

# TEST PLUG SAFETY PRECAUTION



**A QUICK GUIDE**

## Safety Precautions

**⚠ DANGER** Death, bodily injury and/or property damage could result if plug fails for any reason. Unsafe practices can also result in death or severe injury.

The following information provided under “General Information,” “Preparation Before Use,” “Operation,” and “Maintenance and Storage” must always be followed. Pay careful attention to safety information highlighted by this symbol: ⚠

## General Information

Follow all safety instructions contained in OSHA and federal, state, and local regulations. Do not use the plug if any conditions exist that could jeopardize the safety of personnel or property.

**Confined Space Entry:** Follow Federal, State, local and/or company requirements for entry into confined spaces.

**⚠ Danger Zone:** When a plug is in use, a danger zone exists that expands outwardly in a cone shape. NEVER enter the danger zone when a plug is in use.



## Preparation Before Use

- 1. Plug Selection:** Select the proper plug and related equipment. Every pipe plug has performance specs listed on the plug and /or in the literature. Contact Cherne Industries or dealer for recommendations.

## 2. Back Pressure Determination:

Determine maximum back pressure the plug must withstand. Back pressure is the pressure (air or liquid) in front or back of the plug that it must restrain.

**⚠ Never exceed the plug's back pressure rating. Maximum back pressure ratings listed are for plugs installed in clean, dry pipe of nominal size. Usage of plugs in pipeline that varies from these conditions could reduce maximum allowable back pressure.**

- 3. Plug Size Selection:** Pipe plugs have a minimum and maximum sealing size range. Verify the pipe inside diameter is within the plug's sealing (usage) range.

- 4. Pipe Design:** Plug performance could vary depending on pipe types. For example, in corrugated pipe, plug back pressure rating drops by 50%. Contact Cherne Industries or dealer for recommendations.

- 5. ⚠ Calibrated gauges:** Failure to use calibrated gauges could result in plug over-inflation or under-inflation which could lead to plug failure.

**Monitor inflation and back pressure with calibrated pressure gauges only.**

Use calibrated gauges and proper hoses to monitor pressure, inflate, and deflate the plug from outside of danger zone. Contact Cherne Industries or dealer for recommendations.

- 6. Cleaning and Inspection:** Plugs must be clean and inspected before and after every use. **⚠ Do not use a plug if it has or shows any signs of wear or deterioration. All natural rubber products degrade over time, even if they are used infrequently, stored properly, and show no external**

**signs of damage. Because of this, Cherne recommends that this plug be retired from service no later than 17 years after the date of manufacture, which can be found on the serial number tag, inflation end, non-inflation end, or on the plug body. If you cannot find the date of manufacture or have questions, call 1800 028 584.**

The inspection should include but not be limited to looking for:

1. Cuts
2. Abrasions
3. Punctures
4. Bulges
5. Cracks
6. Corrosion
7. Loose or damaged fittings & components
8. Leaks

- 7. Clean Pipe:** Clean any debris or foreign substances before placing plug. An unclean pipe could reduce plug's back pressure holding capability and could damage plug during placement or upon inflation.

**⚠ Plug Rupture:** Improper inflation or inflation against a sharp object could result in plug rupture.

- 8. Backup System:** An additional backup system should be considered to prevent injury or property damage in case of plug failure. Never use eye bolts, inflation hoses, or other attachments of the plug as a means to restrain the plug movement under back pressure.

- 9. ⚠ Plug Blocking:** Failure to use proper blocking/bracing could result in a fatality.

Forces behind the plug could be tremendous. A properly designed blocking or bracing device must be used to restrain any plug movement.

## Operation

**⚠ Danger Zone:** When a plug is in use, a danger zone exists that expands outwardly in a cone shape. NEVER enter the danger zone when a plug is in use.

**⚠ Temperature Range:** Pipe plugs are designed for use at temperatures from  $-17^{\circ}\text{C}$  to  $+51^{\circ}\text{C}$  ( $0^{\circ}\text{F}$  to  $+125^{\circ}\text{F}$ ). Plug use outside of its rated temperature range could cause plug failure.

**⚠ Plug Placement:** Pneumatic plugs can elongate upon inflation, causing the plug to protrude and resulting in failure if not initially placed far enough into the pipe. Position the plug into the pipe at a distance at least equal to the pipe diameter.

**⚠ Monitor Pressure:** Inflation pressure and back pressure should be monitored and maintained to the rated plug specifications at least once per 4 hours. More frequent monitoring may be required for certain applications. A regulated pressure source may be attached to the plug during operation.

**⚠ Restrained Media Restrictions:** Use of plugs with chemicals including hydrocarbons may cause severe damage to the plug. Plugs made of natural rubber are designed to hold air, water or sewage. Plug failure could result in death, serious bodily injury and/or property damage.

**⚠ Inflation Media:** Cherne plugs can be inflated with air, water or inert gasses such as nitrogen. Air and other inert gases pose more danger than water in the case of a plug failure.

1. Place the plug in the pipe or application to be blocked or tested making sure it is positioned inside the pipe or application a distance at least equal to the pipe or application diameter.
2. Connect one end of inflation hose to the plug inflation fitting (such as Schrader valve, 1/4", 3/8", 1/2" port etc.). The other end of the inflation hose is connected to line pressure, pump or another supply pressure device. Always use an appropriate method to dump the pressure after application.
3. If another fitting (such as Schrader valve, 1/4", 3/8", 1/2" port etc.) is available, connect a second hose to the fitting. The other end of the second hose should be connected to a calibrated gauge. This second hose is a pressure read back hose.
4. Make sure to block/brace the plug using appropriate method before inflating the plug.
5. Introduce pressure to the plug through the inflation hose. Inflate the plug to the rated inflation pressure listed on the plug. Contact Sewer Equipment Company Australia (SECA) for recommendations.
6. Let the plug stabilize for a few moments. Add pressure if needed to maintain rated inflation pressure.

**⚠ Over-Inflation:** Do not exceed required inflation pressure. Over inflation could cause the plug to rupture and dislodge at extreme velocity.

**⚠ Under-Inflation:** Inflate plug to required inflation pressure. Under-inflation could cause the plug and the media restrained to dislodge from the pipe.

7. Proceed with testing pipe, application, or other use of plug. After test, application, or use of the plug is complete, release all back pressure behind the plug from outside the danger zone.
8. When all back pressure is released, relieve plug pressure from outside the danger zone until the plug is completely deflated.

**⚠ Always release the back pressure from the pipe before deflating the plug. Plug deflation before releasing back pressure could cause the plug to dislodge at extreme velocity.**

9. Remove blocking/bracing system. Remove plug from pipe and follow storage instruction.

## Maintenance and Storage

The plug may be cleaned with mild soap and water (other cleaning agents may cause damage).

Inflate plug with 1 psig to inspect the plug after every use. **⚠ Plug should not be used if it shows any signs of cut, wear or deterioration. A damaged plug is unsafe and should not be used again.**

Never inflate plug more than 1 psig when the plug is outside of a pipe. Plug damage and failure could occur.

Store the plug in a dry place away from sunlight or other sources of ultra-violet light and ozone. Plugs must be stored below 43°C (110°F) and can be stored suspended vertically or placed horizontally.