

# SSV

## Gas Spot Sampling Valve

### Overview

The SSV Spot Sampling Valve maximizes natural gas spot sampling repeatability and accuracy while simplifying the sampling process. It fits between the sample probe and sample cylinder and includes the liquids separator, bypass vent valve, fill & empty valve, and extension tube pigtail with flow regulating port - recommended by the GPA 2166 standards for best accuracy. Field testing has proven that using the SSV with heated sample bottles provides consistent accurate samples. It can be used with the helium-pop or fill & empty sampling methods.

### Typical Configuration

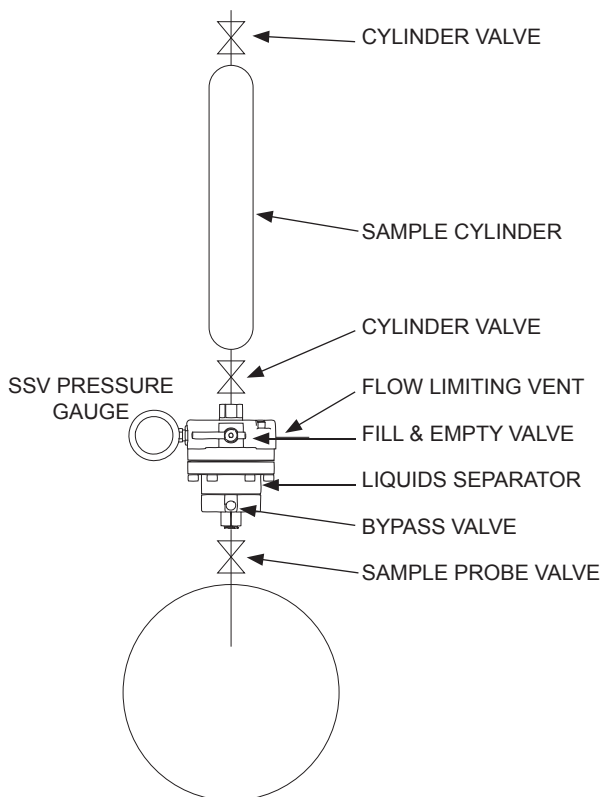


Figure 1. Typical SSV configuration

*For best results use a pre-heated sample cylinder. The GCH series sample cylinder heaters provides a simple effective field-proven method to quickly pre-heat 300cc and 500cc cylinders. Visit [www.2KCsolutions.com](http://www.2KCsolutions.com) for additional information on the GCH cylinder heaters.*

## Operator's Manual



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### Features

- Complete spot-sampling solution in a compact rugged package
- 1/4" NPT sample probe and sample cylinder fittings maintain compatibility with common probes and sample cylinders
- Includes 1500 PSI sample pressure gauge to monitor the cylinder fill and empty process
- Thumbscrew bypass needle valve allows for adjustable bleed or venting rate
- Integral liquids separator with drain/bleed valve
- Cylinder "empty" flow rate limiting orifice with thermal isolation
- Single quarter-turn hand valve for quick fill/empty operation - uses poppet type valve seats for long life
- No need for extension "pigtail" at the top of the sample cylinder - makes setups quicker
- 316 stainless steel construction with nylon valve seats
- Easy to disassemble for cleaning
- Field replaceable valve seats and O-rings

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## Operation

Refer to Figure 1 for a typical SSV sampling configuration. The SSV hand valve has two positions, FILL and EMPTY. In the FILL valve position (Figure 3) the probe is ported to the sample cylinder and the vent is blocked. In this position, sample gas is allowed to fill the cylinder. In the EMPTY position (Figure 2) the sample cylinder is allowed to vent through a vent tube while blocking the inlet from the sample probe.

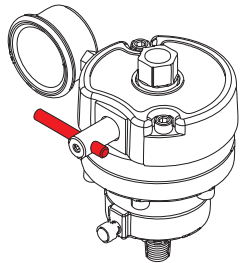


Figure 2. Valve handle in "EMPTY" position.

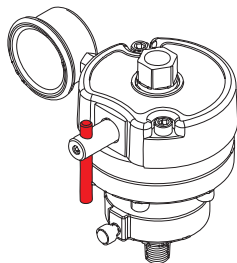


Figure 3. Valve handle in "FILL" position.

The flow-limiting vent tube moves the cooling effect, caused by the expanding vented gas, to the end of the tubing - away from the SSV body. The tube is coiled to provide further thermal isolation from the chilled vented gas, protecting the sample quality. Fill and empty pre-conditioning or purging is quick and easy with the SSV. Switching between the fill and empty positions is done by a quarter turn motion and the pressure gauge indicates the cylinder pressure during the process. Monitoring the cylinder pressure will help prevent allowing the pressure to bleed down too low - contaminating the purging process. In addition to the fill & empty valve, a bleed valve is included to purge the liquids trap area and to bleed off pressure from the valve after the sample is taken. When using the helium-pop method it can be used for purging.

### **⚠ IMPORTANT**

Never use the pressure gauge to tighten or loosen the SSV. Always use a 3/4" open end wrench.

The SSV has been carefully designed to maximize sample accuracy while keeping the sampling process as simple as possible. To take a sample connect the SSV to a standard sample probe with a 1/4" NPT fitting. A couple wraps of Teflon tape on the threads will seal and help lubricate the threads. Attach a sample cylinder to the SSV top 1/4" NPT fitting and then follow the sampling procedures used by your organization. There are several possible methods described in the GPA 2166 and API 14.1 sampling standards.

### **⚠ WARNING**

- A failure resulting in injury or damage may be caused by pressure beyond top of scale pressure vibration or pressure pulsation, excessive instrument temperature, corrosion of the pressure containing parts, or other misuse. Refer to ASME B40.1 - 1991
- Do not use on oxygen service.
- 185°F (85°C) maximum temperature.

### **⚠ IMPORTANT**

Modifications, misuse, or use of non-approved replacement parts may void the warranty.

## Maintenance

### **Liquids Separator**

To clean the liquids separator remove the 6 socket-head cap screws using a 3/16" allen wrench. Be extra careful handling the bodies while cleaning to prevent any scratches on the sealing surfaces.



After cleaning, lubricate the O-ring with a light grease and make sure the surfaces are clean. Tighten the cap screws evenly. The O-ring provides the seal so excessive torque on the screws is not required.

### **Bypass Valve**

Three socket-head cap screw hold the bypass valve body to the liquids separator body. If the valve gets plugged it can be cleaned with a fine gauge wire or a small needle. Care should be taken when cleaning, especially the hole behind the thumb screw. If the hole gets distorted the thumb screw will no longer seal and the bypass valve assembly will need to be replaced. The bypass valve body is made of polycarbonate and

is resistant to most solvents but only solvents known to be safe for plastics should be used.

A small O-ring provides a pressure seal to the liquids separator body. If the O-ring is damaged it should be replaced. Clean and lightly lubricate the O-ring before reassembling. Do not over-tighten the mounting screws. If the plastic bypass valve is damaged in any way it should be replaced.

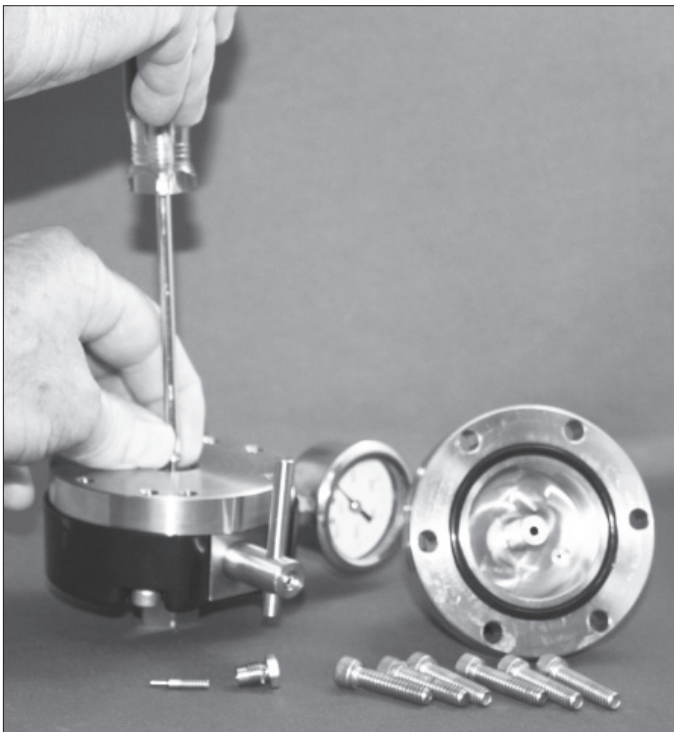


### **Inlet Valve Seat**

If the SSV fails to seal when the valve handle is in the EMPTY position you may need to replace the nylon valve seat. Use the exploded view in the Parts List section of this manual can be used to help identify parts.

To remove the Inlet Valve Seat...

1. Remove the liquids separator body by removing the 6 socket-head cap screws (2).
2. Remove the Inlet Valve Support (16).
3. Remove the Inlet Valve Poppet and spring (14)(15).
4. Use a 4-40 x 3/4" long screw (included in the seals kit) to thread into the nylon seal (13) several turns or enough for the screw to grip the seat.
5. Pull on the end of the screw with needle-nose pliers to remove the nylon seat (13).



Drop in a new seat and use the Inlet Valve Support to press the new seat into place. Do not overtighten to prevent distorting the new valve seat.

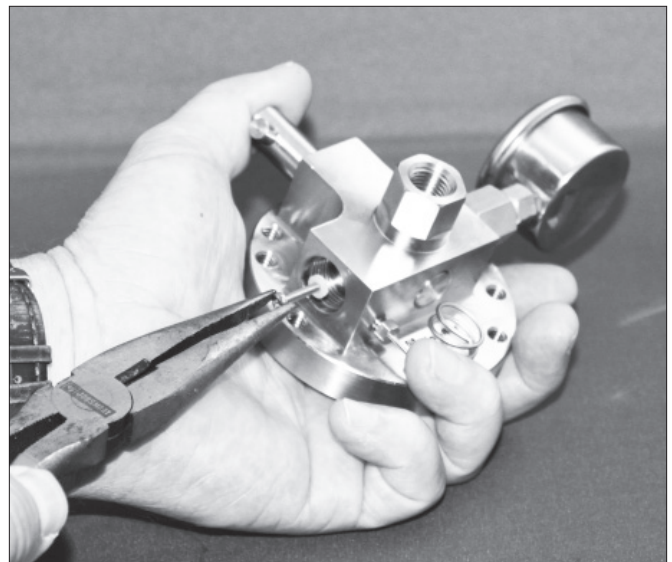
With the new seat pressed in place remove the support and re-install the poppet and spring. Lightly lubricate the O-ring and assemble the liquids separator.

### **Vent Valve Seat**

If the SSV fails to seal when the valve handle is in the FILL position you may need to replace the nylon valve seat in the vent valve. Use the exploded view in the Parts List section of this manual can be used to help identify parts.

To remove the Vent Valve Seat...

1. Remove the Top Cover (3) by removing the two socket-head cap screws.
2. Remove the Vent Valve Cap (23) using an 11/16" open-end wrench.
3. Remove the Vent Valve Poppet (20) and spring (21).
4. Use a flat blade screw driver to unscrew the Vent Valve Support (19).
5. Use a 4-40 x 3/4" long screw (included in the seals kit) to thread into the nylon seal several turns or enough for the screw to grip the seat.
6. Pull on the end of the screw with needle-nose pliers to remove the seat.



Use the Vent Valve Support (19) to press in the new seat. Reassemble the SSV valve.

### **Valve Cam Seals**

To replace the O-rings on the valve cam...

1. Follow the instructions to remove the Inlet and Vent valve poppets. **Never try to remove the cam with the poppets in place.**

2. Remove the pressure gauge pipe adapter (5) to gain access to the cam stop screw.
3. Remove the cam stop screw (6).
4. Using the valve handle, pull the cam out of the body.

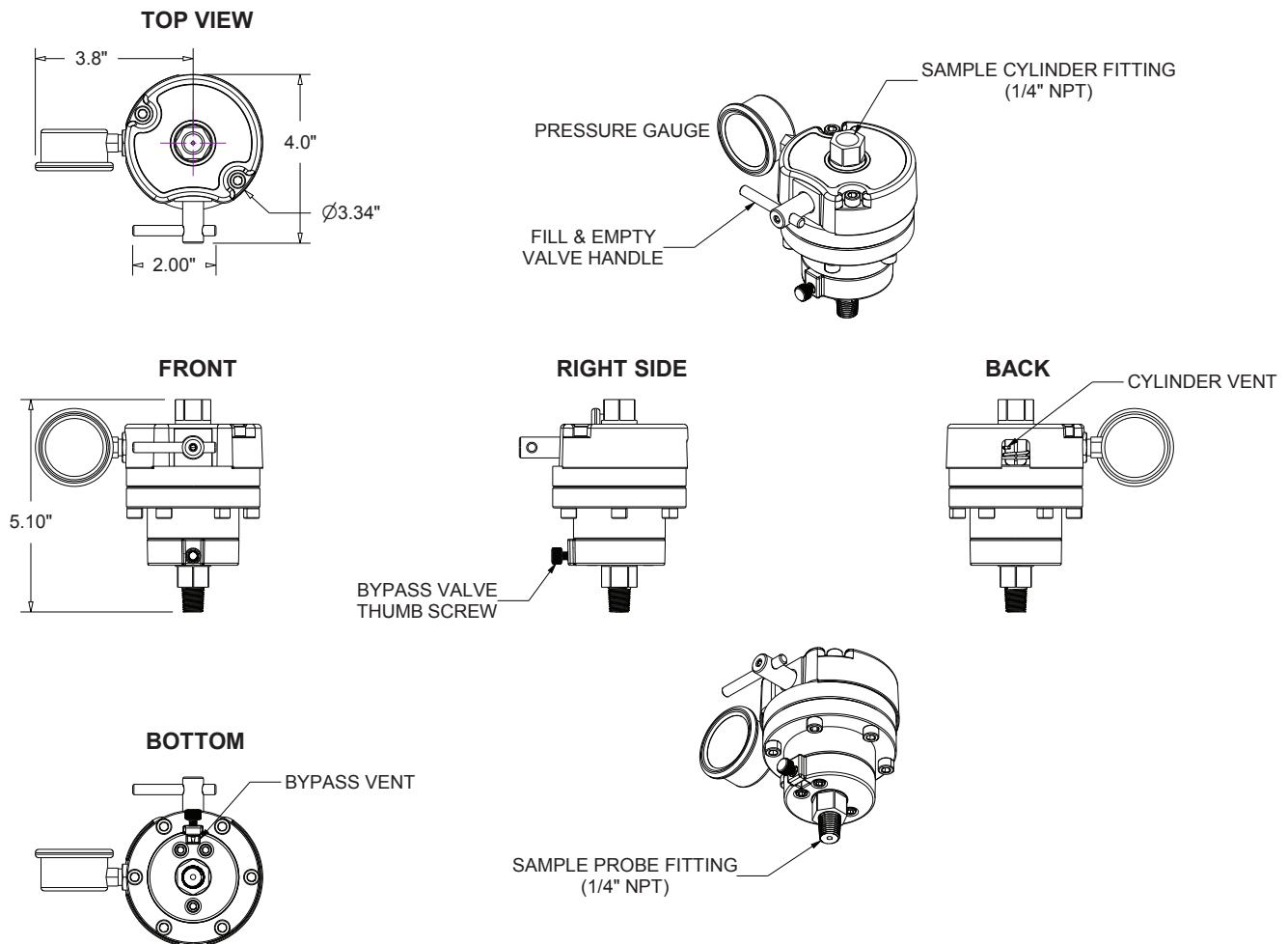
Inspect the cam and poppets for wear and replace if necessary. Replace the cam O-rings (included in the seal kit). Be sure to lightly lubricate the cam, O-rings, and poppets with a light grease before assembly.

## Factory Refurbishing

Microflex can fully refurbish your SSV and return your rebuilt valve fully tested and ready to go. Contact us for a return authorization number before sending your valve in for service.

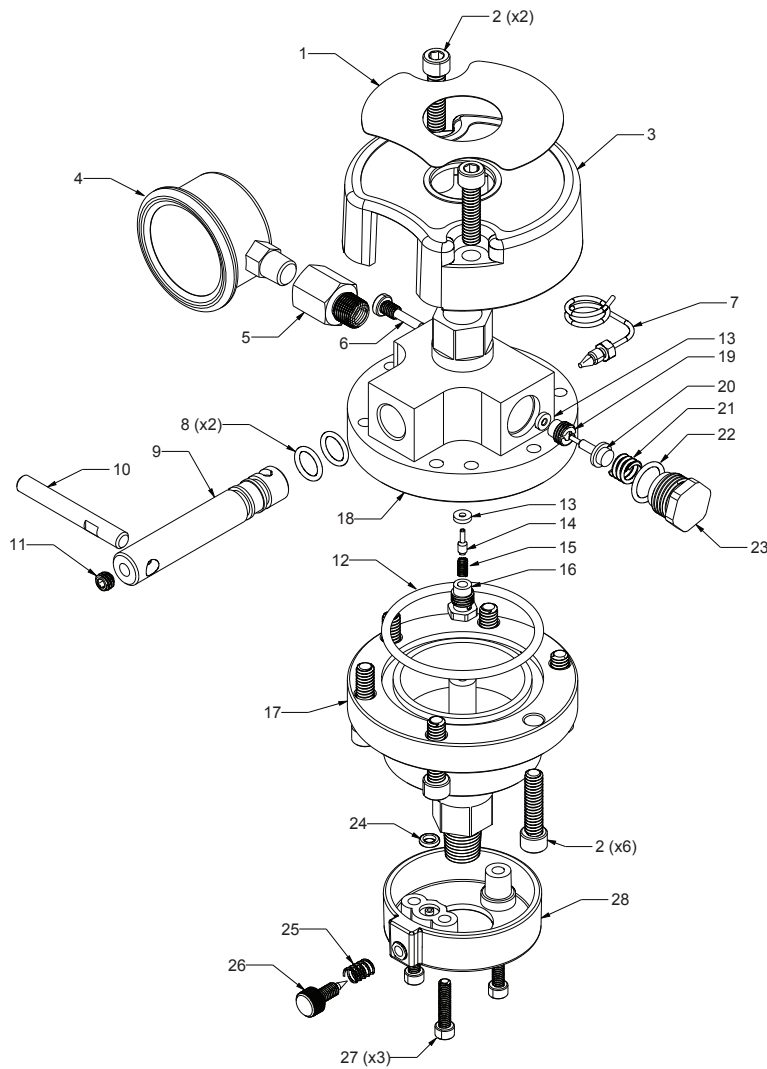
## Specifications

Sample Probe Fitting .....	1/4" Male NPT
Sample Cylinder Fitting .....	1/4" Female NPT
Maximum Operating Pressure.....	1500 PSI
Operating Temperature .....	-13° to +185°F (-25° to +85°C)
Venting Orifice.....	0.03"
All Metal Components (body, actuators, screws, springs...)	316 Stainless Steel
Bypass Valve Body .....	Polycarbonate
Valve Seats.....	Nylon
O-ring Seals .....	Nitrile (Buna-N)
Weight .....	4 Pounds





# Parts List



Item	Qty	Part Number	Description
1	1	130-0024	SSV Label
2	8	122-0006	Cap Screw 1/4-20 x 1
3	1	450-0008	Top Cover
4	1	122-0010	Pressure Gauge
5	1	122-0009	Pipe Adapter 1/8 NPT
6	1	230-0026	Cam Stop Screw
7	1	122-0033	Vent Tube Assembly .03 ID
8	2	126-0006	O-Ring 70 Duro Buna-N -.012
9	1	203-0016	Valve Cam
10	1	203-0023	Valve Handle
11	1	122-0007	Set Screw 1/4-20 x 3/16
12	1	126-0003	O-Ring 70 Duro Buna-N -.226
13	1	450-0015	Valve Seat Nylon .09 ID
14	1	203-0017	Inlet Valve Poppet
15	1	122-0017	Inlet Valve Spring
16	1	203-0019	Inlet Valve Support
17	1	203-0010	Body Bottom
18	1	203-0011	Valve Body
19	1	203-0020	Vent Valve Support
20	1	203-0018	Vent Valve Poppet
21	1	122-0018	Vent Valve Spring
22	1	126-0005	O-Ring 70 Duro Buna-N -.014
23	1	203-0015	Vent Valve Cap
24	1	126-0004	O-Ring 70 Duro Buna-N -.007
25	1	122-0019	Bypass Valve Spring
26	1	203-0021	Bypass Valve Thumb Screw
27	3	122-0034	Cap Screw 8-32 x 3/4
28	1	450-0009	Bypass Valve Isolator

## **Limited Warranty**

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Microflex, LLC warrants this unit against defects in materials and workmanship for a period of one year from the date of shipment. Microflex, LLC will, at its option, repair or replace equipment that proves to be defective during the warranty period. This warranty includes parts and labor.

A Return Materials Authorization (RMA) number must be obtained from the factory and clearly marked on the outside of the package before equipment will be accepted for warranty work.

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## **Service**

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For service please contact your distributor listed below for a Return Materials Authorization number (RMA).

Microflex, LLC  
2202 Red Bird Lane  
Brookshire, Texas 77423

Phone: 281-855-9639  
Fax: 832-422-4391  
[www.microflx.com](http://www.microflx.com)

  
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