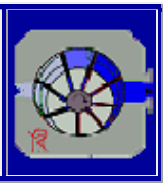
# The COST $$ of VANE PUMPS with Various PULSEGUARD Dampers

**Quieting pipe noise in Vane Pump systems**

**Most efficient, lowest cost, "Pulse" Muffler method selection.**



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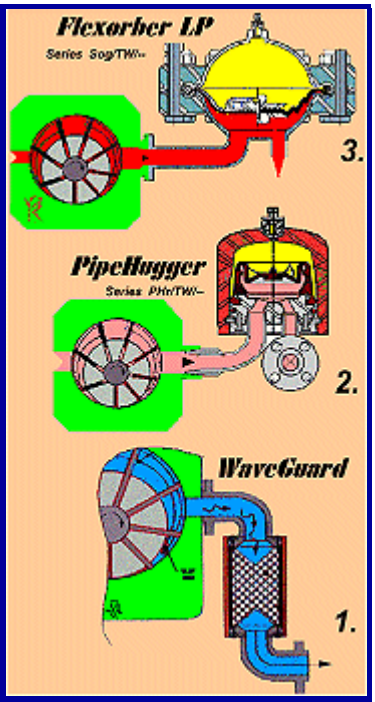
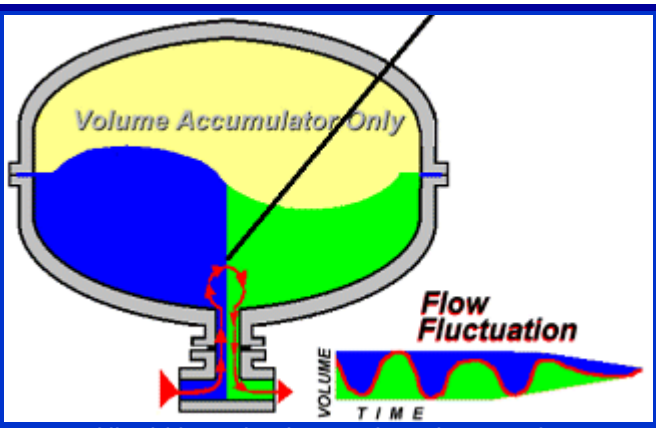
|---|---|
| **FLEXFLON WAS NOT NECESSARY**<br>Liquids with enough lubricate, to use with vane pumps, infrequency need the chemical resistance of Flexflon, PTFE, or EIDP Teflon. Virgin Teflon is "dead" and unresponsive. Stiff and rarely deflects above 30Hz. The poor response characteristics, make it necessary to greatly over size the diaphragm. Oversizing provided so much liquid that on its own, it does half the job. Although the Flexorber LP does more work as a volumetric damper than a 5 litre accumulator it is a waste of money in this application. | Sog/TW/100i/1600p<br>1.3 Litres<br>110 Bar<br>all 316 & TFE<br>1" x 0.75"<br>**3. $2,110** |
| **GOOD FOR VOLUMETRIC FLUCTUATIONS**<br>Ideal for response up to 60Hz., and directing the spikes at the inside of the bladder, make 600% most cost effective than, for example, a PipeGuard, - PipeHugger still leaves a lot of noise in the system; though it does isolate pipe resonance from amplifying the pump signal. | PHr/122 in3/1,050 psi<br>316L wetted & Dupont Viton<br>**2. $1,365** |
| **THE PROBLEM IS HIGH FREQUENCY PRESSURE PULSATION, "ACOUSTIC" NOT FLOW FLUCTUATION**<br>WaveGuard can completely eliminate audible evidence of the 223 Hz. Frequency, for less than 40% of the cost of treating it as a flow fluctuation. | Wag/1.2e/1,800p/<br>**1. $774** |

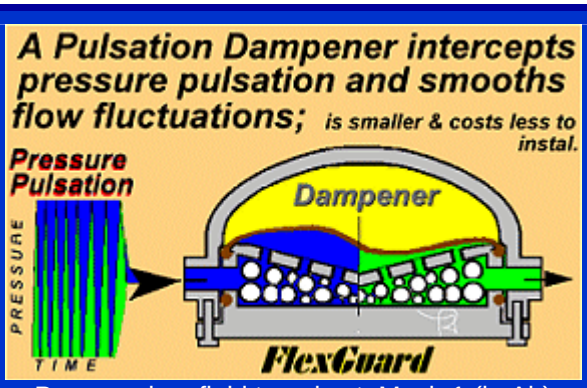



**The worst and most inexcusable error in pipe system design is to treat pressure transfer as the same as rate of mass transfer, & assume that liquid is incompressible.** (or that speed of sound = infinity)

**Because flow is so slow, there is time to flow up, come to a stop, and flow back down a "T" on the other hand, whatever the residual pressure pulsation level is, it will fly straight past a "T".**




Mass of liquid in a pipe is transferred at not above 180 inches/sec or say 460 cm/sec




Pressure in a fluid travels at, Mach 1 (in Air)
In harder substances (liquid) is transferred at up to 4000 MPH, or say 140,000 cm/sec.

**CONCLUSION:- With 300% greater efficiency, because flow fluctuations & pressure pulsation are forced to see the inside of PULSEGUARD PULSE DAMPERS, are more compact vessels and DO MORE WORK FOR A LOWER COST. Hence the saying:-**

*Dampers that do, flow goes through, BUT pressure pulsation is caught*