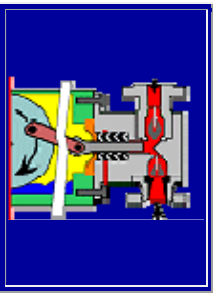
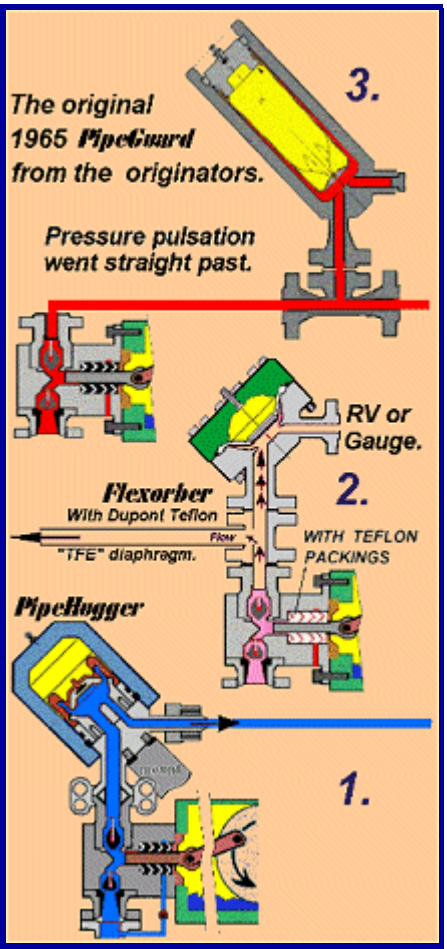
The COST $$ of PACKED PLUNGER PUMPS with Various PULSEGUARD Dampers

GENUINE HIGH VOLUMETRIC EFFICIENT PACKED PLUNGER PUMPS do not make the same velocity jump shocks of a diaphragm head, but because they are so good, they are often used at high pressure where system liquid compressibility cause lost motion, and hence high pulsation levels.

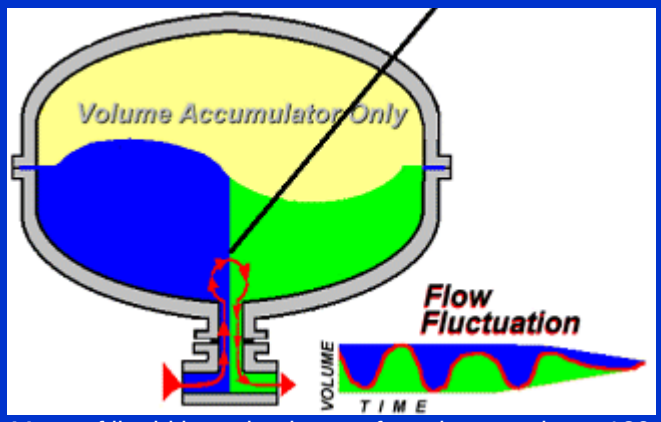


HARDLY WORKS AT ALL DESPITE MONSTER SIZE By oversizing by a factor of 3, this off line appendage damper installed in its volume storage accumulator mode produced smooth flow. The acceleration head pressure from flow fluctuations was removed. The pressure pulsation from cylinder decompression, and the high frequency from valve action was not addressed at all. Beware of oscillographs where the rate of data capture was set to hide pressure transients.	1 "T" piece plus 3 flanges and 3 welds & QA Say $854 PipeGuard /Pig All SS /316 75 in3 /75i 4,500 psi /4500p Pig/SS/75i/4500p $2,648 **3. Total $3,502**
BETTER FOR ONE REASON AND LESS EXPENSIVE FOR ANOTHER Although a third the size of the one above, works just as well simply because the pulse goes in a short straight line into it. Savings not only come from the smaller size, but also from using the second connection for RV or Gauge, instead of buying and installing an extra "T" piece in the system. Better still the high transient pressure spikes are dampened, though the high frequency form the valve action remains.	Flexorber / Flo Twin connect /TW SS wetted /316 25 in3 /25i 3500 psi /3500p Flo/TW/25i/3500p/316-TFE **2. Total $1,980**
SO THE RIGHT SOLUTION WAS:- Not to buy a "T" to put the damper out of circuit. Use the flow through feature, like a silencer / muffler, or filter, and eliminate acceleration head, and the high transient spikes and the high frequency pressure pulsation all in one; and for one fifth the cost - yes 20%, a saving of more than 3/4.	PipeHugger /PHr SS wetted /316 Twin Connect /TW 40 in3 /40i 5,250 psi /5250p PHr/TW/40i/5250p/316 **1. Total $705**

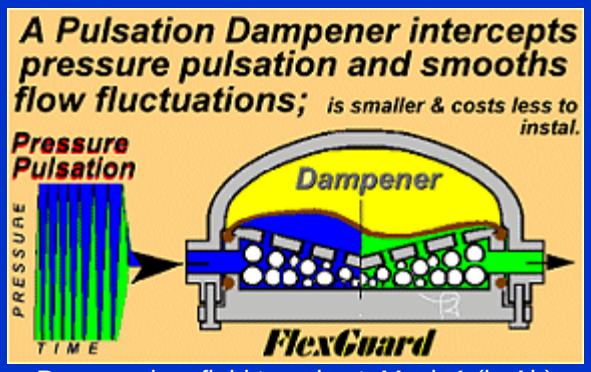


Pressure in liquid travels 300 times faster than flow, so pressure pulsation has no time to turn from a straight line, and go up a "T"

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