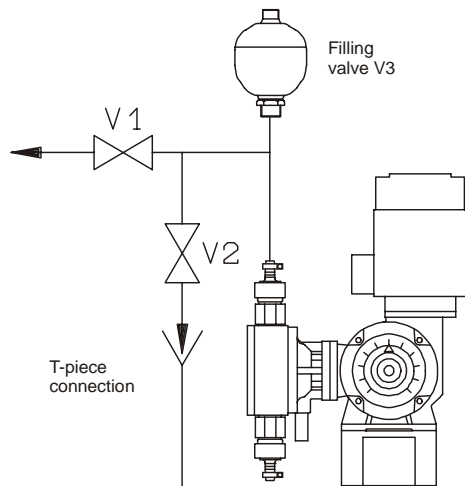


Installation

Pulsation dampers are only able to fulfill their task to attenuate pressure peaks and pulsations if they are properly installed.

This includes that they have to be mounted in direct proximity to the point where pressure peaks occur. In the case of metering pumps this means that they have to be mounted at a short distance behind the pressure valve. In order to avoid unnecessary deflection and pipe friction losses it is recommended to run the pipe in a straight line and corresponding to the pulsation damper nominal connection width. Fundamentally the mounting position of the pulsation damper PDM is arbitrary. However, if there is a danger of dirt accumulation it should be mounted vertically with the pressurizing agent connection downward.



The 4 l storage tank always has to be mounted vertically. The pulsation dampers can be screwed directly to the pipe line. The pressurizing agent connection is provided with an external thread as an additional attachment in fixing holes. In the case of strong vibrations the pulsation damper has to be secured so that it does not work loose.

Pressure preload

General

As a rule nitrogen losses are very low with our pulsation dampers.

However, to avoid too strong a deformation of the diaphragm in the case of a reduction of the preload pressure p_0 it is recommended to regularly check the nitrogen preloading.

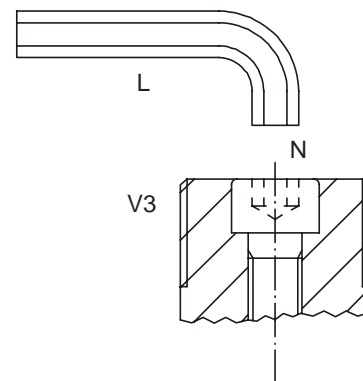
Checking interval

The preload pressure p_0 indicated on the pulsation damper always has to be adjusted after installation or after repair. Subsequently it has to be checked at least twice in the first week. If no nitrogen losses were detected, a second check should be carried out after 4 months. If there is still no pressure change, it is sufficient to check the preload pressure once a year.

Preparation

Before each check or each refilling of nitrogen the pulsation damper has to be first separated from the overpressure system using the shut-off valve V1. Then it has to be discharged on the wet end side using the valve V2.

The socket head cap screw N of the filling valve or of the adapter has to be unscrewed slightly (about 1/2 turn) using a hexagon head screwdriver SW 6, DIN 911. When using an adapter with pressure gauge for a permanent pressure indication the socket head cap screw N is removed from the filling valve of the pulsation damper. The cap nut D is screwed onto the filling valve by hand. The filling and testing device has to be positioned so that the pressure gauge indication can easily be read off.



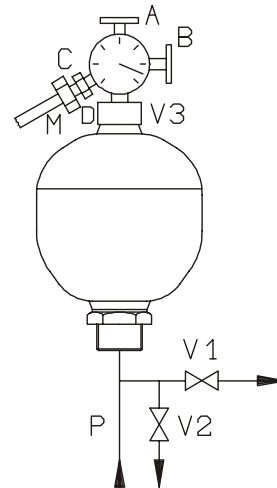
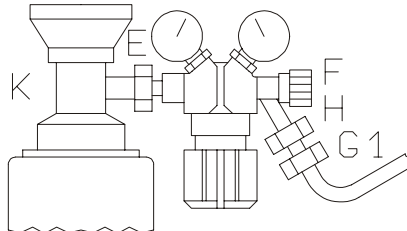
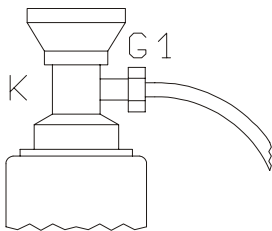
Checking of the nitrogen preloading

Using the screw pin A the hexagon head cap screw N is unscrewed and the filling valve V 3 is opened. The pressure gauge of the filling and testing device now indicates the preload pressure of the pulsation damper. The backpressure valve C makes sure that no nitrogen escapes.

Pressure reduction

By carefully opening the relief valve B the nitrogen can escape to the open air.

- A : Valve screw pin
- B : Relief valve
- C : Backpressure valve
- D : Screw cap
- E : Pressure reducer connection DIN 477
- F : Pressure reducer shut-off valve
- G1 : Cylinder tubing connection
- H : Pressure reducer tubing connection
- K : Cylinder valve acc. to DIN 477
- L : Stud driver SW 6
- M : Tubing connection nut
- N : Valve screw
- P : Supply from metering pump
- V1 : Shut-off valve
- V2 : Shut-off valve
- V3 : Filling valve



Pressure increase

Make sure to use only nitrogen to fill the pulsation damper! Do not use oxygen under no circumstances - danger of explosion!

In case that the nitrogen cylinder pressure is higher than the max. working overpressure of the pulsation damper, a pressure reducing valve has to be superposed.

Warning!

For perfectly filling the pulsation damper it has to be completely discharged on the wet end side. Otherwise the nitrogen pressure can be increased to the desired value, but the volume to be attenuated will then be too small. As a result of the wet end discharging, the nitrogen is able to push out the liquid and to take up the gas space optimally. After switching off, the pump valve V1 has to be closed, whereas V2 and V3 have to be opened. Using cap nut G1 the flexible filling tubing is connected to shut-off valve K of a commercial nitrogen cylinder, or, if necessary to the pressure reducing valve H. In the case of nitrogen cylinder adapters from other countries than Germany a corresponding reducer "G" is required. Cap nut M is used to connect the filling tubing to the nozzle C of the filling and testing device.

In order to guarantee a better pressure equalization and to avoid damage of the storage tank backpressure valve, the shut-off valve of the nitrogen cylinder and the screw pin A have to be opened so that the nitrogen can flow slowly into the pulsation damper. Then the shut-off valve has to be closed and the attained pressure can be read off the pressure gauge.

This procedure has to be repeated until the desired preloading pressure is reached.

If the desired preload pressure is reached, the hexagon head cap screw N is tightened using the screw pin A, so that the filling valve V3 will be closed. After a waiting time of about 5 minutes in which the temperature is equalized (with higher filling amounts you have to calculate a longer waiting time) the preload pressure has to be checked again and, if necessary, it has to be corrected.

Finally the filling and testing device can be unscrewed and the hexagon head cap screw N has to be tightened up firmly (with M8 11 Nm according to DIN 267).