

HPLC COMPONENTS AND SUBASSEMBLIES

Balls and Seats for High Pressure Check Valves

Sapphire Engineering™ manufactures precision balls and seats for check valves used in liquid chromatography pumps. Each ball and seat is manufactured as a matched pair and is 100 percent tested to guarantee proper sealing. All balls and seats are tested and packaged in our class 10,000 clean room.

- ▶ Grade 3 and Grade 5 balls available in Ruby, Zirconia Ceramic and Alumina Ceramic
- ▶ Seats available in Sapphire, Zirconia ceramic and Alumina ceramic
- ▶ Balls and seats carefully matched and 100 percent tested for proper sealing
- ▶ Both standard and custom sizes/geometries available



Complete Check Valve and Cartridge Assemblies for HPLC Pumps

We can also assemble balls and seats into custom cartridge or check valve assemblies per your specifications. As complete assemblies, our check valves can operate to pressures of 6,000 psi (414 bar). Check valve cartridge and assembly components can be made out of a variety of materials such as stainless steel, titanium, PEEK™ and Kel-F®, among others. We leak test each check valve prior to shipment to ensure optimum performance and complete “dock to stock” satisfaction.

- ▶ Custom cartridge and check valve assemblies available per OEM specifications using both single and double ball/seat designs
- ▶ Each assembly 100 percent tested for proper performance
- ▶ All assemblies tested and packaged in our class 10,000 or class 1,000 clean rooms

IDEX® is a Registered Trademark of IDEX Corporation
 Kel-F® is a Registered Trademark of the 3M Company
 PEEK™ polymer is a Trademark of Victrex plc
 Sapphire™ Engineering is a Trademark of Sapphire Engineering, Inc.

Precision Pistons and Piston Assemblies

We manufacture the highest quality, tightest tolerance pistons and piston assemblies available.

In fabricating our piston assemblies, we assemble a ceramic, sapphire or ruby piston into a custom ferrule — usually high-quality stainless steel. Because we hold the OD of the piston and the ID of the ferrule to such tight tolerances, we use our proprietary “press fit” or “heat set” techniques to assemble the piston into the ferrule. This is a major benefit over competing products because we use no adhesives to assemble the sapphire (or ruby, or ceramic) piston rod into the ferrule.

- ▶ Available in sapphire, ceramic, ruby
- ▶ Industry’s closest tolerances: 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 larger than 2.00”

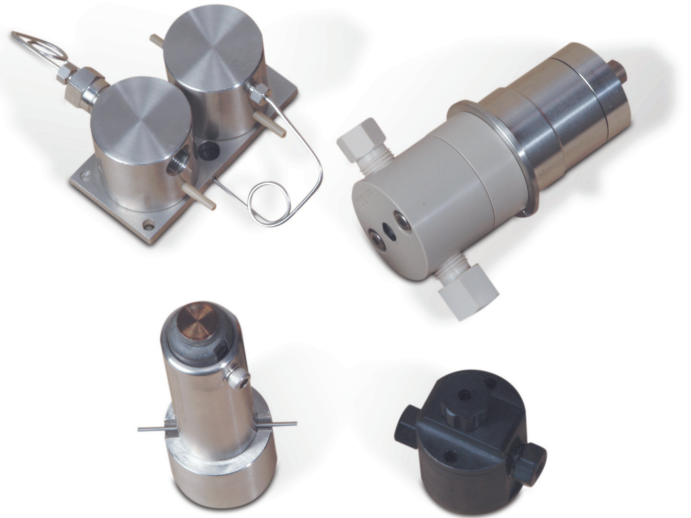


For more information concerning these products, please contact your local sales representative or the Sapphire Engineering Division.

Pump Head Assemblies

Sapphire Engineering™ designs and manufactures a large variety of complete pump heads for HPLC systems. We precisely machine each pump head to OEM specifications. Then we combine our check-valve and seal technology in assembling each pump head. Finally we test the end product per OEM specifications for proper flow and sealing pressure. We will also provide tubing and fittings for each assembly if requested.

- ▶ Large variety of complete pump heads for HPLC
- ▶ Machined to OEM customer specification
- ▶ Combined check valve and seal technology
- ▶ Assembled in a class 1000 clean room
- ▶ Tested to specifications for proper flow and sealing pressure



Flow Cells

Sapphire Engineering manufactures to-specification flow cells for HPLC detectors and other applications — all 100 percent tested. We will also provide tubing and fittings for each assembly if requested.

- ▶ Numerous flow cells, primarily for HPLC detectors
- ▶ Sapphire or quartz lenses, and specially designed cell bodies
- ▶ Micro- and nanoflow cells using fiber optic technology

We offer top quality with minimal lead time. Call us to discuss your requirements.

