

Sapphire Engineering

HPLC Components and Subassemblies

IDEX Health & Science's line of Sapphire Engineering™ HPLC components and subassemblies are designed for use in a wide range of liquid chromatography applications. Each component or subassembly is manufactured to the highest quality standards in our state-of-the-art manufacturing facility.

HPLC Check Valve Balls and Seats

Sapphire Engineering precision balls and seats are manufactured for use in HPLC check valves. Each ball and seat is a matched pair and is 100% tested to guarantee proper sealing.

- ▶ Grade 3 and Grade 5 balls available in Ruby, Zirconia, Ceramic, and Alumina Ceramic
- ▶ Seats available in Sapphire, Zirconia, Ceramic, and Alumina
- ▶ Standard and custom sizes/geometries available
- ▶ Assembled in class 1,000 or 10,000 clean rooms to ensure particle cleanliness for optimal performance

HPLC Check Valves and Cartridge Assemblies

Balls and seats can be assembled to create cartridge or check valve assemblies designed to your specifications. Each assembly is leak tested ensuring optimum performance and complete "dock to stock" satisfaction.

- ▶ Check valve assemblies operate to pressures of 6,000 psi (414 bar) in standard HPLC systems and 20,000 to 30,000 psi (1,379–2,068 bar) in UHPLC systems
- ▶ Wide range of available materials, such as stainless steel, titanium, PEEK™, and Kel-F® for complete chemical compatibility
- ▶ Assembled in class 1,000 or 10,000 clean rooms to ensure particle cleanliness for optimal performance



Check valve assemblies and components



Piston assemblies

Precision Pistons and Piston Assemblies

Sapphire Engineering Sapphire, Ruby, or Ceramic piston assemblies are manufactured using a proprietary "press fit" or "heat set" process that ensures the tightest piston OD and ferrule ID tolerances in the industry. Most competing products use adhesives to assemble the piston rod into the ferrule, which can impede pump performance.

- ▶ ODs down to ± 0.00001 " with surface finishes down to 0.25 microinch (Ra)
- ▶ Exclusive grinding and lapping processes for cost effective, quality components in high volumes
- ▶ Custom piston diameters from 0.015" to +2.0"

HPLC Pumphead Assemblies

Each Sapphire Engineering HPLC pumphead is precisely machined to OEM specifications. Pumpheads are combined with a Sapphire Engineering check valve and piston assembly for a complete solution.

- ▶ Flow and sealing pressure tested to specification ensuring as expected performance when placed in your equipment
- ▶ Custom tubing and fittings available upon request
- ▶ Assembled in class 1,000 or 10,000 clean rooms to ensure particle cleanliness for optimal performance

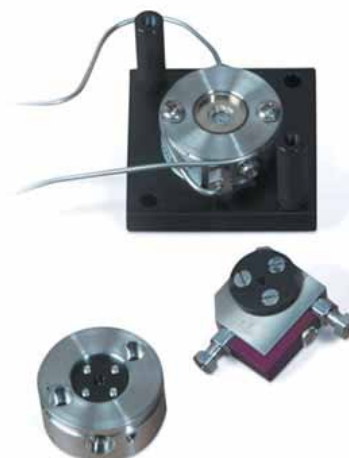
HPLC Flow Cells

Manufactured to-specification, Sapphire Engineering flow cells for HPLC detectors — and other applications — are designed with Sapphire or Quartz lenses for better chemical compatibility.

- ▶ Customer specific micro- and nano flow cells using fiber optic technology ensures improved absorbance measurements
- ▶ Tubing and fittings for each assembly available upon request
- ▶ Assembled in class 1,000 or 10,000 clean rooms to ensure particle cleanliness for optimal performance



HPLC pumphead assemblies



Flow cells

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