

# PENGUIN

*Installation & Maintenance*

## SERIES HOM PUMPS

### MODELS:

HOM-1/2

HOM-1

HOM-1 1/2

HOM-2



## INTRODUCTION

Penguin horizontal centrifugal pumps are designed to handle a large range of semi-corrosive chemicals with little or no difficulty. Constructed of glass-filled polypropylene with a CPVC impeller in contact with the solution, Series HOM pumps have an upper working temperature of 150° F, and thus can handle many general industrial applications. A metalless internal diplo seal is supplied to allow for higher suction pressures. All pumps have been wet tested for proper operation before leaving the factory. To obtain optimum service life, please follow all installation and operation instructions.

# INSTALLATION & OPERATION INSTRUCTIONS

Install the pump as close as possible to the reservoir from which the liquid is being pumped. As more energy is necessary to prime the liquid than to discharge the fluid, make the suction as short as possible.

## ELECTRICAL

All Series HOM pumps are available with either a single or three phase motor. The single phase motor is dual voltage, 115/230V/60c, and is wired at the factory for proper rotation. The factory wires all dual voltage motors for the lower voltage (115V) unless otherwise requested. When changing from 115V wiring to 230V wiring, follow the motor manufacturer's wiring instructions, which are found in the motor junction box. Be sure to wire the motor for counterclockwise rotation as viewed from the suction entrance of the pump. A power cord and plug are supplied for immediate plug-in operation. A plug is not supplied on motors wired for 230V. Many options are available on the HOM Series motors, including single phase-50c, explosion-proof, larger horsepowers to 3, and 575V. If any of these

options are required, please consult the factory. The three phase motor is dual voltage, 230/460V/60c, and is not wired at the factory. The direction of rotation must be determined by operating the pump. The system, including the pump, has to be completely filled with fluid only (no air). Entrapped air can cause damage to the pump. Just bump start the motor while checking the rotation of the fan through the fan cover. Do not reverse the pump unit for any duration of time. On all Penguin pumps with mechanical seals, the rotation is clockwise, facing the fan cover of the motor. Arrows are provided on the motor for proper rotation. In case of reverse rotation, interchange any two phases and check the rotation again.

## PLUMBING

It is recommended to enlarge the suction line a minimum of one size larger than the suction entrance. Never reduce plumbing on the suction. Avoid 90 degree elbows and never use 180 degree elbows. Make sure that every suction coupling/connection is airtight. Always use a valve on the discharge of the pump. In case of a flooded suction, in which the liquid level is higher than the center of the suction entrance, provide a T-connection with a small valve after the discharge valve to assist in letting the air out

during flooding. In case of a non-flooded suction, in which the liquid level is lower than the center of the suction entrance, provide a foot valve on the end of the submerged suction line. All plumbing and accessories must be supported other than by the pump, in order to prevent possible distortion of the pump case. The use of some hose in the discharge nozzle of the pump will absorb any movement of the solid plumbing, if vibration exists.

## PRIMING

Under flooded conditions, open all valves in the suction and discharge lines. If a T-connection with valve is provided, wait until the fluid is escaping without air bubbles. Close all valves in the discharge line. Always leave the suction valves wide open. A closed suction valve will cause severe damage to the impeller and the seal. Under non-flooded conditions, fill the pump and suction line very slowly from the discharge in order to let entrapped air out. Then close all valves in the discharge line. Give the pump a couple of seconds to build up pressure, then slowly open the discharge valve until the desired flow is achieved. A priming chamber can be included as an option to help facilitate priming the pump, but all non-flooded directions must still be followed. If a priming chamber is included, unscrew the filler cap and fill the priming chamber. Replace the filler can and tighten securely to compress the cap gasket to prevent air leakage through the cap. Make sure the piping on both the inlet and outlet is secure and then start the

pump. During the first few minutes, there will be trapped air in the chamber and the piping. This air must purge itself before the full rated performance of the pump will be achieved. If the air does not purge itself, then check for air leakage at the various pipe and chamber connections. The longer the length of the inlet pipe, the longer it will take to purge the air. When the pump is shut off, if the system siphons the liquid out of the chamber, it must be refilled before starting up again. When a flapper valve is supplied on the inlet of the priming chamber, the liquid should remain in the chamber, and thus it is not necessary to refill before restarting the pump. Liquids that have water-like characteristics will function as described above. Liquids with higher specific gravities and viscous liquids may not give satisfactory results. The acceptability of the chamber for a specific liquid and specific piping situation must be determined. Consult factory if necessary.

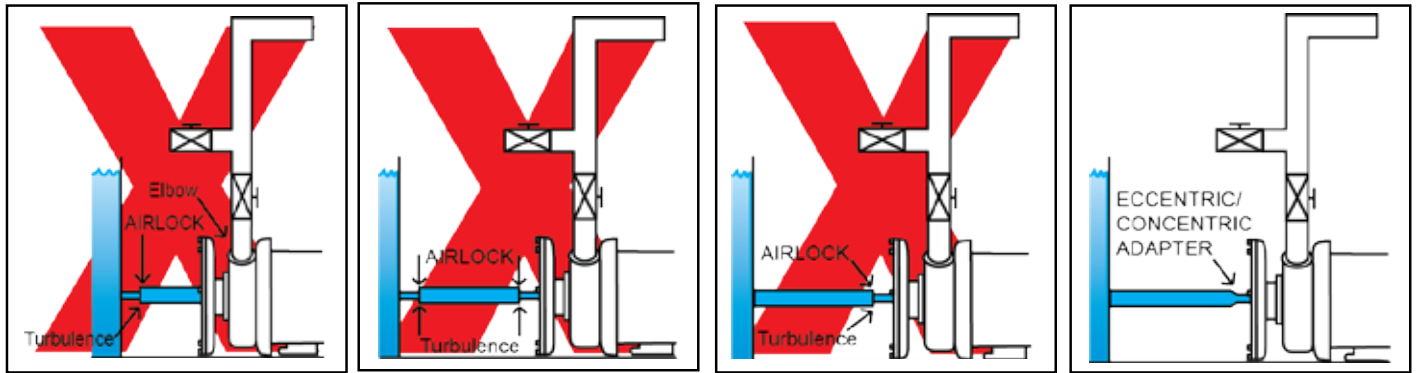
## RECOMMENDATIONS

Always make sure there is enough liquid in the reservoir and that the liquid level is high enough, considering the capacity of the pump unit. Inadequate liquid will cause a vortex in the reservoir. A vortex occurs when air mixes from the surface into the fluid. This can disturb the flow and also prevent the pump from priming. Never run the pump for more than 5-10 minutes against a closed discharge valve. This will cause overheating of the fluid in the

pump and will damage all of the polypropylene/CPVC parts. Temperature in this case will increase up to 220 degrees. If the pump is being run against a closed discharge valve for a long duration of time, install a small bleed line back into the reservoir before the discharge valve of the pump. If the line is small, there is a minimum pressure loss. This prevents overheating by recirculating the fluid.

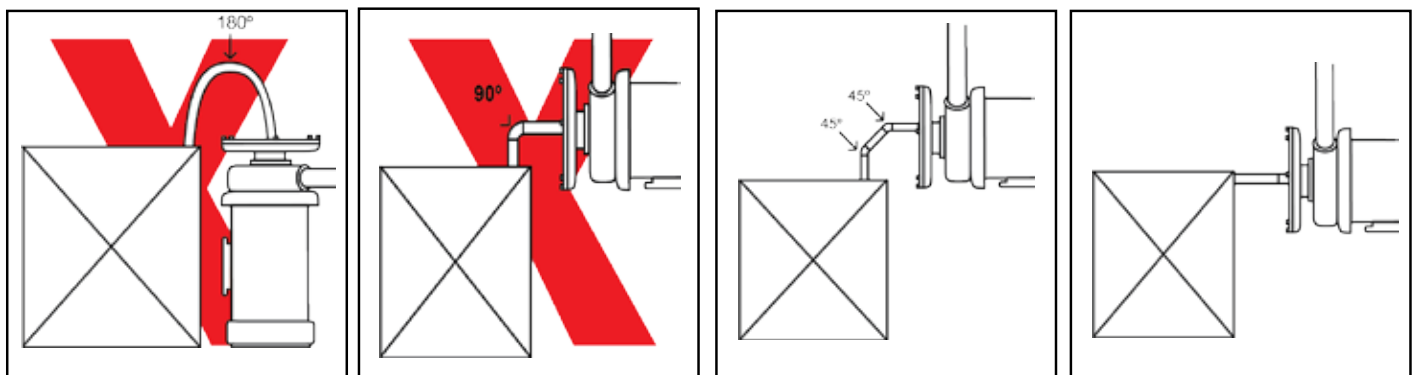
# RECOMMENDED INSTALLATION

## Suction Plumbing



Recommended

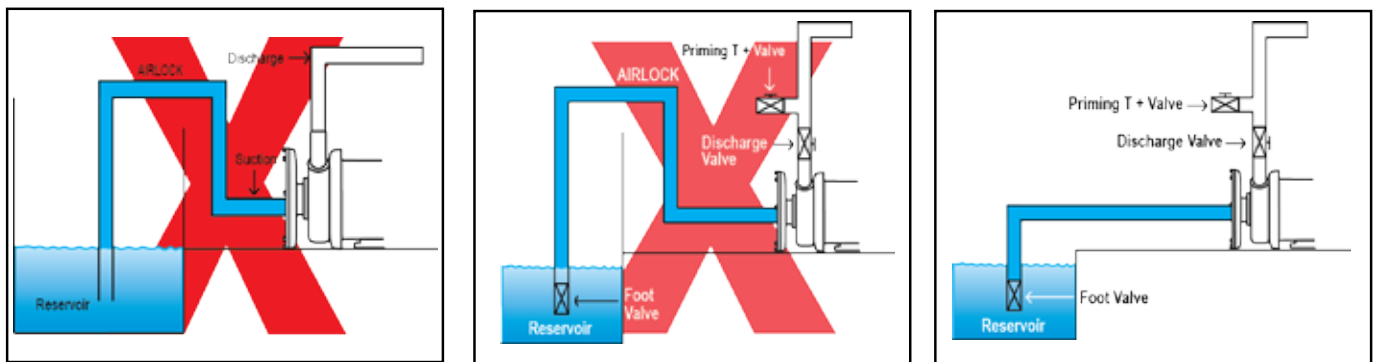
## Suction Top View



Recommended

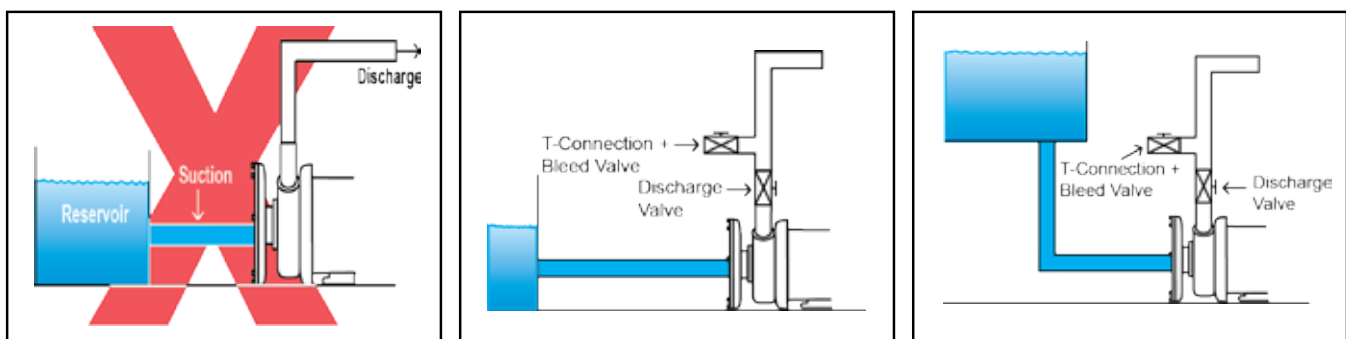
Recommended

## Suction Lift



Recommended

## Suction Head



Recommended

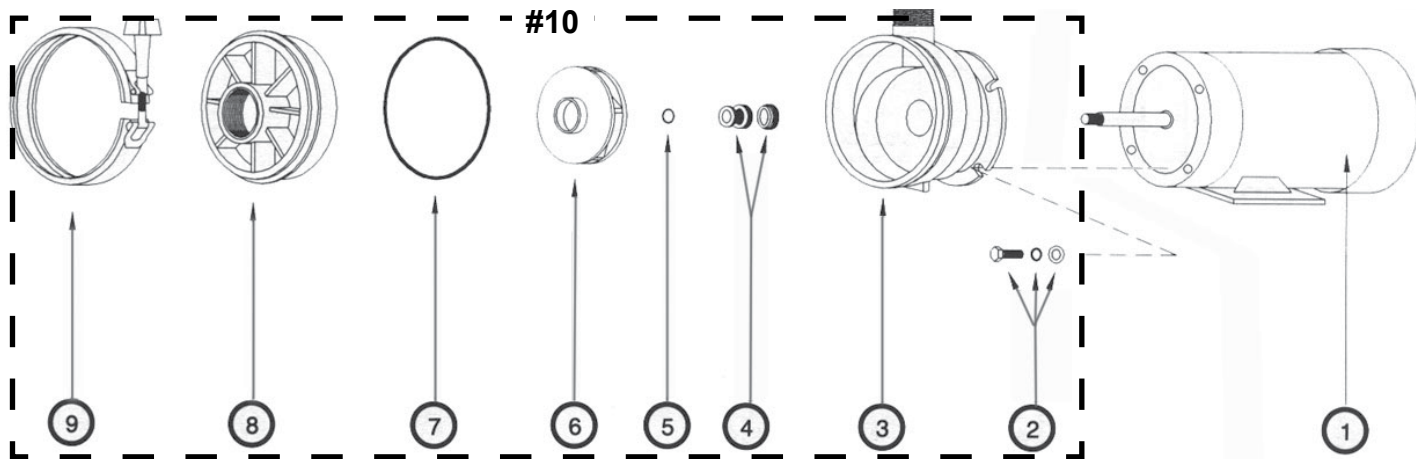
Recommended

# MAINTENANCE INSTRUCTIONS

## ASSEMBLY

1. If initial assembly, check alignment of the shaft of the 56-J motor. The end of the shoulder of the shaft should be within 0.001". Realign if necessary.
2. Place the motor vertically with the shaft facing upward. Take the ceramic part of the seal and lubricate it slightly on the outside diameter of the elastomer. With the largest diameter of the pump housing facing upward, press the ceramic part of the seal down into the only matching cavity, with the ceramic (white) facing upward. Slide the pump housing over the shaft until it bottoms out on the C-face of the motor. Be careful not to chip the ceramic piece. Align the straight edge close to the top of the pump housing with the feet of the motor. Do not rotate the pump housing in any other position.
3. Take the four bolts, lock washers, and washers and screw these into the motor face diagonally until tight.
4. Take the carbon part of the seal and slide it over the shaft until it bottoms out. The black carbon ring will be facing the ceramic.
5. Place the SS impeller lock washer (appr. 5/8" dia.) on top of the shaft. Lock the shaft of the motor through the fan cover with a screwdriver. Screw the impeller on to the shaft.
6. With the pump housing cover radial ribs facing down, take the one and only O-ring and slide it over the cover until it bottoms out. Slide the pump housing cover into the pump housing, while aligning the timing marks. The inlet thread should be facing upward.
7. Slide the metal V-band over the two tapered sides of the pump housing and the pump housing cover, and tighten with the plastic knob. Do not use any tools to tighten the knob! The V-band may be rotated in any direction.

## SERIES HOM SPARE PARTS LIST



Item	Description	HOM-1/2 Part No.	HOM-1 Part No.	HOM-1 1/2 Part No.	HOM-2 Part No.
1	Motor (Phase - Voltage - Cycle)				
	1 115/230 60	HM-120-0103	HM-100-0103	HM-112-0103	HM-200-0103
	3 230/460 60	HM-120-3103	HM-100-3103	HM-112-3103	HM-200-3103
1BS *	Bearing Set *	P-120-01BS	P-120-01BS	P-120-01BS	P-120-01BS
1EF *	External Fan *	HM-120-01EF	HM-120-01EF	HM-120-01EF	HM-120-01EF
1FC *	Fan Cover *	HM-120-01FC	HM-120-01FC	HM-112-01FC	HM-112-01FC
2	Motor Bolt/Washer Ass'y	HM-120-02 (4)	HM-120-02 (4)	HM-120-02 (4)	HM-120-02 (4)
3B	Pump Housing/Motor Bracket	HM-120-03B	HM-120-03B	HM-120-03B	HM-120-03B
4-01E	Seal Ass'y - EPR/Carbon/Ceramic	HM-140-0501E	HM-140-0501E	HM-140-0501E	HM-140-0501E
4-01V	Seal Ass'y-Viton/Carbon/Ceramic	HM-140-0501V	HM-140-0501V	HM-140-0501V	HM-140-0501V
5	Impeller Lock Washer-SS	HV-120-11	HV-120-11	HV-120-11	HV-120-11
6A	Impeller	HM-120-06A	HM-100-06A	HM-112-06A	HM-200-06A
7E	Housing Cover O-Ring - EPR	HV-120-13E	HV-120-13E	HV-120-13E	HV-120-13E
7V	Housing Cover O-Ring - Viton	HV-120-13V	HV-120-13V	HV-120-13V	HV-120-13V
8B	Pump Housing Cover	HM-120-08B	HM-120-08B	HM-120-08B	HM-120-08B
9	V-Clamp with Knob	HM-120-09	HM-120-09	HM-120-09	HM-120-09
10E	Pump Head Ass'y - Polypro/EPR	HM-120-10E	HM-100-10E	HM-112-10E	HM-200-10E
10V	Pump Head Ass'y - Polypro/Viton	HM-120-10V	HM-100-10V	HM-112-10V	HM-200-10V

( ) Indicates quantity required other than one (1)

\* Specify Motor Manufacturer



7932 Ajay Drive • Sun Valley, CA 91352

Voice: (818) 504-2391 • Fax: (818) 768-7590

Internet: [www.filterpump.com](http://www.filterpump.com) • Email: [Info@filterpump.com](mailto:Info@filterpump.com)