
INSTRUCTIONS FOR MODELS SG5340 & SG5350 ULTRA FINE, LOW FLOW METERING VALVES

**THIS BOOKLET CONTAINS PROPRIETARY INFORMATION OF
ADVANCED SPECIALTY GAS EQUIPMENT CORP., AND IS PROVIDED
TO THE PURCHASER SOLELY FOR USE IN CONJUNCTION WITH
MODELS SG5340 AND SG5350 METERING VALVES.**

IMPORTANT

These instructions are for experienced operators who know the general principles and safety precautions to be observed in handling specialty gases and operating gas handling equipment. If you are not certain you fully understand the safety precautions for handling gases, we urge you to obtain and read the Material Safety Data Sheet (MSDS) for each gas being used.

Do not permit untrained persons to install, operate, or maintain this equipment. Do not attempt to install or operate this equipment until you have read and fully understand these instructions. If you do not fully understand these instructions, contact your Advanced Specialty Gas Equipment Distributor.

Be sure this information reaches the operator. Your supplier has extra copies.



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SAFETY PRECAUTIONS

Protect yourself and others. Read and understand the following instructions before attempting to use these valves. Failure to understand and follow these instructions could result in serious personal injury and/or damage to equipment.

- Know and understand the physical and chemical properties of the gas being used.
- Observe general precautions for the use of gases.
- Observe safety precautions for the gas being used.
- Read and follow precautions on cylinder labels.
- Never use these valves with gases not compatible with the materials of construction. The use of gases not compatible with the materials of construction may cause damage to equipment or injury to personnel.
- If flammable gases are used with these valves, do not locate them near open flames or any other source of ignition.
- If toxic or flammable gases are used with these regulators, emergency equipment applicable to the gases in use should be available in the operating area.
- Many gases can cause asphyxiation by displacing oxygen in the atmosphere. Make certain the area where regulators are operated is well ventilated. Provide a device to warn personnel of oxygen depletion in the work area.
- Do not release toxic or flammable gases in the vicinity of personnel. Use this equipment only in well ventilated areas. Vent gases to the outside atmosphere, and in an area away from personnel. Be sure that venting and disposal methods are in accordance with Federal, State and local requirements. Locate and construct vent lines to prevent condensation or gas accumulation. Be sure the vent outlet cannot be obstructed by rain, snow, ice, insects, birds, etc. Do not interconnect vent lines; if more than one vent is needed, use separate lines.
- Never use oil or grease on these valves. Oil and grease are easily ignited and may combine violently with some gases under pressure.
- Never connect a valve to a supply source having a pressure greater than the maximum rated pressure of the valve. Refer to Product Specifications (page 6) for maximum inlet pressures.

DESCRIPTION

These valves are designed for extremely low flow gas and liquid applications. They provide smooth, nonpulsing control which is always proportional and absolutely constant at any given setting. They are particularly suited to the precise control requirements of gas chromatography.

Six different needle tapers provide a wide selection of flow ranges (Table 2, see page 7). Fifteen turns of the handle – from fully closed to fully open – provide for excellent resolution (the ratio of turns to flow capacity). These valves will shut off “bubble tight” and cannot be damaged by overtightening.

These valves are available in nickel-plated brass construction for non-corrosive applications (SG5340), or in Type 316 Stainless Steel for use with corrosive gases (SG5350). They may be conveniently panel mounted using the panel mounting nuts provided.

OPTIONAL EQUIPMENT

In-line filters (2-micron) are available for installation at the inlet of these valves to protect the valves from particle contamination which could impair operation. These optional filters are available in aluminum construction for use with the SG5340 valves, or in stainless steel construction for use with the SG5350 valves. They feature a 1/8" NPT male outlet connection which allow them to be installed directly in the 1/8" NPT female inlet port of the SG5340 and SG5350 valves.

2-Micron Aluminum Filter (Viton® Seals)	Part No. FM4741
2-Micron Stainless Steel Filter (Viton® Seals)	Part No. FM4746

INSTALLATION

WARNING: Before attempting to install and use these valves, read and fully understand the safety precautions on page 3 in this booklet. Failure to follow the safety precautions may result in serious personal injury and/or damage to equipment.

1. Inspect the valve for signs of physical damage or contamination. If it is damaged or contaminated, contact your Advanced Specialty Gas Distributor to arrange for repair or replacement.
2. Insure the service gas is compatible with the materials of construction.
3. Do not exceed the maximum operating pressure of the valve; see Product Specifications (page 6).
4. If the valve is to be panel mounted (Figure 3, see page 10):
 - a. Open the valve fully by turning the adjusting knob (1) counter-clockwise to the stop.
 - b. Using a $\frac{5}{64}$ inch hex wrench, loosen the set screw (2) and remove the adjusting knob (1).
 - c. Using a .050 inch hex wrench, loosen the set screw (3) and remove the knurled bonnet nut (4) by turning the nut counter-clockwise.
 - d. Remove the front panel mounting nut (5).
 - e. From the rear of the panel insert the stem of the valve through a pre-drilled $\frac{1}{16}$ inch hole in the panel. The degree of protrusion is controlled by the rear panel mounting nut (6).
 - f. Replace the front panel mounting nut (5), knurled bonnet nut (4) and adjusting knob (1) in the reverse order from which they were removed.
5. Note the direction of flow, which is indicated by an arrow stamped into the valve body, and connect the valve to the piping system with the proper flow orientation. Use a noncontaminating, lubricant/sealant, such as Teflon[®] tape, when connecting the pipe threads.
6. Leak test all connections after installation at the maximum system operating pressure using a clean, dry inert gas (e.g. Nitrogen) and a suitable leak detection fluid such as Snoop[®].

REPAIRS

If the valve leaks or malfunctions, take it out of service immediately. Repairs to these valves are available only through Advanced Specialty Gas Equipment Corp. Contact your Advanced Specialty Gas Equipment Distributor to arrange for a repair to these items.

Warranty Repairs are only available through Advanced Specialty Gas Equipment Corp., and will be performed at no charge for parts and labor. For information on warranty, see the last page of this instruction booklet.

Non-Warranty Repairs are available through your distributor. Upon receipt at the factory, the regulator will be inspected and you will be contacted by your distributor with a repair cost estimate. No item will be repaired until approval is received. There will be an evaluation charge assessed for equipment not repaired.

SPECIFICATIONS

Maximum Operating Pressure	
SG5340	600 psig @ 70°F
SG5350	1000 psig @ 70°F
Maximum Operating Temperature	
SG5340	180°F
SG5350	250°F
Flow Coefficient	See Table 2
Flow Capacity	See Table 2
Inlet and Outlet Connections	½" NPT female
Dimensions	See Figure 1
Weight (approx.)	5 oz.

MATERIALS OF CONSTRUCTION

Body	See Table 1
Internal Parts Exposed to Gas SG5340	Brass, Delrin [®] , and Stainless Steel
SG5350	Type 316 Stainless Steel and Vespel [®]
Seals	Viton [®]

Table 1

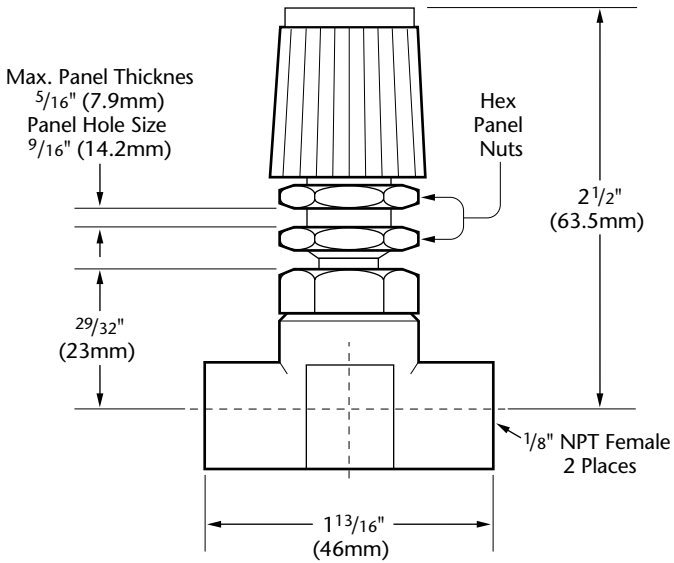
Part No.	Body Material
SG5340-*	Nickel-Plated Brass
SG5350-*	Type 316 Stainless Steel

*Insert applicable needle taper desired from selection provided in Table 2.
For example: SG5340-2.

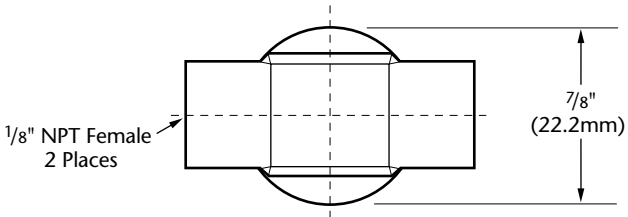
Table 2

Needle Taper No.	Flow Coefficient (C_v)	Flow Capacity (scm)*		
		Helium	Air	Water
1	0.00029	300	150	4
2	0.00066	700	350	10
3	0.0013	1400	600	20
4	0.0057	6000	2400	80
5	0.017	18,000	6800	200
6	0.052	55,000	27,000	650

*Measured with 10 psig inlet pressure and atmospheric outlet pressure.



FRONT VIEW



BOTTOM VIEW

*Figure 1 – Models SG5340
 and SG5350 Valve Dimensions*

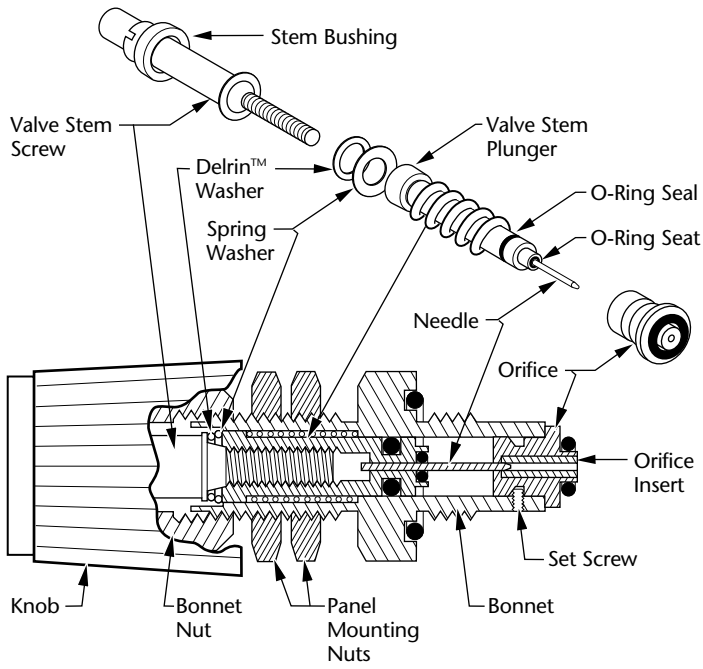
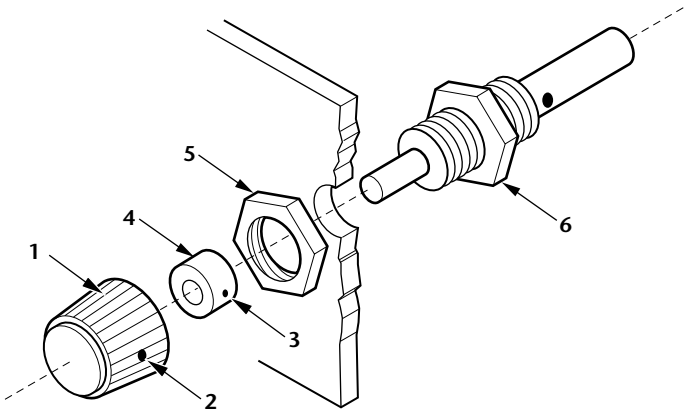


Figure 2 – Exploded View of Ultra Fine Metering Valve



*Figure 3 – Panel Mounting
Diagram for Models SG5340 and SG5350*

WARRANTY

Advanced Specialty Gas Equipment Corp.,(the Company), warrants to the initial purchaser of each valve described herein, that such equipment will be free from defects in material and workmanship which result in breakdown or failure under normal use during a period of 12 months from date of shipment by the Company if used and maintained according to Advanced Specialty Gas Equipment written instructions. This warranty does not cover damage or malfunction due to corrosion. Purchaser is aware that this equipment is designed for specific applications and that using this equipment with the wrong or improperly purged gas or at the wrong pressure may damage or corrode the unit and cause personal injury. Purchaser must confirm that this equipment is compatible with the gas being passed through it. If there is any doubt about compatibility, consult your Advanced Specialty Gas Equipment Corp. distributor.

The Company's liability under this warranty shall be limited to the repair, or at its option, replacement or refund of the purchase price, of such equipment which proves to be defective, provided; however, that this warranty shall only apply if the purchaser (1) gives the Company written notice within ten (10) days after discovery of such defect, (2) immediately on discovery of the claimed defect, discontinues all use of such equipment, and (3) returns such equipment freight prepaid to plant of manufacture.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE SPECIFIED HEREIN. NO WARRANTIES ADVANCED SPECIALTY GAS EQUIPMENT CORP.(OTHER THAN WARRANTY OF TITLE AS PROVIDED IN THE UNIFORM COMMERCIAL CODE) SHALL BE IMPLIED OR OTHERWISE CREATED UNDER ANY APPLICABLE LAW, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY AND WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. No claim against the Company of any kind, whether as to equipment delivery or for nondelivery of equipment and whether or not based on contract, warranty, negligence, strict liability in tort or otherwise, shall be greater in amount than the purchase price of the equipment in respect of which such claim is made. Without limiting the generality of the foregoing, Advanced Specialty Gas Equipment Corp. shall not be liable for any special, indirect, or consequential damage, such as failure of parts resulting from corrosion.

If it is determined by Advanced Specialty Gas Equipment Corp. that the equipment is to be repaired or replaced under the terms of this warranty, the cost of returning said equipment to the initial purchaser will be paid by the Company. If, however, equipment returned to the Company in connection with a claim under this warranty is found by the Company not to be defective hereunder, then such equipment will be returned to the initial purchaser, shipping charges collect, and additionally, a service charge will be paid by the purchaser to the Company to cover the cost of handling and testing such equipment.



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