



## PUMP OPERATION & MAINTENANCE MANUAL



H-Series Sanitary and Hygienic Air Diaphragm Pumps

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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-H<sub>2</sub>O 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.

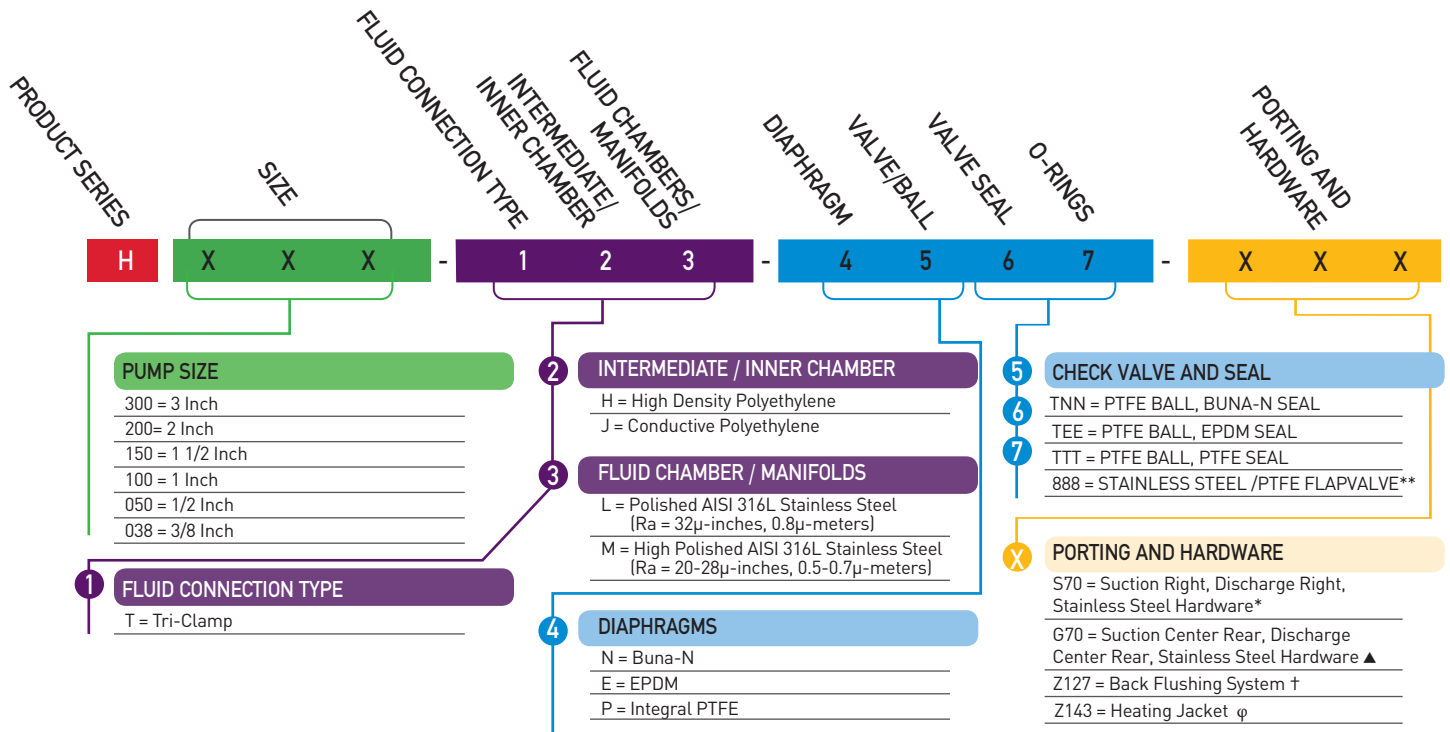
**⚠ CAUTION** Close and disconnect all compressed air and bleed all air from the pump prior to service. Remove all process fluid in a safe manner prior to service.

**⚠ 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.

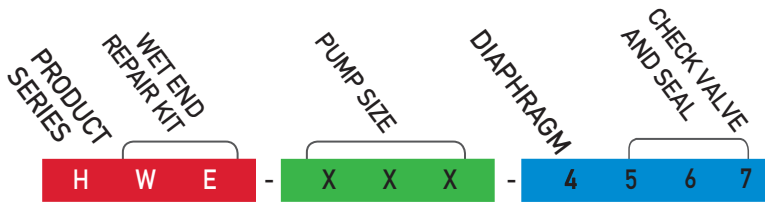
**⚠ CAUTION** Ensure all hardware is set to correct torque values prior to operation.

# Model Designation Matrix



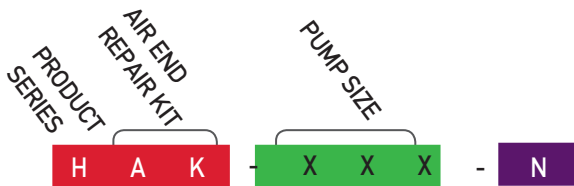
## WET END REPAIR KIT

Wet end kit contains 2 diaphragms, 4 balls, 4 seals, and 1 muffler.



## AIR END REPAIR KIT

Air end repair kit contains pump air-valve replacement.



Additional fluid connection types and finishes available upon request.

Contact factory for details.

Viton® is a registered trademark of DuPoint Performance Elastomers L.L.C.

\* H038 only

▲ H050, H100, H150, H200 and H300

† Only available on H100 and larger pumps.

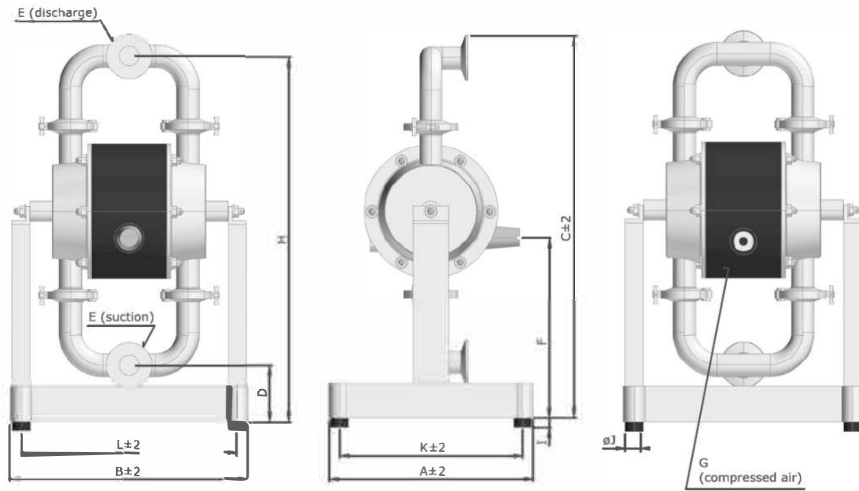
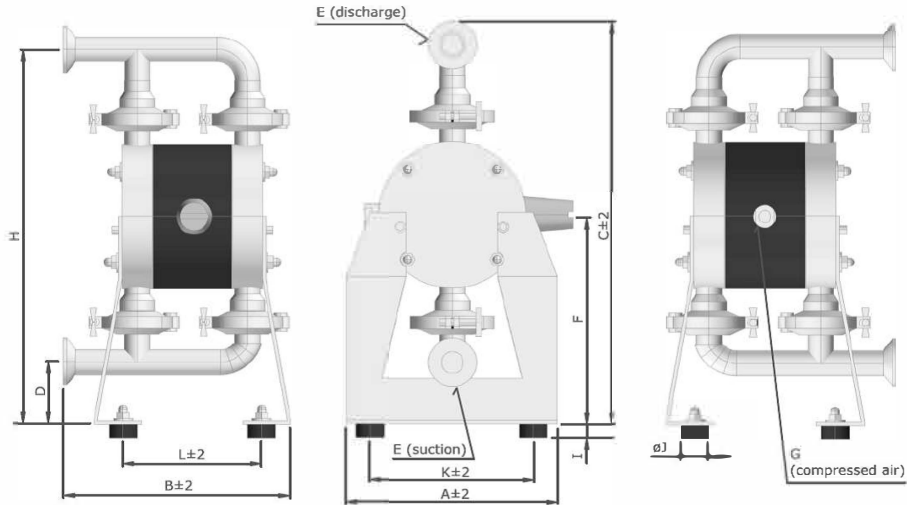
φ H050, H100, H150 and H200

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# Pump Specifications

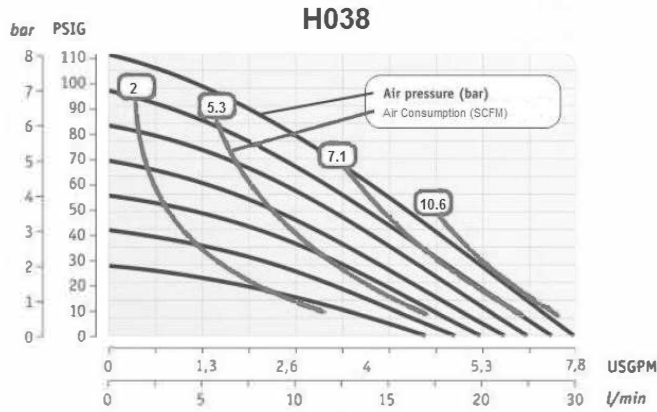
	H038	H050	H100	H150	H200	H300
<b>Dimension</b>						
<b>Air Inlet</b>	1/8"	¼"	¼"	½"	½"	¾"
<b>Liquid Inlet</b>	.5"	1"	1.5"	2"	2.5"	3"
<b>Liquid Outlet</b>	.5"	1"	1.5"	2"	2.5"	3"
<b>Weight</b>	11 lbs (5kg)	17.6 lbs (8kg)	24.3 lbs (11kg)	57.3 lbs (26kg)	75 lbs (34kg)	187.4 lbs (85kg)
<b>Performance</b>						
<b>Max Capacity</b>	7.9 gpm (30 lpm)	19.8 gpm (75 lpm)	33 gpm (125 lpm)	83 gpm (315 lpm)	150 gpm (565 lpm)	225 gpm (850 lpm)
<b>Max Pressure</b>	120psi (8.2 bar)					
<b>Max Solids</b>	1/8" (4 mm)	3/16" (5 mm)	5/16" (8 mm)	7/16" (11 mm)	7/32" (14 mm)	19/32 (15 mm)
<b>Max Solids with Flapper</b>			0.86 in. (22 mm)	1.49 in. (38 mm)	1.89 in. (48 mm)	2.59 in. (66 mm)
<b>Suction Lift Dry</b>	4.9 ft-H2O 1.5m-H2O	9.8ft-H2O 3m-H2O	13.1ft-H2O 4m-H2O	13.1ft-H2O 4m-H2O	16.4ft--H2O 5m-H2O	16.4ft-H2O 5m-H2O
<b>Suction Lift Wet</b>	29.5ft-H2O (9.0m-H2O)					
<b>Temperature Limits</b>						
<b>Rubber, EPDM</b>	176°F (80 C)					
<b>PTFE</b>	248°F (120 C)					

# Pump Dimensions

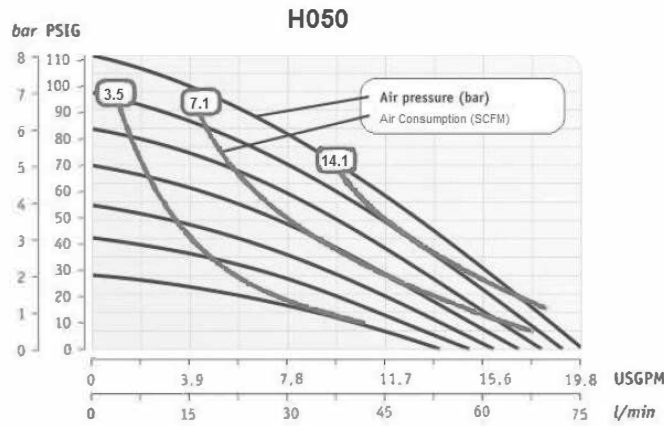


	A	B	C	D	E		F	G	H	I	J	K	L
					TC	DN							
<b>H038</b>	5.9"	6.5"	11.8"	1.8"	1/2"	(15mm)	6.4"	1/8"	11.1"	.70"	1.2"	4.6"	4.1"
	(150mm)	(165mm)	(299mm)	(46mm)		.6"	(162mm)		(282mm)	(18mm)	(30mm)	(116mm)	(103mm)
<b>H050</b>	9.1"	10.4"	16.5"	3.0"	1"	(25mm)	8.0"	1/4"	15.5"	.70"	1.2"	8.1"	9.4"
	(230mm)	(264mm)	(419mm)	(75mm)		1"	(204mm)		(394mm)	(18mm)	(30mm)	(206mm)	(238mm)
<b>H100</b>	10.1"	11.3"	18.3"	2.6"	1 1/2"	(40mm)	8.7"	1/4"	17.3"	.70"	1.2"	8.9"	10.1"
	(256mm)	(287mm)	(465mm)	(67mm)		1.6"	(221mm)		(440mm)	(18mm)	(30mm)	(226mm)	(257mm)
<b>H150</b>	13.8"	15.2"	26.7"	4.0"	2"	(50mm)	9.7"	1/2"	25.2"	.70"	1.2"	12.8"	14.1"
	(350mm)	(387mm)	(679mm)	(102mm)		2.0"	(247mm)		(640mm)	(18mm)	(30mm)	(325mm)	(357mm)
<b>H200</b>	13.8"	18.1"	35.0"	5.0"	2 1/2"	(65mm)	14.1"	1/2"	33.1"	.70"	1.2"	12.8"	17.1"
	(350mm)	(459mm)	(888mm)	(126mm)		2.6"	(357mm)		(842mm)	(18mm)	(30mm)	(326mm)	(435mm)
<b>H300</b>	23.2"	23.6"	51.6"	5.1"	3"	(80mm)	27.1"	3/4"	49.5"	.70"	1.2"	22.2"	22.6"
	(590mm)	(600mm)	(1310mm)	(129mm)		3.2"	(688mm)		(1257mm)	(18mm)	(30mm)	(565mm)	(575"

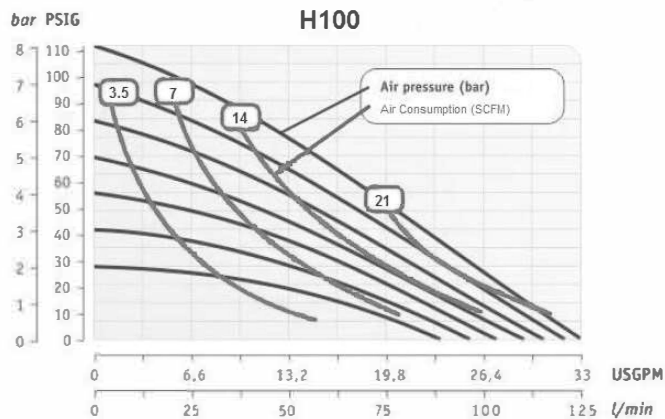
# Performance Curves



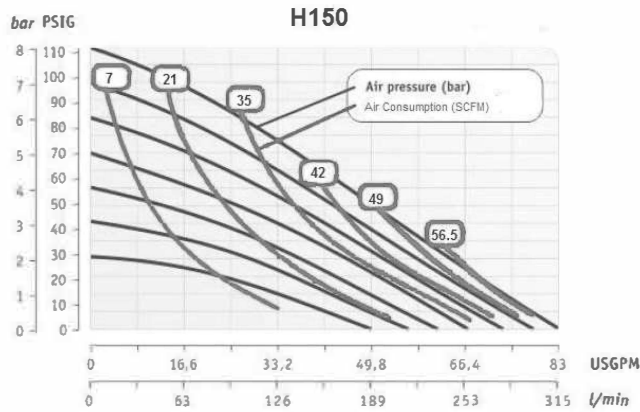
H038 Performance Specifications	
Max. Flow:	7.9 gpm (30 lpm)
Max. Air Pressure:	120 PSI (8.2 bar)
Max. Solids:	1/8" (3 mm)
Max. Suction Lift Dry:	4.9 ft-H <sub>2</sub> O (1.5 m-H <sub>2</sub> O)
Max. Suction Lift Wet:	29.5 ft-H <sub>2</sub> O (9 m-H <sub>2</sub> O)
Weight:	11 lbs (5 kg)
Air Inlet:	1/8"
Liquid Inlet:	3/8"
Liquid Outlet:	3/8"
Height:	12.5" (317 mm)
Width:	6.5" (165mm)
Depth:	5.9" (150 mm)



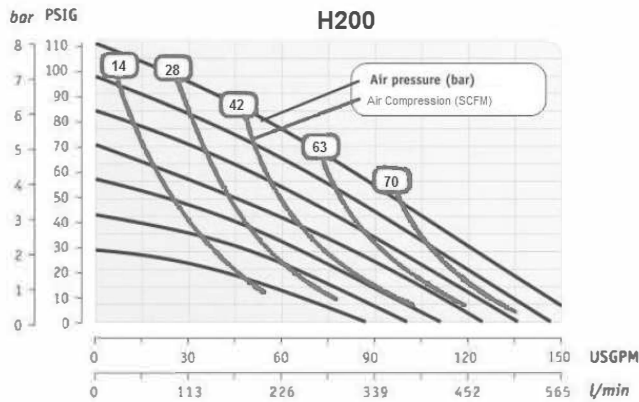
H050 Performance Specifications	
Max. Flow:	14.5 gpm (55 lpm)
Max. Air Pressure:	120 PSI (8.2 bar)
Max. Solids:	3/16" (5 mm)
Max. Suction Lift Dry:	9.8 ft-H <sub>2</sub> O (3 m-H <sub>2</sub> O)
Max. Suction Lift Wet:	29.5 ft-H <sub>2</sub> O (9 m-H <sub>2</sub> O)
Weight:	17.6 lbs (8kg)
Air Inlet:	1/4"
Liquid Inlet:	1/2"
Liquid Outlet:	1/2"
Height:	17.2" (248 mm)
Width:	10.4" (264mm)
Depth:	9.1" (230mm)



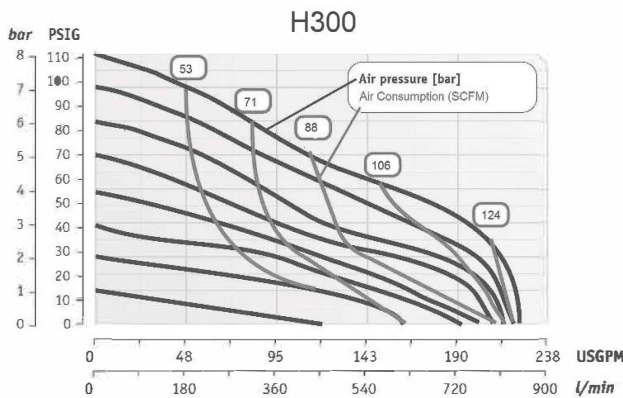
H100 Performance Specifications	
Max. Flow:	33 gpm (125 lpm)
Max. Air Pressure:	120 PSI (8.2 bar)
Max. Solids:	5/16" (8 mm)
Max. Suction Lift Dry:	13.1 ft-H <sub>2</sub> O (4 m-H <sub>2</sub> O)
Max. Suction Lift Wet:	29.5 ft-H <sub>2</sub> O (9 m-H <sub>2</sub> O)
Weight:	21 lbs (9.7 kg)
Air Inlet:	1/4"
Liquid Inlet:	1"
Liquid Outlet:	1"
Height:	19" (483mm)
Width:	11.3" (287mm)
Depth:	10.1" (256mm)



H150 Performance Specifications	
Max. Flow:	83 gpm (315 lpm)
Max. Air Pressure:	120 PSI (8.2 bar)
Max. Solids:	7/16" (11 mm)
Max. Suction Lift Dry:	13.1 ft-H <sub>2</sub> O (4 m-H <sub>2</sub> O)
Max. Suction Lift Wet:	29.5 ft-H <sub>2</sub> O (9 m-H <sub>2</sub> O)
Weight:	57.3 lbs (26 kg)
Air Inlet:	1/2"
Liquid Inlet:	1 1/2"
Liquid Outlet:	1 1/2"
Height:	27.4" (697 mm)
Width:	15.2" (387mm)
Depth:	13.8" (350mm)



H200 Performance Specifications	
Max. Flow:	150 gpm (565 lpm)
Max. Air Pressure:	120 PSI (8.2 bar)
Max. Solids:	7/32" (14 mm)
Max. Suction Lift Dry:	16.4 ft-H <sub>2</sub> O (5 m-H <sub>2</sub> O)
Max. Suction Lift Wet:	29.5 ft-H <sub>2</sub> O (9 m-H <sub>2</sub> O)
Weight:	75 lbs (34 kg)
Air Inlet:	1/2"
Liquid Inlet:	2"
Liquid Outlet:	2"
Height:	35.7" (906mm)
Width:	18.1" (459mm)
Depth:	13.8" (350 mm)



H300 Performance Specifications	
Max. Flow:	225 gpm (850 lpm)
Max. Air Pressure:	120 PSI (8.2 bar)
Max. Solids:	19/32" (15 mm)
Max. Suction Lift Dry:	16.4 ft-H <sub>2</sub> O (5 m-H <sub>2</sub> O)
Max. Suction Lift Wet:	29.5 ft-H <sub>2</sub> O (9 m-H <sub>2</sub> O)
Weight:	187.4 lbs (85 kg)
Air Inlet:	3/4"
Liquid Inlet:	3"
Liquid Outlet:	3"
Height:	52.3" (1328 mm)
Width:	23.6" (600mm)
Depth:	23.2" (590mm)



# Installation, Troubleshooting and Maintenance

## Installation

### Piping

Whenever possible ensure the pump is installed using the shortest possible pipe lengths with the minimum amount of pipe fittings. Ensure all piping is supported independent of the pump.

Suction and discharge piping should not be smaller than the connection size of the pump. When pumping liquids of high viscosity, larger piping may be used, in order to reduce frictional pipe loss.

Employ flexible hoses in order to eliminate the vibration caused by the pump. Mounting feet can also be used to reduce vibration effects.

All hoses should be reinforced, non-collapsible and be capable of high vacuum service. Ensure that all piping and hoses are chemically compatible with the process and cleaning fluid.

For processes where pulsation effects should be reduced, employ a pulsation dampener on the discharge side of the pump.

For self-priming applications, ensure all connections are airtight and the application is within the pumps dry-lift capability. Refer to product specifications for further details.

For flooded suction applications, install a gate valve on the suction piping in order to facilitate service. For unattended flooded suction operation, it is recommended to pipe the exhaust air above the liquid source. In the event of a diaphragm failure this will reduce or eliminate the possibility of liquid discharging through the exhaust onto the ground.

### Location

Ensure that the pump is installed in an accessible location, in order to facilitate future service and maintenance.

### Air

Ensure that the air supply is sufficient for the volume of air required by the pump. Refer to product specifications for further details. For reliable operation, install a 5 micron air filter, air-valve and pressure regulator. Do not exceed the pumps maximum operating pressure of 120 psig.

### Remote Operation

Utilize a three way solenoid valve for remote operation. This ensures that air between the solenoid and the pump is allowed to "bleed off," ensuring reliable operation. Liquid transfer volume is estimated by multiplying displacement per stroke times the number of strokes per minute

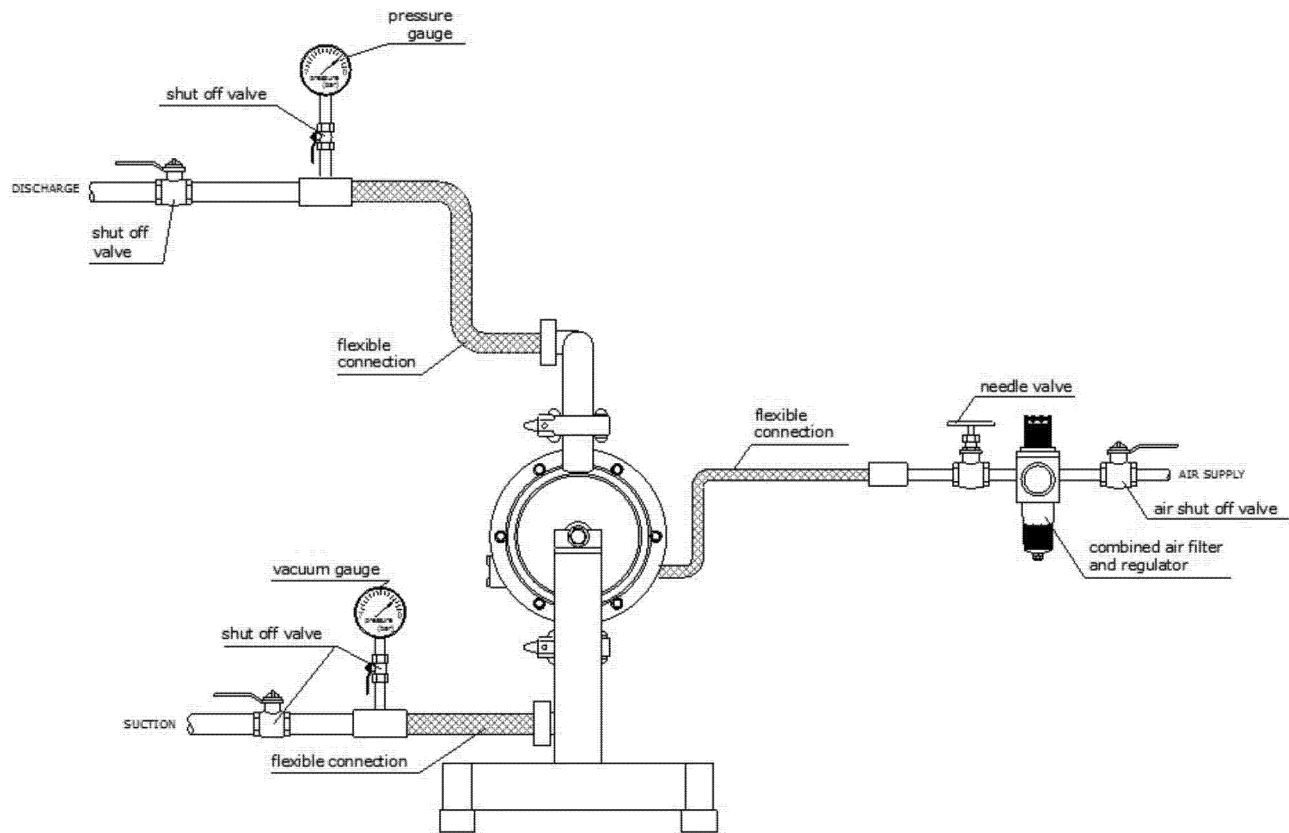
### Noise

Correct installation of the muffler reduces sound levels. Refer to product specifications for further details.

### Submerged Operation

For submersible operation, pipe the air exhaust to atmosphere

# Suggested Installation and Connection



## SELF PRIMING APPLICATION

Suction lift capability may vary depending on the construction materials and application parameters. The range is from 16.4 feet dry to 30 feet in a primed condition (values calculated for pumping water at 68 degrees Fahrenheit).

## SUBMERGED OPERATION

All pumps may operate in full submersion. Construction materials must be compatible with surrounding liquid and the air exhaust must be placed above the liquid level.

## POSITIVE SUCTION HEAD

Common as a method of drawing off the bottoms of holding tanks and clarifiers. Optimum inlet pressure should be kept at 14.5 PSI.

# Troubleshooting

## PROBLEM

## EFFECT/SOLUTION

### Pump Will Not Cycle

Discharge line closed or plugged  
Discharge filter blocked  
Check valve stuck  
Air filter blocked  
Air supply valve closed  
Air supply hooked up to muffler side of pump  
Compressor not producing air or turned off  
Muffler iced or blinded  
Diaphragm ruptured  
Plant air supply line ruptured  
Air valve wear/debris  
Pilot sleeve wear/debris  
Diaphragm rod broken  
Diaphragm plate loose

### Pumped Fluid Coming Out of Muffler

Diaphragm ruptured  
Diaphragm plate loose  
Inlet liquid pressure excessive (above 10 psig)

### Pump Cycles but no Flow

Inlet strainer clogged  
Suction valve closed  
Suction line plugged  
No liquid in the suction tank  
Suction lift excessive  
Debris stuck in valves  
Excessive wear of check valves  
Air leak on suction side with suction lift

### Pump Cycles with Closed Discharge Valve

Debris stuck in check valve  
Excessive wear of check valves

### Pump Running Slowly/Not Steady

Air compressor undersized  
Leak in air supply  
Air-line, filter regulator or needle valve undersized  
Muffler partially iced or blinded  
Air valve gasket leak or misalignment  
Air valve wear/debris  
Pilot sleeve wear/debris  
Liquid fluid filter blocked  
Pump may be cavitating, reduce speed of operation  
Suction strainer clogged

### Pump Will Not Prime

Air leak in suction pipe  
Air leak in pump manifold connections  
Suction strainer and lines clogged  
Excessive lift conditions  
Check valve wear  
Debris in check valve

If any of the above mentioned causes do not apply to your problem, contact your All-Flo authorized distributor.

## Operation



### CAUTION

- ! Before starting the pump, check that all piping is properly connected.
- ! Before starting the pump, check that **all the bolts are securely tightened.**
- ! Check that the regulator and the drain valve on the discharge side are closed and that the valve on the suction side is opened if applicable.

- 1) Start the air compressor.
- 2) Open the air valve. Using a regulator to adjust the supply air pressure within the permissible range.
- 3) Open the flow valve on the discharge side.
- 4) First, check that fluid is flowing inside the piping and is being pumped to the discharge side, and then fully open the air valve.

## Flow Adjustment

Adjust the flow valve on the discharge side, or adjust the supply air pressure.



### CAUTION

- ! The supply air pressure may initially rise during closing the flow valve. Make sure that the pressure is kept within the normal operating range.
- ! The permissible suction flow speed can vary depending upon the viscosity and specific gravity of the fluid, the suction stroke and other factors. However in case of a rapid growth of the pump speed (flow speed of fluid), cavitations will occur. This will reduce pump performance and may cause a malfunction. In order to prevent cavitations, adjust the supply air pressure and the flow.
- ! If fluid is not discharged after you start the pump, or if you hear an abnormal noise or notice any irregularity, shut down the pump immediately.

# Maintenance

## Cleaning the Pump



### WARNING

- ! Make sure that compressed air is not supplied to the pump BEFORE you start cleaning the pump.
- ! Make sure that the pump is not pressurized BEFORE you start cleaning the pump.

- 1) Remove the hose from the suction side of the pump.
- 2) Close the flow valve on the discharge side and open the drain valve. Then start air pressure for a while to discharge possibly much fluid remaining inside the pump.
- 3) Remove the hose from the discharge side, and attach different hoses to the suction side and the discharge side for cleaning.
- 4) Be ready with a vessel with cleaning solution, the kind appropriate for the type of fluid pumped. Next connect the suction-side and the discharge-side hoses of the pump.
- 5) Start the pump air pressure slowly, and let the cleaning solution circulate for sufficient cleaning.
- 6) Flush with clean water.
- 7) Remove the hose from the suction side of the pump, run the pump for a while to purge the pump of remaining fluid as much as possible.



### CAUTION

- ! Be extremely careful when removing piping - the fluid will run/flow out.
- ! After cleaning with clean water, turn the pump upside-down to let the water flow out.

# Shutdown

Close the air valve of the pump and shut off the supply air.



## CAUTION

- ! The pump can be shut down with the flow valve closed while air is being supplied. However DO NOT leave the pump in this condition for many hours without supervision - there is a risk of a leak from the pump or piping, and fluid may continue flowing out of the position of leakage.
- ! When the pump is shut down while pumping slurry, particulate matter contained in the slurry will be deposited and get stuck inside the out chamber. Therefore after finishing work the pump must be cleared of the remaining fluid. Otherwise when starting the pump again, the diaphragm may get damaged and the center rod may bend.



## CAUTION

- ! Keep a vessel below the relief valve for any drain off.
- ! Be careful! - Fluid under pressure will gush out the moment you open the valve.
- ! If the pump is unused for a prolonged period, purge and clean it.

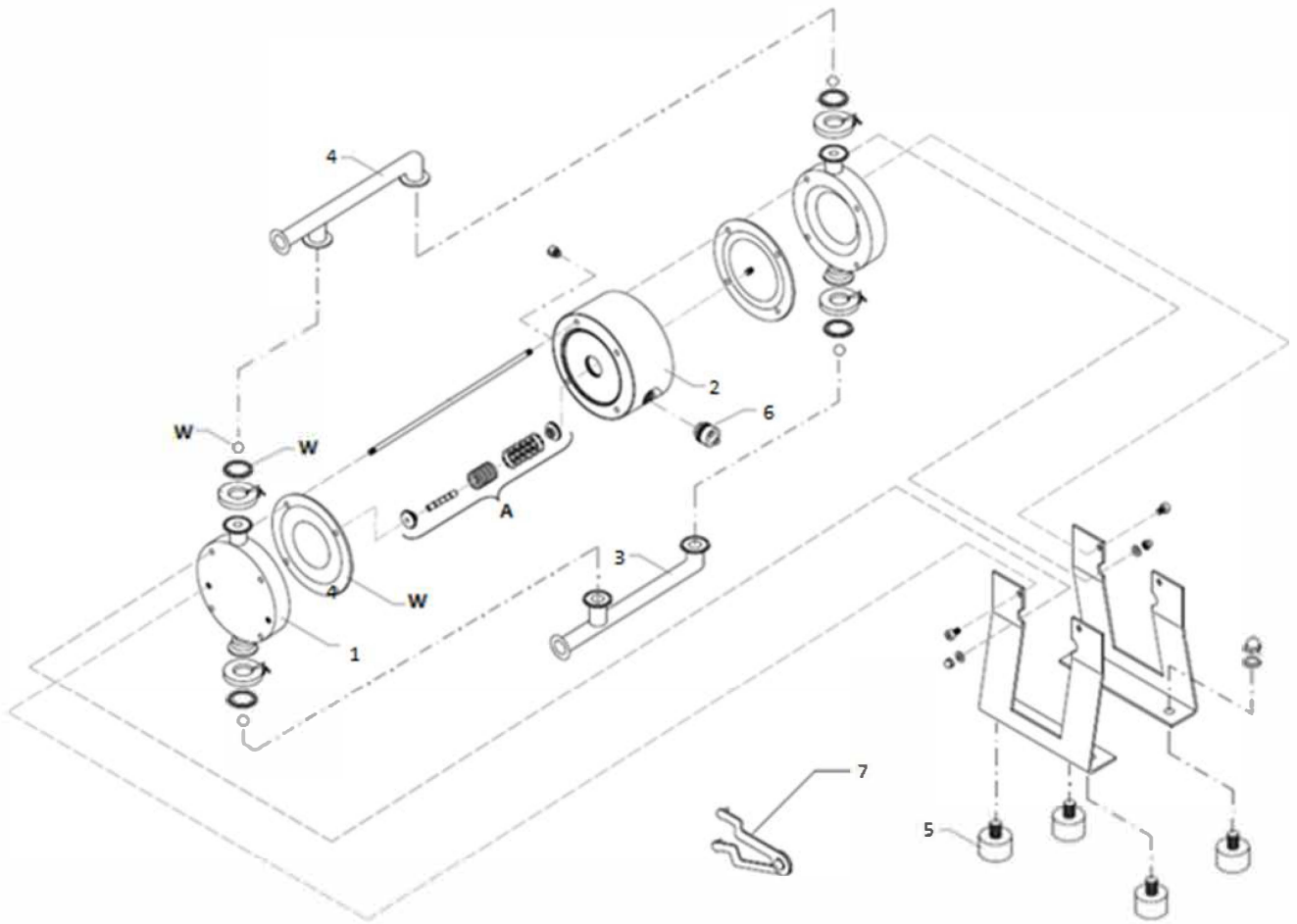
# Daily check

Before starting pump operation, conduct the following check procedures every day. In case there appears any irregularity, do NOT start running the pump until the cause of the irregularity has been determined and corrective measures have been taken.

- a) Make sure that there is no leakage of fluid from any connection part or the pump.
- b) Make sure that there are no cracks in the pump casing or piping.
- c) Check the tightness of every bolt of the pump.
- d) Make sure that the connection parts of the piping and peripheral equipment are not loose.
- e) Make sure that any parts of the pump that are to be replaced at regular intervals have been changed.

Maximum Torque Specifications	
Torque values for housing bolts	
Pump Size	
H038	79 in-lbs (9 N-m)
H050	89 in-lbs (10 N-m)
H100	124 in-lbs (14 N-m)
H150	150 in-lbs (17 N-m)
H200	195 in-lbs (22 N-m)
H300	398 in-lbs (45 N-m)

# H038 - EXPLODED VIEW



H038 - PARTS LIST

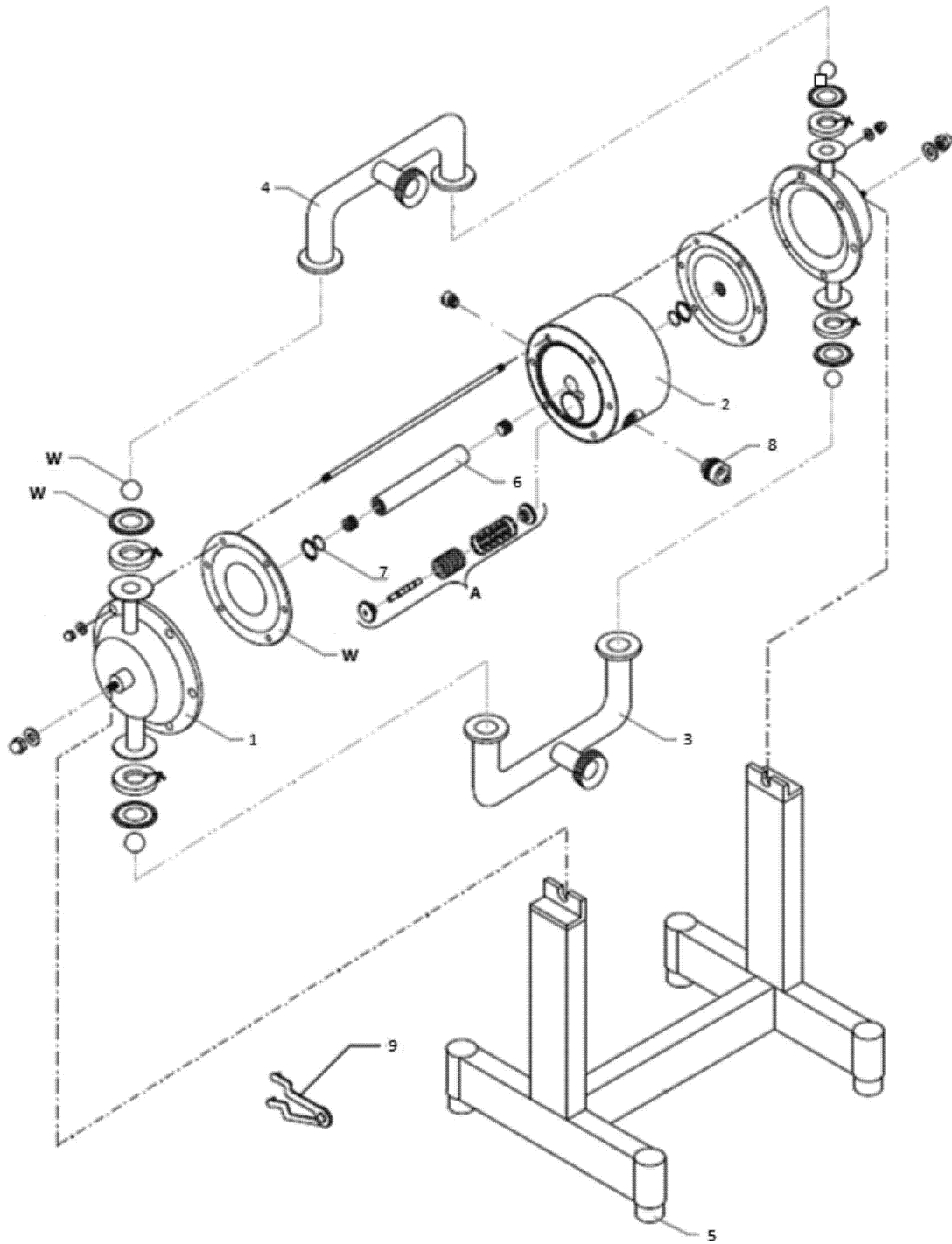
<b>H038</b>				
<b>ITEM</b>	<b>PART NUMBER</b>	<b>QTY</b>	<b>DESCRIPTON</b>	<b>MATERIAL</b>
<b>1</b>	HP-4 15 01 53*	2	Pump housing	AISI 316 L
<b>2</b>	HP-1 10 10 20	1	Center housing	PE
	HP-1 10 10 21			PE cond.
<b>3</b>	HP-4 15 30 53*	1	Manifold inlet DIN	AISI 316 L
	HP-4 15 32 53*		Manifold inlet TC	AISI 316 L
<b>4</b>	HP-4 15 33 53*	1	Manifold outlet DIN	AISI 316 L
	HP-4 15 35 53*		Manifold outlet TC	AISI 316 L
<b>5</b>	HP-1 15 69 52	4	Shock absorber	NR/SS
<b>6</b>	HP-1 08 99 35	1	Muffler	PE porous
<b>7</b>	HP-1 08 58 00	1	Air valve key (SK4)	Various
<b>REPAIR KITS</b>				
<b>A</b>	HAK-038	KIT	Air valve	PET/NBR
<b>W</b>	HWE-038-NTTN	KIT	BUNA-N WET KIT	
	HWE-038-ETTE	KIT	EPDM WET KIT	
	HWE-038-PTTT	KIT	PTFE WET KIT	

Standard is Ra = 32μ-inches, 0.8μ-meters

\*Ra = 20-28μ-inches, 0.5-0.7μ-meters



# H050 & H100 - EXPLODED VIEW



H050 - PARTS LIST

<b>H050</b>				
<b>ITEM</b>	<b>PART NUMBER</b>	<b>QTY</b>	<b>DESCRIPTON</b>	<b>MATERIAL</b>
<b>1</b>	HP-4 25 01 53*	2	Pump housing	AISI 316 L
<b>2</b>	HP-1 15 10 20	1	Center housing	PE
	HP-1 15 10 21			PE conductive
<b>3</b>	HP-4 25 30 53*	1	Manifold inlet DIN	AISI 316 L
	HP-4 25 31 53*		Manifold inlet SMS	AISI 316 L
	HP-4 25 32 53*		Manifold inlet TC	AISI 316 L
<b>4</b>	HP-4 25 33 53*	1	Manifold outlet DIN	AISI 316 L
	HP-4 25 34 53*		Manifold outlet SMS	AISI 316 L
	HP-4 25 35 53*		Manifold outlet TC	AISI 316 L
<b>5</b>	HP-1 15 69 52	4	Shock absorber	NR/SS
<b>6</b>	HP-1 15 40 50	1	Shaft	AISI 304
<b>7</b>	HP-1 15 85 22	2	Center housing seal	PE
<b>8</b>	HP-1 15 99 35	1	Muffler	PE porous
<b>9</b>	HP-1 08 58 00	1	Air valve key (SK4)	diverse
<b>REPAIR KITS</b>				
<b>A</b>	HAK-050	1	Air valve	PET/NBR
<b>W</b>	HWE-050-NTTN	KIT	BUNA-N WET KIT	
	HWE-050-ETTE	KIT	EPDM WET KIT	
	HWE-050-PTTT	KIT	PTFE WET KIT	

Standard is Ra = 32μ-inches, 0.8μ-meters

\*Ra = 20-28μ-inches, 0.5-0.7μ-meters

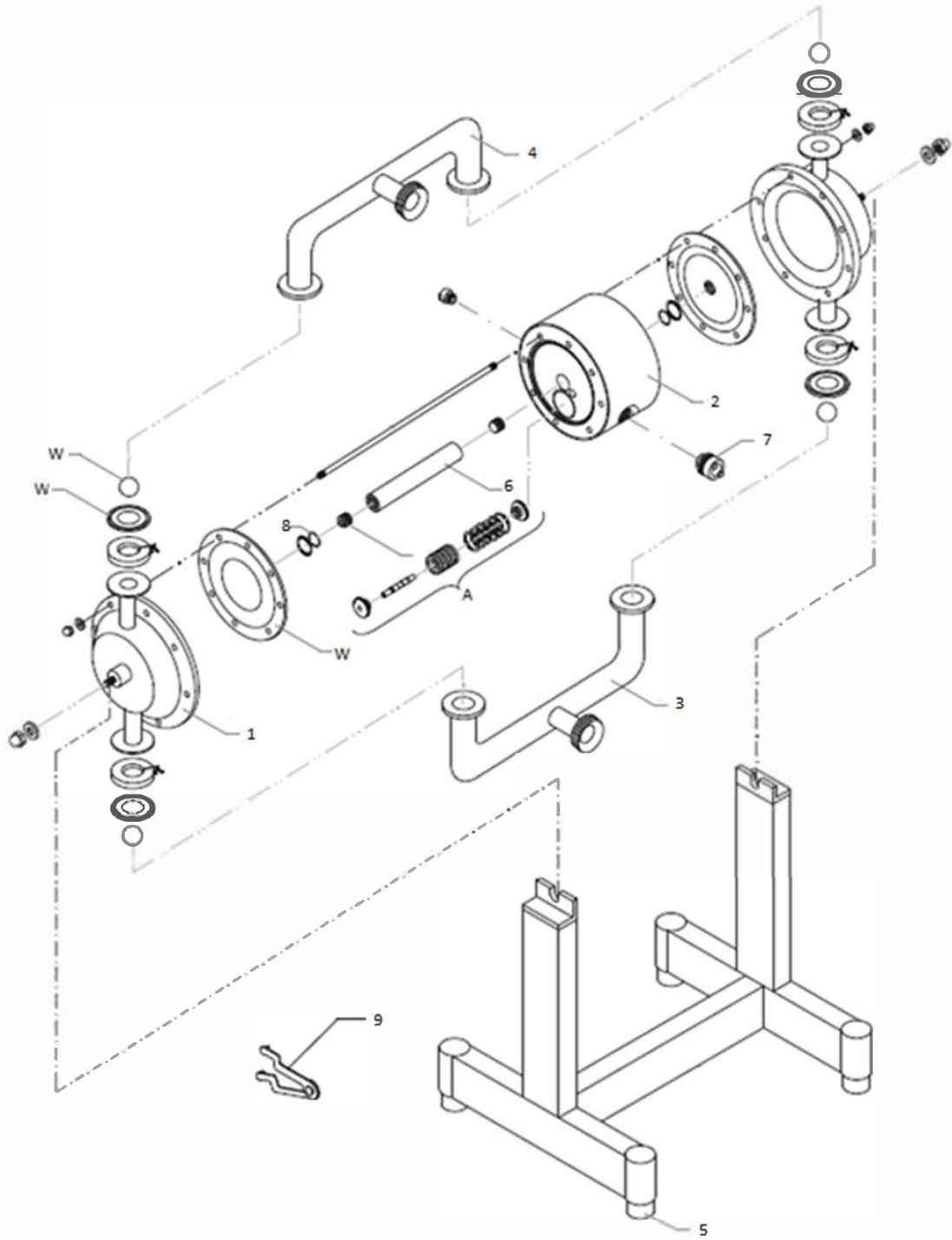
## H100 – PARTS LIST

<b>H100</b>				
<b>ITEM</b>	<b>PART NUMBER</b>	<b>QTY</b>	<b>DESCRIPTON</b>	<b>MATERIAL</b>
<b>1</b>	HP-4 40 01 53*	2	Pump housing	AISI 316 L
<b>2</b>	HP-1 25 10 20	1	Center housing	PE
	HP-1 25 10 21			PE conductive
<b>3</b>	HP-4 40 30 53*	2	Manifold inlet DIN	AISI 316 L
	HP-4 40 31 53*		Manifold inlet SMS	AISI 316 L
	HP-4 40 32 53*		Manifold inlet TC	AISI 316 L
<b>4</b>	HP-4 40 33 53*	2	Manifold outlet DIN	AISI 316 L
	HP-4 40 34 53*		Manifold outlet SMS	AISI 316 L
	HP-4 40 35 53*		Manifold outlet TC	AISI 316 L
<b>5</b>	HP-1 15 69 52	4	Shock absorber	NR/SS
<b>6</b>	HP-1 25 40 50	1	Shaft	AISI 304
<b>7</b>	HP-1 15 99 35	1	Muffler	PE porous
<b>8</b>	HP-1 25 85 22	2	Center housing seal	PE
<b>9</b>	HP-1 08 58 00	1	Air valve key (SK4)	diverse
<b>REPAIR KITS</b>				
<b>A</b>	HAK-100	1	Air valve	PET/NBR
<b>W</b>	HWE-100-NTTN	KIT	BUNA-N WET KIT	
	HWE-100-ETTE	KIT	EPDM WET KIT	
	HWE-100-PTTT	KIT	PTFE WET KIT	

Standard is Ra = 32μ-inches, 0.8μ-meters

\*Ra = 20-28μ-inches, 0.5-0.7μ-meters

# H150 & H200 - EXPLODED VIEW



## H150 – PARTS LIST

<b>H150</b>				
<b>ITEM</b>	<b>PART NUMBER</b>	<b>QTY</b>	<b>DESCRIPTON</b>	<b>MATERIAL</b>
<b>1</b>	HP-4 50 01 53*	2	Pump housing	AISI 316 L
<b>2</b>	HP-1 40 10 20	1	Center housing	PE
	HP-1 40 10 21			PE conductive
<b>3</b>	HP-4 50 30 53*	2	Manifold inlet DIN	AISI 316 L
	HP-4 50 31 53*		Manifold inlet SMS	AISI 316 L
	HP-4 50 32 53*		Manifold inlet TC	AISI 316 L
<b>4</b>	HP-4 50 33 53*	2	Manifold outlet DIN	AISI 316 L
	HP-4 50 34 53*		Manifold outlet SMS	AISI 316 L
	HP-4 50 35 53*		Manifold outlet TC	AISI 316 L
<b>5</b>	HP-1 15 69 52	4	Shock absorber	NR/SS
<b>6</b>	HP-1 40 40 50	1	Shaft	AISI 304
<b>7</b>	HP-1 40 99 35	1	Muffler	PE porous
<b>8</b>	HP-1 40 85 22	2	Center housing seal	PE
<b>9</b>	HP-1 08 58 00	1	Air valve key (SK4)	diverse
<b>REPAIR KITS</b>				
<b>A</b>	HAK-150	1	Air valve	PET/NBR
<b>W</b>	HWE-150-NTTN	KIT	BUNA-N WET KIT	
	HWE-150-ETTE	KIT	EPDM WET KIT	
	HWE-150-PTTT	KIT	PTFE WET KIT	

Standard is Ra = 32μ-inches, 0.8μ-meters

\*Ra = 20-28μ-inches, 0.5-0.7μ-meters

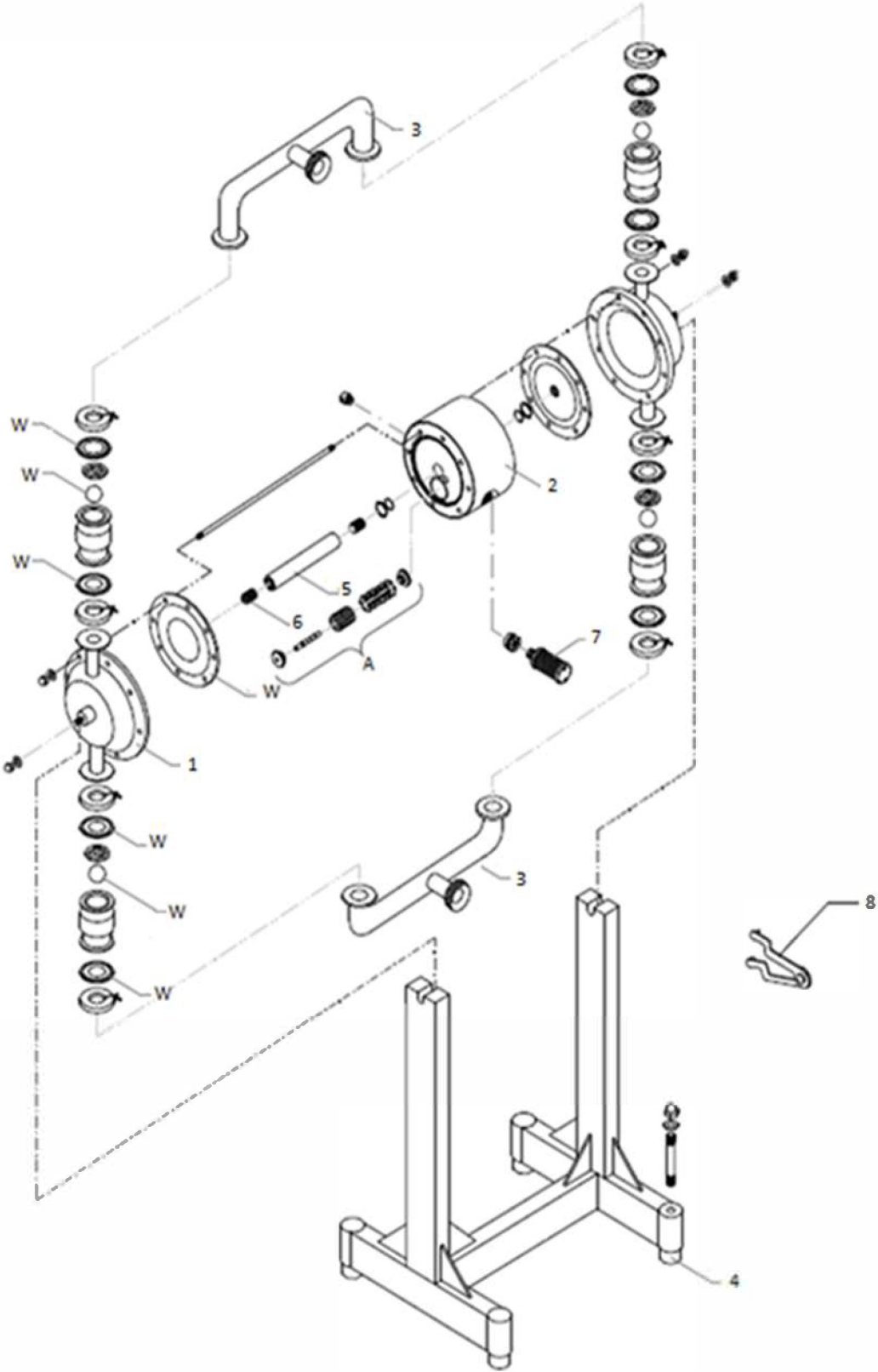
## H200 – PARTS LIST

<b>H200</b>				
<b>ITEM</b>	<b>PART NUMBER</b>	<b>QTY</b>	<b>DESCRIPTON</b>	<b>MATERIAL</b>
<b>1</b>	HP-4 65 01 53*	2	Pump housing	AISI 316 L
<b>2</b>	HP-1 50 10 20	1	Center housing	PE
	HP-1 50 10 21			PE conductive
<b>3</b>	HP-4 65 30 53*	2	Manifold inlet DIN	AISI 316 L
	HP-4 65 31 53*		Manifold inlet SMS	AISI 316 L
	HP-4 65 32 53*		Manifold inlet TC	AISI 316 L
<b>4</b>	HP-4 65 33 53*	2	Manifold outlet DIN	AISI 316 L
	HP-4 65 34 53*		Manifold outlet SMS	AISI 316 L
	HP-4 65 35 53*		Manifold outlet TC	AISI 316 L
<b>5</b>	HP-1 15 69 52	4	Shock absorber	NR/SS
<b>6</b>	HP-1 50 40 50	1	Shaft	AISI 304
<b>7</b>	HP-1 50 99 35	1	Muffler	PE porous
<b>8</b>	HP-1 50 85 22	2	Center housing seal	PE
<b>9</b>	HP-1 08 58 00	1	Air valve key (SK4)	diverse
<b>REPAIR KITS</b>				
<b>A</b>	HAK-200	1	Air valve	PET/NBR
<b>W</b>	HWE-200-NTTN	KIT	BUNA-N WET KIT	
	HWE-200-ETTE	KIT	EPDM WET KIT	
	HWE-200-PTTT	KIT	PTFE WET KIT	

Standard is Ra = 32μ-inches, 0.8μ-meters

\*Ra = 20-28μ-inches, 0.5-0.7μ-meters

H300 EXPLODED VIEW



## H300 – PARTS LIST

<b>H300</b>				
<b>ITEM</b>	<b>PART NUMBER</b>	<b>QTY</b>	<b>DESCRIPTON</b>	<b>MATERIAL</b>
<b>1</b>	HP-4 80 01 53*	2	Pump housing	AISI 316 L
<b>2</b>	HP-1 80 10 20	1	Center housing	PE
	HP-1 80 10 21			PE conductive
<b>3</b>	HP-4 80 30 53*	2	Manifold inlet/outlet DIN	AISI 316 L
	HP-4 80 31 53*		Manifold inlet/outlet SMS	AISI 316 L
	HP-4 80 32 53*		Manifold inlet/outlet TC	AISI 316 L
<b>4</b>	HP-4 80 69 53*	4	Shock absorber	AISI 316L
<b>5</b>	HP-1 80 40 50	1	Shaft	AISI 304
<b>6</b>	HP-1 80 40 50	2	Center housing seal	PE
<b>7</b>	HP-1 80 99 00	1	Muffler	diverse
<b>8</b>	HP-1 80 58 00	1	Air valve key (SK4)	diverse
<b>REPAIR KITS</b>				
<b>A</b>	HAK-300	1	Air valve	PET/NBR
<b>W</b>	HWE-300-NTTN	KIT	BUNA-N WET KIT	
	HWE-300-ETTE	KIT	EPDM WET KIT	
	HWE-300-PTTT	KIT	PTFE WET KIT	

Standard is Ra = 32μ-inches, 0.8μ-meters

\*Ra = 20-28μ-inches, 0.5-0.7μ-meters



## Back Flushing System (option code Z127)

A pump equipped with the back flushing system can be emptied along with an inclining discharge line while being installed within the plant. It consists of a ball-lift system in the side housings which can be activated by manual valves.

Open the manual valves by turning blocking pins [67] clockwise (right turn), approx. 90°. The pump should be kept in operation meanwhile. Slow down the pump slowly and finally stop it. The pump is drained entirely on both sides (suction and discharge).

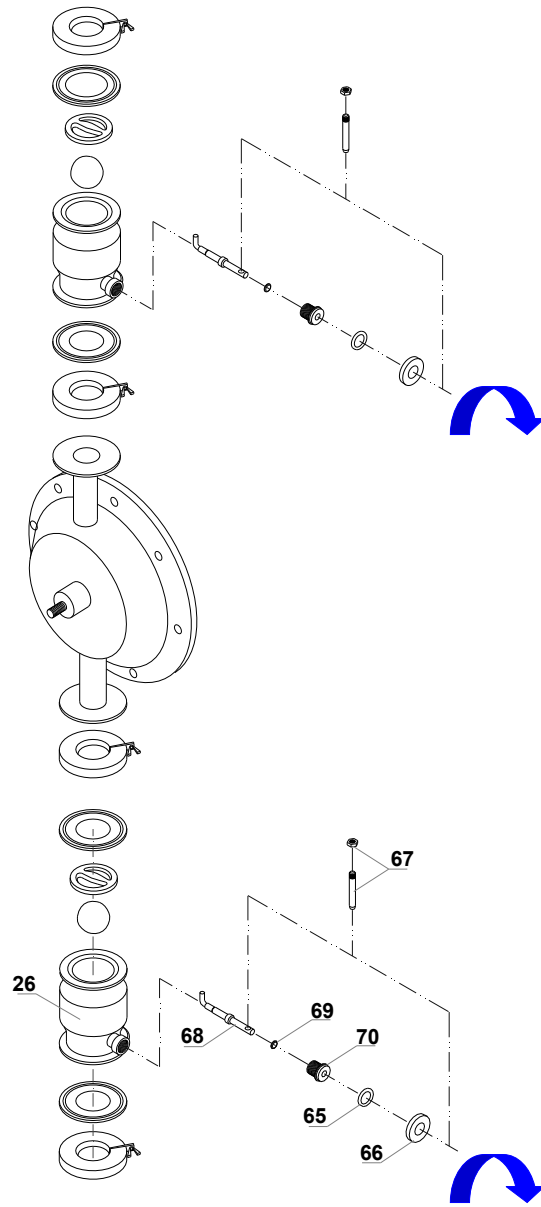
The side housing o-rings are made from PTFE.

**ATTENTION:** Blocking pins may be rotated only in clockwise direction to avoid unscrewing of cap [70] - see the drawing on page 26 (arrows show direction of rotating of blocking pins). To close manual valves, you should turn clockwise blocking pins [67] around – to the original position before activating BF system.

## Depiction of Back Flushing System



**Example Appearance of Back Flushing System for H300 Pump**



Item	Pc.	Description	Material	Part no.
26	4	Valve seat for BF option	AISI 316L	HP 4 80 239 53
65	4	O-Ring	PTFE	HP 4 80 372 09
66	4	Washer	AISI 316L	HP 4 80 157 53
67	4	Blocking pin	AISI 316L	HP 3 80 342 53
68	4	Lever	AISI 316L	HP 4 80 457 53
69	4	Packing washer	PTFE	HP 4 80 357 23
70	4	Screw cap	AISI 316L	HP 4 80 957 53

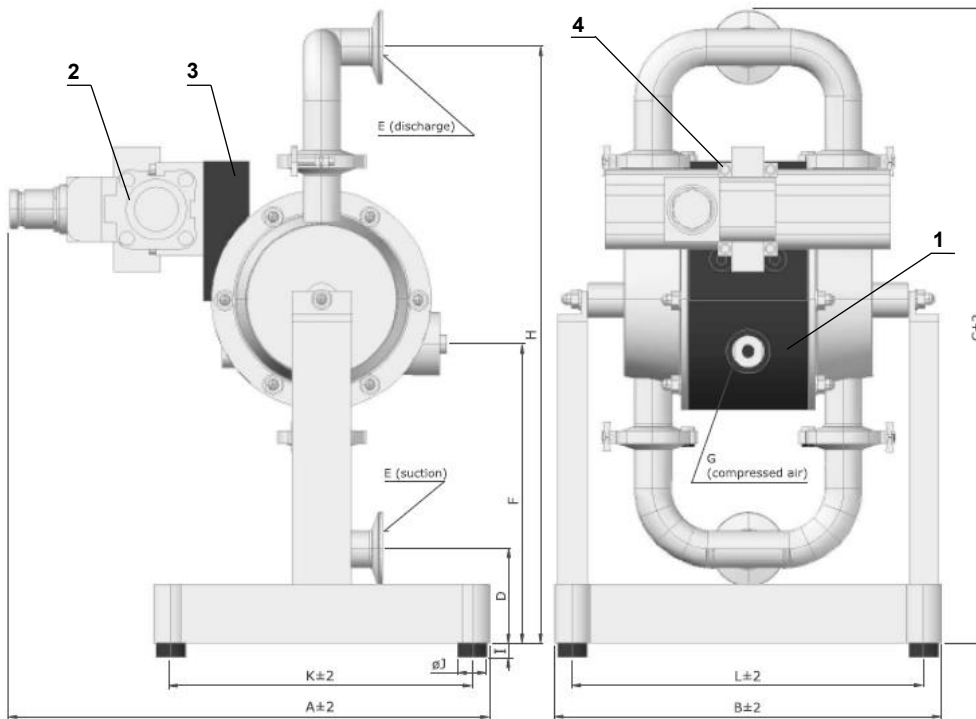
## High Pressure (option code HP)

All-Flo Hygienic diaphragm pumps can be fitted with High Pressure option (except H038 pump).

### Pressure adjustment

The required pressure in the system is comfortably adjusted by the height of the air pressure supplying the pump. For a required pressure of 12 bar the HP pump has to be supplied with 6 bar when the pump with a pressure transmission of 1:2 is applied. In the case that higher pressures are necessary or there is only a lower air pressure available, the HP pump with 1:4 transmission is applied.

### Appearance and dimensions of High Pressure pump



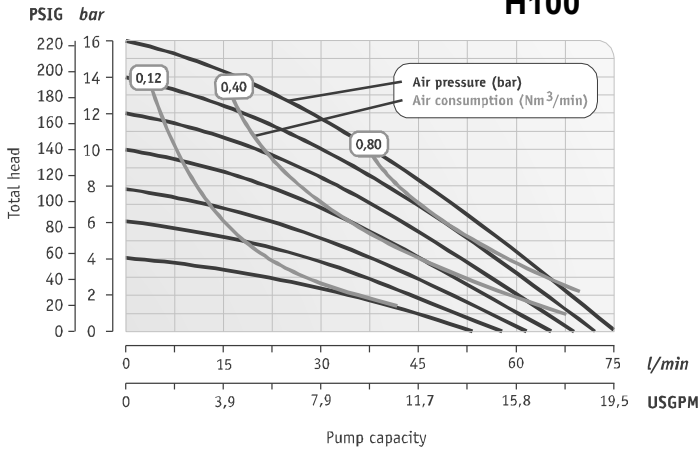
	A	B	C	D	E			F	G	H	I	J	K	L
					TC	DN	SMS							
H100	14.84 in. (377 mm)	6.49 in. (165 mm)	16.49 in. (419 mm)	1.81 in. (46 mm)	1"	.9 in. (25 mm)	.9 in. (25 mm)	8.03 in. (204 mm)	½"	15.51 in. (294 mm)	.708 in. (18 mm)	1.18 in. (30 mm)	8.1 in. (206 mm)	9.3 in. (238 mm)
H150	15.86 in. (403 mm)	11.29 in. (287 mm)	18.30 in. (465 mm)	2.63 in. (67 mm)	1 ½"	1.57 in. (40 mm)	1.49 in. (38 mm)	8.70 in. (221 mm)	½"	17.32 in. (440 mm)	.708 in. (18 mm)	1.18 in. (30 mm)	8.89 in. (226 mm)	10.11 in. (257 mm)
H200	17.79 (452 mm)	15.23 in. (387 mm)	26.73 in. (679 mm)	4.01 in. (102 mm)	2"	1.96 in. (50 mm)	2.00 in. (51 mm)	9.72 in. (247 mm)	½"	25.19 in. (640 mm)	.708 in. (18 mm)	1.18 in. (30 mm)	12.79 in. (325 mm)	14.05 in. (357 mm)
H300	22.55 in. (573 mm)	18.07 in. (459 mm)	34.96 in. (888 mm)	5.35 in. (136 mm)	2 ½"	2.55 in. (65 mm)	2.5 in. (63.5 mm)	14.05 in. (357 mm)	½"	33.14 in. (842 mm)	.708 in. (18 mm)	1.18 in. (30 mm)	12.83 in. (326 mm)	17.12 in. (435 mm)

### Spare part list, high pressure system

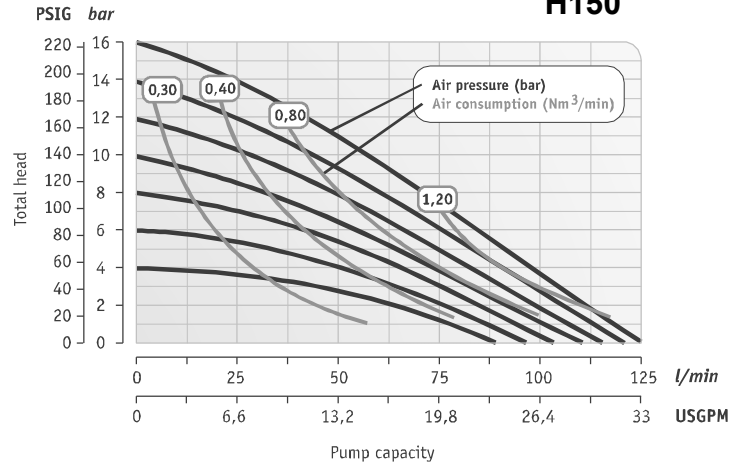
Pump size:					H100	H150	H200	H300
Code	Item	Pc.	Description	Material	Part no.	Part no.	Part no.	Part no.
HP	1	1	Center housing for HP option	PE	HP-1 15 210 20	HP-1 25 210 20	HP-1 40 210 20	HP-1 50 210 20
				PE conductive	HP-1 15 210 21	HP-1 25 210 21	HP-1 40 210 21	HP-1 50 210 21
	2	1	Air pressure booster	diverse	HP-9 15 64 00	HP-9 15 64 00	HP-9 40 64 00	HP-9 50 64 00
	3	1	Booster connection	PE conductive	HP-3 20 364 21	HP-3 25 364 21	HP-3 40 364 21	HP-3 50 364 21
4	4	Connection bolt	AISI 304	HP-3 20 242 50	HP-3 20 242 50	HP-3 20 242 50	HP-3 20 242 50	

Performance curves

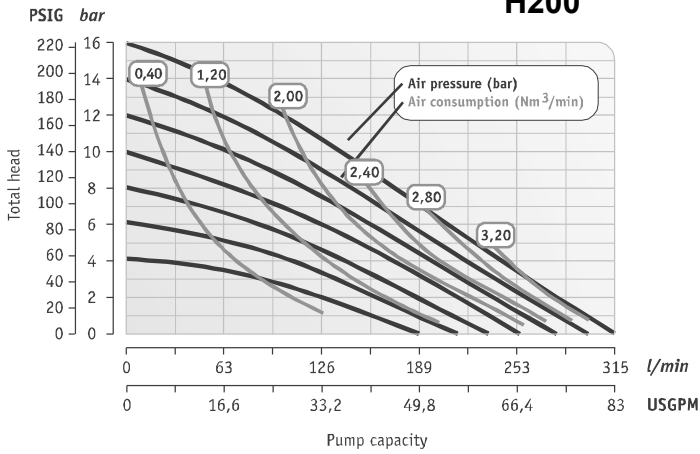
**H100**



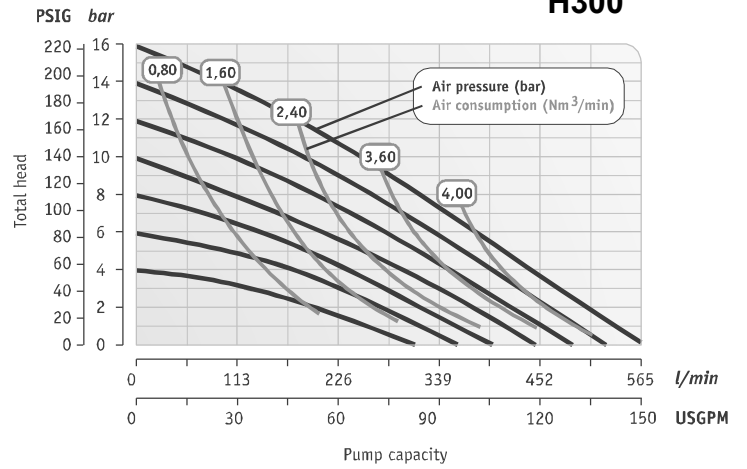
**H150**



**H200**



**H300**



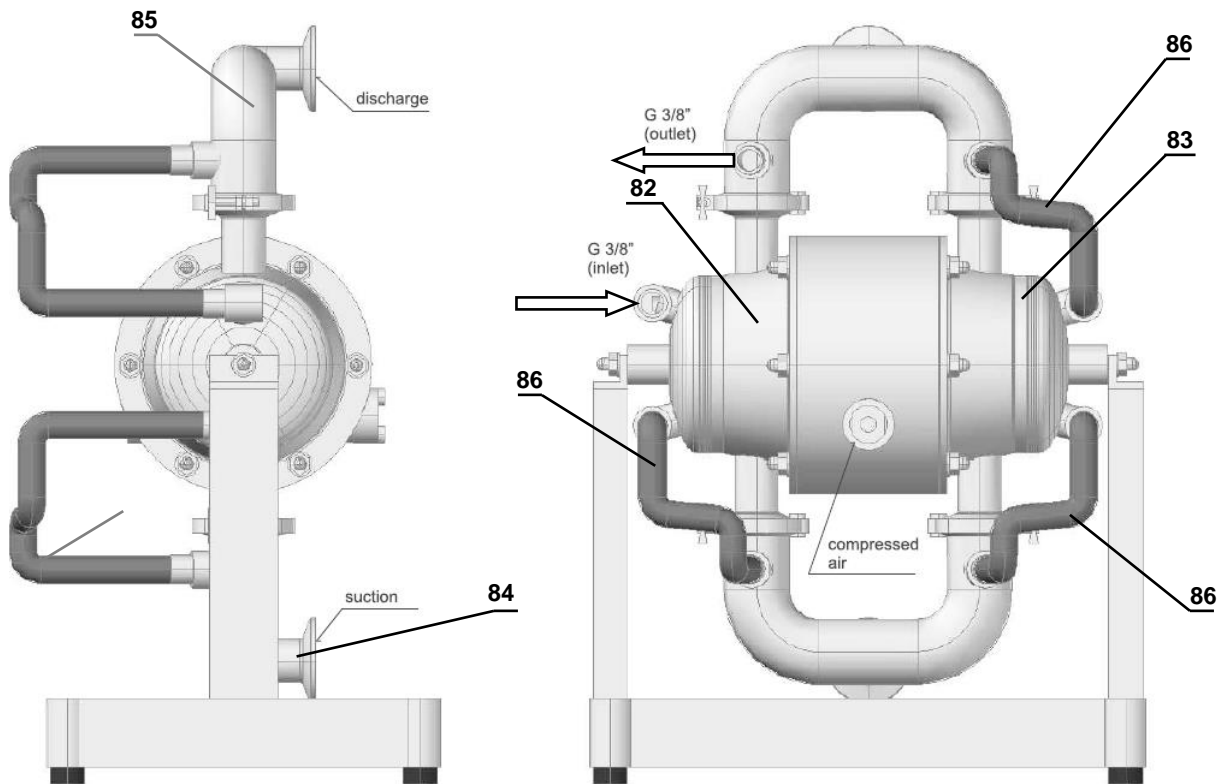
## Heating Jacket (option code Z143)

The heating jacket is used when the pumped product has to maintain a specific temperature, high or low, throughout the process. A heating or cooling medium (hot water, steam, oil) is continuously circulated in the heating jacket. The jacket is covering all the wetted parts of the pump. Available on hygienic (AISI 316L polished) series pumps from H050-H200 H-Series model.

Technical data for Heating Jacket (option code Z143):

- Maximum temperature: 248°F (120°C)
- Maximum pressure: 44 psi (3 bar)
- Flow rate: depending on product temperature
- Medium: hot water, steam, oil
- Connections: 3/8"

### Appearance of hygienic pump with Heating Jacket option



### Spare part list, high pressure system

Pump size:					H050	H100	H150	H200
Code	Item	Pcs.	Description	Material	Part no.	Part no.	Part no.	Part no.
Z143	82	1	Left side housing for HJ Option	AISI 316L	HP-4-25-801-53	HP-4-40-801-53	HP-4-50-801-53	HP-4-65-801-53
	83	1	Right side housing for HJ Option	AISI 316L	HP-4-25-901-53	HP-4-40-901-53	HP-4-50-901-53	HP-4-65-901-53
	84	1	Inlet DIN for HJ Option	AISI 316L	HP-4-25-130-53	HP-4-40-130-53	HP-4-50-130-53	HP-4-65-130-53
		1	Inlet SMS for HJ Option	AISI 316L	HP-4-25-131-53	HP-4-40-131-53	HP-4-50-131-53	HP-4-65-131-53
		1	Inlet TC for HJ Option	AISI 316L	HP-4-25-132-53	HP-4-40-132-53	HP-4-50-132-53	HP-4-65-132-53
	85	1	Outlet DIN for HJ Option	AISI 316L	HP-4-25-133-53	HP-4-40-133-53	HP-4-50-133-53	HP-4-65-133-53
		1	Outlet SMS for HJ Option	AISI 316L	HP-4-25-134-53	HP-4-40-134-53	HP-4-50-134-53	HP-4-65-134-53
		1	Outlet TC for HJ Option	AISI 316L	HP-4-25-135-53	HP-4-40-135-53	HP-4-50-135-53	HP-4-65-135-53
	86	3	Hose connection	diverse	HP-4-25-92-00	HP-4-40-92-00	HP-4-50-92-00	HP-4-65-92-00
	87		Pump stand for HJ Option	AISI 304	HP-4-25-196-50	HP-4-40-196-50	HP-4-50-196-50	HP-4-65-196-50

# 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.

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## 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](http://www.all-flo.com/registration-form.html)

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