Globe & Angle Valves Types N301, N310, N350, N401, N410, N450 Series Instruction Manual

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 and Fisher instructions. The installation in most states must also comply with NFPA No. 58 or ANSI K61.1 standards.

Only personnel trained in the proper procedures, codes, standards, and regulations applicable industries should install and service this equipment.

Introduction

Scope of Manual

This instruction manual covers installation and maintenance for Fisher Type N300, N310, N350, N400, N410 and N450 series globe and angle valves used on LP-Gas and anhydrous ammonia (NH_3) service. Teflon (TFE) discs are available. Type numbers may be suffixed for both size and disc material.

Description

N310

N310-24

N350

N410

N410F-24

N450

Figure 1. Globe and Angle Valves

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Table 1. Specifications

SERVICE	INLET & OUTLET CONNECTIONS	TYPE NUMBER			
		Heavy-Duty Version*		Economy Version	
		Globe	Angle	Globe	Angle
LP-gas & NH_3	1/2-in. FNPT	N301-04	N401-04	--	--
	3/4-in. FNPT	N301-06	N401-06	--	--
	1-in. FNPT	N301-08	N401-08	--	--
	1 1/4-in. FNPT	N310-10	N410-10	--	--
	1 1/2-in. FNPT	N310-12	N410-12	--	--
	2-in. FNPT	N310-16	N410-16	--	--
	3-in. FNPT	N310-24	N410-24	--	--
	3-in.-300# RF ANSI Flange	N310F-24	N410F-24	--	--
LP-Gas	1/2-in. FNPT	--	--	N350-04	N450-04
	3/4-in. FNPY	--	--	N350-06	N450-06

***For TFE seal disc, add "T" to basic type number, e.g., N310T or N410T**

Maximum Operating Pressure 400 PSIG (27.6 bar)

Temperature Range: -40°F to 160°F (-40°C to 71°C)

WARNING

For "Hose End" service, use Fisher N480 series hose end valves. Excessive cycling of globe and angle valves can cause stem thread failure resulting in uncontrolled gas discharge and personal injury.

Globe and angle valves are used at bulk plants to control gas flow in the piping system, at storage tanks, on trucks, and at pumps or compressors. Their body configuration permits installation in a straight section of pipe (globe body) or where it is desired to make a change in piping direction (angle body).

All valves have a non-restricted, 1/4-inch FNPT plugged boss in the downstream side of the body. For LP-Gas service, a hydrostatic relief valve (Type H124) or a vent valve can be installed in this outlet.

T**ype N301, N310, N401, and N410** -- Heavy-duty ductile iron valves for either LP-gas or NH_3 service. Ranging in size from 1/2 to 3-inches, each valve has spring loaded TFE chevron packing for sealing against leakage.

Ball bearing valve disc construction on 1 1/4-inch and larger sizes, gives a strong connection to the stem to protect the disc under back-flow conditions. The ball bearings permit the valve disc to stop rotating as soon as it touches the body seat, minimizing disc wear.

Type N310 and N410 can be supplied with TFE seat discs instead of synthetic rubber for special service where synthetic rubber is not compatible. When ordering, add "T" to the basic style number such as N310T or N410T.

WARNING

N350 and N450 valves must not be used on anhydrous ammonia service as they contain brass parts.

Type N350 and N450--Economy globe and angle valves for LP-gas service. With many of the construction features of the N310 and N410 valves, these valves can be supplied in 1/2 and 3/4-inch sizes. TFE spring loaded packing provides an effective seal against leakage within the valve's pressure range.

Valve disc rotation stops as soon as the disc contacts the body seat to help minimize disc wear. Oversize ports in all units give high flow capacity.

Installation

⚠ CAUTION

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 valve must be in the same direction as the flow arrow stamped on the valve.

Use pipe compound on the male threads of the pipeline. TFE tape or TFE pipe dope compound is recommended for the male threads of the larger valves such as the 2" or 3" sizes.

Pull the piping into the valve hand tight, and then wrench tighten the piping for approximately two additional turns. Do not install the piping with such extreme torque that the piping can cut threads into the valve. This can cause valve distortion and affect the internal working parts. Larger size valves may require an additional amount of torque to obtain a leak free connection.

After installation, test the inlet and outlet connections and around the stem for leaks using an approved leak detector solution.

Maintenance

Valves do wear out.

A simple preventative maintenance program for valves will eliminate a lot of potential problems. Fisher recommends these steps be conducted once a month:

1. Regularly inspect the stem and packing for leakage. If leakage occurs replace the packing and check the stem for scratches. Replace the stem if necessary.
2. Regularly inspect the stem and bonnet threads for wear. If the stem has up and down give, when turning or pushing down on the handle, inspect the threads for wear and replace the stem and bonnet as needed. Thread wear will occur on heavily cycled valves.
3. Regularly inspect the seat for tight shutoff. If the valve leaks or requires excessive torque to tighten, replace the disc or disc holder assembly as required.

Only parts manufactured by Fisher should be used in repairing Fisher Globe and Angle Valves. Refer to Form MCK-1090 Replacement Parts List for available parts and kits.

N300 and N400 Series
Globe and Angle Valves

Instruction Manual
MCK-1100
07/02

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