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Types N562 and N862 Emergency Shutoff 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 and Fisher instructions. LP-Gas or NH₃ installations 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, for the applicable industries should install and service this equipment.

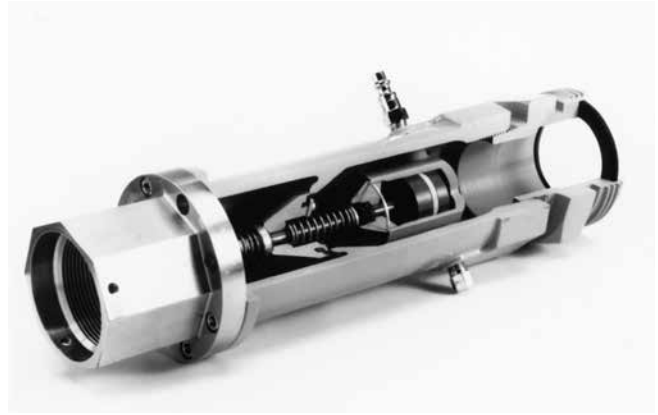


Figure 1. Type N562 Emergency Shutoff Valve

Introduction

Scope of the Manual

This instruction manual covers installation and maintenance for the Types N562 and N862 Emergency Shutoff Valves and Accessories.

Type N562 is UL® Listed for service in Butane, Propane or Anhydrous Ammonia.

Type N862 is intended for all other compressed gas service. Type N862 valves are serialized for the service specified with the order. The user should check with the factory to make sure the Type N862 valve materials are suitable for the intended service and temperature conditions.

Reference to Type N562 also refers to the Type N862 unless otherwise specified.

Description

Type N562 Snappy Joe™, Figure 1, Emergency Shutoff Valves are intended for transferring product to or from railroad tank cars, see Figure 2. The valves are used as temporary connections between the tank car's primary shutoff valves and the hose or swivel type piping.

Tank Car Connection

The Type N562 has a 2 in. FNPT coupling allowing the user the flexibility to install the desired length of 2 in. NPT piping to fit the tank dome. Replacing a worn out pipe connection is now easier as any desired length of schedule 80 pipe can be used.

Wrenching Hex – A wrenching hex is built into the body, minimizing wear or damage when connecting or disconnecting. A 1/4 in. FNPT opening in the hex portion can be used to install a bleed valve.

Hardened Threads – The 2 in. FNPT threads on the nipple portion are of hardened stainless steel to reduce wear from repeated use.

Excess Flow Valve – The excess flow spring has a closing flow of 200 GPM / 757 l/min propane.

Fuse Plug – Melting point 212°F / 100°C. Closes valve when melted.

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Types N562 and N862

Specifications

The Specifications table lists specifications for Types N562 and N862.

| TYPE | ELASTOMER | UL® LISTED | INLET CONNECTION, IN. | OUTLET CONNECTION, IN. |
|----------|---------------|------------|-----------------------|------------------------|
| N562-16 | Nitrile (NBR) | YES | 2 FNPT | 2 FNPT |
| N562-18 | | | | 2-1/4 Male Acme |
| N562-26 | | | | 3-1/4 Male Acme |
| N862K-16 | Kalrez®(1) | NO | | 2 FNPT |
| N862K-18 | | | | 2-1/4 Male Acme |
| N862K-26 | | | | 3-1/4 Male Acme |
| N862V-16 | Viton®(3) | NO | | 2 FNPT |
| N862V-18 | | | | 2-1/4 Male Acme |
| N862V-26 | | | | 3-1/4 Male Acme |

Maximum Inlet Pressure⁽⁴⁾

400 psi / 27.6 bar

Fuse Link Melting Temperature

212°F / 100°C

Approximate Weights

with FNPT Outlet: 12.6 lbs / 5.7 kg

with Acme Outlet: 15.3 lbs / 6.9 kg

1. Perfluoroelastomer (FFKM) equivalent
2. Polytetrafluoroethylene (PTFE) equivalent
3. Fluorocarbon (FKM) equivalent
4. The pressure limits in this Instruction Manual or any applicable standard limitation should not be exceeded.

Installation

General

A typical installation schematic is shown in Figure 3, where two valves are installed on the liquid lines and one on the vapor line. To meet NFPA Pamphlet 58 requirements, emergency shutoff valves must have a means of closure at both the valve and a remote location. A quick-disconnect coupling provides manual control at the valve. A suitable two-way or three-way closure valve is required at a remote location, preferably near the exit of the transfer site.

Remote Closure



WARNING

A bleed orifice is required on the outlet of the pressure source regulator and before the remote closure valve. This restricts the pressure source flow to the system. Failure to install a bleed orifice may not allow the control pressure to exhaust quickly enough to close the emergency valves if the remote valve is used or the control pressure line is broken.

The Remote Closure Valve should be simple in operation and have enough capacity to quickly exhaust pressure between the supply source and the Type N562. A bleed orifice, Fisher® part number 1D7470, should be placed in-line after the pressure supply regulator to restrict flow. This allows the remote closure valve to exhaust pressure, and thus close the Type N562.

Pressure Supply Line



WARNING

The manual quick disconnect valve must be used as the primary source to open and close the Type N562. Do not bypass the manual quick

disconnect valve by hard piping the supply line to the Type N562. Failure to use the manual quick disconnect will negate a portion of the NFPA 58 requirements for Emergency Shutoff Valves.

Regardless of how many remote closure valves are installed in the system, **the quick-disconnect coupling at the valve is the primary means to open and close the Type N562.** Do not hard pipe the supply line to the Type N562 and then use a remote closure valve as the primary activation valve.

The pressure supply line to the Type N562 can be run along the transfer line back to a common pressure source and remote closure valve. In this way actuating the remote closure valve can close all emergency shutoff valves. It is recommended that a remote closure valve be installed on the working level of the unloading riser for the convenience of personnel, however, it should not be used as the primary means to open and close the Type N562.

Pressure Source

The pressure source should be clean, dry gas such as air, nitrogen or CO₂. A Fisher Type 1301F regulator or equivalent can be used to reduce the high pressures encountered with these compressed gases.

Approximately 50 psig / 3.44 bar is needed to open the N562 Series. (Less control pressure is required with low product pressures.)

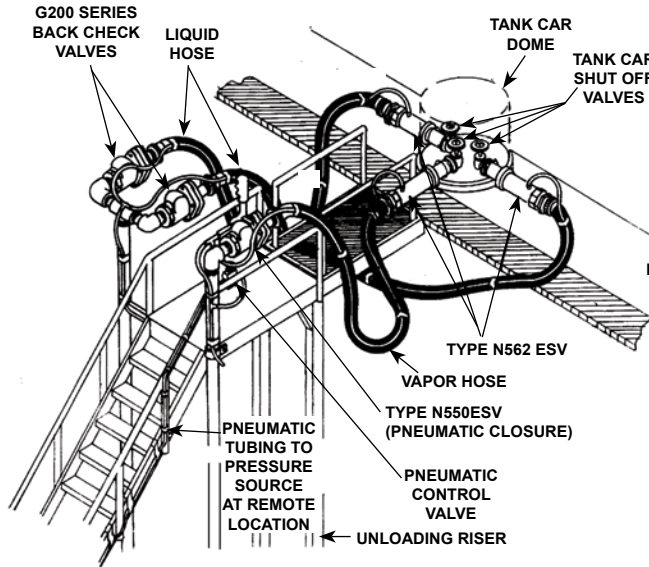
Roll-Away Protection



WARNING

It is not possible to insure that Type N562 valves will remain installed or intact in the event of a tank car rollaway. Therefore, additional protection for the riser piping and valves are required.

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Figure 2. Typical Railcar Hook-up

Due to the various configurations of railcar domes, valves and unloading risers, the Type N562 valve(s) may not remain installed or intact during a rollaway.

It is recommended that a break-off pipe protect both the riser hoses and the Type N562 valves. This break-off pipe should be installed downstream of the protected tower back check valves and ESV so that the break-off pipe threads pull out before the hoses are pulled with more than 1500 lbs / 680 kg of force. A schedule 80 pipe takes around 3000 lbs-ft of torque to pull out at the threads.

Pneumatic Accessories

Use commercially available pneumatic controls, fittings and tubing for the pressure control lines. Pneumatic 3-way valves should quickly exhaust supply pressure to the Type N562 valves and at the same time shutoff inlet pressure.

Operation

1. Make sure the 2 in. NPT threads on the Type N562 and the Schedule 80 pipe nipple are clean and in good condition. Use an appropriate pipe compound on the male threads. Thread the nipple hand tight into the 2 in. FNPT inlet end of the Type N562. Then wrench tighten the nipple approximately two (2) additional turns. Check the connection for leaks.
2. Tighten the 3 set screws (1/4-20 UNC x 0.25 in.) against the pipe nipple. This helps secure the nipple to the Type N562 so that the nipple does not unscrew at the Type N562 instead of the tank car valve.
3. Slowly, but completely open the tank car's primary shutoff valves to avoid sudden surges which could slug the excess flow valve shut. Begin product transfer.
4. If the excess flow valve does close, stop the transfer and close the nearest downstream valve and the tank car's primary shut off valve. Wait for the Type N562 valve to click open.

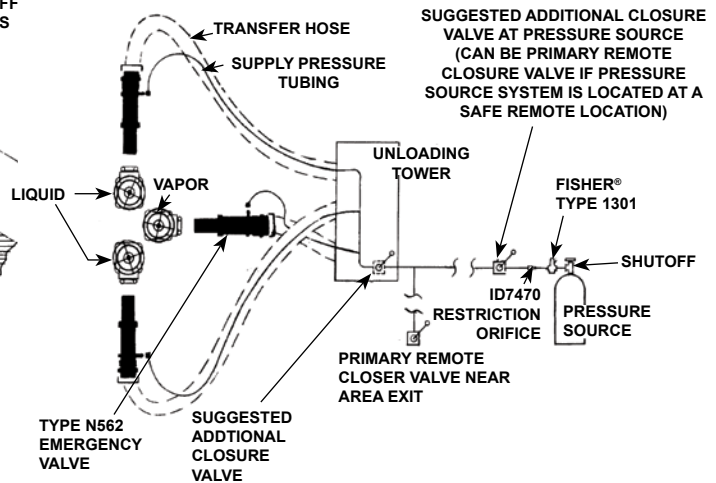


Figure 3. Installation Schematic of N562 Series

5. All valves should be completely open when pumping. (Throttling type valves could prevent the excess flow valve from closing when required.)
6. The operator must always be aware of where the remote closure controls are located and know how to operate the controls if an emergency requires valve closure.
7. When the transfer has been completed, close the primary shutoff valves.
8. Bleed down the transfer hose or piping to avoid trapping pressure between the primary shutoff valve and the Type N562.
9. Close the Type N562 by taking off the quick-disconnect coupling. (To remove the coupling simply pull back on the release sleeve.)
10. Unscrew the transfer hose or piping from the Type N562, and take the Type N562 off the primary shutoff valve.

Excess Flow Protection



When installed the Type N562 provides excess flow operation only when removing product from the railcar.

The Type N562 contains an excess flow valve feature. If the system is designed to use the excess flow protection provided by the Type N562, the flow rating of the piping, fittings, pump, valves and hose on both the inlet and outlet of the internal valve must be **greater** than the 200 GPM / 757 l/min flow rating of the integral excess flow valve within the Type N562. If branching, piping length, additional valves, reduction in pipe size, elbows or other necessary restrictions are incorporated in the system which reduce the flow to less than 200 GPM / 757 l/min, the Type N562 will not give excess flow protection and **additional excess flow valves will have to be installed.**

Types N562 and N862

After the Type N562 is installed or repaired, the system should be tested for excess flow valve operation by simulating a break downstream in the system at the furthestmost point being protected.



WARNING

A break or leak downstream of an excess flow valve that does not allow a flow equal to the valve flow rating will not actuate the excess flow valve and could result in a fire or explosion from leaking gas.

Test the Type N562 excess flow function in a safe location and with the permission of local authorities because testing with a flammable gas is hazardous. Only trained personnel should make this test.

After the excess flow valve closes, the leakage through the equalizing hole must be controlled or a hazard can be created. For this reason the operator must be familiar with the closure controls for the Type N562 system and immediately shut down the system.

Maintenance



WARNING

Only qualified service personnel should attempt to repair these valves. Before starting any type of repair, close off the upstream valves and remove all pressure from both the inlet and outlet of the Type N562 Emergency Shutoff Valve.

At least once a month inspect and check the following things:

1. See that the remote closure valve(s) works freely. Operate the valve to make certain it closes the Type N562s.
2. Make sure the quick-disconnect nipple is not blocked or its exterior damaged or worn.
3. Check the quick-disconnect coupling for retention of supply pressure when disconnected and check for leaks when coupled.

LPG Equipment

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4. Check for worn or damaged threads.
5. Check for joint leakage.
6. Retighten the 3 set screw securing the inlet piping to the Type N562.

Replacing Inlet Nipple

1. Loosen the 3 set screws securing the inlet piping to the Type N562.
2. Remove the inlet nipple.
3. Make sure the 2 in. NPT threads on the Type N562 and the Schedule 80 pipe nipple are clean and in good condition. Use an appropriate pipe compound on the male threads. Thread the nipple hand tight into the 2 in. FNPT inlet end of the Type N562. Then wrench tighten the nipple approximately two (2) additional turns. Check the connection for leaks.
4. Tighten the 3 set screws (1/4 -20 UNC x 0.25 in.) against the pipe nipple. This helps secure the nipple to the Type N562 so that the nipple does not unscrew at the Type N562 instead of the tank car valve.

Replacing Internal Parts

With the exception of the quick-disconnect coupling and nipple and the Acme coupling, the Type N562 is not designed for field repair. Due to the use of special fire-resistant seals and assembly techniques, repair should be made only by trained personnel. If repair becomes necessary, contact your Fisher® distributor or the factory for information and assistance.

Only parts manufactured by Fisher should be used for the repair of Fisher Type N562 Valves. Be sure to give the complete type number of the Type N562 when corresponding with the factory.

Type N562 Valves that have been disassembled for repair must be tested for proper operation before being returned to service.

Repair Kit

Type N562-REPAIR (Types N562 and N563 Railcar repair service)⁽¹⁾

1. Contact your Fisher Distributor.