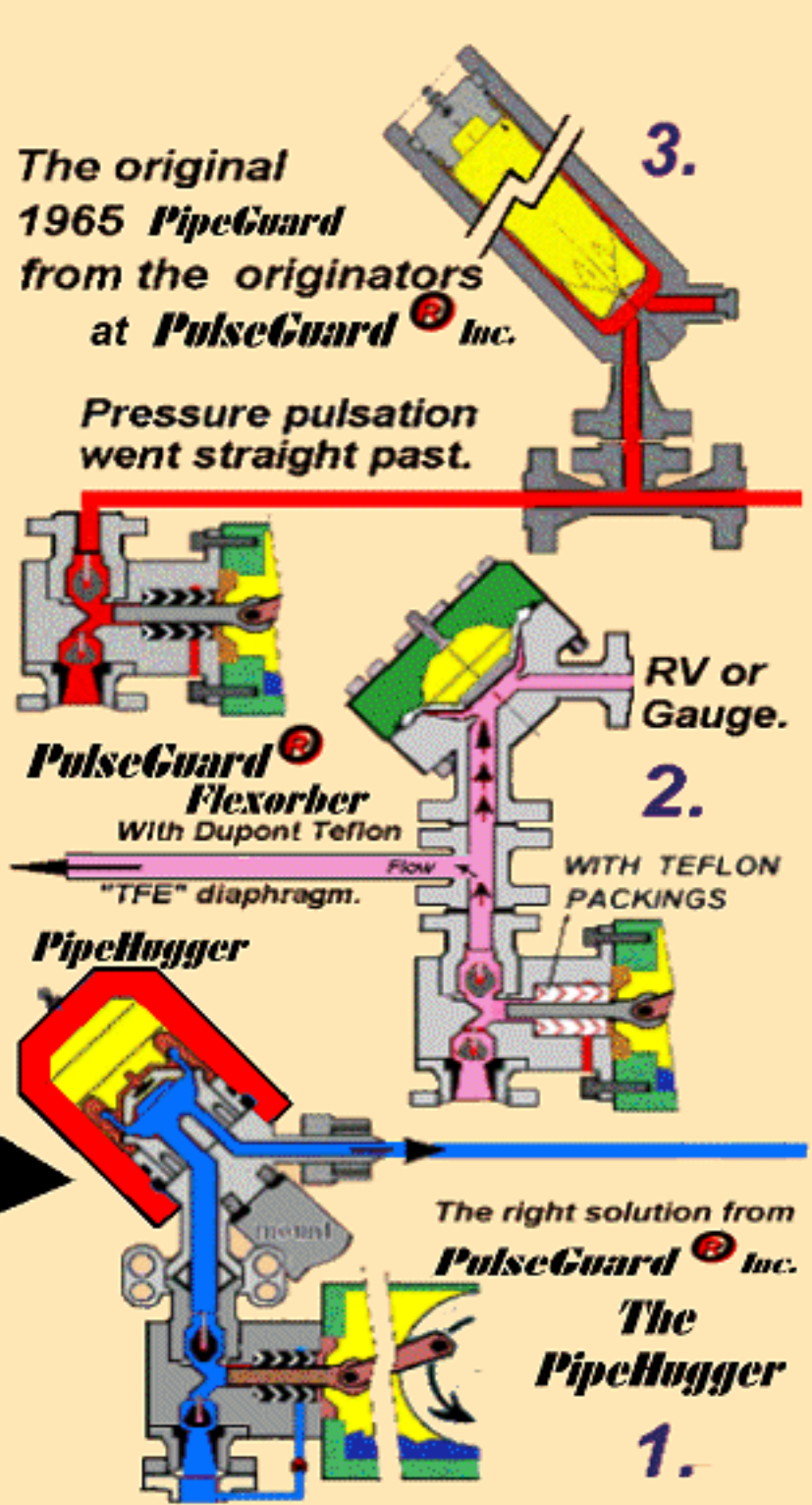
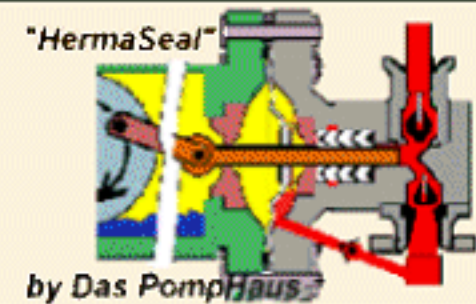


HIGH PRESSURE BLADDERS INTERCEPT SHOCKING SPIKES, free -
 Genuine high efficiency packed plunger pumps, do not make the same velocity jump shocks of a diaphragm head, but because they are so good, are often used with compressible system liquids, which cause lost motion, the worst source of pressure pulsation transients.



HARDLY WORKED AT ALL, DESPITE MONSTER SIZE,
 PRESSURE PULSES ARE DIRECTIONAL, AND FLOW REVERSAL IS ONE CAUSE.

But when oversized by a factor of 3, this off line appendage damper installed in its volume storage accumulator mode, produced "smooth flow". Acceleration head pressures from flow fluctuation were mostly prevented. Pressure pulse system excitation from cylinder decompression nor higher frequencies from valve action, and none of the piping system response frequencies were addressed at all. However gauge response hardly reacted, & all really damaging transients could be hidden by reducing the frequency of data capture. (as usual !)

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
Ttl. \$ 3,502

BETTER FOR ONE REASON AND LESS EXPENSIVE FOR ANOTHER.

Although a third of the size of the one above, this performs equally, simply because the mass goes a short distance in a straight line into damper. Savings not only come from the smaller size, but also by using the second connection for drain, RV, or Gauge, instead of buying and installing an extra "T" piece in the pipe system. Better still, the lower amplitude of the transient spikes will be dampened to some extent, because they are aimed directly at the damper membrane. Higher frequencies back from pipe system were not addressed.

Flexorber /Flo Twin connect /TW SS wetted /316 25 in3 /25i 3500 psi 3500p Flo/TW/25i/3500p/316-TFE

Ttl \$1,980

THE FULL SOLUTION WAS ALSO LEAST EXPENSIVE

Not to buy a "T" (to put the damper out of circuit). Used the flow through feature, like a silencer / muffler, or filter, and eliminated acceleration head, and flow reversal in single connection losses, plus high transient spikes and high frequency pressure pulsation were all cured - AND ALL for one fifth - yes 20% only of the one using the single connection approach.

PipeHugger PHr/ SS wetted 316/ 1. Twin Connect TW/ 40 in3 40i/ 5,250 psi 5250p/ PHr/TW/40i/5250p/316

Ttl \$ 705

Capacitance + Direction change Impedance does it..

EVEN FOR LP DOSING THRU- FLOW PROVES LEAST EXPENSIVE

The safety of all metallic enclosure plus compatibility of plastic connection block with a PipeHugger LP Peg/Lnd/90i/D115/225p The PipeHugger LP Lined, is economical when special metal liquid contact parts Ex: Tantalum, Zirconium Hast. C276 are needed.

Damper \$599
 2 "T" pieces cutting pipe making 6 connections.
 say \$156

Ttl. \$ 755

With the idea that plastic is cheap, a twin connection PipeGuard PLAS part Nbr. Pig-Plas/60i/B63x214/150p/PVC was selected Extra cost of single connection special was save plus one "T" saved by using the second connection for the system relief or drain.

Damper \$378
 1 "T" piece cut and fit 3 connections
 say \$67

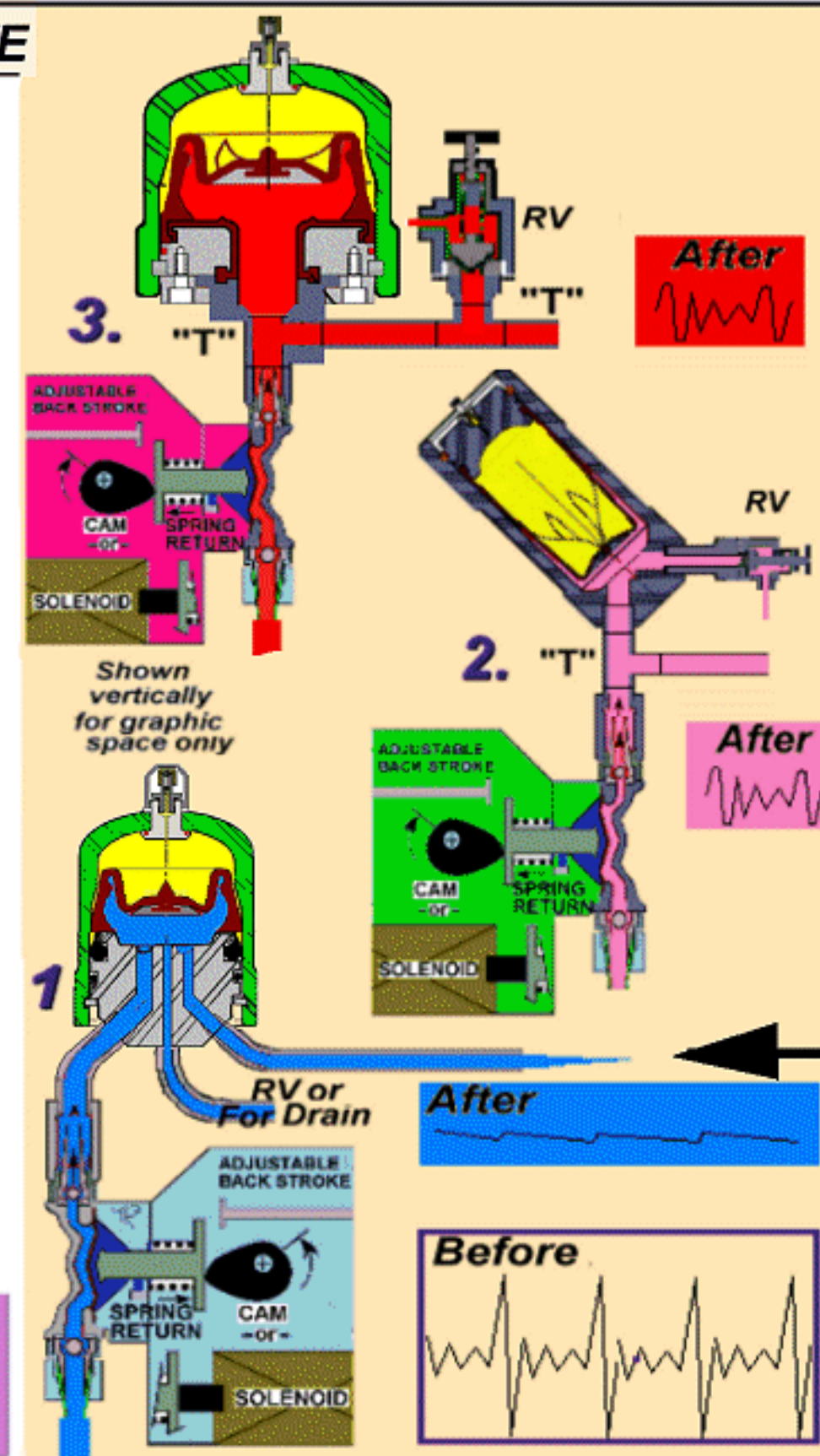
Ttl \$ 445

Peg/ss/Tri/20i/1450p/316 Normally mounted at 45 Degrees. No "T" pieces required, smaller more compact, half the price, 3 times smoother performance. Six times the value of a single connection accumulator. And it doesn't suffer from low temperature fracture.

Damper \$199
 Fit-up say \$23

Ttl. \$ 222

**Pressure travel 300x faster than flow
 So pulsation - flys straight past a "T" !**



PULSE GUARD Inc.
 Guard against Pulsation

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 For the Americas --01(1)910-270-2737
 BW & Color Fax, --01(1)910-270-0320



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