



**FluoTechnik**

FLUORESCENT DYES SOLUTIONS

# VALVES INFLATABLES

USER MANUAL  
WORKING SAFELY

## WARNING!

READ THIS MANUAL CAREFULLY BEFORE USING PNEUMATIC VALVES

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THIS USAGE MANUAL APPLIES TO ALL SIZES  
AND TYPES OF PNEUMATIC VALVES

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THE USAGE MANUAL MUST BE MADE AVAILABLE  
TO ALL USERS OF PNEUMATIC VALVES

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## **DO NOT INFLATE VALVES OUTSIDE OF A PIPE.**

### **RISK OF DAMAGING THE SEAL**

1. Do not stand next to the valve when it is under pressure
2. Always wear the appropriate protective clothing and accessories
3. Always use accurately calibrated pressure gauges
4. Never exceed the maximum filling pressure
5. Never exceed the prescribed maximum stopping pressure
6. Always use safety supports to protect the valve in the event of a stopping pressure
7. Always release the stopping pressure before venting the pneumatic valve
8. Before and after each use, clean the valve and check its surface for tears, cuts, or other damage
9. Always choose an appropriately sized pneumatic valve (4)
10. Before inserting the pneumatic valve, thoroughly clean the pipe (6)
11. Always insert the pneumatic valve completely into the pipe (7)
12. Always determine the stopping pressure height that the pneumatic valve must withstand during use

#### **USE OF SAFETY ACCESSORIES**

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1. Always determine the stopping pressure that the pneumatic valve must withstand during use.
2. Always choose an appropriately sized pneumatic valve by measuring the internal diameter of the pipe.

#### **HOW TO CHOOSE THE RIGHT PNEUMATIC VALVE ?**

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1. Always wear the appropriate protective clothing and accessories.
2. Always use safety supports for the valves.
3. Only use properly calibrated pressure gauges.

#### **HOW TO PREPARE THE PNEUMATIC VALVE AND PIPELINE ?**

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1. Before each use, clean the valve and check if its surface is torn, cut, or otherwise damaged.
2. Always check for leaks in the fittings and pipes.
3. Always remove dirt and debris from the pipe before inserting the valve.

#### **CORRECT INTRODUCTION OF THE VALVE INTO THE PIPE**

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1. Ensure that the valve is fully inserted into the pipe so that none of it protrudes when the valve is filled.
2. First, fill the valve to make it adhere to the pipe wall. Then, increase the pressure slowly and carefully until the maximum allowable filling pressure is reached.

#### **CORRECT USE OF THE VALVE INSIDE THE PIPE**

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1. Do not stay near the valve when it is filled.
2. Never exceed the maximum allowable filling pressure in the valve.
3. Never exceed the maximum allowable stopping pressure.
4. Secure the valve (using the provided ring).



# USER

## INSTRUCTIONS FOR WORKPLACE SAFETY

# MANUEL

### INSTRUCTIONS TO BE FOLLOWED TO ENSURE THE CORRECT AND SAFE HANDLING OF PNEUMATIC VALVES.

The instructions regarding the construction, production, and control of products always adhere to a high degree of safety that binds both the manufacturer and the user. The manufacturer and the user are always obliged to follow the instructions regarding the correct and safe operation of pneumatic valves.

# 1

#### ALWAYS DETERMINE THE STOPPING PRESSURE THAT THE PNEUMATIC VALVE MUST WITHSTAND DURING ITS USE.

1. Measure the internal diameter D (mm) of the pipe to be sealed with a pneumatic valve.

2. Calculate the surface area S (mm<sup>2</sup>) of the pipe section using the following equation:

$$S = \pi \times D^2 / 4 \text{ (mm}^2\text{)} \quad (\pi = 3.1416) \quad D = \text{diameter of the pipe (mm)}$$

3. Calculate the total force that the valve must resist using the following formula:

$$F = p_z \times S \times 0.1 \text{ (N)}$$

$$F = p_z \times S \text{ (lbf)}$$

S = section surface area (mm<sup>2</sup>) (in<sup>2</sup>)

p<sub>z</sub> = stopping pressure (bar) (PSI)

The stopping pressure P<sub>z</sub> is determined by the height of the water column behind the valve, e.g., a water column with a height of 10 meters (32.8 feet) represents a stopping pressure of 1 bar (14.4 PSI); the size and shape of the water column are not important, only the height matters.

#### WARNING

**WHEN THE PNEUMATIC VALVE IS INSTALLED IN THE PIPE AND DEFLATED, CONSIDERABLE FORCES CAN OCCUR DURING ITS USE, BOTH WITHIN THE VALVE AND BEHIND IT. THE TOTAL FORCE ACTING ON THE PNEUMATIC VALVE IS DIRECTLY PROPORTIONAL TO THE PRESSURE AND THE OPENING SURFACE AREA OF THE PIPE.**

# 2

#### CLEAN THE VALVE BEFORE AND AFTER EACH USE AND CHECK IF ITS SURFACE IS TORN, CUT, OR OTHERWISE DAMAGED.

Pneumatic valves can be cleaned using a water and detergent solution. After cleaning, allow them to dry. Thoroughly inspect the pneumatic valves before and after each use to detect any signs of damage, such as cuts, air bubbles between rubber layers, worn areas, damaged fittings...

#### WARNING

**NEVER CLEAN PNEUMATIC VALVES WITH SOLVENTS, CARBON HYDRATES, AND OTHERS.**

3

**ALWAYS USE ACCURATELY CALIBRATED PRESSURE GAUGES.**

The pneumatic packer can be connected through a simple control device or a pressure regulator (1.1, 1.5, or 2.5 bar). Always thoroughly check the inflation hoses of the valves, control and safety instruments, and replace them as needed. Also, ensure that safety valves, compression valves, and fastening devices are clean to ensure the correct and uninterrupted operation of the pneumatic valves.

**WARNING**

**IF YOU SUSPECT THAT THE VALVE OR PNEUMATIC EQUIPMENT IS DAMAGED, CONSULT OUR REPRESENTATIVE OR DISPOSE OF THE PRODUCT AND REPLACE IT WITH A NEW ONE.**

4

**ALWAYS CHOOSE A PNEUMATIC VALVE OF THE APPROPRIATE SIZE.**

The lower and upper operating range is determined for each pneumatic valve. The nominal size of the valve and its operating range are clearly indicated on the valve itself. Before using the pneumatic valve, always ensure to:

- Measure the internal diameter of the pipe into which you will insert the pneumatic valve.
- Check if the diameter of the pipe falls within the specified range for the use of the valve.

**WARNING**

**NEVER USE THE PNEUMATIC VALVE IN A PIPE WHOSE DIAMETER IS GREATER OR LESS THAN THAT RECOMMENDED FOR ITS OPERATING RANGE.**

5

**WEAR THE APPROPRIATE ATTIRE AND PROTECTIVE ACCESSORIES.**

Always use the prescribed protective accessories (safety glasses, helmet, ear protection, and work attire) when working with pneumatic valves.

**WARNING**

**ALWAYS WEAR SAFETY GLASSES, A HELMET, AND PROTECTIVE GLOVES.**

6

**CLEAN THE PIPE THOROUGHLY BEFORE INSERTING THE VALVE.**

The pipe must be well-cleaned, free of any sharp particles, to maintain sealing quality and prevent a reduction in stopping pressure or potential damage to the pneumatic valve. The pipe can be cleaned in various ways, such as using a high-pressure water jet or automated cleaning with water spray.

**WARNING**

**IMPURITIES AND SHARP PARTICLES PRESENT IN THE PIPE CAN CAUSE POOR SEALING QUALITY OR DAMAGE TO THE PNEUMATIC VALVE.**



7

**ALWAYS INSERT THE PNEUMATIC VALVE INTO THE PIPE CORRECTLY.**

Before inflating the pneumatic valve with air, ensure proper insertion into the pipe: the shortest distance between the start and the pneumatic valve should match the diameter of the pipe. Some valves may also elongate axially during inflation.

**WARNING**

**ADHERE TO THE FOLLOWING FOUR FUNDAMENTAL PRINCIPLES BEFORE AND DURING THE PLACEMENT OF PNEUMATIC VALVES:**

- 1. NEVER INFLATE THE PNEUMATIC VALVE OUTSIDE THE PIPE.**
- 2. NEVER INFLATE PNEUMATIC VALVES THAT ARE DIRTY OR CONTAIN SHARP PARTICLES.**
- 3. PNEUMATIC VALVES SHOULD NOT PROTRUDE FROM THE PIPE.**
- 4. NEVER INFLATE A PNEUMATIC VALVE THROUGH THE ORIFICE.**

8

**NEVER EXCEED THE MAXIMUM FILLING PRESSURE.**

Inflate the valve up to the prescribed inflation pressure. The correct inflation pressure is clearly indicated on each product, as well as at the end of each manual. When working with pneumatic valves, precisely measure and monitor the values of inflation and stopping pressures. Pneumatic valves are designed to provide temporary closure of pipes, which is why it is necessary to monitor the stopping pressure at least every five hours.

**WARNING**

**ALWAYS USE ACCURATELY CALIBRATED PRESSURE GAUGES. IF YOU EXCEED THE PRESCRIBED FILLING PRESSURE, YOU RISK DAMAGING THE VALVE. TOO LOW FILLING PRESSURES CAN CAUSE THE VALVE TO SLIP OUT OF THE PIPE.**

**NOTE**

The prescribed filling pressure is both the highest and the lowest filling pressure. It is the only filling pressure at which the pneumatic valve withstands the prescribed maximum stopping pressure.

9

**NEVER EXCEED THE PRESCRIBED MAXIMUM STOPPING PRESSURE.**

Maximum stopping pressures are determined for pneumatic valves to be inserted into clean pipes. Impurities in the pipes (algae, grease, detergents, mold, sand, etc.) can significantly reduce the values of the stopping pressure.

Pipes made of polyethylene or new pipes containing residues of grease or other products have a direct reducing effect on the friction coefficient and, therefore, on the values of stopping pressures.

**WARNING**

**IN THIS CASE, IMMEDIATELY CONSULT THE CONTROLLER OR THE ENGINEER RESPONSIBLE FOR SAFETY, WHO WILL DECIDE ON NECESSARY MEASURES, SUCH AS CLEANING BEFORE INTRODUCING THE PNEUMATIC VALVE.**

10

**ALWAYS USE THE SAFETY SUPPORT, WHICH PROTECTS THE PNEUMATIC VALVE IN CASE OF STOPPING PRESSURE.**

Never use fins or handles on the valve because they should not be used to lower or raise the pneumatic valve, and they are not designed to withstand the significant forces created by stopping pressures. Also, ensure that safety valves, compression valves, and fastening devices are clean to ensure the correct and uninterrupted operation of pneumatic valves.

Never use fins or handles on the valve because they should not be used to lower or raise the pneumatic valve, and they are not designed to withstand the significant forces created by stopping pressures.

**WARNING**

**WHEN YOU EXPECT THAT THE LIMITING STOPPING PRESSURE WILL BE REACHED AND EXCEEDED, IT IS IMPERATIVE TO ALWAYS USE THE SUPPORT THAT WILL PREVENT THE VALVE FROM SLIPPING OUT OF THE PIPE.**

11

**NEVER STAY IN THE VICINITY OF THE VALVE WHEN IT IS UNDER PRESSURE.**

It is dangerous to remain close to valves or openings closed by pressurized valves.

**WARNING**

**IT IS FORBIDDEN TO STAY IN THE DANGER ZONE OF THE VALVE. FAILURE TO FOLLOW INSTRUCTIONS CAN RESULT IN INJURIES, EVEN DEATH.**

12

**ALWAYS RELEASE THE STOPPING PRESSURE BEHIND THE VALVE BEFORE VENTING THE AIR.**

Before releasing air from the pneumatic valve, completely release the stopping pressure. Only after doing so can you release the pressure in the valve through the filling hose. The pneumatic valve must be completely emptied before being removed from the pipe.

**WARNING**

**WHEN YOU EXPECT THAT THE LIMITING STOPPING PRESSURE WILL BE REACHED AND EXCEEDED, IT IS IMPERATIVE TO ALWAYS USE THE SUPPORT THAT WILL PREVENT THE VALVE FROM SLIPPING OUT OF THE PIPE.**



**Mandatory  
Eye Protection**



**Mandatory  
Head Protection**



**Mandatory  
Ear Protection**



**Mandatory  
Foot Protection**



**Mandatory  
Hand Protection**



**Mandatory  
Body Protection**

## INFLATION INSTRUCTIONS



Connect the hose from the compressor or another air system (bottle) to the left connector.  
Close the valve.



Connect the other end of the filling hose to the coupler after the valve (at the back).



Connect the other end of the filling hose to the coupler on the valve.

Release the air (start the compressor)

•  
Open the valve slowly and monitor the pressure gauge until the recommended inflation pressure is reached (1-1.5 or 2.5 bar)

•  
The valve inflates

•  
Close the valve

•  
Close the air supply source (compressor, bottle, etc.)

•  
Open the valve again to check the pressure of the valve on the pressure gauge

•  
Adjust the pressure if necessary

•  
For deflation, disconnect the air supply and open the valve (for slow deflation)





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