

Please read these instructions before using

SAFETY RULES FOR THE USE OF PIPE STOPPERS Type GUM

Observing the instructions below is imperative to avoid the risk of accidents or injuries



- Measure the internal diameter of the pipe**
Each **MUSTstop**® plug has a precise range of utilisation (minimum and maximum). The nominal size is clearly mentioned on the product. In case of doubt contact Musthane
- Respect the inflation pressure**
It depends on the model and the diameter of the pipeline. The maximum pressure is on the plug. If in doubt, contact our teams
- Calculate the pressure that the plug should support and never exceed the maximum permissible back pressure**
Important pressures can be contained in the plug or can be exerted on the plug. The total force supported by the plug is proportional to the back pressure and the pipe section. It can be estimated as following:
 $F(\text{power in kg}) = S (\text{surface of the pipe section (cm}^2) \times P (\text{pressure in bar})$
 Example : $\varnothing 700\text{mm}$ pipe and a pressure to support of 0.4 bar (so 4m of water height)
 $F = 3.14 \times 35^2 \times 0.4 = 1539 \text{ kg}$ Caution : in case there is a leakage between the pipe and the inflatable plug, the maximum back pressure will not be reached. The maximum indicated back pressure is valid for a regular and dry surface contact between the inflatable stopper and the pipe. We recommend to make a test on your pipe before using the plug
- Determine if there is any special requirements concerning the resistance to heat or chemical products**
Our plugs work in temperatures between -10°C and $+70^{\circ}\text{C}$. Concerning chemical compatibility, please contact us
- Examine and clean the plugs and their fittings before and after each use**
- Clean the pipe before using the plug**
Remove any foreign matter inside the pipe, a sharp object may cause holes or puncture the plug when inflated. The methods can be a high-pressure cleaning or a metal brush and a rinse with water
- Never stay in front of the plug while working**
Use an inflation hose long enough to not be in front of the stopper during inflation Ensure that no one is in the pipeline. Risk of serious injury if the plug is ejected
- Store the plug in a clean and dry place protected against ozone and light.**
- Never inflate a plug which is not positioned in a pipe**
Risk of serious injury if the plug blows up
- Do not alter, modify inflatable valves or accessories**, as this may result in risk of bursting.
- When using the plug **always take into consideration the safety** of the user and those of the persons present and respect regulations.

OPERATIONS FOR PIPE PLUGS Type GUM

- The plug should never go beyond the edge of the pipe during inflation and its use
- Never inflate the plug in contact of sharp objects (otherwise the plug will blow up)
- Before inflating, position the plug at a distance equivalent at least to one diameter from the edge of the pipe because it can lengthen upon inflation and hence protrude from the pipe and deteriorate.
- Position the plug in order to have the by-pass at the lowest level so the draining off the water is optimised
- Hook a rope to the ring-bolt of the plug(never use the inflation hose to manipulate the plug)
- Connect the inflation hose, one side to the plug and the other side to a compressor or to a manual pump (don't forget to connect a manometer)
- Make sure that nobody remains in the pipe (risk of injury if the inflatable shutter is ejected)
- Inflate the plug up to the recommended pressure(Over-inflation may cause bursting) as a function of the diameter. If in doubt contact us.
- Check the inflation pressure regularly
- Always control the pressure exerted on the plug. Caution : in case there is a leakage between the pipe and the inflatable plug, the maximum back pressure will not be reached
- Before taking out the plug, remove all the pressure retained in the pipe by opening the by-pass. Use the rope to retain the plug. Take care that no one is in the pipe.
- Deflate the plug by opening the ball valve when there is no more pressure on the plug
- Remove the plug using the rope (never use the flexible hose to remove the plug from the pipe)

Caution : never try to take out the plug from the pipe before it is completely deflated

STORAGE, MAINTENANCE OF PIPE PLUGS

- Store pipe plugs flat in a room protected from extreme climatic conditions, aggressive vapors and rodents at a storage temperature between -5 ° C and +20 ° C and a degree of hygrometry between 40 and 70%.
- Protect them from sunlight, UV, or strong artificial light.
- Examine and clean the plugs and their fittings before and after each use
Clean with warm soapy water pipe plugs and their fittings after each use (never use chemicals, iron brush or high pressure wash) rinse and let them dry. Inflate at 0.2bar the plug and test it and the fittings with soapsuds. Check there is no matter in inflation valve
- Check that the products are not damaged (cracks, exposed cloth, cut) before any use. Contact Musthane if in doubt.