

G100 Series Back Check Valves



WARNING

Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion and/or fire causing property damage and personal injury or death.

Fisher™ equipment must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson Process Management Regulator Technologies, Inc. The installation in most states must also comply with NFPA No. 54 and 58 or ANSI K61.1 standards.

Only personnel trained in the proper procedures, codes, standards and regulations of the LP-Gas industry should install and service this equipment.

Introduction

Scope of the Manual

This Instruction Manual covers Installation and Maintenance for the Fisher G100 Series Back Check Valves used on LP-Gas vapor service and anhydrous ammonia applications.



Figure 1. G100 Series Back Check Valves
(Arrow indicates direction of flow)

Description

Back check valves are normally closed valves that allow flow in only one direction. When flow, in the direction of the arrow starts, the valve poppet opens. When flow stops or reverses, the valve poppet closes. Back check valves are installed in liquid filling connections on stationary storage tanks and bobtail delivery trucks, as well as liquid transfer lines. The valves are frequently used in conjunction with globe and angle valves or large single-check filler valves.

Two styles of seat construction are available: soft seat or metal-to-metal. The soft-seated construction is intended for the filling connection on bobtail delivery trucks. Because the valves give tight shutoff, piping on the bobtail can be blown down easily for maintenance or repair without experiencing leakage.

G100 Series

Specifications

This section lists the specifications for the G100 Series valve. Factory specifications are stamped on the nameplate fastened on the valve at the factory.

Body Sizes, Material, End Connections and Pressure Rating⁽¹⁾

See Table 1

Maximum Operating Pressure⁽¹⁾

250 psig / 17.2 bar

1. The pressure/temperature limits in this Instruction Manual or any applicable standard limitation should not be exceeded.

Table 1. G100 Series Specifications

SEAT CONSTRUCTION	OUTLET CONNECTION, IN.	INLET CONNECTION, IN.	PROPANE FLOW CAPACITY AT 10 PSIG / 0.69 BAR DIFFERENTIAL PRESSURE	TYPE NUMBER	
				Brass	Steel
Metal-to-Metal	3/4 FNPT	3/4 MNPT	21 GPM / 79.5 l/min	G100	----
	1-1/4 FNPT	1-1/4 MNPT	55 GPM / 208 l/min	G101	----
	2 FNPT	2 MNPT	150 GPM / 568 l/min	G102	G112
	2 FNPT	2 FNPT	150 GPM / 568 l/min	G109	----
	3 FNPT	3 MNPT	250 GPM / 946 l/min	----	G104
Soft Seat	2 MNPT	2 MNPT and 1-1/4 FNPT	137.5 GPM / 520 l/min	----	G105
	3 MNPT	2 MNPT	254 GPM / 961 l/min	----	G106
	3 MNPT	3 MNPT and 2 FNPT	254 GPM / 961 l/min	----	G107

Installation



WARNING

If the valve is to be used in service other than LP-Gas or anhydrous ammonia, contact the factory to determine if the valve materials are suitable for the particular service.

Flow through the back check valve must be in the same direction as the flow arrow stamped on the valve.

1. Brass valves are not suitable for NH_3 applications.
2. Manually operate the back check valve's poppet before installation to assure parts were not damaged in shipment or blocked with dirt or foreign material.
3. Install valve so that arrow points in the direction of flow through the valve.
4. Use pipe dope on the main threads of the valve or the pipeline. Polytetrafluoroethylene (PTFE) tape or PTFE pipe dope compound is recommended for the male threads of the larger valves such as the 2 and 3 in. sizes.
5. Test the valve for proper operation after installation and before placing the system into full service. To make the test, pressure the system through the back check valve and then quickly bleed pressure from the valve inlet piping. Check for pressure build-up in the inlet piping. On soft seated valves, there should be no build-up in the inlet side. On metal-to-metal seated valves, a slow pressure build-up is permissible. A rapid pressure build-up on either valve style indicates that the valve has malfunctioned.



WARNING

Trained personnel should test the back check valve in a safe location.

To ensure that the valve is still functional, back check closure should be checked annually if there is no other regularly scheduled test program.

Maintenance

Annually test back check valve for closure. Back check valves are non-repairable. Replace non-functioning valves.

G100 Series



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