

Product Bulletin 101

Model 7010 Sample Injection Valve and Model 7012 Loop Filler Port

- High volume precision
- 5 μL to 5 mL removable sample loops
- Low volume flow passages
- Pneumatic actuator and position sensing switch available

HIGH PRESSURE SAMPLE INJECTION

Designed specifically for high performance liquid chromatography, the Rheodyne Model 7010 Sample Injection Valve operates up to 7000 psi and injects sample volumes of 5 μL or larger by means of a 1/16" OD sample loop. The Model 7010 Sample Injection Valve provides superior volumetric reproducibility. Model 7012 Loop Filler Port accessory is ideal for loading the valve's sample loop using conventional microliter syringes.

The Model 7010 valve has six ports. These 10-32 threaded ports are for sample input, pump, sample loop, column, and waste line connections. A flat-face seal design is used for easy adjustment and service. This design uses a flat, highly-polished stainless steel stator with drilled flow passages which connect to the threaded ports. A flat, inert polymer rotor with connecting flow passages bears against the stator under spring pressure sufficient to hold leak-tight at high pressure.

Rotation of the valve shaft turns the rotor through 60° and causes rotor flow passages to switch from LOAD to INJECT position. In the INJECT position, the sample is injected onto the column. The sample loop is conveniently self-cleaning as mobile phase continuously flushes through the loop during analysis. The flow switching pattern is shown in Figure 1.

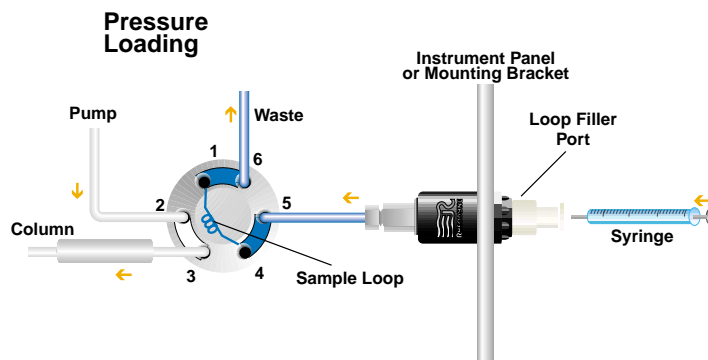


Fig. 1. Model 7010 sample loop loading by pressure loading. In LOAD (shown), the syringe and Loop Filler Port load the sample loop at Port 5 while excess sample exits at Port 6. In INJECT (not shown), the valve grooves connect the ports leading from the pump to the column, sending the sample from the sample loop onto the column.

MODEL 7012 LOOP FILLER PORT

Model 7012 is an accessory for sample injection valve Models 7010, 7410, and 7413. The Loop Filler Port is a needle insertion port with very small dead volume surrounding the needle when it is inserted.

An adjustable Teflon¹ seal accommodates needles ranging from 0.5 mm (0.018") to 0.7 mm (0.028") diameter. Conventional microliter syringes with #22 gauge needle can be used. A short length of 0.3 mm (0.012") OD stainless steel tubing connects the needle port to the valve sample loading port.

¹Teflon is a trademark of E.I. DuPont.

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Fig. 2. Suggested mounting arrangement of Models 7012 and 7010.

Model 7010 uses the complete-filling method of loading the sample loop. This highly reproducible method is for routine analyses in which your sample loop regulates the sample volume. Excess sample is required to completely flush mobile phase from the loop. Applications requiring zero sample loss should use the Rheodyne Model 7725 Sample Injector.

Figure 2 shows the recommended mounting arrangement of the Model 7012 port and the sample valves. The port is supplied complete with connecting tubing and RheFlex® fittings for direct connection to the valve.

ACCESSORIES

Visit www.rheodyne.com for information on Position Sensing Switches, Mounting Panels, Pneumatic Actuator "P" models, and additional RheFlex Fittings Sets.

SPECIFICATIONS

Maximum Operating Pressure: 48 MPa (483 bar, 7000 psi)

Maximum Operating Temperature: 150°C

Flow Passage Diameters: 0.6 mm (0.024") and 0.5 mm (0.018")

Wetted Surfaces: stainless steel and an inert polymer

Supplied: RheFlex fittings sets for all ports

Ordering Information

Part Number	Description
7010	Analytical Sample Injector with 20 µL Sample Loop
7020	5 µL Sample Loop
7021	10 µL Sample Loop
7022	20 µL Sample Loop
7023	50 µL Sample Loop
7024	100 µL Sample Loop
7025	200 µL Sample Loop
7026	500 µL Sample Loop
7027	1.0 mL Sample Loop
7028	2.0 mL Sample Loop
7029	5.0 mL Sample Loop
7012	Loop Filler Port



RheBuild®Kits are available for all Rheodyne valves. Each kit includes all parts, tools, and instructions to maintain precision performance.

Ordering Information

Part Number	Description
7010-999	RheBuild Kit for Model 7010