PULSAtrol Pulsation Dampener
Pre-Charge Procedure, **Discharge** Installation:

There are two methods for calculating the proper pre-charge air or gas pressure for a discharge side pulsation dampener.

Full Calculation:

To complete this calculation, the user will need to know the mean discharge line pressure present in their system. Also, the user will need to determine the pre-charge percentage required to produce the desired dampening effect. This percentage can be determined by referring to the Selection Curves at the end of this document. The selection of Precharge Percentage is dependent on the piston displacement of the pump, and the desired maximum pressure oscillation.

	Example
Mean Line Pressure (PSIG)	70 PSIG
+ Atmospheric Pressure	14.7
= Absolute Pressure	84.7
x Precharge Percentage (80% maximum)	60 %
= Pressure Absolute	50.8
- Atmospheric Pressure	14.7
= Precharge pressure for dampener	36.1 PSIG

Short Calculation:

Precharge Pressure = 50% of Mean Line Pressure

This "rule of thumb" is not as accurate as the full calculation above, but will allow for fast, simple setup of the pulsation dampener. Further minor adjustments in air pressure can be made upon observation of the system to fine-tune operation.

Dampener Charging:

1. Isolate the PULSAtrol from the process piping
2. Carefully drain off process fluid from the dampener, follow safety precautions
3. Leave the drain valve open so dampener is open to the atmosphere
4. Apply the precharge pressure as calculated above, note that additional liquid may drain from the dampener as the diaphragm moves to fill the internal volume
5. Close the drain valve
6. Return the dampener to the process system

To ensure proper precharge, dampeners should be isolated from the process and open to the atmosphere on the product side.

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Pre-Charge Procedure, **Suction** Installation:

Installation of a PULSAtrol dampener on the suction side of the pump allows the unit to function as an accumulator, improving the net positive suction head (NPSH) available to the pump. Liquid between the dampener and the pump suction inlet will have more uniform flow characteristics.

Dampener Charging:

1. Isolate the PULSAtrol from the process piping
2. Carefully drain off process fluid from the dampener, follow safety precautions
3. Leave the drain valve open so dampener is open to the atmosphere
4. Apply 20-25 psi precharge pressure, or enough pressure as necessary to overcome static suction head, note that additional liquid may drain from the dampener as the diaphragm moves to fill the internal volume
5. Close the drain valve
6. Return the dampener to the process system
7. Observe the operation of the pump, and depress the stem on the air charge fitting **ONLY** during the discharge strokes of the pump, continue for about 10 strokes
8. Observe the indication on the compound gauge

When the accumulator is functioning correctly, the gauge needle will go from pressure to vacuum on each pump stroke. The diaphragm is now centered, allowing the PULSAtrol to accumulate liquid while the pump is discharging.

If too much air is released, the gauge will not indicate pressure pulses. Repeat the procedure above to achieve proper charge.