

Product Features

- Unique diaphragm design
- Unique check valve structure design
- Lug type protective cover
- Integrated body
- Air chamber of various volumes available
- Compact, light weight

The pulsation damper is a special pressure storage device used for pressurized liquid. It is well known that liquid cannot be compressed. However we can solve this problem by compressing the gas (see Fig. 1 for details).

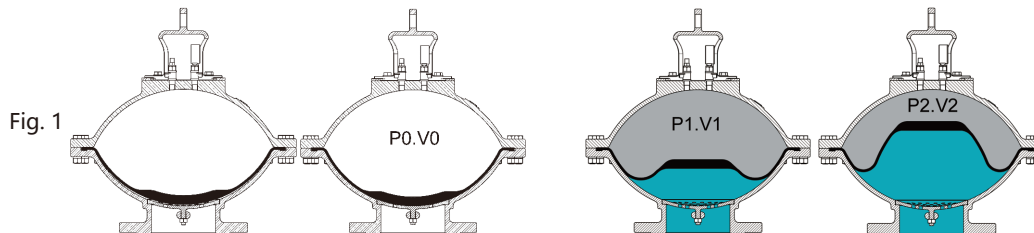
PD608 pulsation damper has a detachable air bag with joints installed in its pressure shell. Inert gas (nitrogen) with pressure P_0 is filled into the air bag through the inlet valve until the air bag expands and fills the entire internal space of the pulsation damper with volume V_0 .

When the circulating pressure P_1 is greater than the preset pressure P_0 of the gas, the hydraulic valve at the bottom will open, and the volume of the air bag will be compressed to V_1 because of the effect of external circulating pressure.

If the liquid pressure increases to P_2 , the gas volume will decrease to V_2 , and pressure will increase to balance liquid pressure. That is, the air chamber inside the pulsation damper is compressed, with the volume change $\Delta V = V_1 - V_2$. That way, the energy stored in the pulsation damper can be used.



PD608



Material Specifications

- ① Protective Cover (Ductile Iron)
- ② Pressure Gauge
- ③ Inflatable Nozzle (Stainless Steel)
- ④ Top Cover (Carbon Steel/Stainless Steel)
- ⑤ Shell (Stainless Steel)
- ⑥ Air Chamber (EPDM/VITON)

Working Pressure

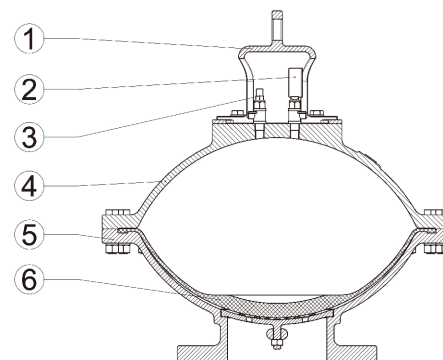
Max. Working Pressure: 25 bar;
Max. Allowed Pressure: 55 bar

Volume

0.7L, 3L, 6L, 17L, 30L, 50L

Flange Standards

ANSI / BSEN / ISO / DIN

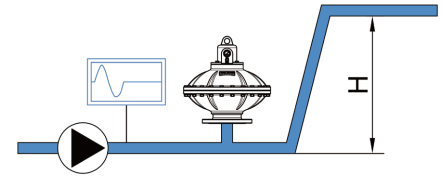


Note: Water hammer eliminators with different chamber capacities can be calculated based on the actual pipe length, flow rate, head and other parameters provided by the user on site for special use environments.

>> Main Applications

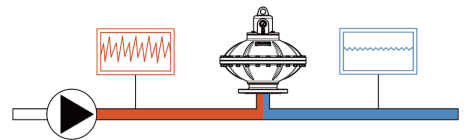
● As a Backpressure Impact Damper

If there is a sudden power off for the pump while transporting the liquid to a high spot, the liquid in the pipeline will return and accelerate in the pipeline. Water hammer with great destructive power will be formed at the check valve that is installed at the outlet of the pump. If the pipeline is long, the water hammer may cause the pipeline to burst. The longer the pipeline, the longer the fluid accelerate, the bigger the impact. TALUAR pulsation damper can effectively absorb such water hammer. Besides, TALUAR pulsation damper is designed with a unique check valve structure with "fast-in and slow-out" feature, can effectively absorb water hammer instantly. It takes relatively long time to release excess pressure, ensuring stable pressure in the pipeline system.



● As a Supply-End Shock Absorber

The cyclic piston movement within the circulating pump will naturally generate water hammer and hydraulic impacts. During the discharge stroke of the pump, excess liquid will enter the pulsation damper to absorb excess pressure. During the piston return, the liquid absorbed in the pulsation damper will enter the system to supplement the pressure drop caused by the piston return of the pump to finally stabilize system pressure.



● As a Suction-End Shock Absorber

If there is no sufficient water supply, the pump efficiency will highly affected. Pitting is related to the fluid velocity, acceleration, and friction. If the supply at pump suction is insufficient, vacuum will form at the supply under the suction of the pump, resulting in "pitting".

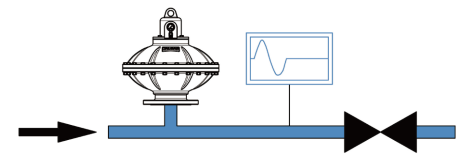
Install TALUAR pulsation damper at the pump suction. This will act a buffer pool: If the suction of the pump is insufficient, the liquid stored in the pulsation damper will be supplied to the system to ensure the pump suction is sufficient. If the system supply is too large, excess liquid will enter the pulsation damper to ensure pump suction is stable, thus greatly improving the service life of the pump.



● As a Hydraulic Impact Damper

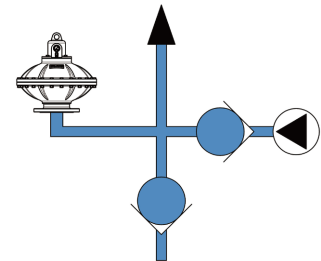
All liquid flow has kinetic energy. When the fluid suddenly stopped, its kinetic energy will convert into pressure and this very dangerous. Such "water hammer phenomenon" usually occurs in pipeline systems with quick-closing valves. The destructive power generated by "water hammer phenomenon" is strong enough to damage devices like pipelines, valves, and pumps.

There are many reasons for "water hammer phenomenon", such as quick-closing valves, back pressure impact, pump start-up or shutdown and sudden loss of power in the system (such as power failure).



● Energy Storage

If the system experiences sudden power off or pump failure, TALUAR pulsation damper can maintain pressure within the system for a short time to ensure that other moving and working parts are still lubricated and cooled, so as to protect the equipment.



● Thermal Expansion Absorption

When liquid flows in a closed system, the liquid temperature will rise due to friction or other reasons, the resulting liquid expansion will cause the system pressure to increase. If the pressure exceeds safety pressure limit of the system, it will cause the pipeline to burst, valve failure, damage to precision instruments on the pipelines. Besides, in case of system leakage, the liquid in the pipelines may cause permanent damage to personnel and the surrounding environment. Use TALUAR pulsation damper will absorb the excess pressure caused by the thermal expansion of the liquid to ensure the safe operation of the system.

● Isolation Device

If the pressure parameters of the system are extremely important for safety operation of the system, the instruments measuring such parameters are not allowed to contact with the fluid in the system, Now TALUAR pulsation damper can help solve this problem. In this case, the diaphragm of TALUAR pulsation damper performs an isolation function.

>> Overall Dimensions

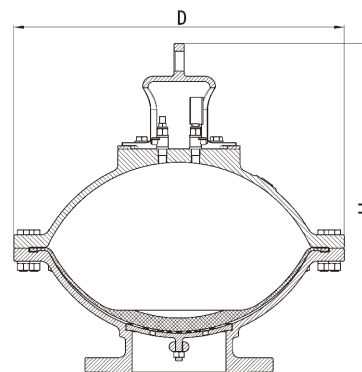
*** Note:**

The absorption effect of the pulsation damper on water hammer is not based on diameter, but on the volume, because the volume of the pulsation damper with the same diameter can vary greatly. For example, for a 4" pulsation damper, its volume is 10 L or 100 L. When it is applied in the same system, the pulsation damper with the volume of 100 L has better absorption effect on water hammer.

TALOAR 2" pulsation damper can hold the volume of 10 L or 100 L. If wrong pulsation damper is selected, the same 2" pulsation damper can perform not even 1/4 absorbing effect in compare with 2" pulsation damper with the corrected volume.



Size(mm)	In	H(mm)	D(mm)	Volume(ml)
50	2	240	180	700
65	2 1/2	355	300	3000
80	3	355	300	3000
100	4	395	360	6000
125	5	395	360	6000
150	6	500	500	17000
200	8	565	570	30000
250	10	565	570	30000
300	12	620	650	50000



>> Characteristics of Air Bag Material

Polymer	ISO	Applicable TEMP (°C)	Applicable Media
Standard Nitrile Butadiene Rubber	NBR	-20+85	Mineral oil, vegetable oil, silicone oil, lubricating oil, water for industrial use, ethylene glycol, nonflammable liquid (HFA-HFB-HFC), aliphatic, carbon hydride, butane, diesel oil, fuel oil, etc.
Low-Temp Resistant Nitrile Butadiene Rubber	NBR	-40+70	Those media applicable to standard nitrile butadiene rubber, and various Freons (the content of acrylonitrile in low-temperature resistant nitrile butadiene rubber is less than that in standard nitrile butadiene rubber, so the low-temperature resistant nitrile butadiene rubber is more suitable for use in low-temperature environment, but its chemical resistance is poor)
Nitrile For Hydride	NBR	-10+90	Regular premium aromatic gasoline (and those media applicable to standard nitrile butadiene rubber)
Hydrogenated Nitrile	HNBR	-50+130	Those media applicable to standard nitrile butadiene rubber (but with better effect in both high-temperature and low-temperature environments)
Used In The Food Industry	NBR	-20+85	Food (specify when ordering)
Butyl	IIR	-20+90	Phosphate ester, hot water, ammonia, some Freons (22-31-502), alkaline soda, ethylene glycol brake oil, some acid alcohol, ketone, ester, skyrol7000, etc.
Ethylene Propylene	EPDM	-20+90	Brake oil, hot water, leachate, detergent, alkaline water (HFC), many acids and alkalis, saline alkali solution, skydrol500, etc.
Chloroprene	CR	-20+85	Freons (12-21-22-113-114-115), aqueous solution, ammonia, carbon dioxide, mineral oil, paraffin oil, silicone oil
Epichlorohydrin	ECO	-30+100	Leaded gasoline, mineral oil