

**PULSATION DAMPENERS
OPERATION & MAINTENANCE MANUAL**



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CAUTIONS — READ FIRST!

READ THESE WARNINGS AND SAFETY PRECAUTIONS PRIOR TO INSTALLATION OR OPERATION. FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND OR PROPERTY DAMAGE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.

⚠️ WARNING Pump, valves and all containers must be properly grounded prior to handling flammable fluids and/or whenever static electricity is a hazard.

⚠️ WARNING Prior to servicing the pump, ensure that the air and fluid lines are closed and disconnected. While wearing personal protective equipment, flush, drain and process liquid from the pump in a safe manner.

⚠️ WARNING The TX marking refers to the maximum surface temperature depending not on the equipment itself, but mainly on operating conditions. In this case, the maximum surface temperature depends upon the temperature of the process fluids.

⚠️ CAUTION The temperature of the process fluid and air input must be no more than 36°F (20C) less of the maximum temperature allowed for the appropriate non-metallic material. See the list of temperatures below for each material's maximum recommended temperature:

Buna-N (Nitrile):	10°F to 180°F (-12C to 82C)
Geolast®:	10°F to 180°F (-12C to 82C)
EPDM:	-40°F to 280°F (-40C to 138C)
Santoprene®:	-40°F to 225°F (-40C to 107C)
Viton® (FKM):	-40°F to 350°F (-40C to 177C)
PTFE:	40°F to 220°F (4C to 104C)
Polyethylene:	32°F to 158°F (0C to 70C)
Polypropylene:	32°F to 180°F (0C to 82C)
PVDF:	0°F to 250°F (-18C to 121C)
Nylon:	0°F to 200°F (-18C to 93C)

Temperature limits are solely based upon mechanical stress and certain chemicals will reduce the maximum operating temperature. The allowable temperature range for the process fluid is determined by the materials in contact with the fluid being pumped. Consult a chemical resistance guide for chemical compatibility and a more precise safe temperature limit. Always use minimum air pressure when pumping at elevated temperatures.

⚠️ CAUTION Do not lubricate air supply.

⚠️ WARNING = Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage

⚠️ CAUTION = Hazards or unsafe practices which could result in minor personal injury, product or property damage.

⚠️ CAUTION Do not connect a compressed air source to the exhaust port of the pump.

⚠️ WARNING Use only with liquid process fluid.

⚠️ WARNING Maintenance must not be performed when a hazardous atmosphere is present.

⚠️ CAUTION Do not exceed 120 psig (8.3 bar) air-inlet pressure.

⚠️ CAUTION Do not exceed 10 psig (0.7 bar) or 23 ft-H₂O suction pressure.

⚠️ CAUTION Ensure all wetted components are chemically compatible with the process fluid and the cleaning fluid.

⚠️ CAUTION Ensure pump is thoroughly cleaned and flushed prior to installation into a process line.

⚠️ CAUTION Always wear Personal Protective Equipment (PPE) when operating pump.

⚠️ CAUTION Close and disconnect all compressed air and bleed all air from the pump prior to service. Remove all process fluid in a safe manner prior to service.

⚠️ CAUTION Blow out all compressed air lines in order to remove any debris, prior to pump installation. Ensure that the muffler is properly installed prior to pump operation.

⚠️ CAUTION Ensure air exhaust is piped to atmosphere prior to a submerged installation.

⚠️ CAUTION Ensure all hardware is set to correct torque values prior to operation.

Active Pulsation Dampeners for Plastic Pumps

1.1 Main specification

The All-Flo pulsation dampeners represent the latest generation of active pulsation dampeners, designed to be used along with air operated double diaphragm pumps.

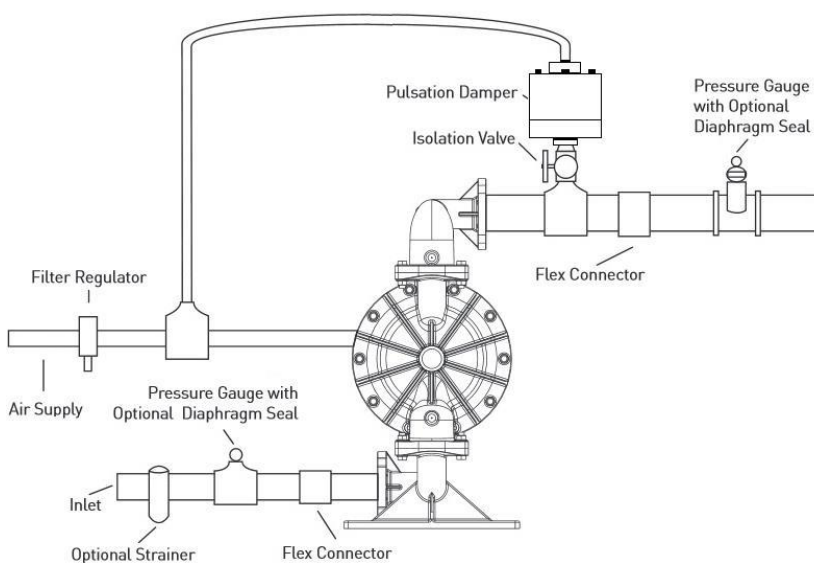
Before putting a pulsation dampener into operation, make sure, that the materials of construction are resistant to the chemical to be pumped.

Dampener Specifications

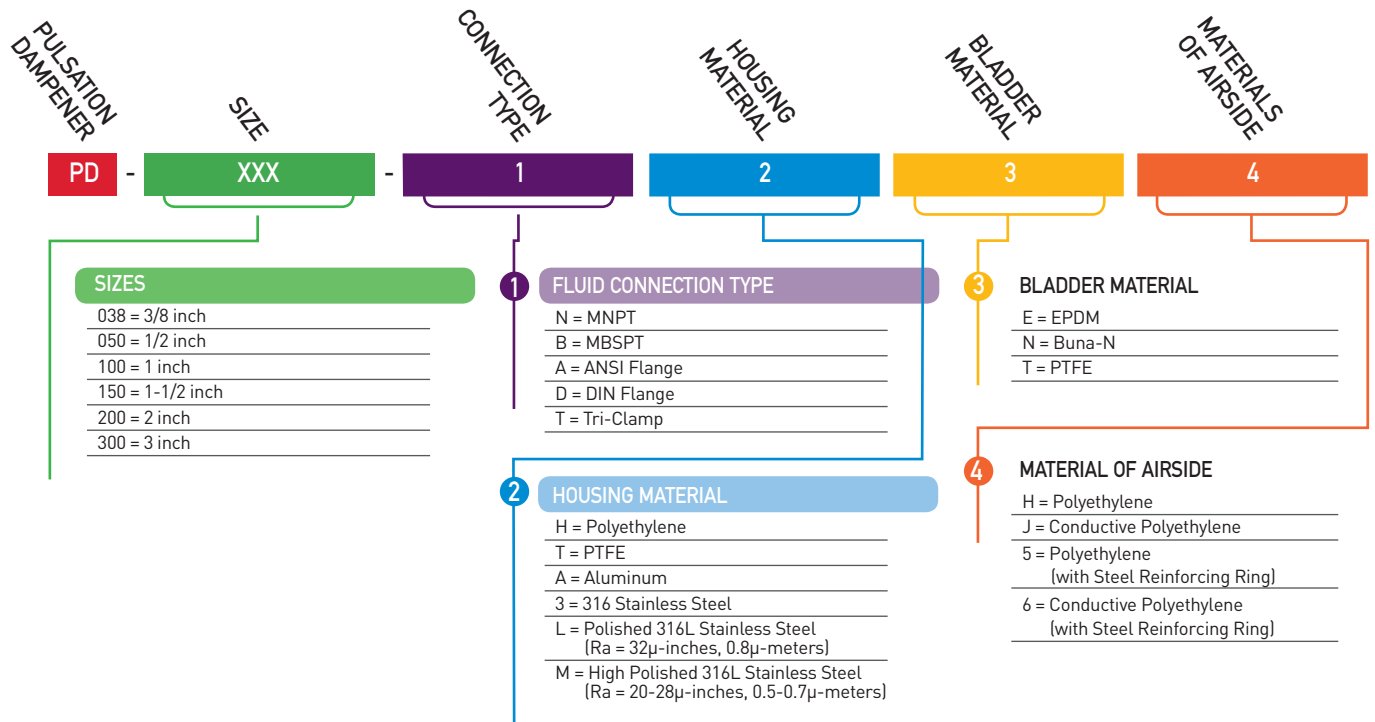
		PD-038-XXXX	PD-050-XXXX	PD-100-XXXX	PD-150-XXXX	PD-200-XXXX	PD-300-XXXX
Dimension							
Air Inlet		1/8"	1/8"	1/8"	1/4"	1/4"	1/2"
Performance							
Max Pressure		120 PSI (8.3 bar)					
Temperature Limits	PE	158°F (70°C)	158°F (70°C)	158°F (70°C)	158°F (70°C)	158°F (70°C)	158°F (70°C)
	PTFE	212°F (100°C)	248°F (120°C)	248°F (120°C)	248°F (120°C)	248°F (120°C)	248°F (120°C)
	PE conductive	176°F (80°C)	176°F (80°C)	176°F (80°C)	176°F (80°C)	176°F (80°C)	176°F (80°C)

The distance between the pump's discharge outlet and the pulsation dampener should be as close as possible, but should not exceed ten times the inner diameter of the piping.

Before connecting the pump, take the yellow blind plugs out of air inlet which is located on the top of the dampener head [6]. For correct operation, the dampener absolutely needs an air-supply of its own, which has to be taken from the air-supply of the pump. Pump and pulsation dampener have to be connected to the same air pressure. No stop or regulating valve may be placed between pump and dampener. Ensure that the air is oil-free, dry and clean. Together with the pump an empty dampener should be operated slowly. The dampeners are self-regulating for fluctuating operating conditions.



1.2 Model Designation Matrix



1.3 Plastic Spare Parts and Exploded View



CAUTION

- ! Before putting the pulsation damper into operation as well as after some hours of operating, the housing bolts [42] have to be tightened carefully, as the elements of construction tend to "settle". Fixing the bolts is necessary as well after longer periods of stoppage, at extreme temperature variations, transport and after dismantling.
- ! Pressure tests of the plant, the pump and the damper are included and may only be carried out with the aggregate (pump and damper) disconnected from the pressure on both ports or by using the pressure the aggregate develops while operating. The load of a pressure in the plant may damage the pump and the pulsation damper.
- ! Before starting to disassemble the pump, take care that pump and damper have been emptied and rinsed. Further, both have to be cut off from any energy on the air and product side. If pump and damper is being deported from the plant, a reference about the delivered liquid has to be attached.
- ! Please respect the relevant additional security advices, if the pump and the damper have been used for aggressive, dangerous or toxic liquids.
- ! Before putting the pump and the damper back into operation, the tightness of both has to be checked.

Disassembly instructions

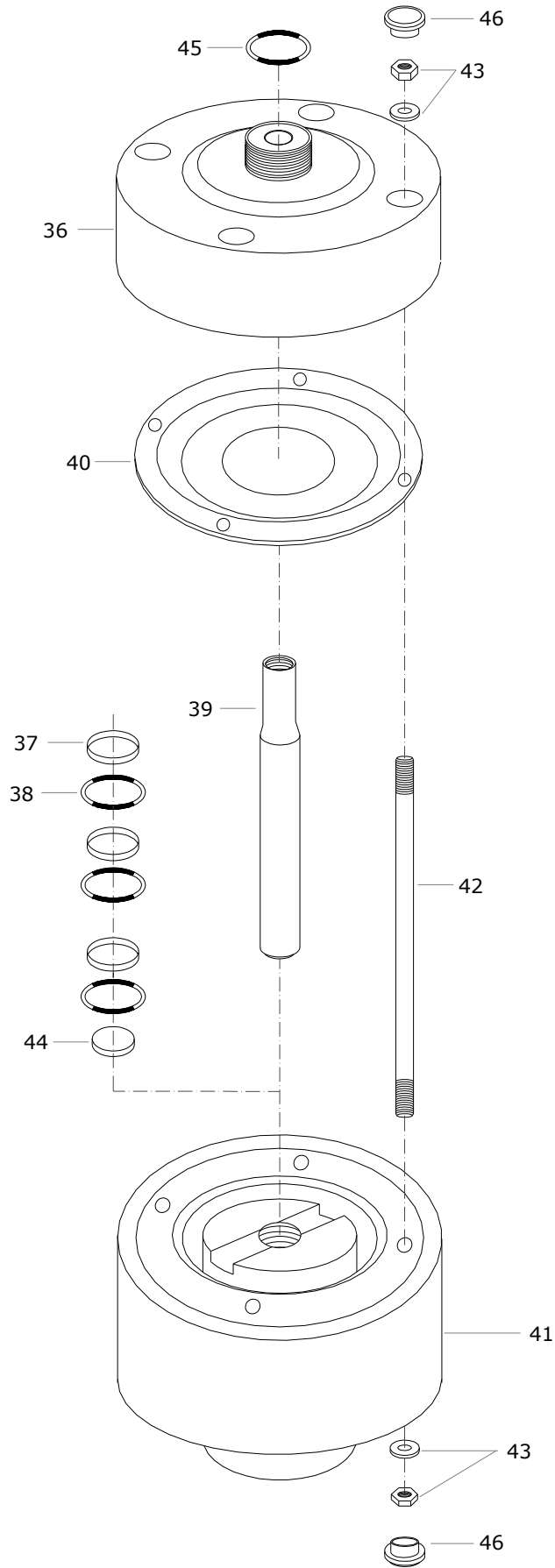
Unscrew housing bolts [42] carefully. After that, all parts can be removed. Screw the diaphragm [40] off the actuator shaft [39]. A re-assembly of used piston rings [37] is impossible; they have to be replaced including the O-rings underneath. To assemble new piston rings [37] carefully shape them like kidneys with locking ring pliers and insert the rings into the grooves; completely press the rings into the grooves smoothly using some round tool.

Spare part list, pulsation damper series

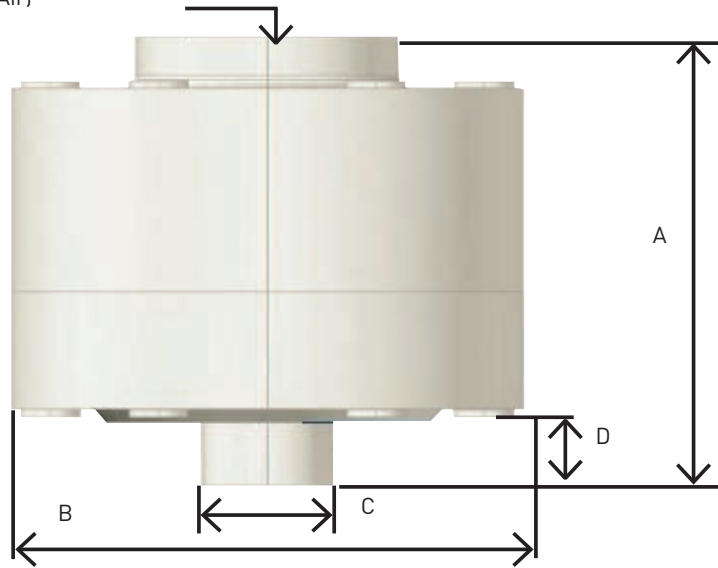
Damper size:				PD-038-XXXX	PD-050-XXXX	PD-075-XXXX	PD-100-XXXX	PD-150-XXXX	PD-200-XXXX	PD-300-XXXX
Pos.	Quantity	Description	Material	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.
36.	1	Damper housing	PE	HP-8-08-001-20-†	HP-8-10-001-20-†	HP-8-15-001-20-†	HP-8-25-001-20-†	HP-8-40-001-20-†	HP-8-50-001-20-†	HP-8-80-001-20-†
			PTFE	HP-8-08-001-23-†	HP-8-10-001-23-†	HP-8-15-001-23-†	HP-25-001-23-†	HP-8-40-001-23-†	HP-8-50-001-23-†	-
			PE conductive	HP-8-08-00-21-†	HP-8-10-001-21-†	HP-8-15-001-21-†	HP-8-25-001-21-†	HP-8-40-001-21-†	HP-8-50-001-21-†	HP-8-80-001-21-†
			PTFE conductive	HP-8-08-001-24-†	HP-8-10-001-24-†	HP-8-15-001-24-†	HP-8-25-001-24-†	HP-8-40-001-24-†	HP-8-50-001-24-†	-
37.	3	Piston ring	PE	HP-1-08-90-22	HP-1-08-90-22	HP-1-08-90-22	HP-1-15-85-22	HP-1-25-85-22	HP-1-40-85-22	HP-1-80-85-22
38.	3	O-ring	NBR	HP-1-08-82-10	HP-1-08-82-10	HP-1-08-82-10	HP-1-15-85-10	HP-1-25-85-10	HP-1-40-85-10	HP-1-80-85-10
39.	1	Actuator shaft	PET, AISI 304*	HP-8-08-40-30	HP-8-08-40-30	HP-8-08-40-30	HP-8-25-40-30	HP-8-40-40-50*	HP-8-50-40-50*	HP-8-80-40-50*
40.	1	Diaphragm	EPDM	-	HP-1-10-50-08	HP-1-10-50-08	HP-1-15-50-08	HP-1-25-50-08	HP-1-40-50-08	HP-1-50-50-08
			TFM / PTFE	HP-1-08-50-05	HP-1-10-50-05	HP-1-10-50-05	HP-1-15-50-05	HP-1-25-50-05	HP-1-40-50-05	HP-1-50-50-05
			NBR	-	HP-1-10-50-10	HP-1-10-50-10	HP-1-15-50-10	HP-1-25-50-10	HP-1-40-50-10	HP-1-50-50-10
			EPDM/TFM/PFA	-	HP-1-10-50-00	HP-1-10-50-00	HP-1-15-50-00	-	-	-
41.	1	Damper head	PE	HP-8-08-203-20	HP-8-10-203-20	HP-8-10-203-20	HP-8-25-203-20	HP-8-40-203-20	HP-8-50-203-20	HP-8-80-203-20
			PE conductive	HP-8-08-203-21	HP-8-10-203-21	HP-8-10-203-21	HP-8-25-203-21	HP-8-40-203-21	HP-8-50-203-21	HP-8-80-203-21
42.	4/ 6** / 8***	Housing bolt	AISI 304	HP-8-08-542-50	HP-8-10-542-50	HP-8-10-542-50	HP-8-25-542-50**	HP-8-40-542-50**	HP-8-50-542-50***	HP-8-80-542-50***
43.	8/ 12** / 16***	Nut with washer (covered)	AISI 304	HP-1-08-145-50	HP-1-10-145-50	HP-1-10-145-50	HP-1-25-145-50**	HP-1-40-145-50**	HP-1-50-145-50***	HP-1-80-145-50***
44.	1	Muffler	PE	HP-8-08-99-20	HP-8-08-99-20	HP-8-08-99-20	HP-8-25-99-20	HP-8-40-99-20	HP-8-50-99-20	HP-8-80-99-20
45.	1	Damper housing O-ring	FEP/FKM	HP-8-08-79-04	HP-2-15-70-04	HP-2-15-70-04	HP-3-25-70-04	HP-8-40-79-04	HP-2-40-78-04	HP-2-80-78-04
			EPDM	HP-8-08-79-08	HP-2-15-70-08	HP-2-15-70-08	HP-3-25-70-08	HP-8-40-79-08	HP-2-40-78-08	HP-2-80-78-08
46.	8/ 12** / 16***	Housing bolt plug	PE	HP-8-08-058-20	HP-8-10-058-20	HP-8-10-058-20	HP-8-25-058-20**	HP-8-40-058-20**	HP-8-50-058-20***	HP-8-80-058-20***

† = Must specify the connection type at the end of the part number:
 NPT - NPT Male Thread
 F8 - ANSI 150 Flange
 BSPP Male Thread
 F4 - JIS B2220 Flange

PULSATION DAMPER – Exploded View



E (Compressed Air)



Housing Material	PD-038-XXXX	PD-050-XXXX	PD-100-XXXX	PD-150-XXXX	PD-200-XXXX	PD-300-XXXX
A	3.39 in. (86.11mm)	3.86 in. (98.04 mm)	5.39 in. (136.91 mm)	6.69 in. (169.93 mm)	8.50 in. (215.9 mm)	11.30 in. (287.02 mm)
B	2.99 in. (75.95 mm)	4.33 in. (109.98 mm)	6.14 in. (155.96 mm)	8.03 in. (203.97 mm)	10.75 in. (273.05 mm)	14.17 in. (359.92 mm)
C	3/8"	1/2"	1"	1-1/2"	2"	3"
D	0.43 in. (10.92 mm)	0.51 in. (12.96 mm)	0.71 in. (18.03 mm)	0.70 in. (17.78 mm)	1.18 in. (29.97 mm)	1.02 in. (25.9 mm)
E	1/8"	1/8"	1/8"	1/4"	1/4"	1/2"

1.4 Metal Spare Parts and Exploded View



CAUTION

- ! Before putting the pulsation damper into operation as well as after some hours of operating, the housing bolts [42] have to be tightened carefully, as the elements of construction tend to "settle". Fixing the bolts is necessary as well after longer periods of stoppage, at extreme temperature variations, transport and after dismantling.
- ! Pressure tests of the plant the pump and the damper are included and may only be carried out with the aggregate (pump and damper) disconnected from the pressure on both ports or by using the pressure the aggregate develops while operating. The load of a pressure in the plant may damage the pump and the pulsation damper.
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- ! Please respect the relevant additional security advices, if the pump and the damper have been used for aggressive, dangerous or toxic liquids.
- ! Before putting the pump and the damper back into operation, the tightness of both has to be checked.

Disassembly instructions

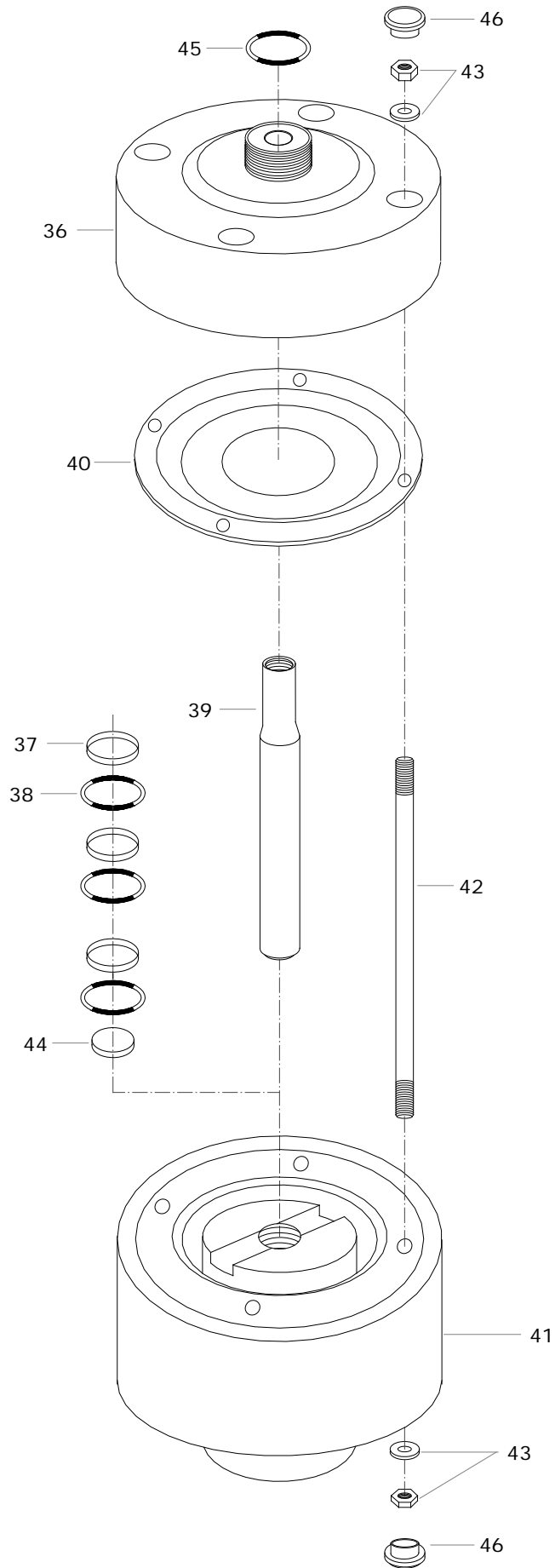
Unscrew housing bolts [42] carefully. After that, all parts can be removed. Screw the diaphragm [40] off the actuator shaft [39]. A re-assembly of used piston rings [37] is impossible; they have to be replaced including the O-rings underneath. To assemble new piston rings [37] carefully shape them like kidneys with locking ring pliers and insert the rings into the grooves; completely press the rings into the grooves smoothly using some round tool.

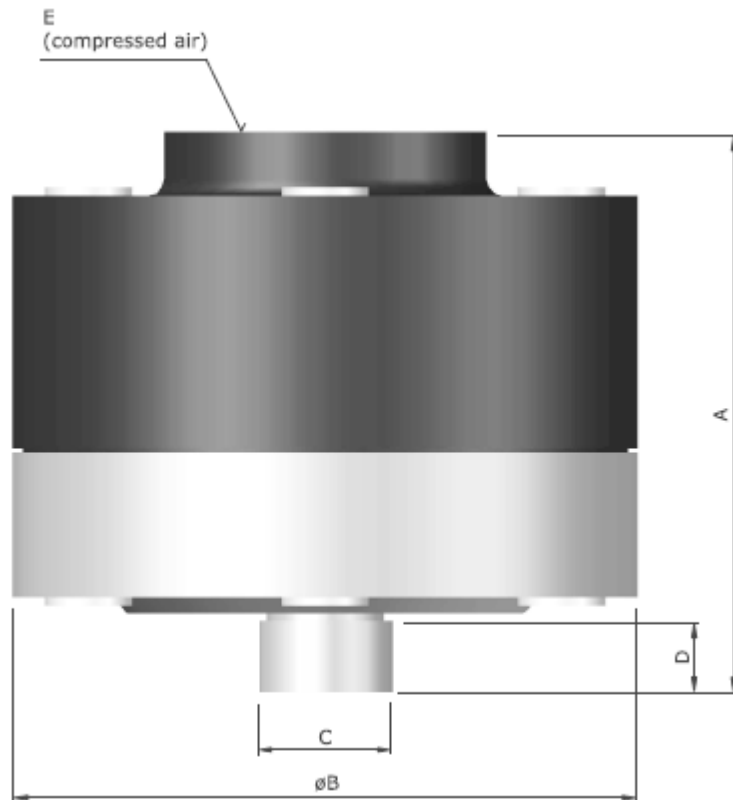
Spare part list, pulsation damper series

Damper size				PD-050-XXXX	PD-075-XXXX	PD-100-XXXX	PD-150-XXXX	PD-200-XXXX	PD-300-XXXX
Pos.	Quantity	Description	Material	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.
36	1	Damper housing	Al	HP-8-15-01-60-†	HP-8-20-01-60-†	HP-8-25-01-60-†	HP-8-40-01-60-†	HP-8-50-01-60-†	HP-8-80-01-60-†
			AISI 316	-	HP-8-20-01-52-†	HP-8-25-01-52-†	HP-8-40-01-52-†	HP-8-50-01-52-†	-
37	3	Piston ring	PE	HP-1-08-90-22	HP-1-08-90-22	HP-1-15-85-22	HP-1-25-85-22	HP-1-40-85-22	HP-1-50-85-22
38	3	O-ring	NBR	HP-1-08-82-10	HP-1-08-82-10	HP-1-15-85-10	HP-1-25-85-10	HP-1-40-85-10	HP-1-50-85-10
39	1	Actuator shaft	PET / AISI 304*	HP-8-10-40-30	HP-8-15-40-30	HP-8-25-40-30	HP-8-40-40-50*	HP-8-50-40-50*	HP-8-80-40-50
40	1	Diaphragm	EPDM	-	HP-1-10-50-08	HP-1-15-50-08	HP-1-25-50-08	HP-1-40-50-08	HP-1-50-50-08
			TFM / PTFE	HP-1-08-50-05	HP-1-10-50-05	HP-1-15-50-05	HP-1-25-50-05	HP-1-40-50-05	HP-1-50-50-05
			NBR	-	HP-1-10-50-10	HP-1-15-50-10	HP-1-25-50-10	HP-1-40-50-10	HP-1-50-50-10
			EPDM/TFM/PFA	-	HP-1-10-50-00	HP-1-15-50-00	-	-	-
41	1	Damper head	PE conductive	HP-8-10-203-21	HP-8-15-203-21	HP-8-25-203-21	HP-8-40-203-21	HP-8-50-203-21	HP-8-80-203-21
42	4 / 6** / 8***	Housing bolt	AISI 304	HP-8-10-642-50	HP-8-15-642-50	HP-8-25-642-50**	HP-8-40-642-50**	HP-8-50-642-50***	HP-8-80-642-50***
43	8 / 12** / 16***	Nut with washer (covered)	AISI 304	HP-1-10-145-50	HP-1-15-145-50	HP-1-25-145-50**	HP-1-40-145-50**	HP-1-50-145-50***	HP-1-80-145-50***
44	1	Muffler	PE	HP-8-10-99-20	HP-8-15-99-20	HP-8-25-99-20	HP-8-40-99-20	HP-8-50-99-20	HP-8-80-99-20
45	1	Damper housing O-ring	FEP/FKM	HP-8-10-79-04	HP-8-15-79-04	HP-8-25-79-04	HP-8-40-79-04	HP-8-50-79-04	HP-8-80-79-04
			EPDM	HP-8-10-79-08	HP-8-15-79-08	HP-8-25-79-08	HP-8-40-79-08	HP-8-50-79-08	HP-8-80-79-08
			NBR	HP-8-10-79-10	HP-8-15-79-10	HP-8-25-79-10	HP-8-40-79-10	HP-8-50-79-10	HP-8-80-79-10
46	8 / 12** / 16***	Damper plug set	PE	2 08 058 20	HP-2-15-058-20	HP-8-15-058-20**	HP-8-25-058-20**	HP-2 50 058 20***	HP-2-80-058-20***

† = Must specify the connection type at the end of the part number:
 NPT - NPT Male Thread
 F8 - ANSI 150 Flange
 BSPP Male Thread
 F4 - JIS B2220 Flange

PULSATION DAMPER – Exploded View





Type	PD-050-XXXX	PD-075-XXXX		PD-100-XXXX		PD-150-XXXX		PD-200-XXXX		PD-300-XXXX
Damper housing	Alu	Alu	AISI 316 L	Alu	AISI 316 L	Alu	AISI 316 L	Alu	AISI 316 L	Alu
A in. (mm)	3.86 in. (98 mm)	3.86 in. (98 mm)	5.55 in. (141 mm)	5.43 in. (138 mm)	5.55 in. (141 mm)	6.70 in. (170 mm)	6.73 in. (171 mm)	8.50 in. (216 mm)	9.06 in. (230 mm)	11.3 in. (287 mm)
B in. (mm)	4.33 in. (110 mm)	4.33 in. (110 mm)	6.14 in. (156 mm)	6.14 in. (156 mm)	6.14 in. (156 mm)	8.03 in. (204 mm)	8.03 in. (204 mm)	10.75 in. (273 mm)	10.75 in. (273 mm)	14.17 in. (360 mm)
C [in.]	G 1/2"	G 3/4"	G 3/4"	G 1"	G 1"	G 1 1/2"	G 1 1/2"	G 2"	G 2"	G 3"
D in. (mm)	.51 in. (13 mm)	.51 in. (13 mm)	.71 in. (18 mm)	.71 in. (18 mm)	.71 in. (18 mm)	.67 in. (17 mm)	.79 in. (20 mm)	1.18 in. (30 mm)	1.18 in. (30 mm)	1.26 in. (32 mm)
E [in.]	R1/8"	R1/8"	R1/8"	R1/8"	R1/8"	R1/4"	R1/4"	R1/4"	R1/4"	R 1/2"

1.5 Hygienic Spare Parts and Exploded View



CAUTION

- ! Before putting the pulsation damper into operation as well as after some hours of operating, the housing bolts [42] have to be tightened carefully, as the elements of construction tend to "settle". Fixing the bolts is necessary as well after longer periods of stoppage, at extreme temperature variations, transport and after dismantling.
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Disassembly instructions

Unscrew housing bolts [42] carefully. After that, all parts can be removed. Screw the diaphragm [40] off the actuator shaft [39]. A re-assembly of used piston rings [37] is impossible; they have to be replaced including the O-rings underneath. To assemble new piston rings [37] carefully shape them like kidneys with locking ring pliers and insert the rings into the grooves; completely press the rings into the grooves smoothly using some round tool.

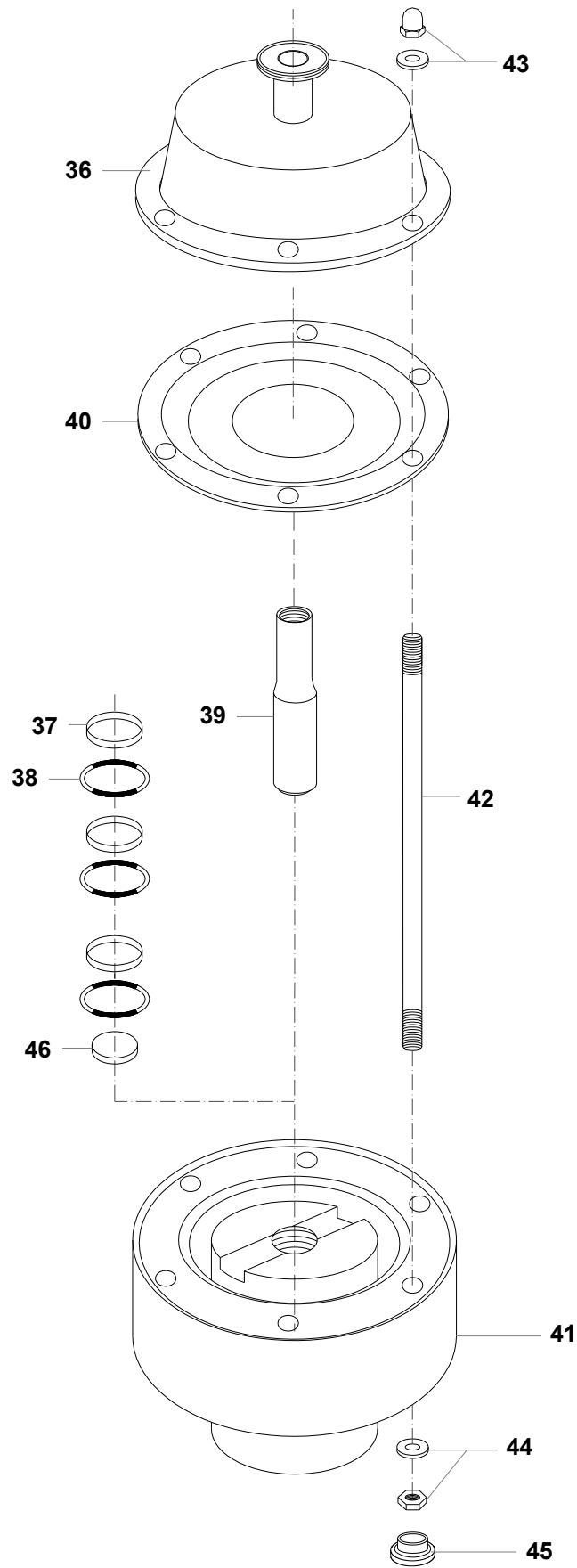
Spare part list, pulsation damper series

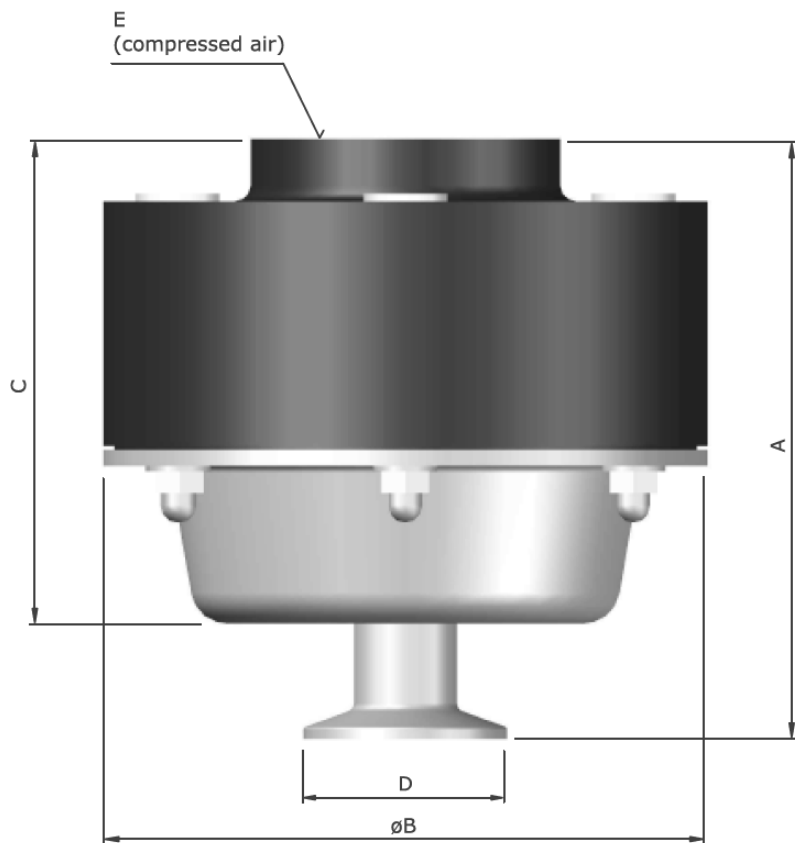
Damper size:				PD-050-XXXX	PD-100-XXXX	PD-150-XXXX	PD-200-XXXX	PD-300-XXXX
Pos.	Quantity	Description	Material	Part no.	Part no.	Part no.	Part no.	Part no.
36	1	Damper housing	AISI 316L	HP-8-15-01-53-†	HP-8-25-01-53-†	HP-8-25-01-53-†	HP-8-50-01-53-†	HP-8-80-01-53-†
37	3	Piston ring	PE	HP-1-08-90-22	HP-1-15-85-22	HP-1-15-85-22	HP-1-25-85-22	HP-1-80-85-22
38	3	O-ring	NBR	HP-1-08-82-10	HP-1-15-85-10	HP-1-15-85-10	HP-1-25-85-10	HP-1-80-85-10
39	1	Actuator shaft	PET / AISI 304*	HP-8-10-40-30	HP-8-25-40-30	HP-8-25-40-30	HP-8-40-40-50*	HP-8-80-40-50*
40	1	Diaphragm	EPDM	-	HP-1-15-50-08	HP-1-15-50-08	HP-1-25-50-08	HP-1-50-50-08
			TFM / PTFE	HP-1-10-50-05	HP-1-15-50-05	HP-1-15-50-05	HP-1-25-50-05	HP-1-50-50-05
			NBR	-	HP-1-15-50-10	HP-1-15-50-10	HP-1-25-50-10	HP-1-50-50-10
41	1	Damper head	PE	HP-8-10-203-20	HP-8-25-203-20	HP-8-25-203-20	HP-8-40-203-20	HP-8-80-203-20
			PE conductive	HP-8-10-203-21	HP-8-25-203-21	HP-8-25-203-21	HP-8-40-203-21	HP-8-80-203-21
42	4 / 6* / 8**	Housing bolt	AISI 304	HP-8-10-742-50	HP-8-25-742-50*	HP-8-25-742-50*	HP-8-40-742-50*	HP-8-80-742-50**
43	4 / 6* / 8**	Nut covered with washer	AISI 304	HP-1-15-145-50	HP-1-25-145-50*	HP-1-25-145-50*	HP-1-40-145-50*	HP-1-80-145-50**
44	4 / 6* / 8**	Nut with washer	AISI 304	HP-1-15-245-50	HP-1-25-245-50*	HP-1-25-245-50*	HP-1-40-245-50*	HP-1-80-245-50**
45	4 / 6* / 8**	Damper head plug	PE	HP-8-10-058-20	HP-8-25-058-20*	HP-8-25-058-20*	HP-8-50-058-20*	HP-8-80-058-20**
46	1	Muffler	PE	HP-8-10-99-20	HP-8-25-99-20	HP-8-25-9920	HP-8-40-99-20	HP-8-80-99-20

† = Must specify the connection type at the end of the part number:

NPT - NPT Male Thread
 F8 - ANSI 150 Flange
 BSPP Male Thread
 F4 - JIS B2220 Flange

PULSATION DAMPER – Exploded View





	A	øB .	C	D			E
				TC	DN	SMS	
PD-050-XXXX	4.25 in. (108 mm)	4.33 in. (110 mm)	3.03 in. (77 mm)	1/2"	.60 in. (15 mm)	-	R 1/8"
PD-100-XXXX	5.87 in. (149 mm)	6.14 in. (156 mm)	4.90 in. (124 mm)	1"	.90 in. (25 mm)	.98 in. (25 mm)	R 1/8"
PD-150-XXXX	5.87 in. (149 mm)	6.14 in. (156 mm)	4.90 in. (124 mm)	1 1/2"	1.57 in. (40 mm)	1.50 in. (38 mm)	R 1/8"
PD-200-XXXX	7.01 in. (178 mm)	8.03 in. (204 mm)	5.91 in. (150 mm)	2"	1.97 in. (50 mm)	2.01 in. (51 mm)	R 1/4"
PD-300-XXXX	10.43 in. (265 mm)	14.37 in. (365 mm)	9.45 in. (240 mm)	3"	3.15 in. (80 mm)	4.17 in. (106 mm)	R 1/2"

1.6 Torque Values

PULSATION DAMPENER TYPE	PULSATION DAMPENER SIZE	TORQUE VALUE [in-lb]	
PLASTIC SERIES	1/4 in.	35 in-lb (4 Nm)	
	3/8 in.	53 in-lb (6 Nm)	
	1/2 in.	53 in-lb (6 Nm)	
	1 in.	71 in-lb (8 Nm)	
	1 1/2 in.	115 in-lb (13 Nm)	
	2 in.	150 in-lb (17 Nm)	
	3 in.	195 in-lb (22 Nm)	
METAL SERIES	1/2 in.	62 in-lb (7 Nm)	
	3/4 in.	62 in-lb (7 Nm)	
	1 in.	71 in-lb (8 Nm)	
	1 1/2 in.	115 in-lb (13 Nm)	
	2 in.	150 in-lb (17 Nm)	
	3 in.	195 in-lb (22 Nm)	
INDUSTRIAL AND HYGIENIC SERIES (AISI 316L)		Hygienic (AISI 316L)	Industrial (AISI 316L)
	1/2 in.	62 in-lb (7 Nm)	
	3/4 in.		62 in-lb (7 Nm)
	1 in.	71 in-lb (8 Nm)	71 in-lb (8 Nm)
	1 1/2 in.	71 in-lb (8 Nm)	115 in-lb (13 Nm)
	2 in.	115 in-lb (13 Nm)	150 in-lb (17 Nm)
	3 in.	195 in-lb (22 Nm)	195 in-lb (22 Nm)

Warranty

WARRANTY. All All-Flo products shall be covered by the standard All-Flo Limited Warranty in effect at the time of shipment. This warranty (which may be modified by All-Flo at any time) provides:

MATERIALS SOLD ARE WARRANTED TO THE ORIGINAL USER AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE (RENTAL USE EXCLUDED) FOR FIVE YEARS AFTER PURCHASE DATE. ANY PUMP WHICH IS DETERMINED TO BE DEFECTIVE IN MATERIAL AND WORKMANSHIP AND RETURNED TO ALL-FLO, SHIPPING COSTS PREPAID, WILL BE REPAIRED OR REPLACED AT ALL-FLO'S OPTION. CUSTOMER SHALL NOTIFY ALL-FLO IN WRITING WITHIN 30 DAYS OF ANY CLAIMED DEFECTS. NO MATERIALS CAN BE RETURNED WITHOUT THE PRIOR CONSENT OF ALL-FLO, AND IF APPROVED SHALL BE RETURNED TO ALL-FLO FREIGHT PREPAID. ALL-FLO'S LIABILITY FOR ANY BREACH OF THIS WARRANTY SHALL BE LIMITED TO EITHER REPLACEMENT OF THE MATERIALS OR, AT ALL-FLO'S SOLE OPTION, THE REFUND OF THE PURCHASE PRICE. ALL-FLO SHALL NOT BE HELD LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY BREACH OF THIS WARRANTY. THIS EXCLUSION APPLIES WHETHER SUCH DAMAGES WERE SOUGHT BASED ON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT, OR ANY OTHER LEGAL THEORY. FURTHER, ALL-FLO SHALL NOT BE LIABLE FOR LOSSES, DELAYS, LABOR COSTS, OR ANY OTHER COST OR EXPENSE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF MATERIALS. ALL-FLO'S LIABILITY IS EXPRESSLY LIMITED TO THE REPLACEMENT OR REPAIR OF DEFECTIVE GOODS, OR THE TOTAL VALUE OF SUCH GOODS. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR ORAL INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM A COURSE OF DEALING OR TRADE. All-Flo will not, in ANY event, be liable for any loss of profit, interruption of business or any other special, consequential or incidental damages suffered or sustained by Customer. All-Flo's total maximum liability to the customer in respect of sale of materials or services rendered by All-Flo is limited to the total monies received by All-Flo from the customer for the particular. Materials described in Customer's order.

All-Flo does not warrant any part or component that it does not manufacture, but will assign to the original end-user purchaser of any warranty received by it from the manufacturer, to extent such pass through is permitted by the manufacturer.



REGISTRATION FORM

Pump Model _____ Pump Serial Number _____

Company Name _____

Name _____ Email _____

Phone # _____ City _____ State _____ Zip _____

Qty of Pumps _____ Fluid Pumping _____

How did you hear about us? Existing All-Flo user,
Web, Distributor, Magazine...

MAIL TO: All-Flo Pump Co. | Attn: Product Registration
PO BOX 1870 | Mentor, OH 44061



Scan QR code and
complete form
on mobile phone
or visit

www.all-flo.com/registration-form.html

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