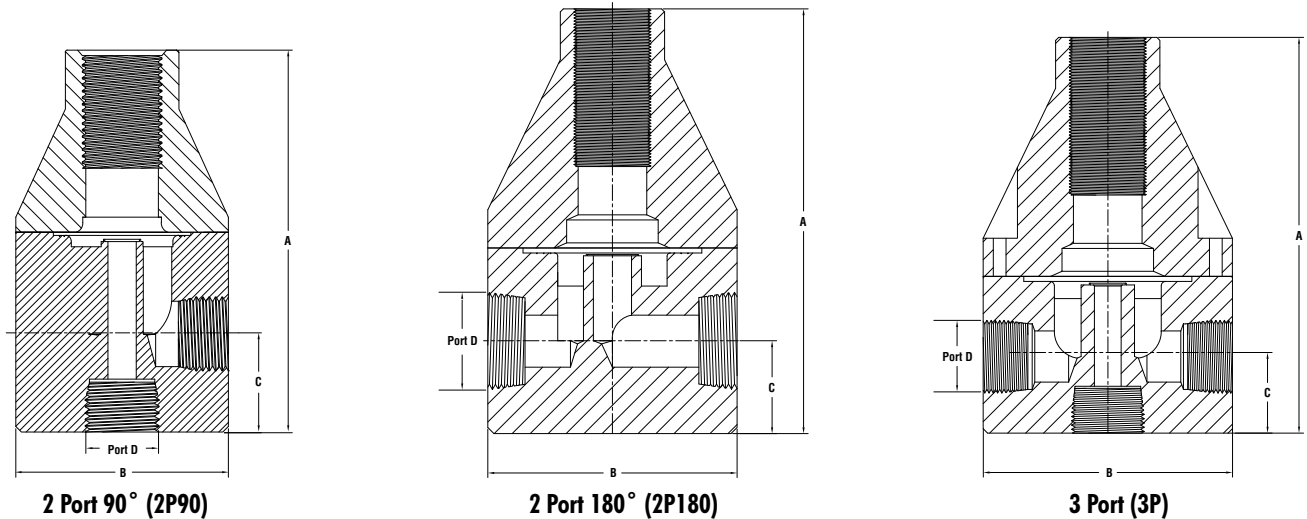


# Back Pressure and Pressure Relief Valves

Back pressure valves help ensure that your Hydra-Cell pump provides accurate and predictable flow. Pressure relief valves protect your pump and system from over-pressure situations.



## Dimensions and Port Configurations



Material	Port D	A		B		C	
		in	mm	in	mm	in	mm
Polypropylene/PVDF	3/8"	3.55	90.2	2.35	59.7	0.75	19.1
	1/2"	4.25	108.0	2.35	59.7	1.10	27.9
	3/4"	5.56	141.2	3.50	88.9	1.125	28.6
	1" StdFlo	5.86	148.8	3.50	88.9	1.25	31.8
	1" HiFlo	7.25	184.2	4.90	124.5	1.25	31.8
	2"	8.90	226.1	4.90	124.5	2.15	54.6
316 SST	1/4" High Pressure	4.25	108.0	2.35	59.7	1.10	27.9
	3/8"	3.55	90.2	2.35	59.7	0.75	19.1
	3/8" High Pressure	4.25	108.0	2.35	59.7	1.10	27.9
	1/2"	4.25	108.0	2.35	59.7	1.10	27.9
	1/2" High Pressure	4.25	108.0	2.35	59.7	1.10	27.9
	3/4"	5.56	141.2	3.50	149.9	1.125	28.6
	1" StdFlo	5.86	148.8	3.50	88.9	1.25	31.8
	1" HiFlo	7.25	184.2	4.90	124.5	1.25	31.8
	1" High Pressure	5.90	149.9	3.50	88.9	1.25	31.8
	2"	8.90	226.1	4.90	124.5	2.15	54.6
Hastelloy C	1/4" High Pressure	4.25	108.0	2.35	59.7	1.10	27.9
	3/8"	3.55	90.2	2.35	59.7	0.75	19.1
	3/8" High Pressure	4.25	108.0	2.35	59.7	1.10	27.9
	1/2"	4.25	108.0	2.35	59.7	1.10	27.9
	1/2" High Pressure	4.25	108.0	2.35	59.7	1.10	27.9
	3/4"	5.56	141.2	3.50	88.9	1.125	28.6
	1" StdFlo	5.86	148.8	3.50	88.9	1.25	31.8
	1" HiFlo	7.25	184.2	4.90	124.5	1.25	31.8
	1" High Pressure	5.90	149.9	3.50	88.9	1.25	31.8
	2"	8.90	226.1	4.90	124.5	2.15	54.6

# Back Pressure Valves

## Selection Process

1. Use the chart immediately below to determine the valve port size with the appropriate maximum flow (gallons per minute or hour; liters per minute or hour) to match the Hydra-Cell pump selected.
2. For Back Pressure Valves, use the chart on this page to select the appropriate valve. For Pressure Relief Valves, use the chart on the following page.

### Valve Port Size “D”

	3/8"	1/2"	StdFlo 3/4"	HiFlo 3/4"	StdFlo 1"	HiFlo 1"	2"	High Pressure 1/4"-3/8"-1/2"	1"
<b>Maximum Flow</b>									
gpm	3.3	5.0	5.0	10.0	8.0	17.5	39.0	11.7	20.0
gph	200	300	300	600	480	1050	2350	700	1200
l/min	12.6	18.9	18.9	37.8	30.3	66.2	147.6	44.3	75.7
lph	75.6	1134	1134	2268	1818	3942	8856	2658	4542

Port “D”	Wetted Materials*	Pressure Adjustment Range		Maximum Temperature		Port Configuration	Model Number	
		psi	bar	F	C		NPT Ports	BSPT Ports
3/8"	Polypropylene	10 - 150	0.7 - 10.3	195	90	2P180	111-101	111-101-B
	PVDF	10 - 150	0.7 - 10.3	195	90	2P180	111-103	111-103-B
	316 SST	10 - 150	0.7 - 10.3	300	149	2P180	111-106	111-106-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-110	111-110-B
	316 SST	50 - 350	3.5 - 24	300	149	2P180	111-107	111-107-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	2P180	111-111	111-111-B
1/2"	Polypropylene	10 - 150	0.7 - 10.3	195	90	2P180	111-121	111-121-B
	PVDF	10 - 150	0.7 - 10.3	195	90	2P180	111-123	111-123-B
	316 SST	10 - 150	0.7 - 10.3	300	149	2P180	111-126	111-126-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-130	111-130-B
	316 SST	50 - 350	3.5 - 24	300	149	2P180	111-127	111-127-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	2P180	111-131	111-131-B
3/4"	Polypropylene	10 - 150	0.7 - 10.3	140	60	2P180	111-341	111-341-B
	PVDF	10 - 150	0.7 - 10.3	140	60	2P180	111-343	111-343-B
	316 SST	10 - 150	0.7 - 10.3	300	149	2P180	111-346	111-346-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-350	111-350-B
	316 SST	50 - 350	3.5 - 24	300	149	2P180	111-267	111-267-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	2P180	111-271	111-271-B
1" StdFlo	Polypropylene	10 - 150	0.7 - 10.3	195	90	2P180	111-261	111-261-B
	PVDF	10 - 150	0.7 - 10.3	195	90	2P180	111-263	111-263-B
	316 SST	10 - 150	0.7 - 10.3	300	149	2P180	111-266	111-266-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-270	111-270-B
	316 SST	50 - 350	3.5 - 24	300	149	2P180	111-267	111-267-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	2P180	111-271	111-271-B
1" HiFlo	Polypropylene	10 - 150	0.7 - 10.3	195	90	2P180	111-361	111-361-B
	PVDF	10 - 150	0.7 - 10.3	195	90	2P180	111-363	111-363-B
	316 SST	10 - 150	0.7 - 10.3	300	149	2P180	111-366	111-366-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-370	111-370-B
	316 SST	50 - 350	3.5 - 24	300	149	2P180	111-287	111-287-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	2P180	111-291	111-291-B
2"	Polypropylene	10 - 150	0.7 - 10.3	195	90	2P180	111-281	111-281-B
	PVDF	10 - 150	0.7 - 10.3	195	90	2P180	111-283	111-283-B
	316 SST	10 - 150	0.7 - 10.3	300	149	2P180	111-286	111-286-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-290	111-290-B
	316 SST	50 - 350	3.5 - 24	300	149	2P180	111-287	111-287-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	2P180	111-291	111-291-B

\* Diaphragm material is PTFE on all models. Other materials available on request.

# Pressure Relief Valves

Port "D"	Wetted Materials*	Pressure Adjustment Range		Maximum Temperature		Port Configuration	Model Number	
		psi	bar	F	C		NPT Ports	BSPT Ports
1/4" High Pressure	316 SST	350 - 2000	24 - 138	300	149	2P90	111-800	111-800-B
	Hastelloy C	350 - 2000	24 - 138	300	149	2P90	111-804	111-804-B
3/8"	Polypropylene	10 - 150	0.7 - 10.3	195	90	3P	111-401	111-401-B
	PVDF	10 - 150	0.7 - 10.3	195	90	3P	111-403	111-403-B
	316 SST	10 - 150	0.7 - 10.3	300	149	3P	111-406	111-406-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	3P	111-410	111-410-B
	316 SST	50 - 350	3.5 - 24	300	149	3P	111-407	111-407-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	3P	111-411	111-411-B
3/8" High Pressure	316 SST	350 - 2000	24 - 138	300	149	2P90	111-706	111-706-B
	Hastelloy C	350 - 2000	24 - 138	300	149	2P90	111-710	111-710-B
1/2"	Polypropylene	10 - 150	0.7 - 10.3	195	90	3P	111-421	111-421-B
	PVDF	10 - 150	0.7 - 10.3	195	90	3P	111-423	111-423-B
	316 SST	10 - 150	0.7 - 10.3	300	149	3P	111-426	111-426-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	3P	111-430	111-430-B
	316 SST	50 - 350	3.5 - 24	300	149	3P	111-427	111-427-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	3P	111-431	111-431-B
1/2" High Pressure	316 SST	350 - 2000	24 - 138	300	149	2P90	111-726	111-726-B
	Hastelloy C	350 - 2000	24 - 138	300	149	2P90	111-730	111-730-B
3/4" StdFlo	Polypropylene	10 - 150	0.7 - 10.3	195	90	3P	111-541	111-541-B
	PVDF	10 - 150	0.7 - 10.3	195	90	3P	111-543	111-543-B
	316 SST	10 - 150	0.7 - 10.3	300	149	3P	111-546	111-546-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-550	111-550-B
3/4" HiFlo	Polypropylene	10 - 150	0.7 - 10.3	195	90	2P180	111-641	111-641-B
	PVDF	10 - 150	0.7 - 10.3	195	90	2P180	111-643	111-643-B
	316 SST	10 - 150	0.7 - 10.3	300	149	2P180	111-646	111-646-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-650	111-650-B
3/4" High Pressure	316 SST	350 - 2000	24 - 138	300	149	2P90	111-746	111-746-B
	Hastelloy C	350 - 2000	24 - 138	300	149	2P90	111-750	111-750-B
1" StdFlo	Polypropylene	10 - 150	0.7 - 10.3	195	90	3P	111-561	111-561-B
	PVDF	10 - 150	0.7 - 10.3	195	90	3P	111-563	111-563-B
	316 SST	10 - 150	0.7 - 10.3	300	149	3P	111-566	111-566-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-570	111-570-B
	316 SST	50 - 350	3.5 - 24	300	149	3P	111-567	111-567-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	2P180	111-571	111-571-B
1" HiFlo	Polypropylene	10 - 150	0.7 - 10.3	195	90	2P180	111-661	111-661-B
	PVDF	10 - 150	0.7 - 10.3	195	90	2P180	111-663	111-663-B
	316 SST	10 - 150	0.7 - 10.3	300	149	2P180	111-666	111-666-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-670	111-670-B
1" High Pressure	316 SST	350 - 2000	24 - 138	300	149	2P180	111-766	111-766-B
	Hastelloy C	350 - 2000	24 - 138	300	149	2P90	111-770	111-770-B
2"	Polypropylene	10 - 150	0.7 - 10.3	195	90	2P90	111-581	111-581-B
	PVDF	10 - 150	0.7 - 10.3	195	90	2P180	111-583	111-583-B
	316 SST	10 - 150	0.7 - 10.3	300	149	2P180	111-586	111-586-B
	Hastelloy C	10 - 150	0.7 - 10.3	300	149	2P180	111-590	111-590-B
	316 SST	50 - 350	3.5 - 24	300	149	2P180	111-587	111-587-B
	Hastelloy C	50 - 350	3.5 - 24	300	149	2P180	111-591	111-591-B

\* Diaphragm material is PTFE on all models. Other materials available on request.

# Pulsation Dampeners



Pulsation dampeners protect your pumping system and its components by removing virtually all hydraulic shock and vibration resulting from the reciprocating stroking action of a positive displacement pump.

They control pulsations by allowing fluid to enter a wetted chamber of the dampener during the discharge stroke. This displaces a flexible bladder, which compresses gas in an air chamber, thus absorbing the shock. During the inlet stroke, liquid pressure decreases as the dampener gas expands, allowing fluid to re-enter the process line.

Bladders are available in Neoprene, Buna-N, EPDM, FKM, and PTFE (except where noted) to match Hydra-Cell pump diaphragm materials.

- Produces steady fluid flow up to 99% pulsation- and vibration-free
- Protects pipes, valves, fittings, meters, and in-line instrumentation from destructive pulsations, cavitation, and water hammer
- Creates steady and continuous flow when dosing, blending, or proportioning additives
- Ensures accuracy, longevity, and repeatability of in-line meters
- Enables uniform application of material in spraying and coating systems
- Reduces product agitation, foaming, splashing, and degradation of product

# Pulsation Dampeners

## Selection Process

1. Determine discharge pulsation (<1000 psi or > 1000 psi).
2. Determine inlet stabilization: high inlet pressure (>30 psi) or low inlet pressure (suction lift/ <30 psi positive pressure).
3. Select dampener size based on cubic inches (volume).
4. Consult price list or selection guide for specific model based on choice of wetted end and diaphragm materials.

Air Control Pump Model	Application			
	Discharge Pulsation		Inlet Stabilization	
	Chargeable <1000 psi	Chargeable >1000 psi	Chargeable >30 psi	"J" Style <30 psi
<b>F20 (P100)</b>	4 cu. in.	12 cu. in.	4 cu. in.	10 cu. in.
<b>D03 (P200)</b>	4 cu. in.	12 cu. in.	4 cu. in.	10 cu. in.
<b>D04 (P300)</b>	4 cu. in.	12 cu. in.	4 cu. in.	10 cu. in.
<b>D10 (P400)</b>	4 cu. in.	12 cu. in.	4 cu. in.	10 cu. in.
<b>D12</b>	4 cu. in.	N/A	4 cu. in.	10 cu. in.
<b>D15 (P500)</b>	4 cu. in.	12 cu. in.	10 cu. in.	10 cu. in.
<b>D17</b>	4 cu. in.	12 cu. in.	10 cu. in.	10 cu. in.
<b>P600</b>	10 cu. in.	N/A	10 cu. in.	10 cu. in.
<b>H25</b>	36 cu. in.	N/A	36 cu. in.	85 cu. in.
<b>D35</b>	36 cu. in.	12 cu. in.	36 cu. in.	85 cu. in.

**Note:** These are minimum size recommendations. A larger size can always be used.

**Since Hydra-Cell multiple-diaphragm model pumps provide smooth, virtually pulse-less linear flow, pulsation dampeners are recommended for F20 and P100 models, but are optional for all other models.**

Description	Part Number
Pulse Dampener, Charging Kit	110-900

## 4 Cubic Inch Dampeners

Inlet (female)	Wetted	Bladder	Volume (Inch <sup>3</sup> )	Max psi	Part Number
1/2" NPT	SST	Buna-N	4	1000	110-060
1/2" NPT	SST	Neoprene	4	1000	110-062
1/2" NPT	SST	EPDM	4	1000	110-063
1/2" NPT	SST	FKM	4	1000	110-065
1/2" NPT	SST	PTFE	4	600	110-068
1/2" NPT	Hastelloy C	Buna-N	4	1000	110-090
1/2" NPT	Hastelloy C	Neoprene	4	1000	110-092
1/2" NPT	Hastelloy C	EPDM	4	1000	110-093
1/2" NPT	Hastelloy C	FKM	4	1000	110-095
1/2" NPT	Hastelloy C	PTFE	4	600	110-098
1/2" NPT	Polypropylene	Buna-N	4	150	110-000
1/2" NPT	Polypropylene	Neoprene	4	150	110-002
1/2" NPT	Polypropylene	EPDM	4	150	110-003
1/2" NPT	Polypropylene	FKM	4	150	110-005
1/2" NPT	Polypropylene	PTFE	4	150	110-008
1/2" NPT	PVDF	Buna-N	4	150	110-020
1/2" NPT	PVDF	Neoprene	4	150	110-022
1/2" NPT	PVDF	EPDM	4	150	110-023
1/2" NPT	PVDF	FKM	4	150	110-025
1/2" NPT	PVDF	PTFE	4	150	110-028

# Pulsation Dampeners

## 10 Cubic Inch Dampeners

Inlet (female)	Wetted	Bladder	Volume (Inch <sup>3</sup> )	Max psi	Part Number
1/2" NPT	SST	Buna-N	10	1000	110-260
1/2" NPT	SST	Neoprene	10	1000	110-262
1/2" NPT	SST	EPDM	10	1000	110-263
1/2" NPT	SST	FKM	10	1000	110-265
1/2" NPT	SST	PTFE	10	150	110-268
1/2" NPT	Hastelloy C	Buna-N	10	1000	110-290
1/2" NPT	Hastelloy C	Neoprene	10	1000	110-292
1/2" NPT	Hastelloy C	EPDM	10	1000	110-293
1/2" NPT	Hastelloy C	FKM	10	1000	110-295
1/2" NPT	Hastelloy C	PTFE	10	150	110-298
1/2" NPT	Polypropylene	Buna-N	10	150	110-200
1/2" NPT	Polypropylene	Neoprene	10	150	110-202
1/2" NPT	Polypropylene	EPDM	10	150	110-203
1/2" NPT	Polypropylene	FKM	10	150	110-205
1/2" NPT	Polypropylene	PTFE	10	150	110-208
1/2" NPT	PVDF	Buna-N	10	150	110-220
1/2" NPT	PVDF	Neoprene	10	150	110-222
1/2" NPT	PVDF	EPDM	10	150	110-223
1/2" NPT	PVDF	FKM	10	150	110-225
1/2" NPT	PVDF	PTFE	10	150	110-228

## 10 Cubic Inch Inlet Stabilizers with J-Style Control

Inlet (female)	Wetted	Bladder	Volume (Inch <sup>3</sup> )	Max psi	Part Number
1/2" NPT	PVC	Buna-N	10	30	110-210-J
1/2" NPT	PVC	Neoprene	10	30	110-212-J
1/2" NPT	PVC	EPDM	10	30	110-213-J
1/2" NPT	PVC	FKM	10	30	110-215-J
1/2" NPT	PVC	PTFE	10	30	110-218-J

## 12 Cubic Inch Dampeners

Inlet (female)	Wetted	Bladder	Volume (Inch <sup>3</sup> )	Max psi	Part Number
1/2" NPT	SST	Buna-N	12	4000	110-360
1/2" NPT	SST	EPDM	12	4000	110-363
1/2" NPT	SST	FKM	12	4000	110-365
1/2" NPT	SST	PTFE	12	2000	110-368

# Pulsation Dampeners

## 36 Cubic Inch Dampeners

Inlet (female)	Wetted	Bladder	Volume (Inch <sup>3</sup> )	Max psi	Part Number
1" NPT	SST	Buna-N	36	1000	110-660
1" NPT	SST	Neoprene	36	1000	110-662
1" NPT	SST	EPDM	36	1000	110-663
1" NPT	SST	FKM	36	1000	110-665
1" NPT	SST	PTFE	36	600	110-668
1" NPT	CS	Buna-N	36	1000	110-640
1" NPT	CS	Neoprene	36	1000	110-642
1" NPT	CS	EPDM	36	1000	110-643
1" NPT	CS	FKM	36	1000	110-645
1" NPT	CS	PTFE	36	600	110-648
1" NPT	Hastelloy C	Buna-N	36	1000	110-690
1" NPT	Hastelloy C	Neoprene	36	1000	110-692
1" NPT	Hastelloy C	EPDM	36	1000	110-693
1" NPT	Hastelloy C	FKM	36	1000	110-695
1" NPT	Hastelloy C	PTFE	36	600	110-698
1" NPT	Polypropylene	Buna-N	36	150	110-600
1" NPT	Polypropylene	Neoprene	36	150	110-602
1" NPT	Polypropylene	EPDM	36	150	110-603
1" NPT	Polypropylene	FKM	36	150	110-605
1" NPT	Polypropylene	PTFE	36	150	110-608
1" NPT	PVDF	Buna-N	36	150	110-620
1" NPT	PVDF	Neoprene	36	150	110-622
1" NPT	PVDF	EPDM	36	150	110-623
1" NPT	PVDF	FKM	36	150	110-625
1" NPT	PVDF	PTFE	36	150	110-628

## 85 Cubic Inch Dampeners with J-Style Control

Inlet (female)	Wetted	Bladder	Volume (Inch <sup>3</sup> )	Max psi	Part Number
1" NPT	PVC	Buna-N	10	30	110-710-J
1" NPT	PVC	Neoprene	10	30	110-712-J
1" NPT	PVC	EPDM	10	30	110-713-J
1" NPT	PVC	FKM	10	30	110-715-J
1" NPT	PVC	PTFE	10	30	110-718-J

## 275 Cubic Inch Dampeners

Inlet (2500 lbs. ANSI flange)	Wetted	Bladder	Volume (Inch <sup>3</sup> )	Max psi	Part Number
2.5"	CS	Buna-N	275	3045	110-275-B
2.5"	CS	FKM	275	3045	110-275-V

## 1155 Cubic Inch Dampeners (5 gallon)

Inlet (150 lbs. ANSI flange)	Wetted	Bladder	Volume (Inch <sup>3</sup> )	Max psi	Part Number
3.0"	CS	Buna-N	1155	30	110-1155-B
3.0"	CS	FKM	1155	30	110-1155-V