

Double Layer, Sandwich, 2 sheet PTFE **DIAPHRAGM METERING PUMPS**

FOR HAZARDOUS & HIGH PRESSURE, **MATCHED WITH DOUBLE LAYER FLEXFLON DAMPERS** that have secondary containment sealing, and hazard alert port option to between the layers.

A COMMON PROBLEM with diaphragm heads

Warm liquids, and liquids with low SG and low cP ARE compressible. The liquid in the pump head has to expand down from system discharge pressure, as does the diaphragm drive fluid, until both, about 8x the stroke volume, have reached near atmospheric pressure; before the suction check valve can even begin to open. Damping these pumps requires a pressure shock wave interceptor.

Do they tell you to use a packed plunger pump if possible?

The expansion process with diaphragm head pumps uses up to 40% of suction stroke before the pump can start to fill. In that lost time the pump plunger has accelerated to near 3 or more times its average speed. Therefore when the check valve does open, the suction system has to jump from zero velocity up to three times the mean velocity on soft liquids.

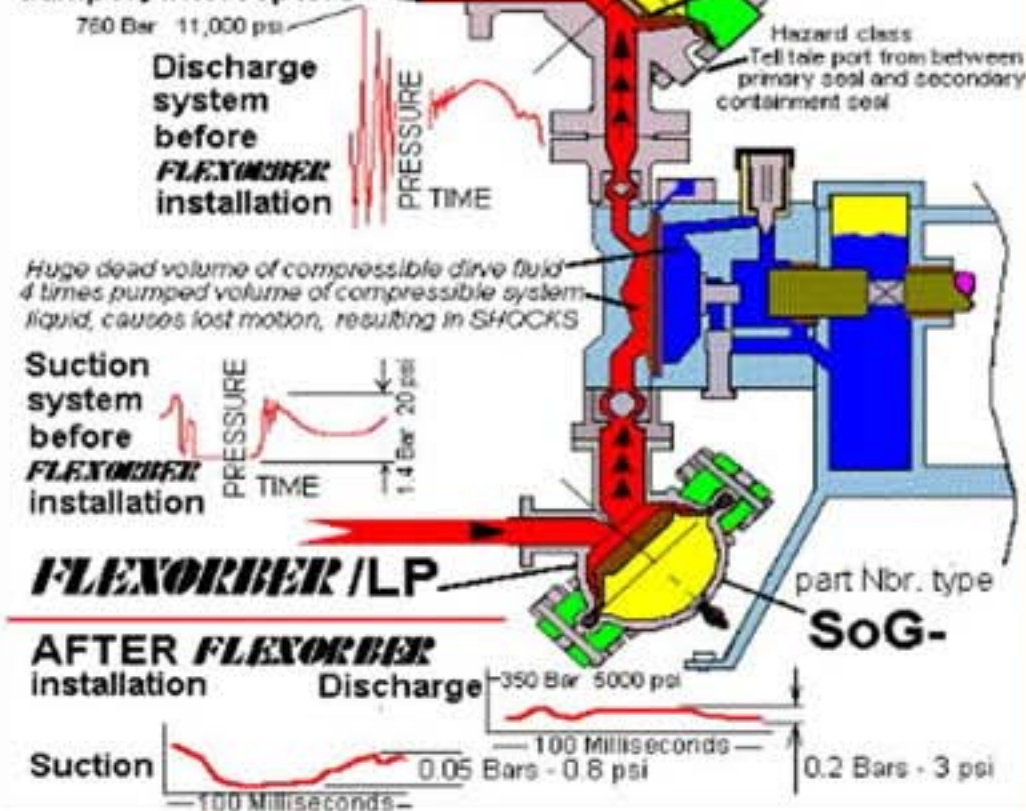


Contrary to manufacturers recommendations the pump performs well for years running at near twice the stroke rate - twice the flow rate fitted with FLOEXORBER-LP suction damper (A) and FLOEXORBER-HP discharge damper (B)

Although the dampers (A) & (B) are 10 times larger volume than the pump head, and very similar in construction, they cost LESS THAN A PUMP HEAD.

Dampers are Close Coupled

Shock Wave and Flow Fluctuation free with **FLEXORBER/HP** damper/ interceptors



This is called "Velocity Jump from low volumetric efficiency". Low efficiency from compressibles, causes massive & instant pressure fall producing negative pressure waves, - negative shock.

A negative pressure wave - shock - travels back up the supply system - at about 3000 miles per hour. They break the liquid column into slugs of liquid spaced with air and gas pockets.

Now the supply line feeds the pump intermittently, liquid gas liquid gas, bubbles, "slush".

The pump efficiency falls further, has no chance to maintain any metering accuracy. Keep it simple, use plunger pumps, & simple dampers.

PUMP DISCHARGE

After compressing and compressing the liquid, the velocity jump results in shock from jerking the mass from zero up to 3 times normal velocity, plus instantaneous decompression into the system. Shocks travelling faster than a bullet. The shocks may also amplify by resonance cracking the pipe.

THE HIGH VALUE ANSWER:

Shocks can not bypass - the **FLEXORBER** damper range **FLO**, & **FL-LP** for suction

REMARKABLE low cost RESULTS.

flo-p3.doc

- 1). Immediate return to the pump vendors 1% metering accuracy and often better.
- 2). Higher flow rates. The pump can now run 50% faster & transfer far more liquid
- 3). Instruments and control systems function, and the pipe system stops fracturing.

Direct Supply. Unfiltered information, the right data, save 80% markup. Open communication

Dampers that do, flow goes through, Pressure pulses do not.

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