

PRESSURE PULSE DAMPING

On typical diaphragm head chemical and process metering pump piping systems

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

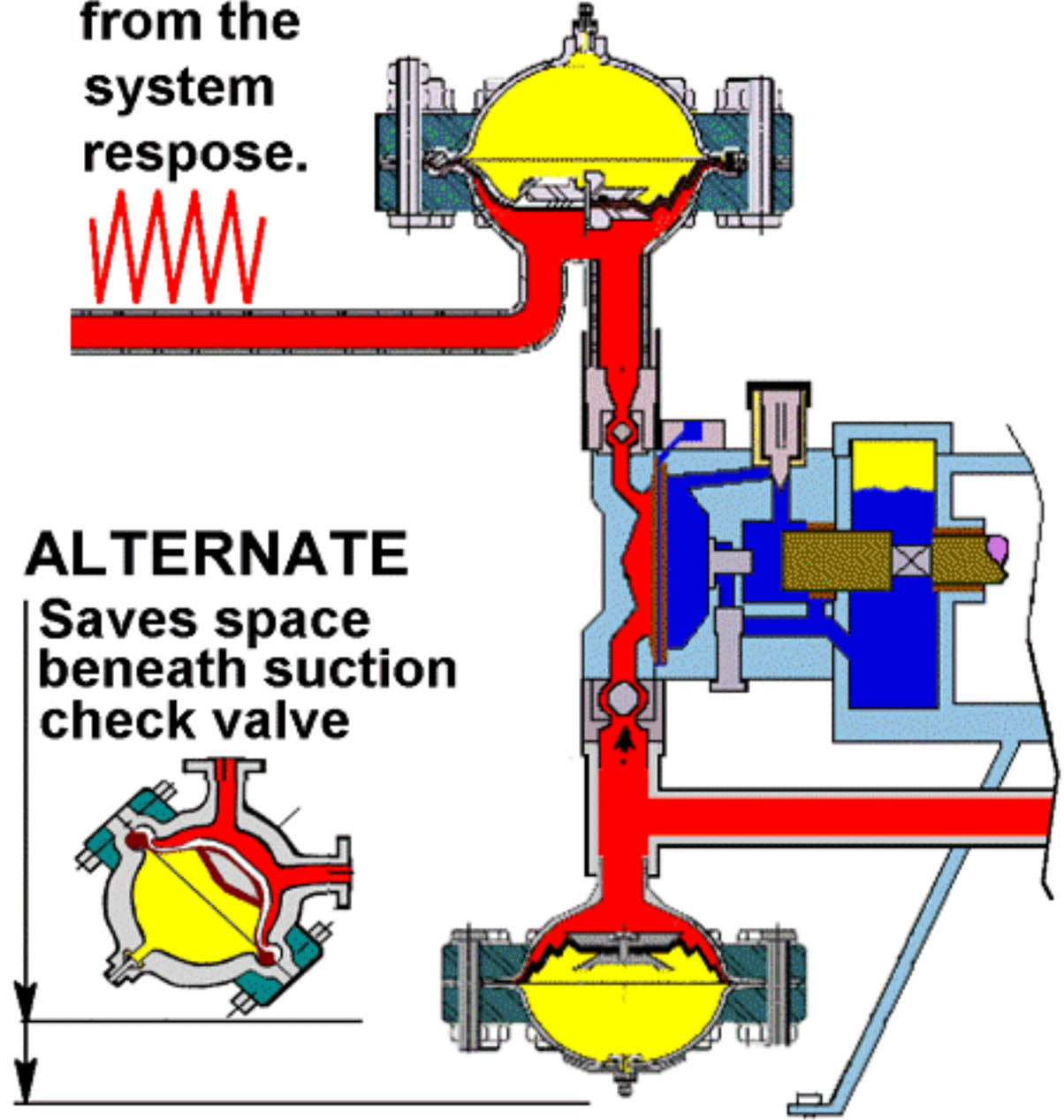
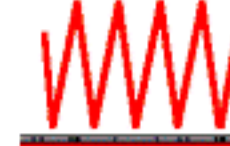
B. Flushability in place

C. Standardization (Flow-through are standard inventory) **All at a lower cost**

From the cover photo A.

FLEXORBER MP

Pulse interception isolates the pump from the system response.



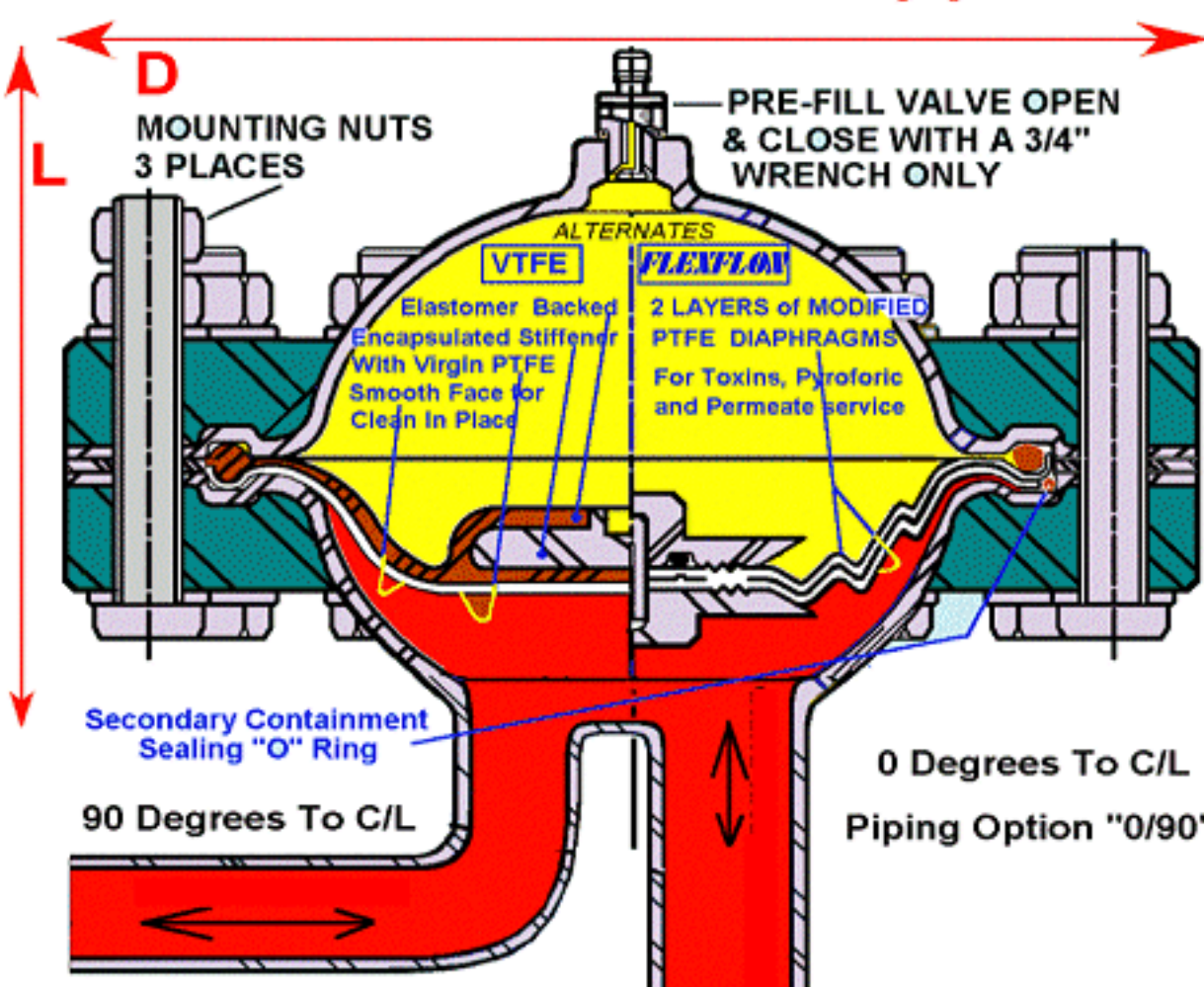
ALTERNATE
Saves space
beneath suction
check valve

IF, FOR SOME REASON, YOU REALLY MUST NOT HAVE THESE BENEFITS , KEEP THE LOWER COST BY USING ONE CONNECTION, AND SAVE A "T" BY USING THE OTHER FOR R.V. , DRAIN, or GAGE.

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.



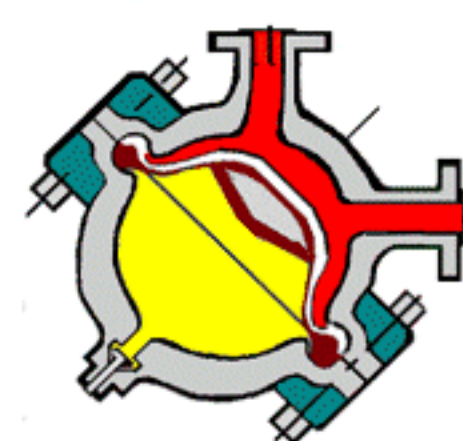
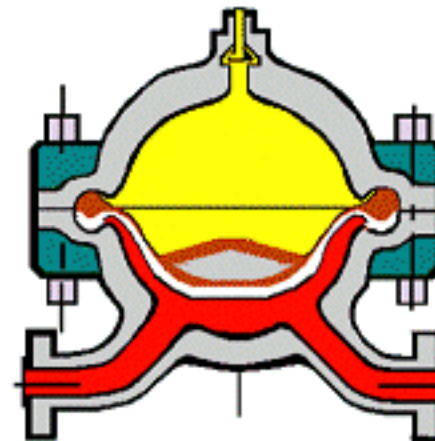
Importance of Prefill :

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."