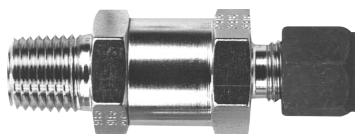

INSTRUCTIONS FOR SERIES CV5600 CHECK VALVES

THIS BOOKLET CONTAINS PROPRIETARY INFORMATION OF
ADVANCED SPECIALTY GAS EQUIPMENT CORP. AND IS PROVIDED
TO THE PURCHASER SOLELY FOR USE IN CONJUNCTION WITH
SERIES CV5600 CHECK VALVES.



CV5669



CV5672

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.



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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 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 check valve to a supply source having a pressure greater than the maximum rated pressure of the valve. Refer to Product Specifications (page 8, table 2) for maximum operating 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

Check valves ensure that gases or liquids flow in one direction only. When used on the outlet of pressure regulators, they prevent back flow of fluids into the regulator. When used in cylinder pigtailed, they prevent gas flow from one cylinder into another on the same manifold. They also stop air from entering the pigtail and manifold when a cylinder is removed.

These check valves are bubble-tight against any back pressure.

INSTALLATION

WARNING: Before attempting to install these check 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 check valve carefully for any evidence of damage that might have occurred in shipment.
CAUTION: Oil or grease in the presence of high pressure oxygen is explosive.
2. Insure the service gas is compatible with the materials used to construct the check valve.
3. Do not exceed the maximum operating pressure of the valve; see Product Specifications (page 8, table 2).
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.

6. For connection of check valves with NPT Threads:
 - a. Grip the valve by using a smooth-jawed wrench or vise on the wrench flats of the valve body.
 - b. 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.

Note: The use of joint compounds, pastes or lubricants other than Teflon® tape should be avoided since they may contaminate the valve seat or process gas.
 - c. Engage the valve and the other component part together, until hand-tight.
 - d. With the proper wrench, holding both the valve and the component part, continue to tighten to achieve a leak-tight joint.
7. For connection of check 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 1/4 turn past the finger-tight position.
8. For connection of check valves with male vacuum-type face seal connections:

Note: To insure the highest performance the protector caps should remain in place on the face seal bead during handling, utilize back up wrenches during assembly and use care to install in the same plane to prevent misalignment and galling.

 - a. Remove the protector cap from the face seal beads on the valve.
 - b. Place the metal face seal gasket into the female nut where applicable.
 - c. Assemble components and snug finger tight.
 - d. Scribe both the nut and body hex.
 - e. While holding a back-up wrench stationary, tighten the female nut 1/8 turn past finger tight for 316 stainless steel and nickel gaskets.
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®.

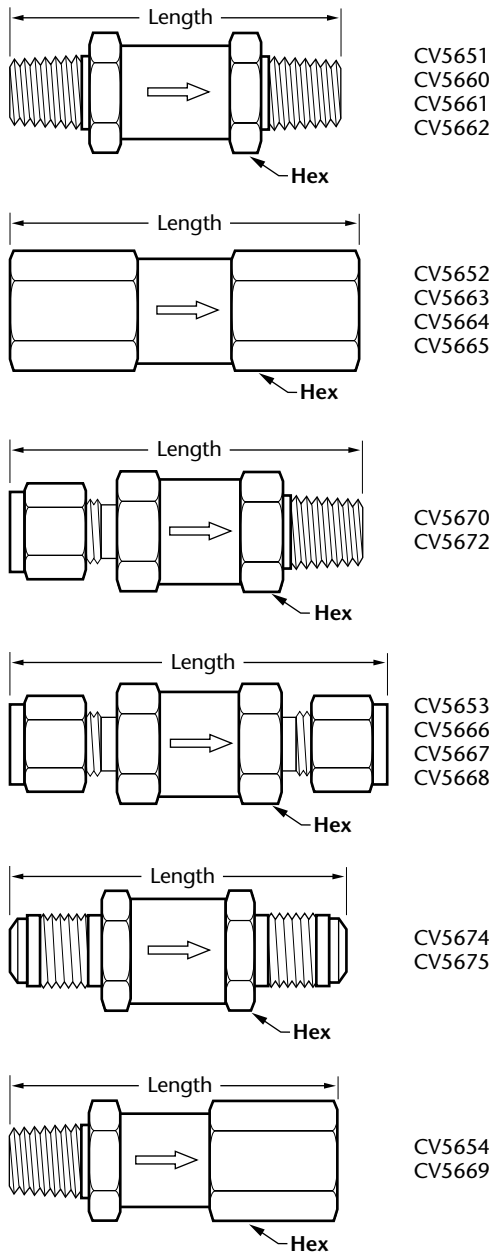


Figure 1 – Series CV5600 Dimensions

SPECIFICATIONS

Table 1

Part No.	Dimensions (see figure 1)		Inlet Connection	Outlet Connection
	Max. Length	Hex		
CV5651	2.18"	0.75"	1/4" NPT male	1/4" NPT male
CV5660	2.18"	0.75"	1/4" NPT male	1/4" NPT male
CV5661	2.18"	0.75"	1/4" NPT male	1/4" NPT male
CV5662	2.37"	0.75"	1/4" NPT male	1/4" NPT male
CV5652	2.26"	0.75"	1/4" NPT female	1/4" NPT female
CV5663	2.26"	0.75"	1/4" NPT female	1/4" NPT female
CV5664	2.34"	0.75"	1/4" NPT female	1/4" NPT female
CV5665	2.26"	0.75"	1/4" NPT female	1/4" NPT female
CV5670	2.30"	0.75"	1/4" compression	1/4" NPT male
CV5672	2.30"	0.75"	1/4" compression	1/4" NPT male
CV5653	2.43"	0.75"	1/4" compression	1/4" compression
CV5666	2.43"	0.75"	1/4" compression	1/4" compression
CV5667	2.63"	0.75"	1/4" compression	1/4" compression
CV5668	2.43"	0.75"	1/4" compression	1/4" compression
CV5674	2.20"	0.625"	1/4" male vacuum*	1/4" male vacuum*
CV5675	2.20"	0.625"	1/4" male vacuum*	1/4" male vacuum*
CV5654	2.24"	0.75"	1/4" NPT male	1/4" NPT female
CV5669	2.24"	0.75"	1/4" NPT male	1/4" NPT female

* Connection is compatible with 1/4" VCR® fittings.

Table 2

Part No.	Maximum Operating Pressure (psig)	Operating Temperature Range (°F)	Cracking Pressure (psig)	Flow Coefficient (C _v)
CV5651	3000	-15 to +400	1.0	0.5
CV5652	3000	-15 to +400	1.0	0.5
CV5653	3000	-15 to +400	1.0	0.5
CV5654	3000	-15 to +400	1.0	0.5
CV5660	6000	-30 to +275	1.0	0.5
CV5661	6000	-15 to +400	1.0	0.5
CV5662	3000	-15 to +550	1.0	0.42
CV5663	6000	-15 to +400	1.0	0.5
CV5664	3000	-15 to +550	1.0	0.42
CV5665	6000	-30 to +275	1.0	0.5
CV5666	6000	-15 to +400	1.0	0.5
CV5667	3000	-15 to +550	1.0	0.42
CV5668	6000	-30 to +275	1.0	0.5
CV5669	6000	-15 to +400	1.0	0.5
CV5670	3000	-15 to +400	1.0	0.5
CV5672	6000	-15 to +400	1.0	0.5
CV5674	3000	-15 to +400	1.0	0.36
CV5675	3000	-15 to +500	1.0	0.36

MATERIALS OF CONSTRUCTION

Part No.	Body	Seal	Spring & Poppet
CV5651	Brass	Viton®	Type 316 Stn. Stl.
CV5652	Brass	Viton®	Type 316 Stn. Stl.
CV5653	Brass	Viton®	Type 316 Stn. Stl.
CV5654	Brass	Viton®	Type 316 Stn. Stl.
CV5660	Type 316 Stn. Stl.	Buna-N®	Type 316 Stn. Stl.
CV5661	Type 316 Stn. Stl.	Viton®	Type 316 Stn. Stl.
CV5662	Type 316 Stn. Stl.	Kalrez®	Type 316 Stn. Stl.
CV5663	Type 316 Stn. Stl.	Viton®	Type 316 Stn. Stl.
CV5664	Type 316 Stn. Stl.	Kalrez®	Type 316 Stn. Stl.
CV5665	Type 316 Stn. Stl.	Buna-N®	Type 316 Stn. Stl.
CV5666	Type 316 Stn. Stl.	Viton®	Type 316 Stn. Stl.
CV5667	Type 316 Stn. Stl.	Kalrez®	Type 316 Stn. Stl.
CV5668	Type 316 Stn. Stl.	Buna-N®	Type 316 Stn. Stl.
CV5669	Type 316 Stn. Stl.	Viton®	Type 316 Stn. Stl.
CV5670	Brass	Viton®	Type 316 Stn. Stl.
CV5672	Type 316 Stn. Stl.	Viton®	Type 316 Stn. Stl.
CV5674	Type 316L Stn. Stl.	Viton®	Type 316 Stn. Stl.
CV5675	Type 316L Stn. Stl.	Kalrez®	Type 316 Stn. Stl.

WARRANTY

Advanced Specialty Gas Equipment Corp., (the Company), warrants to the initial purchaser of each check 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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