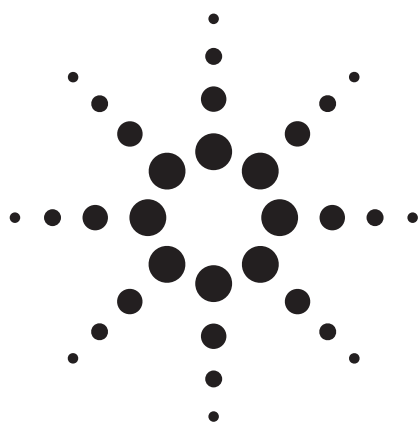




Agilent ZORBAX Reliance Cartridge Guard-Columns

Data Sheet

Introduction

The Agilent ZORBAX Reliance Cartridge Guard-Column Series has been developed to provide convenient, cost-effective protection for high-performance analytical columns. The cartridge components assemble quickly and easily to provide a high-efficiency, low-dead-volume column that seals with hand tightening, against operating pressures up to 5000 psi (340 bar). The reusable exit end fitting with integrated 1/16-inch od tubing adapts the cartridge guard-column for direct connection to standard 1/16-inch LC fittings and provides a stand-alone guard-column system. The materials used in Reliance guard cartridges are ZORBAX, ZORBAX StableBond, Eclipse, and Extend packings.

Guard-Columns

The guard-column cartridges provide physical (filtration) and chemical (adsorption) protection for analytical columns. They are packed with 5 μm ZORBAX packing of identical chemistry to ZORBAX analytical columns to provide the most effective protection. The guard-column cartridges are unthreaded 2.1 mm id or 4.6 mm id $\times$ 12.5 mm PPS Polymer tubes with press-fit 2-micron porosity frits and are available in the most popular stationary phases. A packed 4.6 mm id guard-column cartridge has a void volume of less than 150 μL . The 2.1 mm id cartridge has a void volume of less than 30 μL .

Guard-Column Hardware Kit

The Reliance Guard-Column Hardware Kit, (p/n 820999-901), consists of four major components:

- Low-volume guard-column holder
- Inlet end fittings (2)
- Exit end fitting with integrated column connector
- PEEK finger-tight fitting (see note on next page)

Assembly of a Reliance Cartridge Guard-Column

The standard configuration, illustrated in the exploded view (Figure 1), requires a guard-column hardware kit and a polymeric guard-column cartridge.

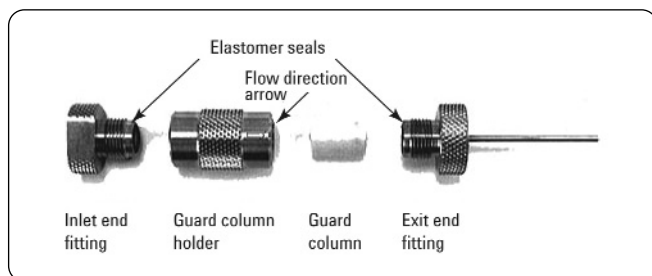


Figure 1. Exploded assembly view.



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To assemble, first loosely screw the inlet end fitting into the inlet end of the guard-column holder, leaving one or two threads showing. Place the assembly on the bench top, open end up. Put the polymeric guard cartridge into the holder with the arrow on the cartridge pointing up. With the guard-column holder still vertical on the bench top, screw the guard-column exit end fitting into it until it is finger tight. Hand tighten the full assembly by gripping both ends and turning them clockwise until tight. Connection of the guard-column assembly to the analytical column is achieved using the integral column connector provided (0.010" id × 30 mm). **Alternatively, a second inlet end fitting (included) can be used on the exit end of the guard column holder to allow the use of other connecting tubing, if desired.**

NOTE: PEEK finger-tight fittings should only be used when application conditions permit (for example, lower-pressure operation, <200 bar). For higher-pressure applications, it is recommended that permanent 1/16-inch steel fittings (not included) be used to connect the guard system to the analytical column. Initial use of permanent steel fittings requires careful tightening in-side the inlet fitting of an analytical column to properly set the depth of the ferrule.

Operational Guidelines

To maintain optimum column performance and obtain long column life, observe the following guidelines:

- Do not use a mobile-phase pH outside the range of the analytical column being used.
- Only finger tighten the cartridge holder to avoid damaging the polymeric cartridge.
- Guard-columns may be used up to 80 °C. Do not exceed the maximum operating temperature of the analytical column.
- Routinely check for the presence and integrity of the perfluoro-elastomer seals on the end-fittings before every assembly operation. Replace when necessary.

In addition, we recommend:

- For 4.6 mm id guard-columns, flushing a minimum of 3 mL of methanol through the guard-column assembly after installing a new guard cartridge, then 10 mL of mobile phase to ensure equilibration before re-attachment to the analytical column.
- For 2.1 mm id guard-columns, flushing a minimum of 0.5 mL of methanol, then 2 mL of mobile phase through a new guard-column before re-attaching the assembly to the analytical column.
- Replacing the guard cartridge when the system pressure has increased by 10% from normal or after every 100 to 200 injections.
- Minimizing the system dead volume to maintain efficiency.
- Pumping through the guard-column in the recommended direction.

Safety

Observe safety precautions while operating any HPLC column, including the ZORBAX Reliance cartridge guard-column. Considerations for safe operation are primarily concerned with chemical exposure. Prior to using any chemical, its hazards should be assessed. Take precautions to prevent exposure to these hazards both under normal operating conditions and in case of spills, leaks, and other accidents. The small particles in the guard-column are respirable; so, do not open the guard-columns.

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