

# Pulsation Dampeners



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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.

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.

## FEATURES AND BENEFITS

- Lightweight, compact design
- Equipped with pressure gauge and charging valve
- Easy in-line maintenance
- Pressure ratings up to 1,000 psi (69.0 bar) with 4:1 safety margin
- Extensive range of plastics, metals and elastomers

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# Pulsation Dampener Selection

CHART 1

NEPTUNE PUMP MODEL	DEGREE OF DAMPENING	
	95% IN. <sup>3</sup> (C <sup>3</sup> )	90% IN. <sup>3</sup> (C <sup>3</sup> )
481 / 500 / 501 / 510 / 515 / 517	4 (65.6)	4 (65.6)
520 / 522 / 525 / 527 / 7007-A / 7015-B / 7100-2	10 (163)	4 (65.6)
530 / 532 / 535 / 537 / 547 / 7130-2 / 7120-2 / 7150-2	36 (590)	36 (590)
562 / 565 / 567 / 7180-2 / 7130-3 / 7120-3 / 7150-3 / 7130-4	85 (1,459)	36 (590)
6100 / 6150	36 (590)	10 (163)
6250 / 7180-2 / 7130-3 / 7120-3 / 7150-3 / 7130-4	85 (1,459)	36 (590)
635 / 637 / 647	175 (2,868)	85 (1,459)
7150-4 / 7180-4	175 (2,868)	85 (1,459)
7180-2 / 7130-3 / 7120-3 / 7150-3 / 7130-4	370 (6,063)	85 (1,459)

## DAMPENER SELECTION

- Use chart #1 to determine required dampener size in cubic inches (cubic centimeters) to obtain desired degree of dampening.
- Use chart #2 to select the pulsation dampener model 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 an eight-foot (2.5-meter) hose rated at 5,000 psi (344.7 bar) 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

PULSATION DAMPENER MODEL	GAS VOLUME IN. <sup>3</sup> (C <sup>3</sup> )	MATERIAL	MAX PRESSURE				CONNECTION SIZE FNPT	HEIGHT IN. (MM)	DIAMETER IN. (MM)
			FKM & EPDM BLADDERS		PTFE BLADDERS				
			PSI	BAR	PSI	BAR			
PD4SS-*	4 (65.6)	316SS	300	20.7	300	20.7	3/8	5-1/2 (139.7)	3-1/2 (88.9)
PD4PV-*		PVC	150	10.3	N/A	N/A	3/8	5 (127)	3 (76.2)
PD4SSH-*		316SS	1,000	69	600	41.4	3/8	5-1/2 (139.7)	3-1/2 (88.9)
PD4AL-*		C-20	300	20.7	300	20.7	3/8	5-1/2 (139.7)	3-1/2 (88.9)
PD10SS-*	10 (163.9)	316SS	300	20.7	150	10.3	3/8	7 (177.8)	3-1/2 (88.9)
PD10PVP**		PVC	PVC Bladder Only		150	10.3	1/2	6-1/2 (165.1)	3-1/2 (88.9)
PD10PV-*		PVC	150	10.3	N/A	N/A	1/2	6 (152.4)	3 (76.2)
PD10SSH-*		316SS	1,000	69	N/A	N/A	3/8	7 (177.8)	3-1/2 (88.9)
PD10AL-*		C-20	300	20.7	150	10.3	3/8	7 (177.8)	3-1/2 (88.9)
PD12SSH-*	12 (196.7)	316SS	4,000	275.8	2,000	137.9	1/2	7 (177.8)	3-3/4 (95.3)
PD24SSH-*	24 (393.3)	316SS	4,000	275.8	N/A	N/A	1/2	9-1/2 (241.3)	3-3/4 (95.3)
PD36SS-*	36 (589.9)	316SS	300	20.7	300	20.7	3/4	8-1/2 (215.9)	6-1/4 (158.8)
PD36PV-*		PVC	150	10.3	N/A	N/A	3/4	9 (228.6)	7 (177.8)
PD36AL-*		C-20	300	20.7	300	20.7	3/4	8-1/2 (215.9)	6-1/4 (158.8)
PD36SSH-*		316SS	1,000	69	N/A	N/A	3/4	8-1/2 (215.9)	6-1/4 (158.8)
PD85SS-*	85 (1,392.9)	316SS	300	20.7	150	10.3	3/4	12 (304.8)	6-1/4 (158.8)
PD85PV-*		PVC	150	10.3	N/A	N/A	3/4	12 (304.8)	7 (177.8)
PD85AL-*		C-20	300	20.7	150	10.3	3/4	12 (304.8)	6-1/4 (158.8)
PD85SSH-*		316SS	1,000	69	N/A	N/A	3/4	12 (304.8)	6-1/4 (158.8)
PD175SS-*	175 (2,867.7)	316SS	300	20.7	300	20.7	2	15-1/2 (393.7)	8 (203.2)
PD175PV-*		PVC	150	10.3	N/A	N/A	2	14-1/2 (368.3)	9 (228.6)
PD175AL-*		C-20	300	20.7	300	20.7	2	15-1/2 (393.7)	8 (203.2)
PD175SSH-*		316SS	1,000	69	600	41.4	2	15-1/2 (393.7)	8 (203.2)
PD370SS-*	370 (6,063.2)	316SS	300	20.7	150	10.3	2	23-1/2 (596.9)	8 (203.2)
PD370PV-*		PVC	150	10.3	N/A	N/A	2	23 (584.2)	9 (228.6)
PD370AL-*		C-20	300	20.7	150	10.3	2	23-1/2 (596.9)	8 (203.2)
PD370SSH-*		316SS	1,000	69	N/A	N/A	2	23-1/2 (596.9)	8 (203.2)

\* Add "V" to Model # for FKM Bladder; Add "E" to Model # for EPDM Bladder; Add "T" to Model # for PTFE Bladder.

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



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