

# 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 2 $\mu$ L sample injection with a 2 $\mu$ L internal sample loop

These HPLC sample injectors can inject from 1 $\mu$ L 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.

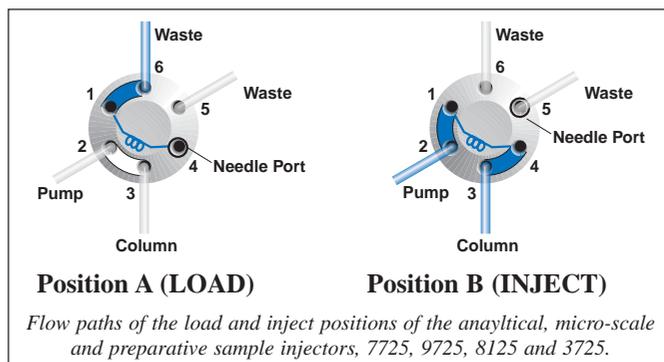
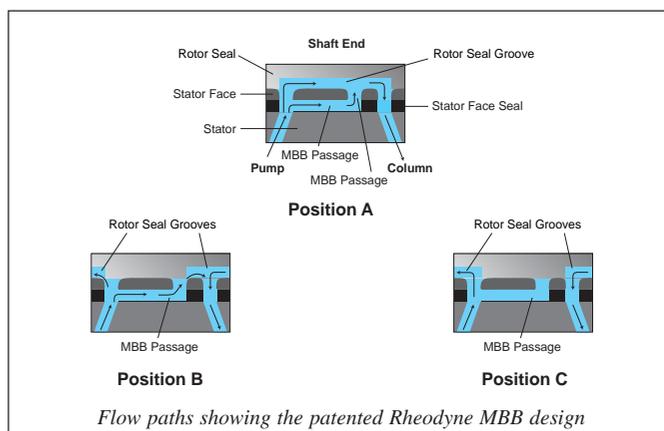
Eleven interchangeable loops from 2 $\mu$ L to 5mL are available. A 20 $\mu$ L loop is supplied. These loops are not interchangeable with those used on the Model 7125 injector.

### 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.



## 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.

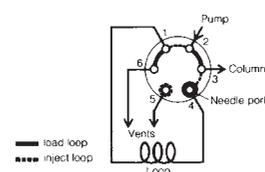
The 7725 and 7725i are set for 5000 psi (345 bar, 34 MPa). They are adjustable to 7000 psi (483 bar, 48 MPa) by using the pressure-adjusting screw behind the handle.

Valve accessories can be found on pages 180-183.

### Sample Injector Ordering Information

Cat. No.	Description
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
7125	Sample injector, includes 20 $\mu$ L 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 0.1µL 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 20µL loops. To save loading time in to the 8125's small flow passages, the largest loop recommended for the complete-filling method is 200µL. The standard 8125 has a 5µL loop but it can be ordered with any loop attached. A 2.5µL 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
8125	Micro-scale injector with 5µL loop
87942	2.5µL 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 1µL volumes; 0.5µL 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 0.3µL 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
7520	Internal sample chamber micro-scale injector
7520-011	0.2µL Rotor
7520-012	0.5µL Rotor
7520-013	1.0µL Rotor

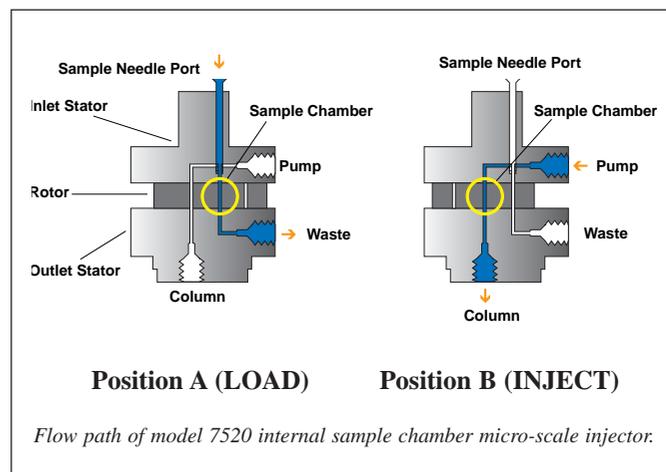
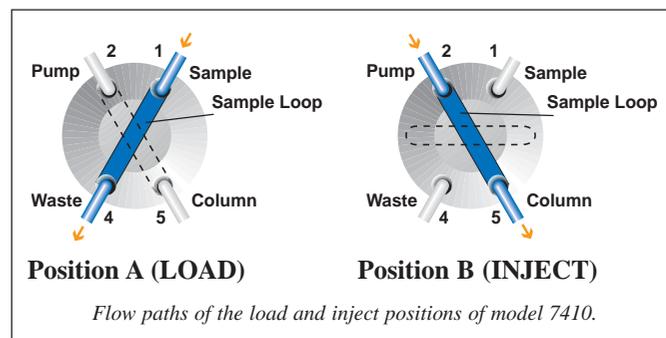


## Model 7410 Low-Dispersion Micro-Scale Injector

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 5µL volume are available; 1µL 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
7410	Sample injection valve
7410-070	0.5µL Loop disc
7410-071	1µL Loop disc
7410-072	2µL Loop disc
7410-073	5µL Loop disc
7012	Loop filler port
9013	Needle port



# 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
3725	PEEK Preparative injector
3725i	PEEK Preparative injector w/sensing switch
3725-038	SS Preparative injector
3725i-038	SS Preparative injector w/sensing switch



## 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

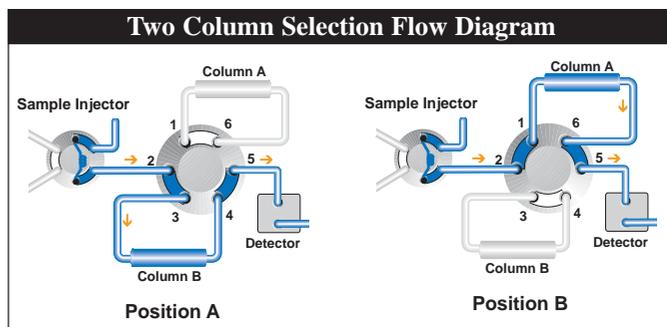
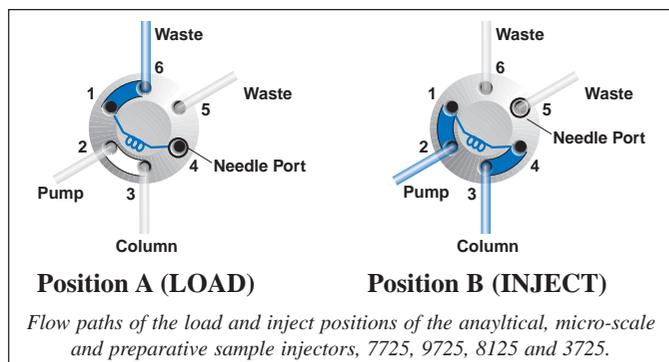
Cat. No.	Description
7000	Switching valve, SS, 1/16"
7000L	Switching large bore valve, SS, 1/16"
3000-038	Switching valve, SS, 1/8"
3000	Switching valve, PEEK, 1/8"

### Two Position, Ten Port Switching Valves

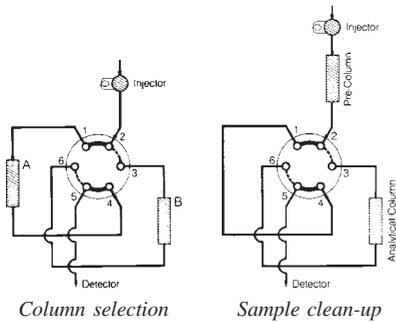
7610-400	Switching valve, SS, 1/16"
7610-600	Switching valve, PEEK, 1/16"

### Sample Injector Valves

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



# 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
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.

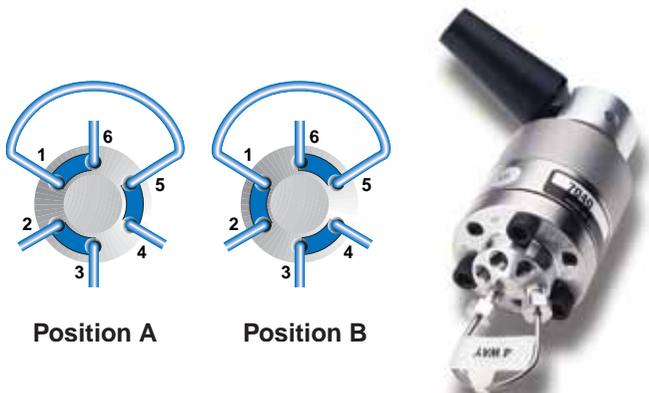
The internal passages of the 7060 are 0.41mm I.D., with a total internal volume less than 2µL.

Cat. No.	Description
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

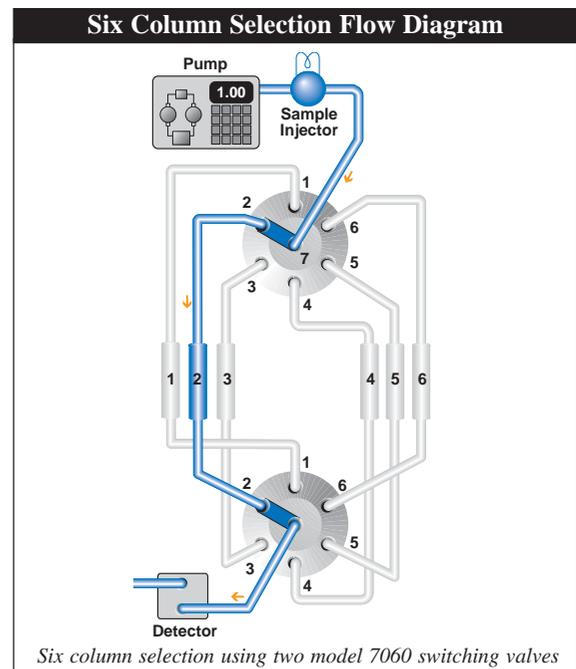
EV700-105	6 position selection valve, SS, 1/16"
EV750-105	6 position selection valve, PEEK, 1/16"



## 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
7040	4-way switching valve, SS, 1/16"
7040L	4-way large bore switching valve, SS, 1/16"



# Rheodyne Accessories: Rotor Seals, Stators and Kits



## Rotor Seals and Stators

The rotor seal is the polymeric disc that makes a high pressure seal against the stator. The seal wears with use and is one of the only parts that may need routine replacement. Stators need replacement only if the ports or sealing surfaces become damaged.

Vespel blend rotor seals have an operating range from 0 to 10. Tefzel blend and PEEK blend rotor seals have a pH range from 0 to 14. Strong oxidizing acids such as concentrated nitric and sulfuric are not compatible with PEEK.

Stators are available in 316 SS and PEEK. Our materials of construction have been researched and selected for their physical and mechanical strength.

### Vespel Rotor Seals (pH 0-10)

Cat. No.	Description
7010-039	for 7010, 7000, 7040
7030-003	for 7030
7060-070	for 7060, 7066
7125-047	for 7125, 7725
7410-038	for 7410
7413-013	for 7413
8125-038	for 8125, 8126

### Tefzel Rotor Seals (pH 0-14)

7010-071	for 7010, 7010-087, 7000, 7040
7030-015	for 7030
7060-074	for 7060, 7066, 9060
7125-079	for 7125, 7725
7410-075	for 7410
7413-045	for 7413
8125-097	for 8125
9010-051	for 9010
9125-082	for 9125, 9725

### Tefzel Rotor Seal pH Upgrade Kits (pH 0-14)

Kit includes: Tefzel rotor seal and 2 hex keys.

7010-998	for 7010, 7000, 7040
7125-998	for 7125, 7126
7410-998	for 7410
8125-998	for 8125, 8126

### PEEK Rotor Seals (pH 0-14)

3710-008	for 3000, 3000-038, 3710, 3710-038
3030-005	for 3030, 3030-038
3060-001	for 3060, 3060-038
3725-018	for 3725, 3725-038
7610-011	for 7610-400, 7610-600
9125-095	for 7125, 7725, 9125, 9725

## Stators

Cat. No.	Description
3725-006	for 3725, 3710-038, 3000-038, 3030-038, PEEK
3725-085	for 3725-038, 3710-038, 3000-038, 3030-038
7010-040	for 7125, 7010, 7000, 7030, 7040
7010-040R	Resurfaced stator*
7010-066	for 7125-081, 7010-087
7060-039	for 7060, 7066
7410-041	for 7410, 7413
7610-048	for 7610-600
7725-010	for 7725
8125-098	for 8125, 8126
9125-043	for 9125, 9010, 9030, 9725
9060-016	for 9060

### Stator Face Assemblies:

7125-067	for 7125, 7126
7725-026	for 7725
8125-074	for 8125, 8126
8125-094	for 9125, 9010, 9030
9060-015	for 9060

\*With Stator Exchange

### Miscellaneous Replacement Parts

7125-008	Needle guide (for analytical front loading injectors)
7010-015	Isolation seal



## RheBuild® Kits

Cat. No.	Description
3725-999	for 3725, 3725i, 3725-038, 3725i-038
7010-997	Kit to include stator for 7010
7010-999	for 7010, 7000
7125-999	for 7125, 7126
7125Ti-999	for 7125-081
7410-999	for 7410
7520-999	for 7520, 7526
7725-999	for 7725, 7725i, 7726
7750-999	for 7750TPMV series
8125-999	for 8125, 8126
9010-999	for 9010, 9040
9125-999	for 9125, 9126
9725-999	for 9725, 9725i, 9726
9750-999	for 9750TPMV series

Contents of kit for front-loading injection valves: rotor seals, stator face assembly, isolation seal, needle guide, needle port cleaner, 2 hex keys, operating instructions, and mini manual. The 7520-999 contains an inlet stator, rotor, needle guide, needle port cleaner, hex key, rotor removal tool, and operating instructions.

### 7010-Stator Face Upgrade

Recommended for Thermo/Spectra Physics and Agilent instruments. With this conversion, the rotor seal contacts the ceramic stator face assembly providing for indefinite stator life.

Cat. No.	Description
7010-996	7010-Stator face upgrade

Stator face upgrade kit includes: Rotor, stator face assembly, isolation seal, stator ring, stator screws, 2 hex keys and manual.

# Sample Loops for Rheodyne Valves



## Upchurch SS Loops for 7125 and 7010

Cat. No.	Sample Loop Volume
1850	5µL sample loop
1851	10µL sample loop
1853	15µL sample loop
1852	20µL sample loop
1856	25µL sample loop
1857	30µL sample loop
1858	35µL sample loop
1859	40µL sample loop
1855	50µL sample loop
1860	100µL sample loop
1861	150µL sample loop
1862	200µL sample loop
1864	250µL sample loop
1867	300µL sample loop
1865	500µL sample loop
1871	1mL sample loop
1872	2mL sample loop
1875	5mL sample loop
1876	10mL sample loop
1877	20mL sample loop

## Upchurch SS Loops for 7725 and 7725i

1950	5µL sample loop
1951	10µL sample loop
1952	20µL sample loop
1955	50µL sample loop
1960	100µL sample loop
1962	200µL sample loop
1965	500µL sample loop
1971	1mL sample loop
1972	2mL sample loop
1875	5mL sample loop
1876	10mL sample loop
1877	20mL sample loop

## Upchurch PEEK Sample Loops

1800	2µL sample loop
1801	5µL sample loop
1802	10µL sample loop
1803	20µL sample loop
1805	50µL sample loop
1810	100µL sample loop
1811	150µL sample loop
1812	200µL sample loop
1814	250µL sample loop
1815	500µL sample loop
1820	1mL sample loop
1821	2mL sample loop
1822	5mL sample loop
1825	10mL sample loop
1826	20mL sample loop



## Rheodyne Sample Loops

External loops are supplied with unattached fittings so the tube can be completely bottomed in the injector port before the ferrule is swagged on. This allows for different port depths. The depth of the tubing holes may vary slightly from port to port and from valve to valve. It is good practice to label loops so that they will be replaced in the same orientation and the same valve. PEEK loops do not require this precaution because the ferrule can slide and reposition itself along the tube when the fitting is reinserted into a port.

Size designations are nominal. Sizes vary from nominal values usually less than 15%. Accuracy and precision in partial filling require that no more than half the loop volume be loaded. Precision in complete filling requires that at least two loop volumes be loaded.

### SS Loops for 7125 and 7010 Injectors

Cat. No.	Sample Loop Volume
7020	5µL sample loop
7021	10µL sample loop
7022	20µL sample loop
7023	50µL sample loop
7024	100µL sample loop
7025	200µL sample loop
7026	500µL sample loop
7027	1mL sample loop
7028	2mL sample loop
7029	5mL sample loop

### SS Loops for 7725 and 7750 Injectors

7755-020	5µL sample loop
7755-021	10µL sample loop
7755-022	20µL sample loop
7755-023	50µL sample loop
7755-024	100µL sample loop
7755-025	200µL sample loop
7755-026	500µL sample loop
7755-027	1mL sample loop
7755-028	2mL sample loop
7755-029	5mL sample loop

### SS Loops for 8125 Injector

8020	5µL sample loop
8021	10µL sample loop
8022	20µL sample loop
8023	50µL sample loop

### SS Loops for 3725-038 Injectors

3065-018	2mL sample loop
3065-019	5mL sample loop
3065-023	10mL sample loop
3065-025	20mL sample loop

### PEEK Loops for 9725 and 9010 Injectors

Cat. No.	Sample Loop Volume
7755-015	2µL (9725 only)
9055-020	5µL sample loop
9055-021	10µL sample loop
9055-022	20µL sample loop
9055-023	50µL sample loop
9055-024	100µL sample loop
9055-025	200µL sample loop
9055-026	500µL sample loop
9055-027	1mL sample loop
9055-028	2mL sample loop
9055-029	5mL sample loop
9055-033	10mL sample loop

### PEEK Loops for 3725 Injectors:

3055-018	2mL sample loop
3055-019	5mL sample loop
3055-023	10mL sample loop
3055-025	20mL sample loop

### Titanium Loops

7055-021	10µL sample loop
7055-022	20µL sample loop
7055-023	50µL sample loop
7055-024	100µL sample loop
7055-025	200µL sample loop
7055-026	500µL sample loop
7055-017	1mL sample loop
7055-028	2mL sample loop
7055-029	5mL sample loop