

# For Pressure Pulsation Damping On Typical diaphragm metering pumps

mwSogP3.bmp

P. 3

## Simply, how it works

1. Pressure measured at one place in a piping system can be seen approx. 1400 Meters away, (0.87 Miles away) one second later . That is to say the speed of pressure wave transfer is generally over 3,000 miles per hour.
2. As pressure goes so fast, a piece of pipe, say 15 meters long ( approx 50 ft), reflects it back to source in 0.02 seconds, or say at 50 Hz. Another thought is that it will pass a 100mm "T" branch in 0.00007 of a second ! So a one connection damper on the T can not respond.
3. Frequencies from short lengths of system, must be addressed by flow through dampers. \*

\* Flow through, dampers give :

More Flow Fluctuation Smoothing as well, PLUS

**A.** Pressure pulse interception

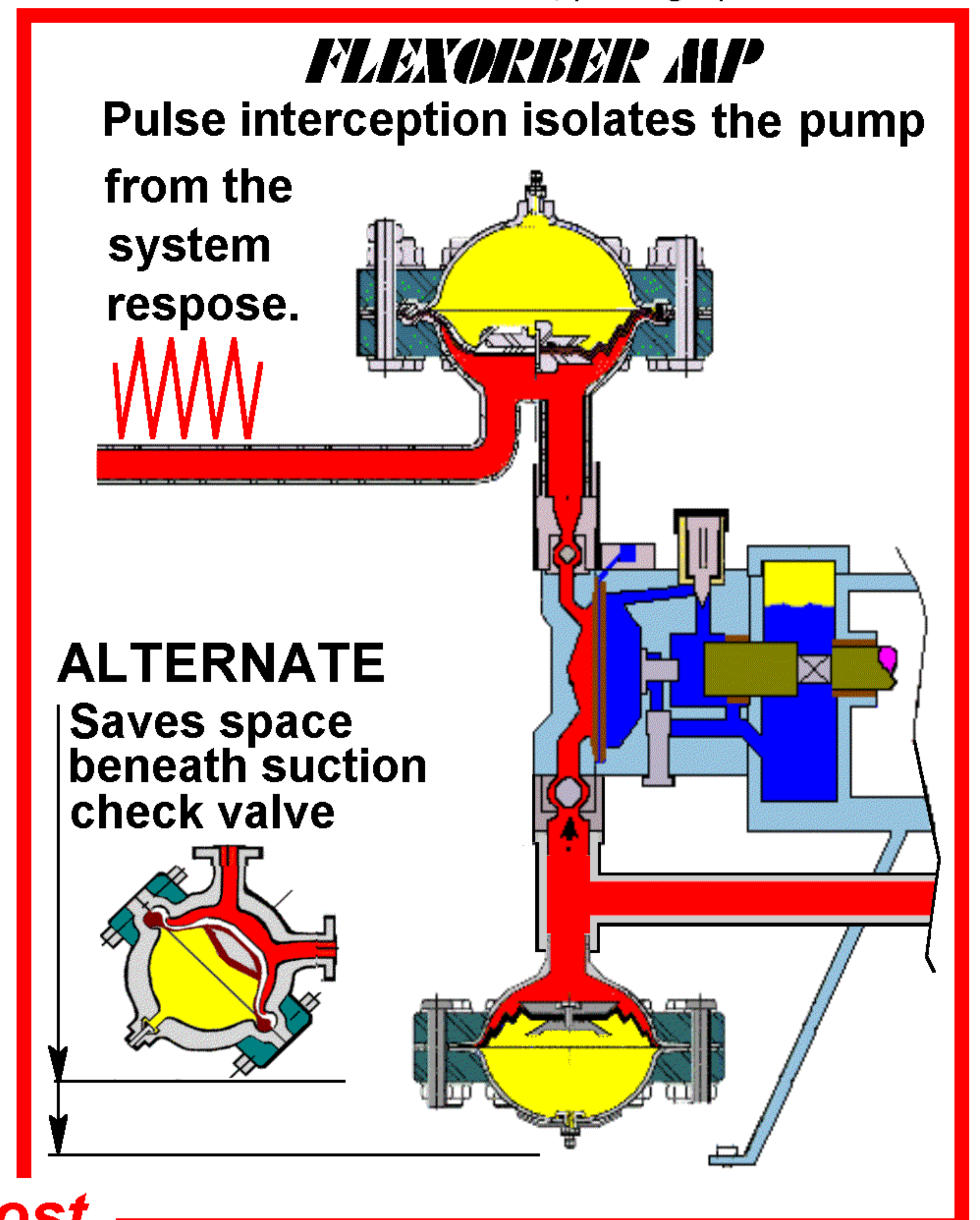
**B.** Flushability in place

**C.** Standardisation

**All at a lower cost**

If for some reason you really must not have these benefits , keep the lower cost, by using one connection and the other saves a "T" for Gauge, Drain, R.V. , or Rupture Disk.

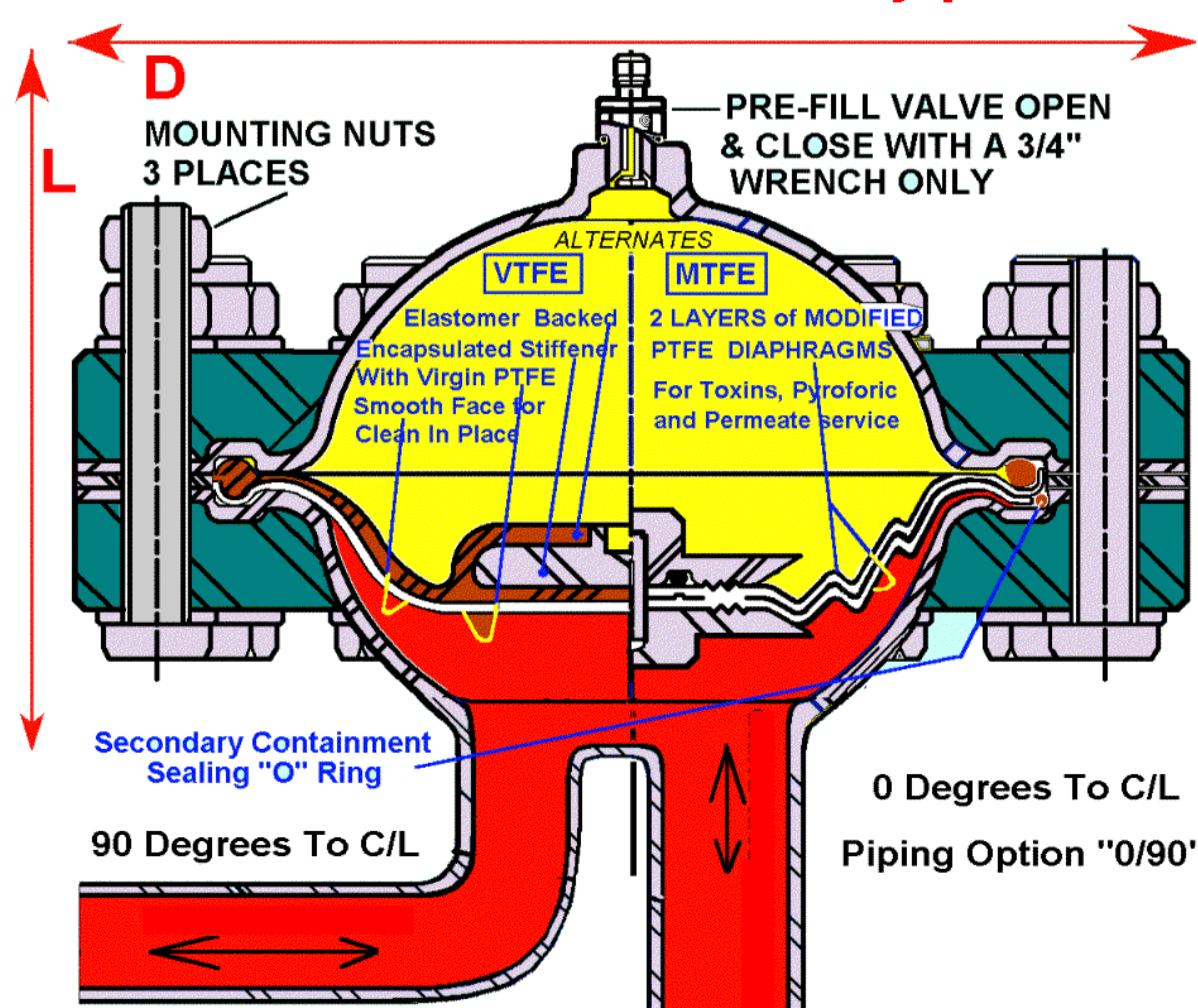
From the front cover, photograph B.



## Principles of pressure activity reduction - briefly :

- I. Pressure transients, going from a small hole into a large diameter space, die away exponentially with distance to the first surface they could reflect from.
- II. Additionally, mass of liquid deadens the pulse .
- III. When the cavity is also 8 times larger than the exit hole, what is left has difficulty finding its way back to the system.

For Dimensions see inventory price list.



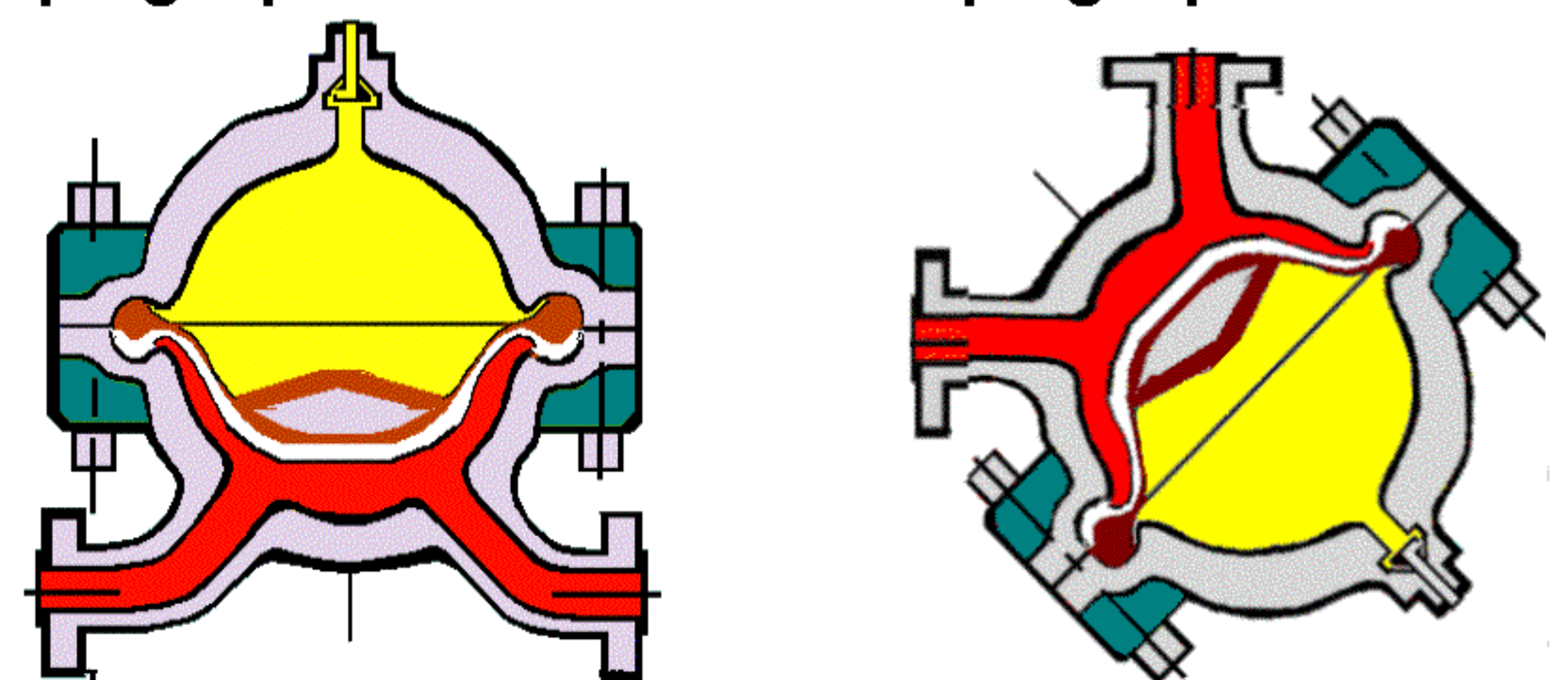
## Importance of Prefill :

For a pressure pulse interception duty, to 50% of system pressure, to keep diaphragm up & damper half full of liquid.

**Installation options :** For Best Results, small connection to system for constant flow, larger to the pump for the peak flows. Not more than 10 pipe IDs long.

Piping Option: " 90/90 "

Piping Option: " 45/45 "



**"Dampers that do - Flow goes through,  
But pressure pulsation does not."**