

## Description of the Valve

Linebreak valves are used to detect a linebreak within a pipeline. If the pressure drop at the valve's control port X is higher than the set point, the valve shuts down the line. The pressure drop rate given in "bar/minute" is adjustable.

The control device is connected to a mainstage valve which is a leakage free, block type poppet valve.

## Technical Data of the Valve

Pressure range of valve (1):	0 to 700 bar
Max. differential pressure (A-B):	100 bar
Switching differential pressure:	0,5 to 7bar/min
Size:	DN3 (1/8") DN6 (1/4")
Temperature range:	-25°C to 60°C -13°F to 140°F

## Media

Compressed air, natural gas (sweet and sour)  
For other media please contact us.

## Options

- The valve may be a normally open (NO) or a normally closed (NC) 2/2 or a 3/2 valve which allows to realise all functions required in pneumatic safety-control-units.
- The setpoint range has to be specified.
- A stainless steel version is available to handle sour gas. Further options (material, media etc.) upon request.
- Port size and type.
- Manual reset

## Designation

407003 xxx (DN3, aluminum)  
 407003 xxx (DN3, stainless)  
 407006 xxx (DN6, aluminum)  
 407006 xxx (DN6, stainless)

## Material

The housing of the valve is made of anodized aluminum. All wetted parts inside the valve are made of **non-corrosive materials** (stainless steel, ceramic balls). A stainless steel version is available to handle sour gas.

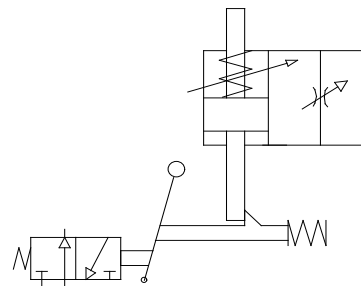
## Note

It is advisable to flush systems acc. NAS – Class 6. Under normal conditions the valve is service free.

## Agenda (refer to drawing next page)

- (1) Switching valve
- (2) Hand lever
- (3) Spring loaded actuator pin
- (4) Control spring
- (5) Retaining pawl
- (6) Needle valve

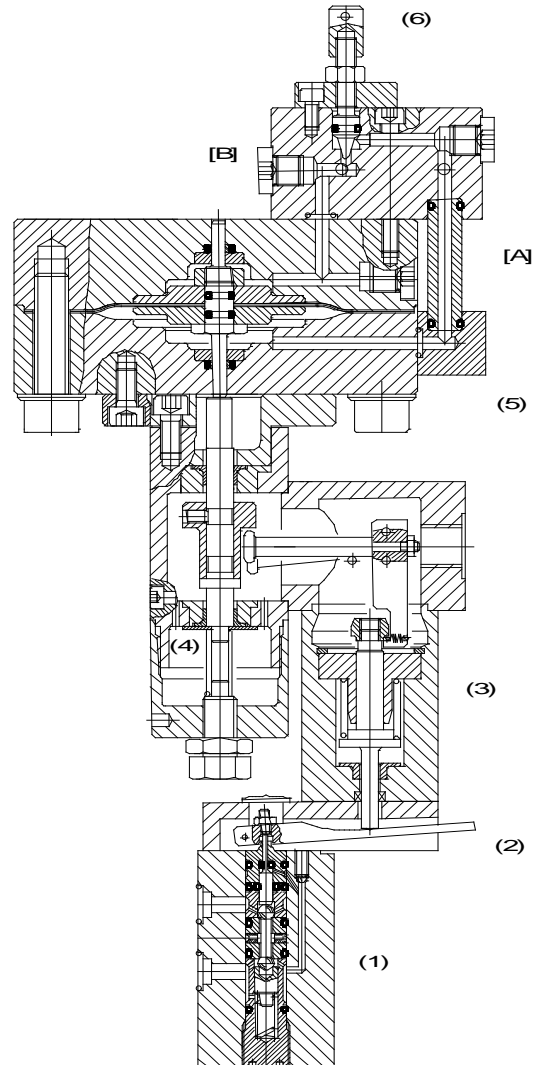
## Symbol



## Photographic view



## Drawing of the Valve



## Function

Port **(B)** is connected to a pressure vessel. In combination with a needle valve **(6)**, this can be seen as a pneumatic timer

Port **(A)** from the line-break-system (LBS) is connected to the controlport of the flowline. Under normal circumstances the diaphragm-piston is pressure balanced since the pressure of the vessel follows the pressure of the flow line if slow pressure drops occur.

In case of a line break the pressure in the flow line drops quickly. As it drops faster than the pressure in the vessel it causes a differential pressure acting on the piston.

If this differential pressure exceeds the setpoint, the diaphragm-piston is pushed towards the control spring **(4)** causing the retaining pawl **(5)** to release the spring loaded actuator pin **(3)**. This pin operates the lever **(2)** of the valve **(1)**, forcing the valve to switch into locked position. The valve can only be unlocked manually at site.

The amount of differential pressure is a function of the enclosed volume inside the vessel and the orifice of the needle valve. The lever **(2)** allows to operate the valve manually. The differential-pressure valve will be adjusted to the required setpoint and locked in the factory.