

Product Bulletin 223

“RV” Series Fluidic Platforms

Multi-Position, Motorized OEM Fluidic Assemblies for Scientific Instruments

Rheodyne's extensive and flexible family of "RV" series multi-position, motorized fluidics platforms continues to exceed our customers' expectations in innovation, quality, design, and performance. Working with this platform, a Rheodyne project team, designing to your engineering requirements will provide a complete, custom “ready-to-install” fluidic assembly to your specifications including:

- Precision valve liquid-end for your application
- Specialized custom mounting to your instrument
- Appropriate RheFlex® Fittings to attain precision performance
- ChromTRAC™ Color-Coding System to visibly simplify your flow paths as an aid to manufacturing, installation, and service
- RheFlex® Tubing to provide system integrity with the best available polymer tubing
- Simple communications link to your system's automation package
- Electrical connections to meet your specific requirements
- Rheodyne's established support for OEM development

Our expertise in liquid-end design combined with dependable performance of electrical actuation, makes a complete and exceptional assembly for fluid selection, injection, and a broad array of additional applications and solutions. The variety and custom capabilities of Rheodyne's RV series are ideal for all your design requirements and your customers' application needs.

Innovation

- Complete, custom assemblies include not only the precision liquid-end, but also the appropriate actuator for the application, the fittings, tubing, electrical harness, and connectors.



- Multi-position liquid-end designs incorporate unique and patented injection and selection flow architectures to expand the market range of applications and solutions your instrument can address.
- Custom flow paths designed by collaboration to your instrument specifications.

Choose from two-position or multi-position platforms in a variety of port sizes. Virtually all RV series fluidic platforms and assemblies are available in PEEK and stainless steel, and with varying numbers of ports and port dimensions, for the application paths you specify.

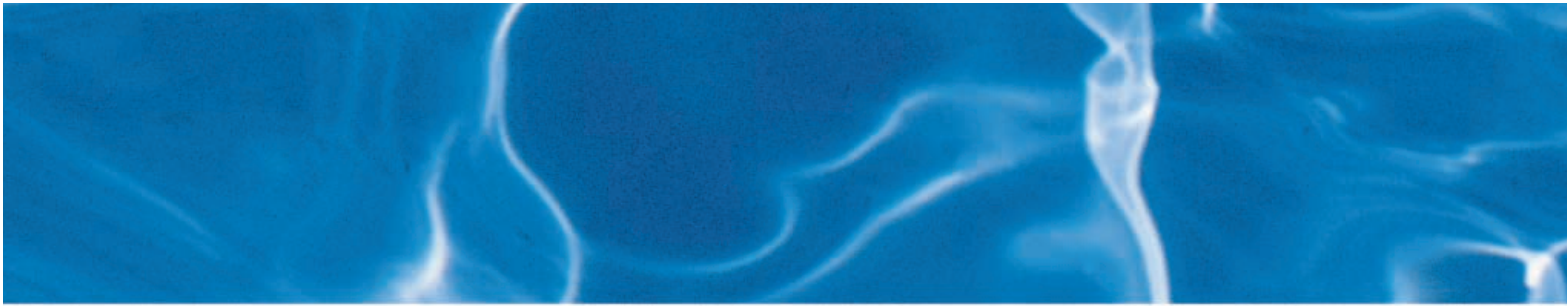
Quality and Performance

- Rheodyne time-tested sealing and pressure assurance - the world standard in liquid applications and solutions.
- Rugged, dependable stepper motor and planetary gear system provide long in-service lifetimes.

- Opto-electronic sensors and feedback system ensure precise, accurate position alignment.
- Typically < 100 ms - minimize pressure transients for system and column stability.

Rheodyne RV series assemblies can be delivered as a complete "ready-to-install" unit for your instrument. The fixed mounting envelope of RV series platforms provides a uniform fit should your instrument requirements change. This allows for rapid development of different fluidic solutions within the same chassis to meet your customers' demands.

The dependable electronic drive includes a stepper motor and a planetary gear system for performing repetitive applications precisely. This means exact positioning every time.



The RV series platform combines power train and opto-electronic position sensors to pass accuracy, speed, and dependability tests beyond two million cycles.

The liquid-end is easily accessible for maintaining the precision performance acknowledged in Rheodyne valves. The innovative design eliminates any need for pressure adjustments, even during routine scheduled maintenance, throughout the assembly's service life. When maintenance is required, standard or custom RheBuild™ Kits are available and contain all the parts, tools, and instructions to maintain precision performance.

Accessories

Rheodyne accessories are specially designed for Rheodyne products. These include RheBuild Kits that contain all the parts, tools, and instructions to maintain the precision performance of Rheodyne fluidic platforms. Rheodyne also produces a wide variety of sample loops in both stainless steel and PEEK.

Design Support

As you have come to expect from Rheodyne, the RV series platforms include Rheodyne design and development support. Rheodyne project teams will assist you to create the appropriate fluidic assembly to meet your needs, both technical and economic. The project team can and will help resolve any solvent compatibility, signal connection, mounting, or fluid connection issues that may arise. Incorporation of the appropriate fittings, tubing, connectors, and mounting plates will speed the design phase, your time to market, and simplify the final instrument manufacturing process. This will contribute to lower manufacturing costs and reduced in-field service costs. The RV series platform is a culmination of Rheodyne's 30 years of valve design expertise and offers unparalleled innovation.

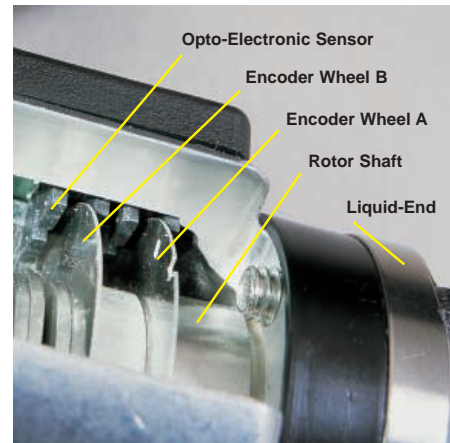


Fig. 1. Electronic position sensor uses optical encoder technology to signal and ensure absolute position.

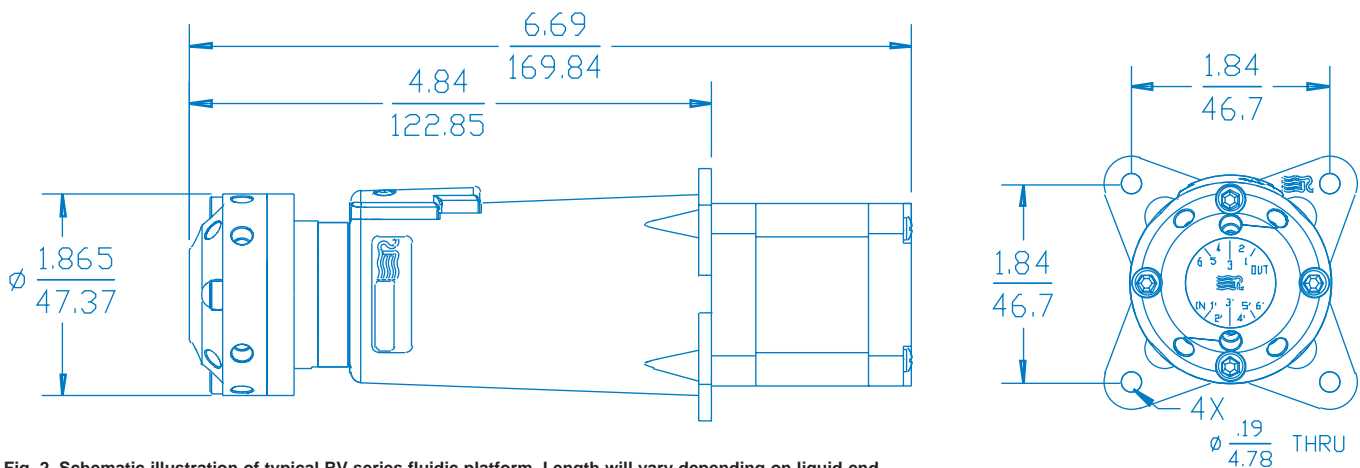


Fig. 2. Schematic illustration of typical RV series fluidic platform. Length will vary depending on liquid-end.



RV500 Multi-Column Selection Platform

True column selection with a single valve is now available using the RV500 series fluidic platform. The RV500 platform does not require a manifold and has no unswept volume in any position due to our patented TeleFLO™ liquid-end architecture. This provides an elegant and cost effective solution for automated instrumentation.

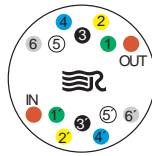
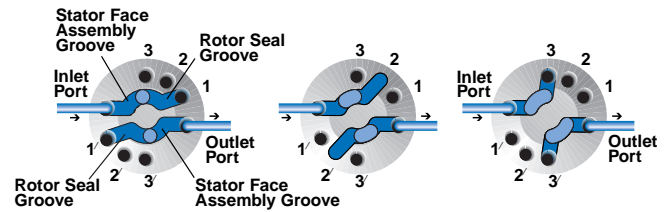
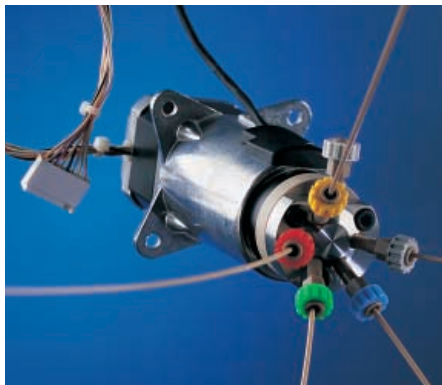


Fig. 3a. Standard ChromTRAC mapping for RV series 6-column selector.



Position A Position B Position C

Fig. 3b. Flow diagram of a multi-position valve with patented TeleFLO architecture to eliminate unswept dead volume. Heavy blue lines are internal connecting passages. The light blue areas are overlapping internal connecting passages.

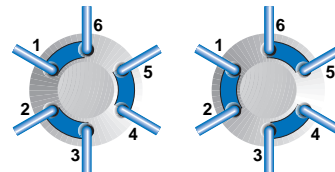


RV700 Analytical Scale Platform

The RV700 series includes a wide variety of liquid-ends designed for analytical scale dispersion and flow rate requirements. Liquid-ends are available for many popular applications including, sample injection, column selection and switching, stream selection, and more. The versatility of the RV700 platform makes it the perfect solution for your analytical customers.



Fig. 4a. Standard ChromTRAC mapping for RV series 2-position, 6-port injector.



Position A Position B

Fig. 4b. Flow diagram of a two-position, six-port valve.

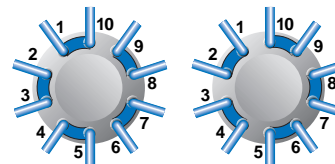


RV200 High Duty Cycle Platform

Rheodyne HDC valves incorporate proprietary RPC-7™ sealing surfaces to achieve lifetimes in excess of 2,000,000 actuations. These medium pressure valves offer precision liquid-ends to exceed the demanding requirements of your high-throughput applications.

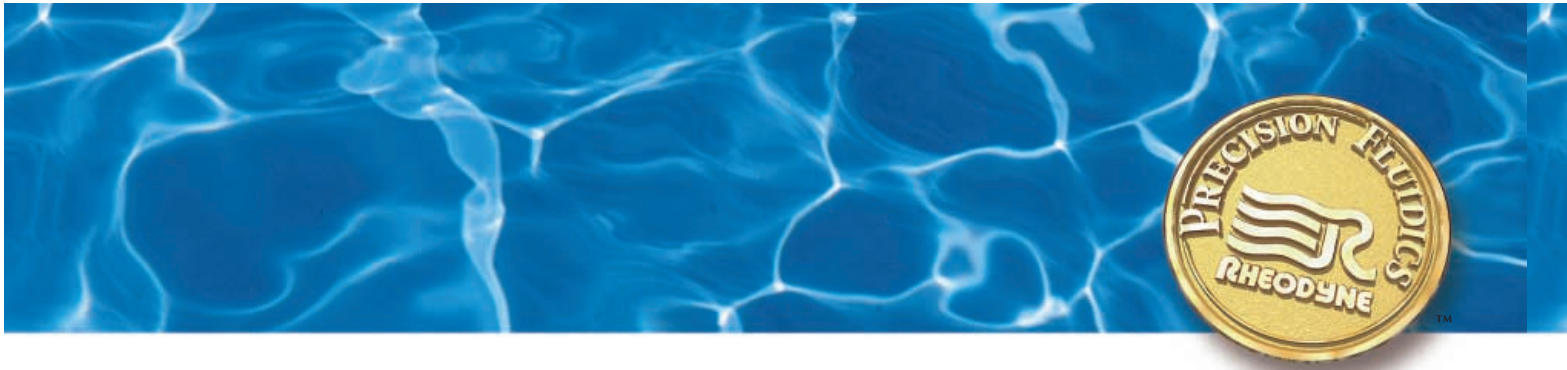


Fig. 5a. Standard ChromTRAC mapping for 2-position, 10-port alternating column regeneration.



Position A Position B

Fig. 5b. Flow diagram of a two-position, ten-port valve.



RV310 Inert Low Pressure Platform

The RV310 series provides completely inert flowpaths for solvent selection and low pressure switching systems. An enhanced version of the RV100 series, the RV310 platform, includes 1/4-28 threaded ports, eliminating an unnecessary connections. Combined with RheFlex® Fittings and Tubing, the RV310 series creates the ideal low pressure fluidic assembly for your instrument.

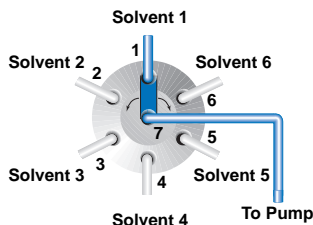


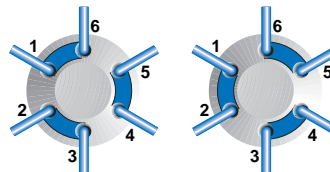
Fig. 6a. Standard ChromTRAC mapping for 6 solvent selection.

Fig. 6b. Flow diagram of a 6-position, 7-port valve. The heavy blue line represents the internal connecting passage.



RV800 Micro Scale Platform

With Rheodyne's unique DuraLife™ processed stator, the RV800 liquid-end has the lowest dispersion characteristics of any motorized fluidic platform on the market. Designed for use in your micro-injection and switching instrumentation, the unique sealing materials provide extended lifetimes for unrivaled performance.



Position A Position B



Fig. 7a. Standard ChromTRAC mapping for RV series 2-position, 6-port injector.

Fig. 7b. Flow diagram of a two-position, six-port valve.

Additional Information

Specification Sheets for RV series platforms are available upon request or for downloading from www.rheodyne.com. Contact your Rheodyne Sales Manager for more details or contact us at www.rheodyne.com.

