

GUARD COLUMNS

The analytical column is the heart of any liquid chromatography system and remains the most problematic component. HPLC columns accumulate retained material which can dramatically reduce longevity and cause costly downtime resulting from premature column failure and troubleshooting.

Why Use A Guard Column?

The best way to protect an analytical column from fouling is to install a guard column between the injection valve and the analytical column. The guard column traps particulates, solvent impurities and retained sample components. The ideal guard column should have no effect on the separation. For best results a guard column with matching bonded phase and optimal hardware configuration should be selected.

Extra Column Volume

The evolving needs of HPLC applications such as smaller bed-volume columns, higher pressures and increased sensitivity create new demands on guard columns. Many guard column manufacturers overlook the dead volume that occurs when a guard column or holder is connected to the analytical column. The use of pre-swaged or one-piece nut and ferrule designs with fixed tube stems will increase extra column volume (shown in blue) and affect column efficiency. (Figure 1)

Other cartridge-style guard column systems require extra connections and tubing, adding to extra column volume and decreasing a system's overall performance. (Figure 2)

Figure 1

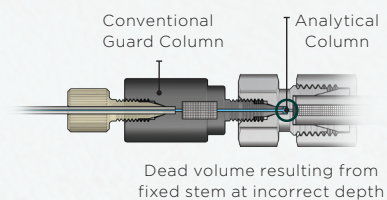
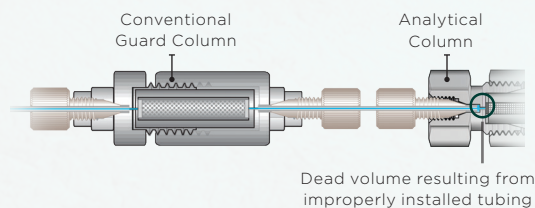
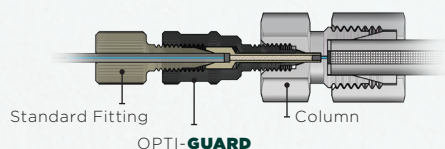


Figure 2



Floating tube stem provides ZDV connection into any port.





GUIDE TO OPTIMIZE GUARD COLUMNS

	OPTI-GUARD®	OPTI-LYNX™2	EXP®
	1mm Guard	Guard Column	Guard Column
Maximum Pressure	 HIGH PRESSURE 6K PSI / 400 BAR	 HIGH PRESSURE 6K PSI / 400 BAR	 ULTRA HIGH PRESSURE 20K+ PSI / 1400+ BAR
Dimensions Available	1 x 14mm	2.1 x 5mm 3.0 x 5mm 4.6 x 5mm	1.0 x 5mm 1.5 x 5mm 2.1 x 5mm 3.0 x 5mm 4.6 x 5mm
Hand-Tight Holder/ Hand-Tight Cartridge Change	✓	✓	✓
Holder Fittings Included		✓	✓
Auto Adjusting (ZDV) Port Connection	✓ Floating	✓ Spring-loaded	✓ Spring-loaded
Custom Packing Available	✓	✓	✓
Biocompatible Option	✓		
	<p>The OPTI-GUARD 1mm is an all-in-one solution. The mated holders and cartridges are disposable and designed for use with 1, 2.1, 3.0 and 4.6mm i.d. columns. The OPTI-GUARD is no larger than a standard HPLC fitting.</p>	<p>OPTI-LYNX2 features a quarter-turn, quick-connect, hand-tight holder. The second generation OPTI-LYNX is more affordable and robust yet still allows users to change a cartridge in seconds.</p>	<p>Like the OPTI-LYNX system, the EXP Holder stays plumbed into the LC column. To change a cartridge, simply unscrew the holder cap by hand, replace the cartridge and screw the holder back together by hand. Easy, no tools needed.</p>

* Please contact Optimize for pressure rating and further product details.

OPTI-GUARD sets the standard for low impact, easy to use pre-column protection. Designed for use with ANY analytical (4.6, 3.0mm i.d.) and narrow-bore (2.1, 1.0mm i.d.) columns, the patented floating stem design automatically adjusts to all manufacturer's tube stop depths for a zero-dead-volume connection every time. The best part? It is no larger than a standard fitting.

As always, custom packing is available.

OPTI-GUARD® 1mm Guard Column

10-02-00007	C18, 5/Pk
10-02-00010	C8, 5/Pk
10-02-03211	C4, 5/Pk
10-02-00014	Silica, 5/Pk
10-02-00018	Phenyl, 5/Pk
10-02-00022	Cyano/CN, 5/Pk
10-02-00026	Amino/NH2, 5/Pk
10-02-00030	Anion Exchange, 5/Pk
10-02-00034	Cation Exchange, 5/Pk
10-02-04068	DVB, 5/Pk
10-02-03463	Custom Packed, 5/Pk
10-02-01714	Method Development Kit (Assortment of your choice 5/Pk)

OPTI-GUARD® 1mm Biocompatible Guard Column

10-02-03532	Biocompatible C18, 5/Pk
10-02-04708	Biocompatible C8, 5/Pk
10-02-03534	Biocompatible Silica, 5/Pk
10-02-03538	Biocompatible Cyano/CN, 5/Pk
10-02-03536	Biocompatible Amino/NH2, 5/Pk
10-02-03680	Biocompatible Anion Exchange, 5/Pk
10-02-03683	Biocompatible Cation Exchange, 5/Pk

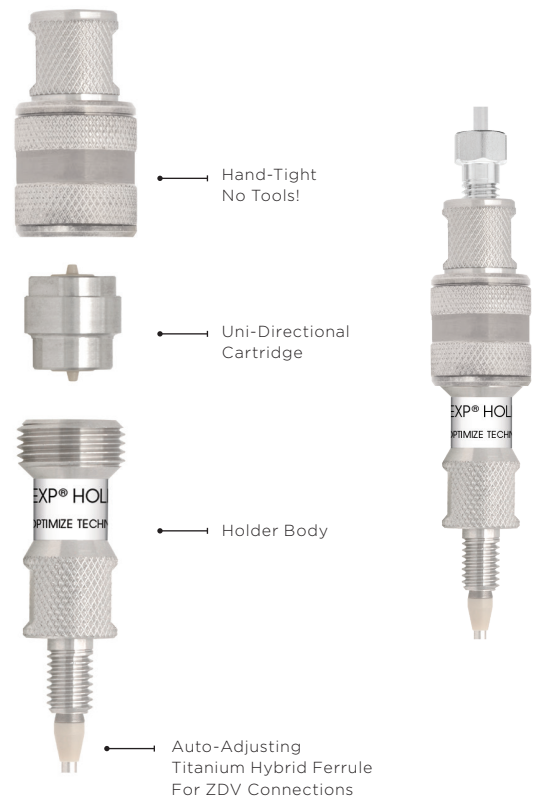


The EXP Guard Column Cartridge System is rated to 15,000 psi with hand-tight replaceable cartridges. This unique design connects directly to any UHPLC column with the auto-adjusting Titanium Hybrid Ferrule and EXP® Fittings, providing repeated zero-dead-volume connections and easy adjustability between various column types.

Free-Turn® architecture allows the user to change cartridges by hand without breaking fluid connections on the holder inlet/outlet. The combination of low-dispersion and ultra high-pressure capabilities provides effective protection with negligible effects on retention time, plate count and peak shape.

EXP® Guard Column Advantages

- Hand-tight guard replacement - no tools
- Hardware rated to 20,000+ psi (1,400+ bar)
- Packed guard rated for routine use to 15,000 psi (1,000 bar)
- 1.4µL swept volume (excluding packed bed)
- Hardened stainless steel end cap eliminates galling
- Low-volume, low-dispersion cartridges
- Auto-adjusting ZDV column connection
- Custom packing available



EXP® Holder

15-02-03956

EXP Direct Connect Holder
Includes fittings

EXP® GUARD COLUMN SELECTION GUIDE

	Dimensions	Dimension Code	Code	Phase	
3 PACKS	1.0 x 5mm	0 4 1 0 0	H A H B H C H D	C18 C8 C4 HILIC	1.8µm
	1.5 x 5mm	0 4 1 0 2			
	2.1 x 5mm	0 4 1 0 4	H E H F H G H H	C18 C8 C4 HILIC	3µm
	3.0 x 5mm	0 4 1 0 6	H I H J H K	Phenyl-Hexyl SAX SCX	
4.6 x 5mm	0 4 1 0 8				
		E S	Custom		

