



**1** Dampers listed below are from 1000s of "off the shelf" inventory dampers, for preventing pipe systems from converting flow ripple from vanes into pressure pulsation. Prices are tabulated for you at [www.pulseguard.com](http://www.pulseguard.com). Call toll free 1-888-DAMPERS(326-7377) for discounts etc. Choose a damper matching your pump connection size, for standard damping. Or allow us to calculate for you, from your smoothness required and your system data.



When you see a damper or a pump of particular interest, please request literature dedicated to that subject.

**2.** Where no OSHA requirement for in place flush before service, nor process need for 1st in 1st out, constant temp., change of liquid pumped, interception of pressure pulsation; use second connection to save a "T" for RV, PI, or System Drain. 2 connection dampers are standard lowest cost. Waveguard and Dampers for 10Hz & above, IE systems 300 meters (1000 ft.) or less, must use FLOW-THROUGH



**Flexorber** Pressure spikes "transient" travelling at 1400 meters per second, are highly directional. Their interception is best achieved by forcing their impingement on the surface of the membrane. The direction change between system connection and pump port ensures attenuation and prevents amplification.

Please State Material preferences and model Number below when ORDERING: M	Capacitance	Pres.	Wetted	Connections	Connct.	Spares	Length	Diam	Weight
	N <sub>2</sub> Nom. Litres	@ 93 C Lbs/in <sup>2</sup>	your choice Dims. For	To Pump to Sys. Vane-SogHP30	Type	Kit Flexflon	L Inch. (Excl. Flange)	D Inch	Dry Kg.
Vane-SogHP 15	/ 0.25	/ 1,750p	/ 316L / +PB3	0.75" x 0.5"	M npt	DW123BF	7.5	6.5	8
Vane-SogHP 30	/ 0.5	/ 2,250p	/ 316L / +PB4	1.0" x 0.75"	M npt	DW143BF	8.5	7.8	10
Vane-SogHP 60	/ 1.0	/ 1,450p	/ 316L / +PB5	1.5" x 1.5"	M npt	DW175BF	9.2	10	14
Vane-SogHP 75	/ 1.25	/ 1,650p	/ 316L / +PB6	2.0" x 2.0"	37° BW	DW187BF	10.0	11	17
Vane-SogHP150	/ 2.5	/ 1,500p	/ 316L / +PB7	2.5" x 2.5"	37° BW	DW223BF	10.5	11.4	27
Vane-SogMP 230	/ 3.8	/ 1,250p	/ 316L / +PB8	3.0" x 3.0"	37° BW	DW268BF	12.3	13.8	43
Vane-SogMP 330	/ 5.4	/ 1,100p	/ 316L / +PB12	4.0" x 4.0"	37° BW	DW305BF	13.5	16	59
Vane-SogLP 450	/ 7.3	/ 850p	/ 316L / +PB16	6.0" x 6.0"	37° BW	DF345Teflon	14.2	18	72
Vane-SogLP 900	/ 14.7	/ 600p	/ 316L / +PB20	8.0" x 8.0"	37° BW	DF450Teflon	18	24	130

**PipeHugger** The response characteristics of the elastomer bladder are superior to the FlexFlon membranes, and reduction of pressure pulsation to parts of a pound per square inch can be achieved at some frequencies. Noise levels are typically reduced by up to 25 db.

Please State Material preferences and model Number below when ORDERING:	Capacitance	Pres.	Wetted	Connections	Connct.	Spares	Length	Diam	Weight
	N <sub>2</sub> Nom. Litres	@ 93 C Lbs/in <sup>2</sup>	your choice Dims. For	To Pump to Sys. Vane-Phr-	Type	Kit	* L Inch. (Excl. Flange)	D Inch	in 316ss Lbs.
VanePHr"O"10	/ 0.15	/ 1700p	/ 316L / +PB3.0	0.5" x 0.5"	M npt	D75L	?/ 5.2	2.7	10
VanePHr"O"20	/ 0.31	/ 1600p	/ 316L / +PB3.5	0.75" x 0.75"	M npt	D85L	?/ 5.4	3.0	14
VanePHr"O"40	/ 0.64	/ 1500p	/ 316L / +PB4.5	1.0" x 1.0"	M npt	D115L	?/ 6.3	4.0	16
VanePHr"O"60	/ 1.0	/ 1400p	/ 316L / +PB5.0	1.5" x 1.5"	M npt	D125L	?/ 6.9	6.0	21
VanePHr"O"90	/ 1.5	/ 1200p	/ 316L / +PB6.0	2.0" x 2.0"	M npt	D145L	?/ 6.9	6.5	26
VanePHr"O"180	/ 3.0	/ 900p	/ 316L / +PB8.0	3.0" x 3.0"	37° BW	D191L	?/ 8.5	8.5	58
VanePHr"O"360	/ 6.0	/ 650p	/ 316L / +PB10	4.0" x 4.0"	37° BW	D254L	?/ 9.4	10.4	80
VanePHr"O"720	/ 11.8	/ 500p	/ 316L / +PB12	5.0" x 5.0"	37° BW	D285L	?/ 10.1	12.7	130
VanePHr"O"999	/ 16.4	/ 400p	/ 316L / +PB14	6.0" x 6.0"	37° BW	D328L	?/ 14.0	14	260

**WaveGuard** When the response of your pipe work system is to resonate or amplify the minute signal from the vanes, a WaveGuard "damper" is the NO MOVING PARTS "fit & forget" natural choice. There are also WaveGuards for contaminated systems, though their principle of operation will require some pressure drop.

Please State Material preferences and model Number below when ORDERING:	"e" Nbr. Equivalent to N <sub>2</sub> volume	Pres.	Wetted	Connections	Connct.	Length	Diam	Weight
		@ 93 C Lbs/in <sup>2</sup>	your choice Dims. For	To Pump to Sys.	Type	L Inch. (Excl. Flange)	D Inch	in 316ss Lbs
Vane-Wag/Cer / 0.3e	0.3	1,500		3/8" - 1/4"	F NPT	21	1.9	
Vane-Wag/Cer / 0.6e	0.6	1,500		1/2" - 3/8"	F NPT	23	2.4	
Vane-Wag/Cer / 1.0e	1.0	1,250		3/4" - 1/2"	F NPT	24	2.9	
Vane-Wag/Cer / 2.5e	2.5	1,250		1.0" - 0.75"	F NPT	38	3.5	
Vane-Wag/Cer / 5.0e	5.0	1,000		1.25" - 1.0"	M NPT	40	4.5	
Vane-Wag/Cer / 8.5e	8.5	1,000		1.5" - 1.25"	M NPT	48	5.6	
Vane-Wag/Cer / 14e	14	750		2.0" - 1.5"	M NPT	55	6.6	
Vane-Wag/Cer / 25e	21	750		3.0" - 2.5"	300#	55	8.6	
Vane-Wag/Cer / 40e	30	500		4.0" - 3"	300#	56	10.8	
Vane-Wag/Cer / 57e	40	300		5.0" - 4"	150#	57	12.8	

**3.** \*The question mark "?" = Letters, showing your choice of compatible elastomer, add the letter to ordering Pt. Nbr. - N=Buna N, E=EP, H=Hypalon, x V=Fluoro-Carbon, x x= addition to cost  
 PUMPS make FLOW, BUT SYSTEMS make PRESSURE, PULSATION is a system pressure response, and a SYSTEM RESPONSIBILITY, not a pump manufacturer liability.  
 A20 =Alloy 20, H22 =Hasteloy 22, Ti2 =Titanium 2, Tan =Tantalum, Zir Zirconium, DSS = Duplex Stainless, SDSS =Super Duplex.

### Flexorber / LP

CAPACITANCE + DIRECTION CHANGE IMPEDANCE

Save a "T" and have 3x the Performance  
 4 bolt Damper Quick Release  
 Dampers that do, flow goes thru.!

OPTION "180"  
 OPTION "90" by +45+45  
 Best Draining  
 Simpler & costs less.

### The PipeHugger

CAPACITANCE + DIRECTION CHANGE IMPEDANCE

"Direct Piped"  
 MeterGuard Piping block

### WaveGuard

M NPT  
 F NPT  
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