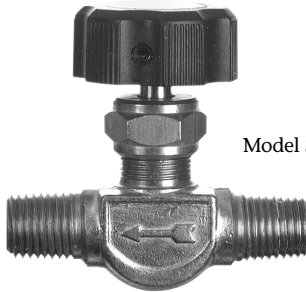

INSTRUCTIONS FOR MODELS SG5501, SG5602, SG5622 & SERIES SG5400 INSTRUMENTATION VALVES

THIS BOOKLET CONTAINS PROPRIETARY INFORMATION OF
ADVANCED SPECIALTY GAS EQUIPMENT CORP. AND IS PROVIDED
TO THE PURCHASER SOLELY FOR USE IN CONJUNCTION WITH
MODELS SG5501, SG5602, SG5622 AND SERIES SG5400
INSTRUMENTATION VALVES.



Model SG5404

IMPORTANT

These instructions are for experienced operators who know the general principles and safety precautions to be observed in handling specialty gases and operating specialty gas 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.



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 valves, 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 this equipment is 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 8) for maximum inlet pressures.

MANUFACTURER STATEMENT

The information contained in this instruction booklet has been compiled by Advanced Specialty Gas Equipment Corp., (the Company), from what it believes are authoritative sources and is offered solely as a convenience to its customers. While the Company believes that this information is accurate and factual as of the date printed, the information including design specifications is subject to change without prior notice.

DESCRIPTION

Instrumentation valves are suitable for use over a wide range of pressures and temperatures for positive leak tight shut-off of fluids in a variety of industrial and laboratory applications.

The SG5400 Series Miniature Forged Metering Valves are used to control gas flow in applications such as instrument air lines, control panels and gas chromatography. These economical valves are available with either brass or Type 316 Stainless Steel bodies and Teflon® packing.

Model SG5501 High Pressure Valves are designed for operating pressures up to 6000 psig and are excellent for use with most corrosive gases and liquids. They have Kel-F® seats for positive shutoff and Teflon® packing, located below the adjusting threads to protect the threads and prevent contamination of the line fluid. These valves are provided with mounting nuts for panel mounting applications.

The Models SG5602 and SG5622 Two-Way Ball Valves provide for quick on/off service and high flow capacity with a 90-degree rotation of the lever-type handle. They are available with a brass body for non-corrosive gases or with a Type 316 Stainless Steel body for corrosive gases. These valves are provided with mounting nuts for panel mounting applications.

INSTALLATION

WARNING: Before attempting to install and use these valves, read and fully understand the safety precautions on page 2 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 Equipment Distributor to arrange for repair or replacement.

CAUTION: Never use oil or grease on these valves. Oil and grease are easily ignited and in the presence of high pressure oxygen is explosive.

2. Be sure the service gas is compatible with the materials of construction.
3. Do not exceed the maximum operating pressure and temperature of the valve; see Product Specifications (see page 8).
4. Ensure that the inlet and outlet process lines are at atmospheric pressure before connecting valve to process line.
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.

Note: Models SG5602 and SG5622 Ball Valves permit flow in either direction.

6. Grip the valve by using a smooth jawed wrench or vise on the wrench flats of the valve body.

Note: Whenever installing or removing a ball valve (Models SG5602, SG5622), always place a “back-up” wrench on the ball valve’s end connector. NOT the valve body.

7. For connection of valves with NPT threads:
 - a. On the male threaded part of the connection, apply two full turns of Teflon[®] tape in the direction of the threading. Teflon[®] tape should not be overhanging or covering the first thread.
 - b. Engage the valve and the other component part together, until hand-tight.
 - c. With the proper wrench, holding both the valve and the component part, continue to tighten to achieve a leak-tight joint.

8. For connection of valves with compression fittings:

Note: Tube ends must be clean. Remove all filings, chips and grit before attachment. Burrs must be removed from inside and outside of tubing for proper entry into fitting and to prevent system contamination and/or restricted flow.

 - a. Insert the tube into the valve port until the tube bottoms out in the valve body. Care should be exercised to insure the tube is properly aligned with the valve body and port.
 - b. Advance the nut to a finger-tight position.
 - c. Scribe both the nut and body hex.
 - d. While holding a back-up wrench stationary on the valve body, tighten the nut 1 ¼ turn past the finger-tight position.
9. 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®.

PANEL MOUNT INSTALLATION

(Models SG5501, SG5602 and SG5622)

The panel must have a through-hole of $\frac{49}{64}$ inch (19.5 mm) diameter. The maximum panel thickness is $\frac{1}{4}$ inch (6.4 mm). When the valve is mounted to a thin panel, a spacer (or washer) may be necessary to permit full panel nut engagement on the valve.

1. For Models SG5602 and SG5622 ball valves:
 - a. Remove the handle by turning the set screw counter-clockwise with a $\frac{3}{32}$ " allen wrench.
 - b. Insert the valve through the hole in the panel and assemble the panel nut. Snug the panel nut finger-tight, followed by proper tightening.
 - c. Adjust the stem packing (see "Packing Adjustment") and re-install the handle.
2. For Model 5501 valve:
 - a. Remove the handle by turning the set screw counter-clockwise with a $\frac{3}{32}$ " allen wrench.
 - b. Remove the body set screw with a $\frac{1}{16}$ " allen wrench.
 - c. Insert the valve through the hole in the panel and assemble the panel nut, using a $\frac{3}{4}$ " allen wrench.
 - d. Re-install the body set screw, until hand-tight. Do not torque the body set screw beyond hand-tight.
 - e. Re-install the handle with the set screw into the grooved flat on the stem, using a $\frac{3}{32}$ " allen wrench.

PACKING ADJUSTMENT

Packing adjustment may be occasionally necessary depending on the many varied uses for the valve. It is recommended an adjustment be made shortly after the initial installation and just prior to flow start-up.

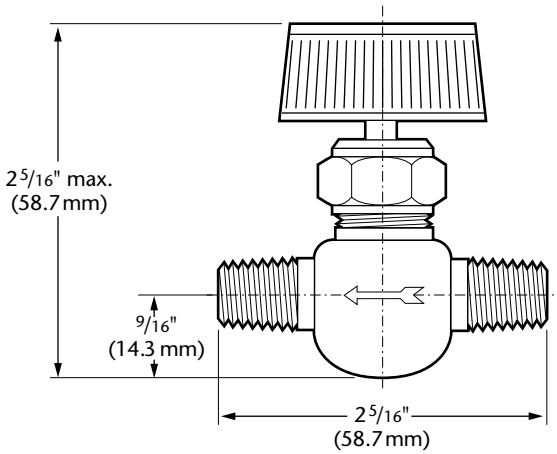
1. For Models SG5602 and SG5622 ball valves:
 - a. Remove the handle by turning the set screw counter-clockwise with a $\frac{3}{32}$ " allen wrench.
 - b. Tighten packing nut to 70 in-lbs (7.8 N-m) tightening torque using a $\frac{7}{16}$ " hex wrench, while holding the body at the wrench flats.
 - c. Re-install the handle and secure by turning the set-screw clockwise and torque to 15 in-lbs.
2. For Model 5501 valve:
 - a. Turn the hand knob (stem) to the closed position, finger tight.
 - b. Tighten the packing nut to a 75 in-lbs (8.4 N-m) tightening torque using a $\frac{9}{16}$ " wrench.
3. For SG5400 Series valves:
 - a. Turn the hand knob (stem) to the closed position, finger tight.
 - b. Tighten the packing nut to a 50 in-lbs (5.6 N-m) tightening torque using a $1\frac{1}{16}$ " wrench.

REPAIRS

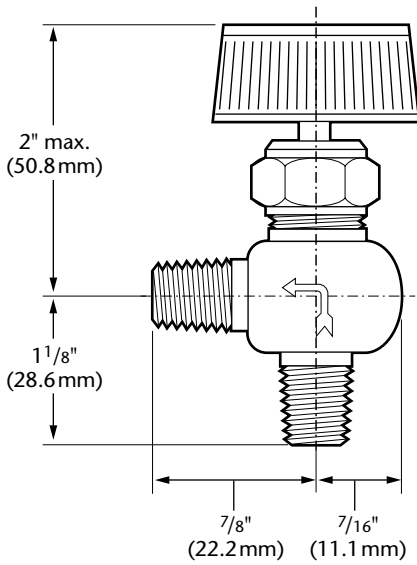
If the valve leaks or malfunctions, take it out of service immediately. Repairs beyond those contained in this instruction booklet must be made by Advanced Specialty Gas Equipment Corp., who have the special tools, test equipment and trained personnel required to make a safe repair. Contact your Advanced Specialty Gas Equipment Distributor to arrange for repair.

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 valve 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.



Straight Pattern
($\frac{1}{4}$ " NPTM connections)



Angle Pattern
($\frac{1}{4}$ " NPTM connections)

Figure 1 – SG5400 Series Valve Dimensions

SPECIFICATIONS

Table 1

Part No.	Valve Type	Pattern	Body Material	Max. Operating Pressure (psig @ 70°F)
SG5400	Metering	Straight	Brass	3000
SG5402	Metering	Angle	Brass	3000
SG5404	Metering	Straight	Brass	3000
SG5407	Metering	Straight	Brass	3000
SG5424	Metering	Straight	Type 316SS	3000
SG5425	Metering	Angle	Type 316SS	3000
SG5427	Metering	Straight	Type 316SS	3000
SG5434	Metering	Angle	Brass	3000
SG5501	High Pressure	Straight	Type 316SS	6000
SG5602	Ball	Straight	Brass	3000
SG5622	Ball	Straight	Type 316SS	6000

Table 2

Part No.	Operating Temp. Range (°F)	Flow Coefficient (C _v)	Inlet Connection	Outlet Connection
SG5400	-65 to +165	0.35	1/8" NPTM	1/8" NPTM
SG5402	-65 to +165	0.35	1/8" NPTM	1/8" NPTM
SG5404	-65 to +165	0.35	1/4" NPTM	1/4" NPTM
SG5407	-65 to +165	0.35	1/4" comp.	1/4" comp.
SG5424	-65 to +165	0.35	1/4" NPTM	1/4" NPTM
SG5425	-65 to +165	0.35	1/4" NPTM	1/4" NPTM
SG5427	-65 to +165	0.35	1/4" comp.	1/4" comp.
SG5434	-65 to +165	0.35	1/4" NPTM	1/4" NPTM
SG5501	-65 to +350	0.45	1/4" NPTF	1/4" NPTF
SG5602	-65 to +350	1.4	1/4" NPTF	1/4" NPTF
SG5622	-65 to +350	1.4	1/4" NPTF	1/4" NPTF

MATERIALS OF CONSTRUCTION

Body	See Table 1
Seat	
SG5400 Series	316 Stainless Steel (stem tip)
Models SG5501, SG5602, SG5622	Kel-F®
Packing (Seals)	Teflon®

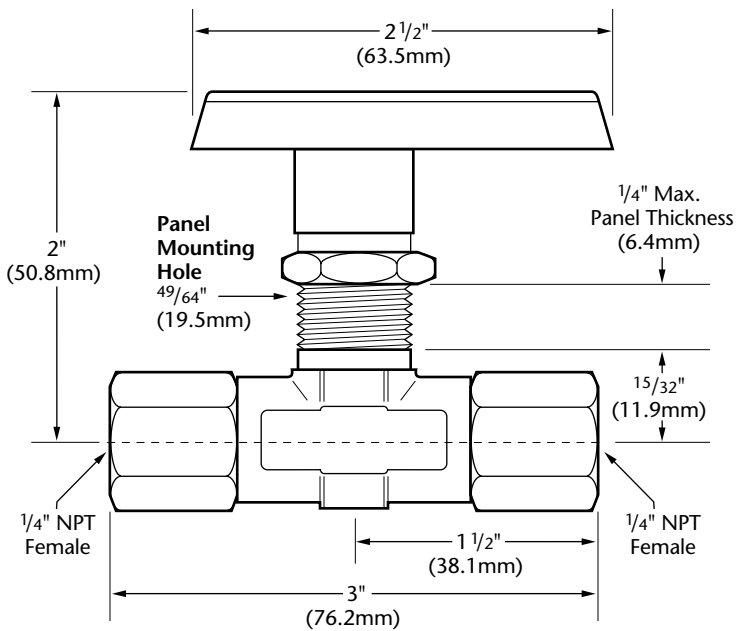


Figure 2 – Models SG5602 and SG5622 Valve Dimensions

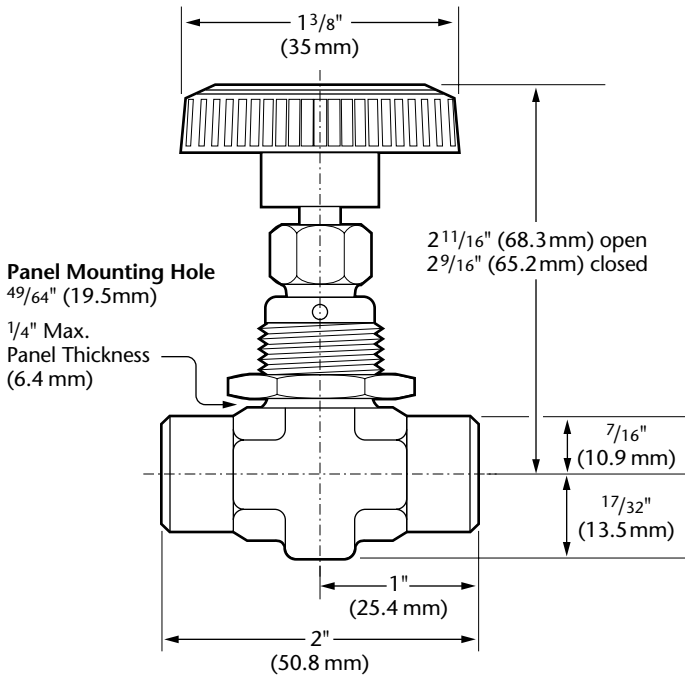


Figure 3 – Model SG5501 Valve Dimensions

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 for the wrong application may damage or corrode the unit and cause personal injury. If there is any doubt about application, 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 (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 BY 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 will be paid by the purchaser to the Company to cover the cost of handling and testing such equipment.



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