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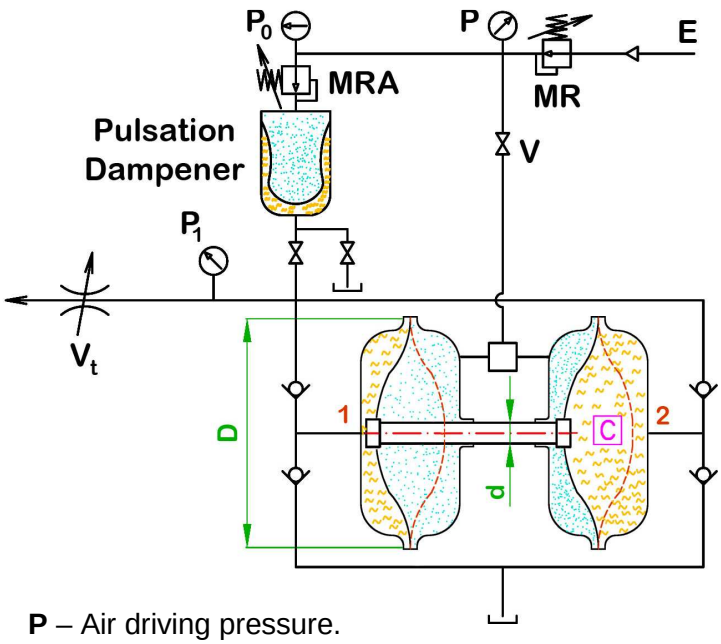
PULSATION DAMPER APPLICATION ON AN AIR VARIABLE PRESSURE DRIVING MEMBRANE PUMP



P – Air driving pressure.
P_1 – Liquid pumped pressure.
P_0 – Dampener precharging air pressure.

E – *Compressed air from the factory circuit.*
MR – *Air pressure reducer.*
MRA – *Dampener air precharging pressure reducer.*
V – *Isolating valve.*
V_t – *Throttle valve to increase the dampener efficiency.*

START RUNNING INSTRUCTIONS

I) Valve "V" closed. Fill the Dampener with air at an estimated pressure. Follow the formulas beside.

II) Open Valve "V" and adjust the working pressure needed in the liquid circuit.

III) With the air reducer valve "MRA" adjust the entrance of air into the Dampener until the pressure gage reads the accepted or calculated residual pulsation pressure.

NEVER start pumping liquid without air inside the dampener. The Bladder, Membrane or Bellows of the Dampener can be damaged.

$$P \times (D - d)^2 = P_1 \times D^2$$

$$P_1 = [P \times (D-d)^2] / D^2 \quad ; \quad (D-d)^2 / D^2 = PUMP\ CONSTANT = K$$

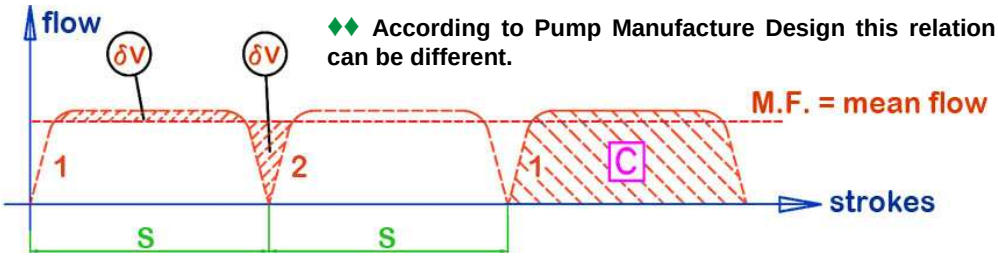
$$P_0 \approx 0.75 \times P_1 \longrightarrow P_0 \approx 0.75 \times P \times K$$

NOTE: P_0 ought to be measured with the dampener empty of liquid.

P_1 versus P_0 @ Constant Temperature	
P_1	**P_0**
8	*6*
7	*5*
6	*4.5*
5	*3.5*
4	*3*
3	*2*
2	*1.5*
1	*0.7*

∂V - *Liquid going into / out the dampener.*
C – *Liquid volume pumped per stroke.*
S – *Pump stroke.*

♦♦ Relation between C and ∂V: **$\partial V \approx 0.2 \times C$**



♦♦ **According to Pump Manufacture Design this relation can be different.**

FORMULA TO CALCULATE THE PULSATION DAMPER SIZE (V_0)♦ :

$$V_0 \approx 15 \times \partial V$$

♦ **FOR A RESIDUAL OSCILLATING PRESSURE OF APPROX. +/- 5% @ CONSTANT TEMPERATURE (To reduce this percentage, increase the Dampener size or, for more accuracy, see our Pulsation Damper Technical and Practical Article)**

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