

The 'U' Series pulsation/suction dampers are designed to reduce the effect of flow pulses from positive displacement pumps such as dosing pumps. They consist of a vessel having two sections separated by an elastomeric bladder. The process flow from the pump is connected via one side and the other side of the bladder is pre-charged with Nitrogen or air for low pressures (see data sheet AV.PL.BP.IN.DOC.20). Part of the pulsed flow from the pump enters the chamber and partially compresses the gas in the precharged side. On the return stroke from the pump when no flow is produced, the compressed precharge gas pushes the product out from the chamber into the process line producing a smoothed flow in the pipeline. The pressure of the precharge gas is dependant upon the operating pressure of the system and is normally set at 80% of the minimum pressure of the circuit. The maximum pressure in the circuit must **NEVER** be higher than the maximum working pressure that is indicated on the damper label.



INSTALLATION

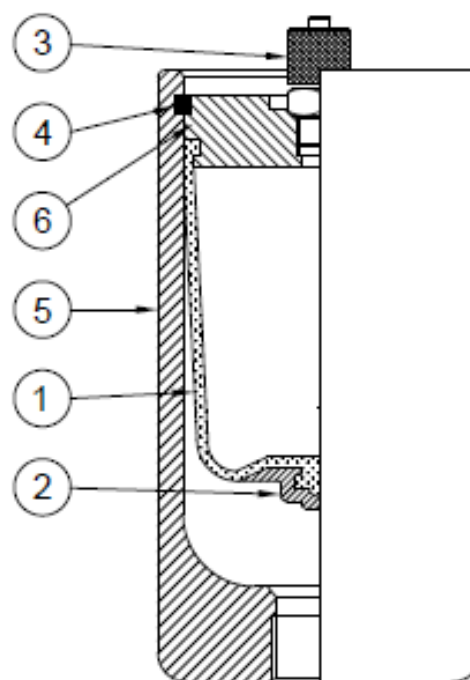
The ideal position for the dampers is vertically positioned so that the vessel is automatically drained during operation. The damper should be mounted as close as possible to the pump discharge and preferably directly onto the pump via a tee piece with the pump discharge and damper on the tee run and the process take off from the branch at 90°. This ensures that the damper takes the full volume of the pulsed flow to produce maximum damping. The tee should be sized such that it is sufficiently sized to take the instantaneous flow from the pump (normally approx, 2 or 3 times the mean flow) and the process feed from the tee should be sized to handle the mean pump flow.

DISASSEMBLY

The damper is a pressure vessel and prior to any work on it any residual precharge pressure should be vented. The process side may also be contaminated with process chemicals and should be thoroughly rinsed out. We would recommend using damper dismantling tool as shown below.

Remove valve or gauge assembly from damper (3). Lower the cover (see note below) (6) enough to enable the retainer ring (4) to be removed using a screwdriver or similar tool (Fig. 1). The damper cover (6) can now be removed by inserting a ¼" BSP male/ male adaptor into the valve thread (Fig. 2). Using this connection as a leverage point, preferably using the dismantling tool carefully ease the cover out exposing the bladder for removal. Note if being used as a suction

(Damper + Gauge Assembly)



(Damper Cross-section)



(Fig. 1)

damper or it is a stainless steel version then retaining screws and washers will need to be removed before lowering cover.

RE-ASSEMBLY

The bladder is placed over the cover using the lip seal to locate in the cover groove (Fig. 3). The cover and bladder assembly are then returned to the damper body (a little silicone oil or liquid detergent sometimes eases this operation) inserted enough distance to easily locate the retaining ring. If the application is a suction damper then the precharge is left at **ZERO** pressure with the bladder slightly compressed by hand to look similar to (Fig. 3). prior to assembly. The retainer ring is then replaced in its groove and cover is pulled up till it stops. If it is a suction damper make sure retaining washers and screws are replaced. Replace the gauge assembly and the pulsation damper is ready for recharge.

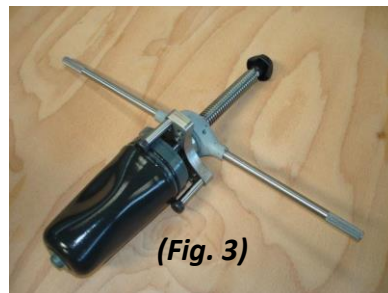
Do not exceed the maximum pressure rating and ensure retaining ring is in the correct position. The damper is ready to be set to its precharge pressure with gas (DRY NITROGEN or AIR) to 80% of the minimum circuit pressure.

See below for Charging kit and Schrader adaptor which are available from Prochem. Compressed air can be used up to 7 Bar.

Set pressure should be verified every 3 to 6 months and more frequent for particularly for high ambient temperature or very corrosive liquid applications. Dampers can have a small natural loss of pressure over time and pressures will slightly vary with a change in ambient temperature.



(Fig. 2)



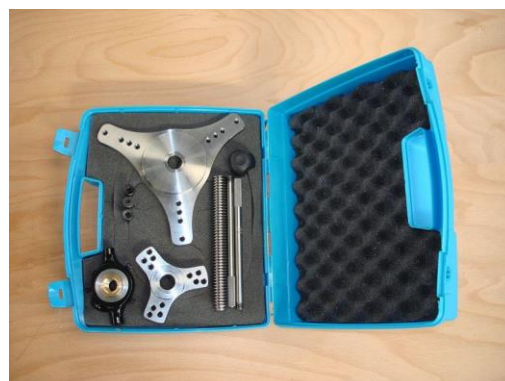
(Fig. 3)

RECOMMENDED SPARES – Spare bladder with insert

NEVER USE OXYGEN TO PRECHARGE PULSATION DAMPERS

DAMPER DISMANTLING TOOL

This tool is solely designed for the purpose of dismantling dampers fast and effectively to allow the user the flexibility to service Prochem dampers on site with minimum down time. Although Prochem Pulsation Dampers have been designed for easy installation and maintenance the process can be improved significantly by using the correct tools for the job. Therefore we would recommend that any plant that has dampers installed, serious thought should be put into the acquisition of a purpose built damper dismantling tool which is available from Prochem.



Part number 40418

FEATURES

- **Compatible with all sizes in the Prochem range.**
- **High quality metal construction.**
- **Evenly distributes load on the damper when removing the cover.**
- **Rotational force eases friction on components.**
- **Comes complete with padded protective case for compact storage.**

TYRE PUMP CHARGING ADAPTOR 1/4" BSP FOR DAMPER VALVE TO SCHRADER CONNECTION

The brass adaptor is for precharging with compressed air the pulsation Dampers using a tyre pump for precharging valves under 10 BarG.

How to use – screw the adaptor on to the damper charging valve, This will be located either directly on the top of the damper or on the side of the tee piece if the damper fitted with the gauge assembly. Be sure the 'O' ring is in place on the charging valve prior to assembly. Proceed to inflate as inflating a car or bicycle tyre.

Note the pulsation damper bladder inflation should be carried out slowly and carefully and always with the adequate tool.



Part number 40405

CHARGING & CONTROL GAS BLOCK FOR PULSATION DAMPERS

The complete kit consists of:

- a) A block (max W.P 350 Bar) with gauge, depress core valve handle, venting purge and check valve with a swivel nut to screw on to the pulsation damper charging valve.
- b) 1.5 metre flexible hose (max W.P 300 Bar).
- c) An adaptor female thread to connect to the nitrogen cylinder valve.
- d) A plastic case to transport and protect the contents.
- e) Instruction leaflet on how to use.

Note the limit scale of the gauge should be 30% higher than the precharge setting of the damper.

Please check with Prochem for price and availability of any of the above.



Part number 40416