

Rheodyne Manual Sample Injector Valves



7725 and 9725 Sample Injectors

- Continuous flow during switching
- A front-end pressure screw - for easy seal adjustment
- Wide port angles - for improved access to fittings
- Internal position sensing switch - (“i” version)
- Capability of reproducible 2µL sample injection with a 2µL internal sample loop

These HPLC sample injectors can inject from 1µL to 5mL with high accuracy and precision. Easy to use and versatile, they allow both partial-filling and complete-filling methods of loading the loop.

Rugged design and easy maintenance ensure long-term reliability.

Easy to use

Insert a syringe into the needle port, dispense the desired amount of sample, then turn the handle to the INJECT position. After removing the syringe and returning to LOAD, you are ready for the next injection. Flushing after every injection to prevent cross contamination is not necessary; a patented direct-connection port design connects the tip of the needle directly to the end of the sample loop so there is no connecting passage to trap sample.

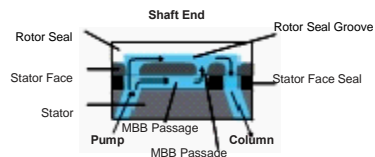
Eleven interchangeable loops from 2µL to 5mL are available. A 20µL loop is supplied. These loops are not interchangeable with those used on the Model 7125 injector.

Reliable design, simple maintenance

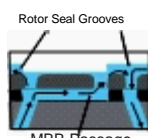
High-pressure switching takes place between a polymeric rotor seal and ceramic stator face. The ceramic surface allows these injectors to make 30,000 injections (in a clean system) before the rotor seal needs replacing, a task requiring only twenty minutes. You can tighten the seal from the front of the injector by turning the easily accessible pressure screw.

“Make-Before-Break”

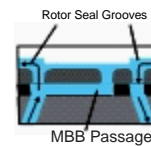
The flow is not interrupted when the injector is switched between LOAD and INJECT, a benefit when using flow-sensitive detectors, fragile columns, or pumps that are disturbed by flow or pressure transients. A passage in the stator face makes new connections before old ones break. This patented make-before-break or “MBB” design is an improvement over injectors which use a bypass; it is easy to troubleshoot and does not dilute sample.



Position A

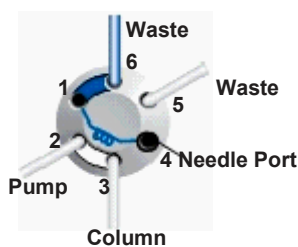


Position B

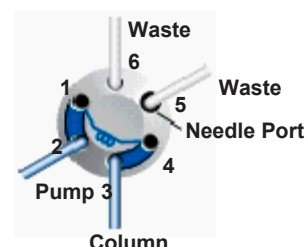


Position C

Flow paths showing the patented Rheodyne MBB design



Position A (LOAD)



Position B (INJECT)

Flow paths of the load and inject positions of the analytical, micro-scale and preparative sample injectors, 7725, 9725, 8125 and 3725.

7725 and 9725 Sample Injectors continued

The needle port and syringe are never exposed to high pressure. They are automatically isolated when you turn to the INJECT position.

In the Model 7725i and 9725i, turning to INJECT closes a built-in position sensing switch (reed switch), which remains closed until you return to LOAD. When the wires are attached to a chromatograph, the switch provides the system with a reproducible start signal.

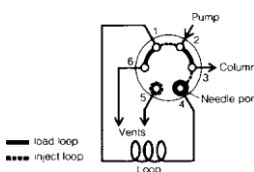
The 7725 and 7725i are set for 5000 psi (345 bar, 34 MPa). They are adjustable to 7000 psi (483 bar, 48 MPa) by using the pressure adjusting screw behind the handle.

Valve accessories can be found on pages 180-183.

Sample Injector Ordering Information

Cat. No.	Description	Price
7725	Sample injector, SS	
7725I	Sample injector, SS, position sensing switch	
9725	Sample injector, PEEK	
9725I	Sample injector, PEEK, pos. sensing switch	

7125 Syringe Loading Sample Injector



The Model 7125 can use both partial and complete loop filling. Valve accessories can be found on pages 180-183. Syringes used with the 7125 must have the 22 gauge blunt tip needle.

Model 7725 replaces model 7125.

Cat. No.	Description	Price
7125	Sample injector, includes 20µL sample loop	

Rheodyne Manual Micro-Scale Sample Injector Valves

Model 8125 Micro-Scale Injector

The 8125 is designed for micro-scale analysis which can partial fill 0.1 μL with zero sample loss, high accuracy, and low dispersion, yet can inject larger volumes by both partial and complete filling.

The 8125 has special small-bore 5, 10, and 20 μL loops. To save loading time in to the 8125's small flow passages, the largest loop recommended for the complete filling method is 200 μL . The standard 8125 has a 5 μL loop but it can be ordered with any loop attached. A 2.5 μL full scale syringe is available for high accuracy and precision in partial loading.

Valve accessories can be found on pages 180-183.

Cat. No.	Description	Price
8125	Micro-scale injector with 5 μL loop	
87942	2.5 μL RN syringe	
7770-01	Replacement needles, 6/pk	



Model 7520 Internal Sample Chamber Micro-Scale Injector

The Model 7520 uses a small hole drilled in a flat rotor as an internal sample chamber for precise sample injection. The rotor, which is sandwiched between two stators, is available in 0.2, 0.5, and 1 μL volumes; 0.5 μL is standard. The 7520 requires the complete-filling method of loading the internal sample chamber. Excess sample is required to completely flush mobile phase from the chamber.

The schematic diagram shows the rotor (drawn as if it were a slider) in the LOAD position. The sample chamber is loaded by inserting a syringe needle into the built-in needle port. The space between the needle tip and rotor surface contains only 0.3 μL so there is very little sample wastage. Rotating the handle to the INJECT position places the sample chamber into the mobile phase stream.

The outlet stator passage is 0.13mm (.005 inch) diameter. A column connecting tube of matching I.D. is supplied installed in the outlet port. The 1/16 inch O.D., 5cm long tube makes it easy to connect microbore columns of various designs.

Valve accessories can be found on pages 180-183.

Cat. No.	Description	Price
7520	Internal sample chamber micro-scale injector	
7520-011	0.2 μL Rotor	
7520-012	0.5 μL Rotor	
7520-013	1.0 μL Rotor	

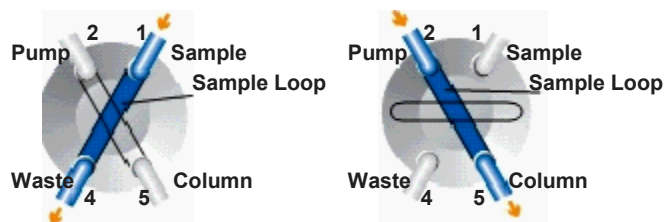


Model 7410 Low-Dispersion Micro-Scale Injector

The Model 7410 is a single mode injector (uses complete-filling method) with an interchangeable internal sample loop ideal for micro scale analysis. Loop discs of 0.5, 1, 2, and 5 μL volume are available; 1 μL is standard.

The loop is filled by flowing sample into either port 1 or 4 while in the LOAD position. The Model 7012 Loop Filler Port or 9013 Needle Port is recommended for this.

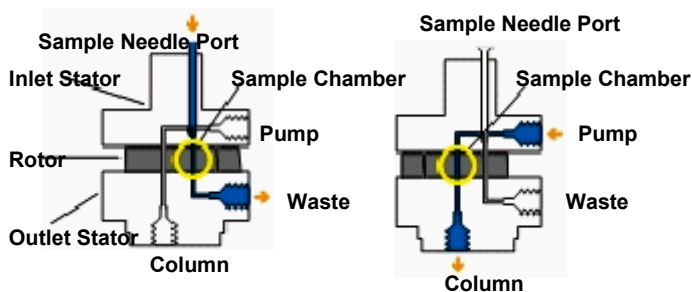
Cat. No.	Description	Price
7410	Sample injection valve	
7410-070	0.5 μL Loop disc	
7410-071	1 μL Loop disc	
7410-072	2 μL Loop disc	
7410-073	5 μL Loop disc	
7012	Loop filler port	
9013	Needle port	



Position A (LOAD)

Position B (INJECT)

Flow paths of the load and inject positions of model 7410.



Position A (LOAD)

Position B (LOAD)

Flow path of model 7520 internal sample chamber micro-scale injector.

Rheodyne Manual Injector and Switching Valves

3725 Preparative Scale Injectors

- 1/8" tubing ports; 1mm flow passages
- Flow rates: 10 to 800 mL/min
- Continuous-flow design; prevents pump shutdown
- 100µL to 20mL volume range

Rheodyne prep injectors for HPLC put big samples into big columns. They offer all the versatility and convenience of our analytical injectors, plus the ability to use columns with diameters up to 10cm.

For biotech work, we provide a model with non-metal passages of PEEK polymer. For general work, we offer a model that has stainless steel passages to accommodate all solvents.



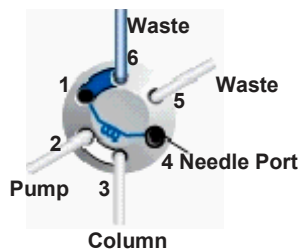
You can inject any volume from 100µL to 20mL by loading sample from a syringe into a needle port in the handle. Flow rates can be as high as 800mL per minute because the 1/8 inch tubing has low resistance and because the flow continues uninterrupted when you switch to INJECT thereby protecting the pump from over-pressure.

High pressure ratings permit you to use columns with very small particles. The rating of the non-metal model is 276 bar (4,000 psi) and that of the stainless steel model is 345 bar (5,000 psi). The needle port and syringe are never exposed to high pressure. They are automatically isolated when you turn to INJECT.

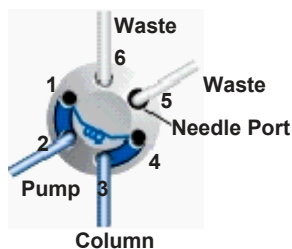
Both models are available in an "i" version with a built-in position sensing switch (reed switch). Both models are supplied with a 10mL loop and 1/8 inch fittings for all ports. RheFlex PEEK fittings must be used with the PEEK injector. A port adapter (optional accessory) can be used to connect 1/16 inch tubing.

Valve accessories can be found on pages 180-183.

Cat. No.	Description	Price
3725	PEEK Preparative injector	
3725i	PEEK Preparative injector w/sensing switch	
3725-038	SS Preparative injector	
3725i-038	SS Preparative injector w/sensing switch	



Position A (LOAD)



Position B (INJECT)

Two-Position Switching Valves

- Typical applications: column switching, sample enrichment, sample clean-up

The versatile two-position, six-port and ten port valves are available in 1/16" and 1/8" port sizes, and 316 SS and PEEK versions. These valves redirect flow among columns during the chromatographic run. They are also useful for selecting between two columns. Each end of the off-line column is independently sealed instead of connected together head-to-tail. Independent seals produce less shock to the column if the valve switches before all the pressure leaves the column. A ten-port valve can often



accomplish the same operation that requires two six-port valves. Model 7010 and 9010 sample injectors can convert to a six-port switching valve functionally identical to model 7000 by removing the loop. Models 7010 and 9010 come standard with a 20µL sample loop. The loop is filled by flowing sample into either port 5 or 6 while in the LOAD position. At least two loop volumes should be used. The model 7012 loop filler port or 9013 needle port is recommended for this.

Valve accessories can be found on pages 180-183.

Two Position, Six Port Switching Valves

Cat. No.	Description	Price
7000	Switching valve, SS, 1/16"	
7000L	Switching large bore valve, SS, 1/16"	
3000-038	Switching valve, SS, 1/8"	
3000	Switching valve, PEEK, 1/8"	

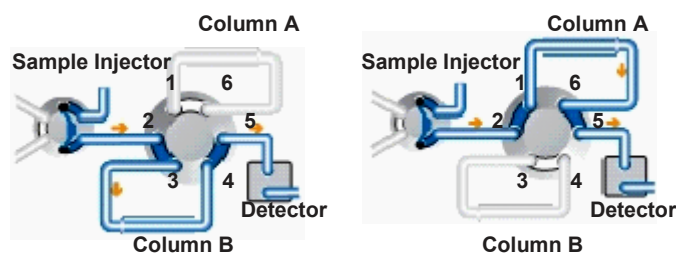
Two Position, Ten Port Switching Valves

7610-400	Switching valve, SS, 1/16"
7610-600	Switching valve, PEEK, 1/16"

Sample Injector Valves

7010	SS injector (complete loop filling only)
9010	PEEK injector (complete loop filling only)
7012	Loop filler port
9013	Needle port

Two Column Selection Flow Diagram

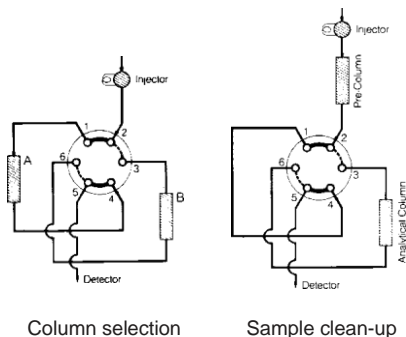


Position A

Position B

Flow paths of the load and inject positions of the analytical, micro-scale and preparative sample injectors, 7725, 9725, 8125 and 3725.

Rheodyne Manual Switching Valves



Three-Way Switching Valves

Two-position, six-port valves with a double three-way switching pattern are available in 1/16" and 1/8" port sizes, and 316 SS and PEEK versions.

Cat. No.	Description	Price
7030	3-way SS switching valve, 1/16"	
7030L	3-way large bore SS switching valve, 1/16"	
9030	3-way PEEK switching valve, 1/16"	
3030-038	3-way SS switching valve, 1/8"	
3030	3-way PEEK switching valve, 1/8"	

6-Position Selection Valves

The Model 7060 is a manually operated selector valve. This seven port valve has a common (center) port that connects with one of six positions. A spring loaded detent mechanism allows continuous rotation in either direction and insures that the shaft "falls into" each position at the precise 60° spacing.

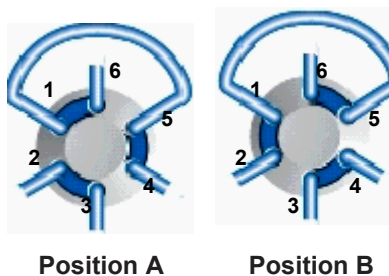
For column selection, an injector outlet is connected to the common port of the 7060 which directs the flow to one of up to six columns. However, it is useful to use the sixth port for a bypass/flush-out tube. A second 7060 is placed at the column outlets to direct the effluent to the detector. Note that two separate 7060 valves are required.

The internal passages of the 7060 are 0.41mm I.D., with a total internal volume less than 2µL.

Cat. No.	Description	Price
7060	6 position selection valve, SS, 1/16"	
7060L	6 position L-bore selection valve, SS, 1/16"	
9060	6 position selection valve, PEEK, 1/16"	
3060-038	6 position selection valve, SS, 1/8"	
3060	6 position selection valve, PEEK, 1/8"	

Electrically Actuated Valves

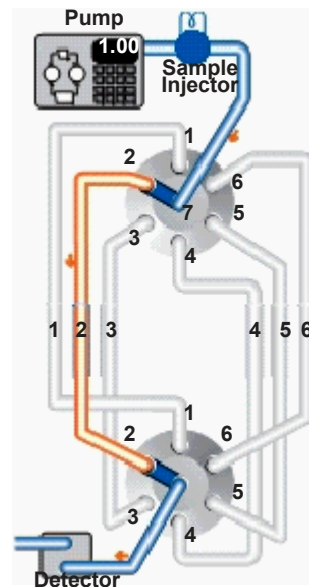
Four-line BCD code for random access to any position		
EV700-105	6 position selection valve, SS, 1/16"	
EV750-105	6 position selection valve, PEEK, 1/16"	



Model 7040 4-way Valve

The Model 7040 is a six-port two-position valve. The internal flow passages are identical to the Model 7000 but the external loop across ports 1 and 5 converts it functionally to a 4-way valve. It exchanges two streams: 2-3 and 4-6 to 2-6 and 4-3.

Cat. No.	Description	Price
7040	4-way switching valve, SS, 1/16"	
7040L	4-way large bore switching valve, SS, 1/16"	



Six column selection using two model 7060 switching valves

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