

## [HPLC Columns](#)

# Trident™ Guard Column System

- Our convenient and economical leak-free system is as easy as 1-2-3.
- The versatile configuration protects against all levels of contamination.
- The Trident™ system's integral design eliminates troublesome tubing connections.

Also available: [Trident™ Direct](#)



The system's foundation consists of the analytical column configured with our exclusive Trident™ end fitting and XF filter fitting. This configuration contains the standard internal frit as well as a replaceable external frit, which can be easily changed without disturbing the packed bed. Changing the external frit can reverse the effects of accumulated particles, such

as high back- pressure or peak distortion. To obtain this basic configuration, simply order any Restek HPLC column that has a (-700) suffix catalog number.



The system can also be configured to accept an integral guard cartridge for greater protection against sample contaminants. The integral design eliminates the need for a separate holder and connecting tubing, which

can cause additional band broadening. To obtain this configuration, simply order any Restek HPLC column that has a (-700) suffix catalog number, the XG male fitting (cat. # 25025), and the appropriate pack of guard cartridges ([see listing](#)).



For maximum protection against contaminants and particulate matter, the system can be configured with both an integral guard cartridge and a

replaceable external frit. To obtain this configuration, simply order any Restek HPLC column that has a (-700) suffix catalog number, the XG-XF male fitting (cat. # 25026), and the

# Trident™ Direct

## Easy to Use, Low Dead Volume - The Ultimate Combination of Convenience and Column Protection

### Three levels of protection



Trident™ Direct high-pressure filter  
cat. #25082

Protection against particulate matter.



Trident™ Direct 1cm guard  
cartridge holder with filter  
cat.#25084

Protection against particulate matter  
and sample impurities.



Trident™ Direct 2cm guard  
cartridge holder with filter  
cat.#25086

Protection against particulate matter and  
heavily contaminated samples.

Unlike other "one size fits all" guard systems, the Trident™ Direct system gives you the power to select the right level of protection for your analysis. The system offers three levels of protection and guard cartridges that are available in four dimensions with a variety of bonded phases to match your analytical column. The economical leak-free cartridge design provides an unprecedented combination of convenience, economy, and reliability.

The foundation of the Trident™ Direct system is a reusable direct connect holder that easily attaches to any HPLC column using CPI- or Waters® -style end fittings.\* The system is available in the following configurations to match different protection level needs: in-line filter, in-line filter with holder for 1cm guard cartridge, and in-line filter with holder for 2cm guard cartridge. The guard cartridges are available in both 2.1 and 4.0mm IDs and are interchangeable with the appropriate length holder.

### Commonly Asked Questions

*What level of protection do I need for my application?*

For protection against particulate matter only, use the Trident™ Direct in-line filter. For protection against particulate matter and sample impurities, use the Trident Direct 1cm holder and 1cm guard cartridges. This is the most popular configuration and is well suited for most

applications. For protection against particulate matter and heavily contaminated samples, use the Trident Direct 2cm holder and 2cm guard cartridges.

## What internal diameter guard cartridge should I use?

If the ID of your analytical column is greater than 3.2 and less than 6mm, use a 4.0mm ID guard cartridge. If the ID of your analytical column is between 2.0 and 3.2mm, use a 2.1mm ID guard cartridge.

## Do I need a different size holder depending on the guard cartridge ID?

No, because all Trident™ guard cartridges have the same outer diameter, the holders will function with either 2.1 or 4.0 mm ID guard cartridges. The holder needed is dependent only on the length of the guard cartridge.

## Which guard cartridge should I use?

After you decide what level of protection and diameter guard cartridge is right for your application, you should choose the cartridge with a bonded phase that is the same or similar to your analytical column. The Allure™ and Ultra bonded phases are base-deactivated and compatible with virtually all silica-based analytical columns.

\*The standard PEEK® tip that comes with the Trident™ Direct systems is compatible with Parker®, Swagelok®, Upchurch®, Valco®, and other CPI-style fittings. To use the Trident™ Direct systems with Waters®-style end fittings, the tip must be replaced with cat.# 25088.

Feature	Benefit
Direct connection	Easy installation that eliminates connection tubing and extra dead volume.
Three levels of protection	Provides the right protection for your needs.
Leak-free design	Smooth, reliable operation saves lab time.
Cartridge column design	Eliminates waste and saves money.

Trident™ Direct	cat.#
High-pressure filter	25082
1cm guard cartridge holder with filter	25084
2cm guard cartridge holder with filter	25086
Connection tip for Waters®-style end fittings	25088
Replacement Frits for the Trident™ Filter qty. cat.#	
Cap Frits 4mm, 2.0µm:	5pk. 25022
Cap Frits 4mm, 5.0µm:	5pk. 25023
Cap Frits 2mm, 2.0µm:	5pk. 25057

<b>Guard Column Cartridges</b>	<b>(10 x 2.1mm) 3-pack</b>	<b>(10 x 4.0mm) 3-pack</b>	<b>(20 x 2.1mm) 2-pack</b>	<b>(20 x 4.0mm) 2-pack</b>
Pinnacle™ II C18	921450212	921450210	--	921450220
Pinnacle™ II Cyano	921650212	921650210	--	921650220
Allure™ Acidix	916250212	916250210	916250222	916250220
Allure™ Basix	916150212	916150210	916150222	916150220
Allure™ C18	916450212	916450210	916450222	916450220
Allure™ PFP Propyl	916950212	916950210	916950222	916950220
Allure™ Silica	916050212	916050210	916050222	916050220
Ultra Amino	910750212	910750210	910750222	910750220
Ultra Aqueous C18	917850212	917850210	917850222	917850220
Ultra C1	910150212	910150210	910150222	910150220
Ultra C4	910250212	910250210	910250222	910250220
Ultra C8	910350212	910350210	910350222	910350220
Ultra C18	917450212	917450210	917450222	917450220
Ultra Cyano	910650212	910650210	910650222	910650220
Ultra IBD	917550212	917550210	917550222	917550220
Ultra PFP	917650212	917650210	917650222	917650220
Ultra Phenyl	910550212	910550210	910550222	910550220
Ultra Silica	910050212	910050210	910050222	910050220