

# Pulsation Dampeners

## ***Purpose***

Neptune dampeners are installed on the discharge side of positive displacement pumps to remove the pulsating flow caused by the start and stop action of the pump. Dampeners ensure a smooth and continuous flow, eliminate pipe vibration and protect in-line instrumentation.

Dampeners may also be installed at the pump inlet as an inlet stabilizer to improve the NPSH condition of the pump by reducing the acceleration pressure losses due to the opening and closing of the inlet ball valve.

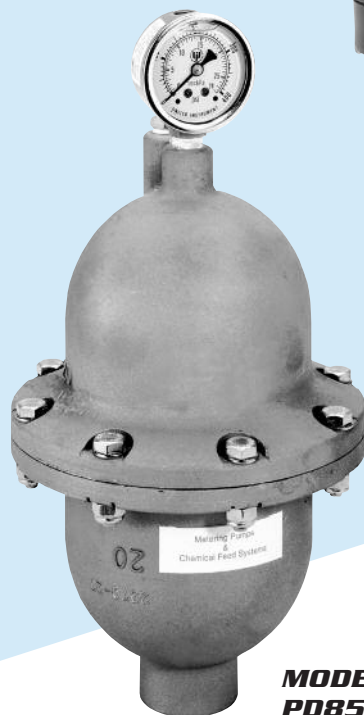
## ***Features***

- Lightweight, compact design
- Equipped with pressure gauge and charging valve
- Easy in-line maintenance
- Pressure ratings to 1000 psi with 4:1 safety margin
- Extensive range of plastics, metals and elastomers

**Neptune**  
A DOVER COMPANY



**MODEL  
PD36PV**



**MODEL  
PD855S**



**MODEL  
PD365S**

## ***How They Work***

A pressure chamber is divided by an elastomeric bladder. The lower portion of the chamber is filled with the pumped liquid, the upper portion of the chamber contains an air cushion. The air cushion is pre-charged to a pressure appropriate for the operating condition. The energy from each pump discharge stroke displaces the bladder into the air cushion allowing the dampener to absorb the energy. The air cushion and bladder force liquid out of the bladder during the pump suction stroke.

# Pulsation Dampener Selection

**CHART #1 ▼**

NEPTUNE PUMP MODEL	DEGREE OF DAMPENING	
	95%	90%
481 / 500 / 501 / 510 / 515 / 517	4 cu. inch	4 cu. inch
520 / 522 / 525 / 527 / 7000 / 7001	10 cu. inch	4 cu. inch
530 / 532 / 535 / 537 / 547 / 7020	36 cu. inch	36 cu. inch
562 / 565 / 567 / 7050 / 7070	85 cu. inch	36 cu. inch
6100 / 6150	36 cu. inch	10 cu. inch
6250 / 7101 / 7100 / 7120 / 7150	85 cu. inch	36 cu. inch
635 / 637	175 cu. inch	85 cu. inch
647	175 cu. inch	85 cu. inch
7200 / 7220 / 7250	370 cu. inch	85 cu. inch

## DAMPENER SELECTION

Use chart #1 to determine required dampener size in cubic inches to obtain desired degree of dampening.

Use chart #2 to select the Model Number based on the dampener size, material and pressure.

All units are equipped with pressure gauge and charging valve.

Charging Kit Accessory – Part No. CK701

Charging kit comprised of 8 foot of 5000 psi hose with 1/4" NPTM fitting at one end for connection to nitrogen bottle regulator and charging adaptor with purge valve and gauge at other end.

**CHART #2 ▼**

GAS VOLUME	MODEL NUMBER	MATERIAL	PRESSURE RATING (VITON & EPDM BLADDERS)	PRESSURE RATING (TEFLON® BLADDER)	CONNECTION SIZE/TYPE	OVERALL HEIGHT	DIAMETER
4 cu. inch	PD4SS-*	316SS	300 psi	300 psi	3/8" FNPT	5 1/2"	3 1/2"
	PD4PV-*	PVC	150 psi	N/A	3/8" FNPT	5"	3"
	PD4SSH-*	316SS	1000 psi	600 psi	3/8" FNPT	5 1/2"	3 1/2"
	PD4AL-*	Alloy 20	300 psi	300 psi	3/8" FNPT	5 1/2"	3 1/2"
10 cu. inch	PD10SS-*	316SS	300 psi	150 psi	3/8" FNPT	7"	3 1/2"
	PD10PVP**	PVC	<b>PVC BLADDER ONLY:</b> 150 psi		1/2" FNPT	6 1/2"	3 1/2"
	PD10PV-*	PVC	150 psi	N/A	1/2" FNPT	6"	3"
	PD10SSH-*	316SS	1000 psi	N/A	3/8" FNPT	7"	3 1/2"
	PD10AL-*	Alloy 20	300 psi	150 psi	3/8" FNPT	7"	3 1/2"
12 cu. inch	PD12SSH-*	316SS	4000 psi	2000 psi	1/2" FNPT	7"	3 3/4"
24 cu. inch	PD24SSH-*	316SS	4000 psi	N/A	1/2" FNPT	9 1/2"	3 3/4"
36 cu. inch	PD36SS-*	316SS	300 psi	300 psi	3/4" FNPT	8 1/2"	6 1/4"
	PD36PV-*	PVC	150 psi	N/A	3/4" FNPT	9"	7"
	PD36AL-*	Alloy 20	300 psi	300 psi	3/4" FNPT	8 1/2"	6 1/4"
	PD36SSH-*	316SS	1000 psi	N/A	3/4" FNPT	8 1/2"	6 1/4"
85 cu. inch	PD85SS-*	316SS	300 psi	150 psi	3/4" FNPT	12"	6 1/4"
	PD85PV-*	PVC	150 psi	N/A	3/4" FNPT	12"	7"
	PD85AL-*	Alloy 20	300 psi	150 psi	3/4" FNPT	12"	6 1/4"
	PD85SSH-*	316SS	1000 psi	N/A	3/4" FNPT	12"	6 1/4"
175 cu. inch	PD175SS-*	316SS	300 psi	300 psi	2" FNPT	15 1/2"	8"
	PD175PV-*	PVC	150 psi	N/A	2" FNPT	14 1/2"	9"
	PD175AL-*	Alloy 20	300 psi	300 psi	2" FNPT	15 1/2"	8"
	PD175SSH-*	316SS	1000 psi	600 psi	2" FNPT	15 1/2"	8"
370 cu. inch	PD370SS-*	316SS	300 psi	150 psi	2" FNPT	23 1/2"	8"
	PD370PV-*	PVC	150 psi	N/A	2" FNPT	23"	9"
	PD370AL-*	Alloy 20	300 psi	150 psi	2" FNPT	23 1/2"	8"
	PD370SSH-*	316SS	1000 psi	N/A	2" FNPT	23 1/2"	8"

\* Add "V" to Model # for Viton Bladder; Add "E" to Model # for EPDM Bladder; Add "T" to Model # for Teflon® Bladder.

\*\* This model available with PVC Bladder only.



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