

Installation & Maintenance Instructions

2-WAY NORMALLY CLOSED GAS VALVES

¾", 1", 1 ¼", 1 ½", 2", 2 ½" OR 3" NPT & Rp – FUEL GAS SERVICE

SERIES

_158A

▲ WARNING To reduce the risk of death, serious injury, or property damage:

- Personnel installing, maintaining, or operating this equipment must be qualified and follow these instructions. See also separate solenoid installation & maintenance instructions. Keep this document.
- Before installing or maintaining the valve, turn off electrical power, depressurize valve, extinguish all open flames and avoid any type of sparking or ignition. Vent hazardous or combustible fluid to a safe area.

▲ ADVERTISSEMENT Pour réduire les risques de décès, de blessures graves ou de dommages matériels:

- Le personnel qui installe, entretient ou exploite cet équipement doit être qualifié et suivre les instructions qui s'y rapportent. On suivra aussi les instructions d'installation et de maintenance de la bobine délivrées séparément. Gardez ce document.
- Avant d'installer ou d'intervenir sur la vanne, couper le courant, dépressuriser la vanne, éteindre toutes les flammes nues et éviter tout type d'étincelle ou d'ignition. Evacuer les liquides dangereux ou combustibles vers un endroit sûr.

▲ WARNING READ THE INSTRUCTIONS BEFORE USE. This control shall be, installed in accordance with the rules in force.

▲ ADVERTISSEMENT LISEZ LES INSTRUCTIONS AVANT UTILISATION. Ce moyen de contrôle doit être installé conformément aux règles en vigueur.

SERVICE NOTICES

_158A Series Class A Group 2 Gas Valves are not repairable. When any performance problems are detected during routine inspection, replace valve immediately.

See separate P159A Series Actuator Installation and Maintenance Instructions for information on: actuator specifications, installation, positioning/mounting, wiring and field service of actuator.

DESCRIPTION

_158A Series Gas Valves are 2-way normally closed, aluminum bodied, soft-seated poppet-type valves for safety shutoff service on commercial or industrial gas burners. The _158A Series was designed exclusively for use with P159A Series Actuators available in ON-OFF & LOW-HIGH-OFF positioning configurations.

The valves feature interchangeable adaptors with an accommodating range of different pipe sizes installed on the inlet and outlet of the valve. These adaptors allow the valves to be mounted on different pipe sizes in a range of NPT and Rp sizes. There are two different body types, a single and a Monoblock body configuration. The Monoblock body type is intended for applications where two redundant valves are required in series by a governing body. The Monoblock consists of two valves in series integrated into one casting.

The valves are equipped with aluminum seats and nitrile seals. A standard construction stem/disk is standard. Both redundant seals and linear trims are available as options i.e., redundant seal construction, linear construction, or linear with redundant seal construction. Direct mounting strainers are also available as an option. Strainer is required for EN161 conformance. Strainer hole should not exceed 1.5 mm

▲ CAUTION Use _158A Series Gas Valves only with natural, mixed, manufactured or liquefied petroleum (propane) gases. To prevent the possibility of death, serious injury or property damage, only use the ASCO Adaptors for direct valve connection to threaded pipe. Complete instructions and guidelines for piping the valves are included in the adaptor kit I&M No. V_9948.

▲ ATTENTION Utilisez les vannes gaz de la série _158A uniquement avec des gaz de pétrole (propane) naturel, mélangé, fabriqué ou liquéfié. Pour éviter tout risque de mort, de blessures graves ou de dommages matériels, utilisez uniquement les adaptateurs ASCO pour le raccordement direct de la vanne à la tuyauterie filetée. Des instructions complètes et des instructions pour la tuyauterie des vannes sont incluses dans le kit d'adaptateur I&M No. V_9948.

Provisions for Pressure and Valve Proving

_158A Series Monoblock valves are provided with two ¼" NPT or Rp tapped and plugged holes (pressure taps). Each side of the Monoblock valve body is provided with midsection pressure taps for testing. The _158A Series Adaptors are provided with a single ¼" NPT or Rp tapped and plugged hole (pressure taps). The adaptor tap on the valve outlet is downstream, while the tap on the valve inlet is upstream. Where applicable, leakage testing frequency shall be at least annually in accordance with NFPA-86.

Temperature Limitations

Ambient and Fluid Temperature:
-40 °C (-40 °F) to 66 °C (150 °F)

OPERATION

_158A Series is a normally closed, push-to-open valve which opens when the valve stem is depressed by a P159A Series Actuator. An internal return spring closes the valve when its actuator is de-energized or removed. The actuator is retracted by its own internal return spring. For opening times, close times, and electrical data, see separate P159A Series Actuator Installation and Maintenance Instructions.

Table 1 - Maximum Operating Pressure Differential of _158A Series Valves

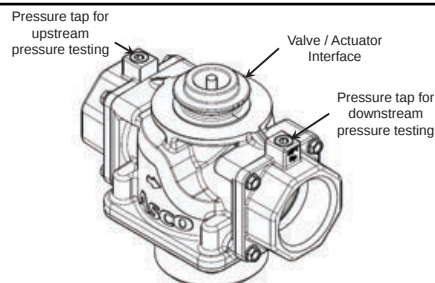
Pipe Size	Stem/Disk Construction Options	MOPD (Psi)
¾, 1, 1 ¼, 1 ½, 2	Standard	15
	Redundant Seal	
	Linear Construction	
2 HF*, 2 ½, 3	Standard	
	Redundant Seal	
	Linear Construction	

NOTE: HF* = High Flow, to be used with large size bodies

Table 2 - Rated Flow Capacity			
Model Type	Pipe Size	Base Catalog Number	Gas capacity BTU/Hr (No. 2 Note)
Monoblock	¾	_158A511X_X_00, _158A611X_X_00	932,000
		_158A711X_X_00, _158A811X_X_00	827,000
	1	_158A512X_X_00, _158A612X_X_00	1,490,000
		_158A712X_X_00, _158A812X_X_00	1,198,000
	1 ¼	_158A513X_X_00, _158A613X_X_00	2,103,000
		_158A713X_X_00, _158A813X_X_00	1,756,000
	1 ½	_158A514X_X_00, _158A614X_X_00	2,503,000
		_158A714X_X_00, _158A814X_X_00	2,207,000
	2	_158A516X_X_00, _158A616X_X_00	2,874,000
		_158A716X_X_00, _158A816X_X_00	2,610,000
	2 HF*	_158A536X_X_00, _158A636X_X_00	4,538,500
		_158A736X_X_00, _158A836X_X_00	4,097,000
	2 ½	_158A518X_X_00, _158A618X_X_00	5,349,000
		_158A718X_X_00, _158A818X_X_00	4,874,000
	3	_158A520X_X_00, _158A620X_X_00	6,057,000
		_158A720X_X_00, _158A820X_X_00	5,236,000
Single	¾	_158A111X_X_00, _158A211X_X_00	974,000
		_158A311X_X_00, _158A411X_X_00	845,000
	1	_158A112X_X_00, _158A212X_X_00	1,613,000
		_158A312X_X_00, _158A412X_X_00	1,315,000
	1 ¼	_158A113X_X_00, _158A213X_X_00	2,671,000
		_158A313X_X_00, _158A413X_X_00	2,085,000
	1 ½	_158A114X_X_00, _158A214X_X_00	3,143,000
		_158A314X_X_00, _158A414X_X_00	2,718,000
	2	_158A116X_X_00, _158A216X_X_00	3,878,000
		_158A316X_X_00, _158A416X_X_00	3,350,000
	2 HF*	_158A136X_X_00, _158A236X_X_00	5,118,000
		_158A336X_X_00, _158A436X_X_00	4,964,000
	2 ½	_158A118X_X_00, _158A218X_X_00	6,690,000
		_158A318X_X_00, _158A418X_X_00	6,252,500
	3	_158A120X_X_00, _158A220X_X_00	7,822,000
		_158A320X_X_00, _158A420X_X_00	7,402,000

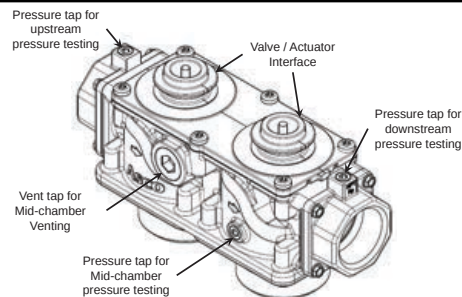
NOTE:

1. HF* = High Flow, to be used with large size bodies
2. Capacity value is based on a gas having a heating value of 1000 btu/ft³ and a specific gravity of .64 @ 2" W.C. Inlet pressure/1.0" W.C. pressure drop



NOTE: Upstream and downstream pressure taps are on adaptors. Pipe plugs are ¼" NPT or Rp (Use ¼" or 7mm hex key wrench respectively)

Figure 1. View of Single Valve Assembly Showing Location of Tapped and Plugged Holes for Pressure and Seat Leakage Tests



NOTE: Upstream and downstream pressure taps are on adaptors. Pipe plugs are ¼" NPT or Rp (Use ¼" or 7mm hex key wrench respectively)

Figure 2. View of Monoblock Valve Assembly Showing Location of Tapped and Plugged Holes for Pressure and Seat Leakage Tests

INSTALLATION

Check nameplate for correct catalog number, pressure, and service. Check the catalog number against Figure 3 to ensure that the valve meets the requirements of the application. Never apply incompatible fluids or exceed pressure rating of the valve. Contact ASCO or your supplier for more information about this valve or other valve options if this valve is not suitable for your application.

Connection Type

8 = NPT body
E = ISO 7/1 "Rp" body connections

158A Series

Model Type/Qty

- 1 = Standard Construction, Single
- 2 = Redundant Seal Construction, Single
- 3 = Linear Construction, Single
- 4 = Linear with Redundant Seal Construction, Single
- 5 = Standard Construction, Double
- 6 = Redundant Seal Construction, Double
- 7 = Linear Construction, Double
- 8 = Linear with Redundant Seal Construction, Double

Size

- 00 = No Pipe Connection - Med Body
- 01 = No Pipe Connection - Large Body
- 11 = ¾
- 12 = 1
- 13 = 1-1/4
- 14 = 1-1/2
- 16 = 2
- 36 = 2, High Flow
- 18 = 2-1/2
- 20 = 3

Port Connection Type

- X1 = NPT
- X2 = ISO 7/1 "Rp"

Options

- X00 = None
- X01 = Strainer

Voltage

- 00 = None

8 158A 5 16 X1 X00 00 (Standard Monoblock with 2"NPT Adaptors)

Figure 3. 158A Series Product Codification

Positioning

Valve body may be mounted in any position shown in Figure 4.

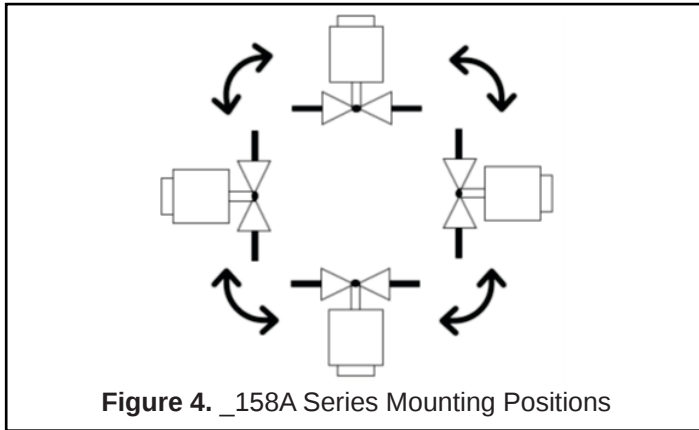


Figure 4. _158A Series Mounting Positions

▲ CAUTION Valve/Actuator interface has a protective cap over the stem connection, do not remove protective cap until actuator is ready to be installed on valve body. Please refer to Installation & Maintenance Instructions for actuator installation instructions.

▲ ATTENTION L'interface vanne/actionneur dispose d'un capuchon de protection sur le raccord de tige, retirez le capuchon de protection que lorsque l'actionneur est prêt à être installé sur le corps de la vanne. Veuillez-vous reporter aux instructions d'installation et de maintenance pour les instructions d'installation pour l'actionneur.

Piping

▲ CAUTION Piping must comply with applicable local and national codes and ordinances, including the National Fuel Gas Code ANSI Z223.1/NFPA No. 54.

▲ ATTENTION La tuyauterie doit être conforme aux exigences des codes applicables et règlements locaux et nationaux, y compris le code national pour le gaz combustible ANSI Z223.1 / NFPA 54.

Connect piping to valve assembly with adaptors according to markings on valve body. Catalog numbers marked "00" or "01" in the 7th and 8th digit are equivalent to associated pipe size catalog numbers of the same Model Type when fitted with the same pipe size adaptor kit, example: 8158A501X1X0000 with 3" NPT pipe adaptors is equal to 8158A520X1X0000. Apply pipe compound sparingly to male pipe threads only. If applied to adaptor threads, the compound may enter the valve and cause operational difficulty. Avoid pipe strain by properly supporting and aligning piping. When tightening the pipe, do not use valve or actuator as a lever. Locate wrenches applied to valve piping as close as possible to connection point. See I&M V_9948 for the complete instructions and guidelines for piping the valve and for the full list of the adaptor kits. Valve should be checked for external leakage at piping connections after installation. See Testing for External Leakage section.

▲ WARNING To prevent the possibility of death, severe injury or property damage, the _158A Series Gas Valve must be installed and serviced (tested) only by a qualified service technician avoiding the following hazards:

- **Electrical Hazard:** Turn off all electrical power to P159A Series Actuator. More than one circuit may exist.
- **Pressure Hazard:** Depressurize valve and vent hazardous or combustible fluid to a safe area before inspection or removing the valve from service.
- **Explosion/Fire Hazard:** Extinguish all open flames and avoid any type of sparking or ignition when leakage testing.

▲ AVERTISSEMENT Pour éviter tout risque de mort, de blessures graves ou de dégâts matériels, la vanne gaz série _158A doit être installée et entretenue (testée) uniquement par un technicien de maintenance qualifié, en évitant les risques suivants:

- **Risque électrique.** Coupez l'alimentation électrique de l'actionneur série P159A. Plus d'un circuit peut exister.
- **Danger lié à la pression.** Dépressurisez la vanne et évacuez le fluide dangereux ou combustible vers une zone sécurisée avant d'inspecter ou de retirer la vanne du service.
- **Danger d'explosion/incendie.** Éteignez toutes les flammes apparentes et évitez tout type d'étincelle ou d'ignition lors d'essais pour détecter des fuites.

▲ WARNING To prevent the possibility of death, severe injury or property damage, only use the ASCO adaptor hardware for connection of the valves to piping. Complete instructions and guidelines for piping the valves are included in the kit.

▲ AVERTISSEMENT Pour éviter tout risque de mort, de blessures graves ou de dommages matériels, utilisez uniquement l'adaptateur ASCO pour connecter les vannes à la tuyauterie. Des instructions complètes et des instructions pour la tuyauterie des vannes sont incluses dans le kit.

▲ WARNING To prevent the possibility of death, severe injury or property damage, only use ASCO brand P159A Series Actuators with the _158A series of valves. The use of actuators other than ASCO brand may cause a safety issue and will void warranty and all certifications.

▲ AVERTISSEMENT Pour éviter tout risque de mort, de blessures graves ou de dégâts matériels, utilisez uniquement des actionneurs de la série P159A de la marque ASCO équipés de la vanne série _158A. L'utilisation d'actionneurs autres que la marque ASCO peut poser un problème de sécurité et annulera garantie et toutes les certifications.

▲ CAUTION To avoid damage to the valve body DO NOT OVERTIGHTEN PIPE CONNECTIONS. If PTFE tape, paste, spray, or similar lubricant is used, use extra care when tightening due to reduced friction.

▲ ATTENTION Pour éviter d'endommager le corps de la vanne, NE PAS TROP SERRER LES CONNEXIONS DES TUYAUTERIES. Si du PTFE en ruban, une pâte, un spray ou un lubrifiant similaire est utilisé, apporter un soin supplémentaire lors du serrage en raison de la friction réduite.

Testing for External Leakage

▲ WARNING Explosion/Fire Hazard. To prevent the possibility of death, severe injury or property damage from the possible release of combustible gas to the atmosphere, extinguish all open flames and avoid any type of sparking or ignition.

▲ AVERTISSEMENT Risque d'explosion / d'incendie. Pour éviter tout risque de mort, de blessure grave ou de dégât matériel en cas de rejet de gaz combustible dans l'atmosphère, éteignez toutes les flammes nues et évitez tout type d'étincelle ou d'inflammation.

1. Block gas flow on downstream side of valve.
2. Apply pressure to valve within nameplate rating and energize actuator.
3. Apply a soapy solution or a commercially available leak detecting solution to the pipe connections, and/or inlet/outlet thread adapter connections and check for bubbles. If the valve

has been tested for seat leakage, apply the solution around the bonnet/body joint and pipe plugs.

4. If leakage exists. Depressurize valve and turn off electrical power supply. Tighten connections and retest following the above steps.

MAINTENANCE

Preventive Maintenance

- Prepare and follow a routine inspection schedule based on the media, environment, and frequency of use. This should include periodic internal and external leakage checks.
- Keep the medium flowing through the valve as free from dirt and foreign material as possible. Depending on medium and service conditions, clean valve strainer, filter or drip gas required to keep the valve free of contamination. In the extreme case, contamination will cause faulty valve operation and the valve may fail to open or close.
- While in service, the valve should be operated at least once a month to ensure proper opening and closing.

⚠ WARNING To protect the valve, install a strainer or filter, suitable for the service involved, in the inlet side as close to the valve as possible. Clean periodically depending on service conditions. These valves feature direct mounting strainers as an option. The optional strainer is installed directly on the inlet of the valve body and is held in place by the adaptor.

⚠ AVERTISSEMENT Afin de protéger vanne, installer une crépine ou un filtre adapté à l'application en amont et le plus proche possible de la vanne. Nettoyer régulièrement le filtre en fonction des conditions d'utilisation. Ces vannes disposent en option de crépines à montage direct. Le filtre en option est installé directement sur l'entrée du corps de la vanne et est maintenu en place par l'adaptateur.