mm or 20mm. The 10mm length is adequate for most applications, but a 20mm guard should be considered for samples that contain a lot of impurities, such as crude extracts. Regarding internal diameter (ID), the general rule is that the guard column ID should be the same as, or one size smaller than, the ID of the analytical column to prevent a loss of efficiency.

Cartridge Holder Options

Trident guard cartridges can be used with three different styles of Trident guard holder: integral, in-line, and direct. Note that guard cartridges from one manufacturer should never be used in another manufacturer's holder.

The Trident Integral guard system is a cost-effective, low dead volume option that is recommended when purchasing a guard and analytical column at the same time. This system includes an analytical column, a guard cartridge, and extra frit, all of which are integrated into a single unit. The advantages of the Trident Integral Guard column system are that it has the lowest dead volume of any of the holders and is also the most cost effective option.

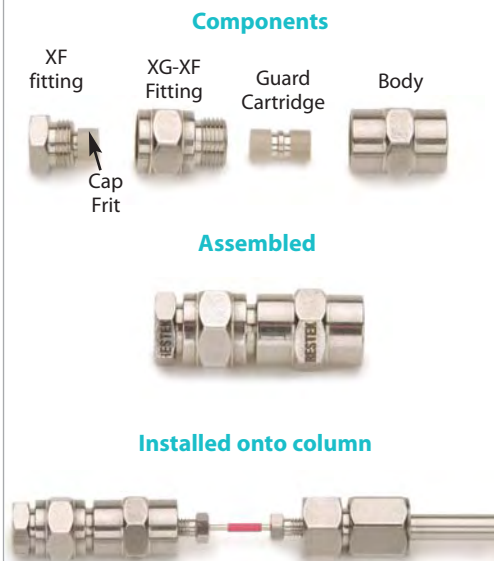
Restek also offers in-line and direct holders. Trident In-Line holders are traditional stand-alone style holders that require an additional piece of HPLC capillary tubing to connect the guard holder to the analytical column. The Trident Direct Holder differs in that it contains a threaded PEEK™ tip. The threaded tip allows the holder to screw directly into the analytical column's inlet end fitting, eliminating the need for any additional tubing. The Trident In-Line and Trident Direct holders both can be connected to any HPLC column, even those from other manufacturers. Both these holders are available in either a "with filter" or "without filter" version. The "with filter" versions have an XF (extra filter) fitting that contains a cap frit that can be changed independently of the guard cartridge.

Filters

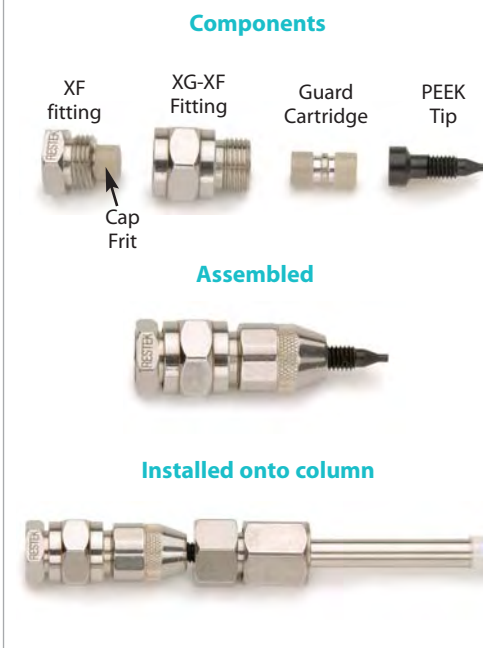
The ID of the cap frit should match the ID of the guard cartridge; however, frit porosity is largely a matter of preference. The smaller porosity will provide the greatest protection against particles, but also may mean that the frit needs to be changed more frequently. Choosing a filter porosity that matches the porosity of the analytical column protects against particles lodging in the column inlet frit.

Restek offers a wide selection of HPLC guard options. An understanding of the significance of different guard column parameters, including dimensions, holder styles, and extra filters, can simplify the selection process. Choosing the proper guard column will maximize the lifetime of your analytical column by effectively protecting it from sample contaminants.

Trident In-Line 10mm guard cartridge holder with filter



Trident Direct 10mm guard cartridge holder with filter



Trident Integral Guard System

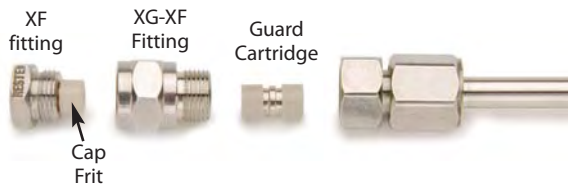
Trident End
Fitting



Trident end fitting with XF fitting removed



Adding a guard cartridge to Trident end fitting



Trident end fitting assembled with guard cartridge



Looking for HPLC guard column options?

Visit us at www.restek.com,
or call Technical Support at
800-356-1688, to discuss
your applications.