

# HAND PITCHER PUMP

## SAFETY AND INSTALLATION INSTRUCTIONS

### General

Pitcher Pumps are great for shallow wells with a water level of less than 20 feet from the bottom of the pump (That is where the water is actually being pulled from). Don't hook a Pitcher Pump to a well that has a static water level of 20 feet and raise the pump up to sink level in a cabin, which is 5 feet higher than the ground level. It won't work!



### CAUTION

1. Carefully read and follow all safety instructions in this manual.
2. Do not allow pump to freeze. To do so will void warranty.
3. Pump water only with this pump.
4. Periodically inspect pump.
5. Wear safety glasses at all times when working on pumps.
6. Keep work area clean, uncluttered and properly lighted;
7. Store properly all unused tools and equipment.
8. Keep visitors and children at a safe distance from the work areas and open well heads.

### Application

The shallow well hand pitcher pump can be used to pump water from rain barrels or ponds. It can also be used as a drinking-water pump to draw water from a well 20' deep or less. It attaches to commonly available plumbing connectors, is very easy to install and will provide decades of trouble-free use with minimal maintenance.

## Description

The pump is based on a design that dates back more than a century. The cylinder holds a plunger set between two valves. The handle moves the plunger up and down. As the plunger moves up, it creates a vacuum — the flapper valve at the base opens and water is pulled into the cylinder. When the plunger reaches the top of the cylinder, the flapper valve closes and water is trapped in the cylinder. As the plunger goes down, the plunger valve opens and allows water to flow past the plunger, but it remains in the cylinder. Then, as the plunger is raised again, bringing with it a new cylinder-full of water, the water in the cylinder is forced out of the spout. Steady pumping of the handle creates a continuous flow of water at a rate of about 1 gallon for every 10 strokes.

- Shallow Pitcher Pumps will pump water from a water level of up to 20 feet.
- They can be installed on a well, a cistern or a barrel.
- Deduct from the allowable suction lift of 20 feet, one foot for every 50 feet of horizontal pipe distance and one foot every 1000' elevation above sea level.

## Drop Pipe Installation

The drop pipe can be made of galvanized steel pipe, copper pipe, schedule 40 PVC pipe, suction hose or heavy wall black plastic pipe. You will need some 1 1/4" pipe (along with threads on at least one end). With PVC plastic pipe you will need a 1 1/4" male adapter as well as your PVC pipe). With steel pipe you need 1 1/4" pipe with threads. With copper pipe you need 1 1/4" pipe with a copper male adapter soldered as needed (one on each end if using foot valve). For suction hose or poly pipe You will also need at least two 1-14" stainless-steel hose clamps and a 1-14" male by barb adapter to attach the pump to the pipe. You can use almost any kind of potable (drinking water) grade pipe as long as it is fairly straight and reaches into your water source (and your water level is not deeper than 20' below the pump). Your pipe can be longer than 20'. We suggest using PVC or Poly pipe.

- Screw a drop-pipe to the bottom of the pump (drop pipe should be the same size as the connections on the pump) TEFLON tape or a good quality thread sealant should be used on all threads.
- If the pump includes a male by insert adapter, you can use the same size suction hose or heavy wall black plastic pipe.
- Secure hose with at least 2 stainless steel clamps
- Drop pipe should be at least 5' longer than the actual pumping level. Drop pipe should be submerged at least 5'.
- Tighten drop pipe enough to prevent leaks.

## Sealing Pipe Joints

- Use only Teflon tape or Teflon based joint compounds for making all threaded connections to the pump itself.
- Make sure that all pipe joints in the suction pipe are air tight as well as water tight.
- If the suction pipe can suck air, the pump will not be able to pull water from the well.

## Priming the Pump

Never operate pump dry. Operating the pump without water may cause damage to the leather cup . ALWAYS fill pump with water before starting to pump. **CAUTION: The pump handle may fly up when released during the downstroke.**

- To prime the pump, pour water in the top of the pitcher pump until it runs out of the spout.
- Wait 5 minutes until the cup leather swells enough to make contact with the pump wall.
- Raise and lower the handle in short strokes until suction pipe fills with water and pump is primed.
- If necessary add more water.
- Any leak on the suction side will prevent pump from priming
- The use of a foot valve will maintain permanent prime. We suggest a foot valve if your water is 8' down or deeper. (See below for freezing protection.)

## Freezing Weather

In freezing weather the internal flapper valve and plunger (both are made of leather or composite material) may freeze to the pump body. If you start pumping, they may tear, making the pump inoperable. If you suspect that your pump is frozen you will need to thaw it out by:

- Unscrewing it from the connector and bringing it into a warm spot or soaking it in a pail of hot water.
- Pouring hot water into the top and letting it sit for a few minutes.
- Opening the pump and freeing the individual components by hand.

## Freezing Protection

Generally, you don't need a foot valve with hand pitcher pump. However, if you use it frequently and want water without priming, you can install a foot valve at the bottom end of the pipe. The use of a foot valve will maintain permanent prime. We suggest a foot valve if your water is 10' down or deeper. A foot valve is a one-way valve that lets water in but not back out again, so it keeps the pipe full of water. The problem with it comes with cold weather when water in the pipe freezes, rendering the whole apparatus inoperable and possibly splitting the pipe.

- If you do not use a separate foot valve you can protect the pump against freezing by lifting the pump handle as high as possible, the check valve (lower end of the cylinder) will tilt when the plunger is forced down on top of the valve. Tilting the check valve allows the pump and suction line to drain. (Tie the handle in the up position.)
- If you use a foot valve then you can prevent the pump and pipe from freezing only by removing the pump from the well and keeping the water in the well below the frost line.

## Troubleshooting

If your pump won't work:

- Open the pump and make sure that the flapper valve is not broken and that it is centered over the hole.
- Check to see that the valve in the top of the plunger (a coneshaped weight) is not stuck. If it is, manually free it.
- Reassemble the body and ensure the bolts are tightened enough to prevent air leakage around the base.
- Check for leaks around the joints. Tighten clamps or add Teflon® tape as needed. Replace defective connectors.
- Make sure the pipe end is immersed in the water. (Water levels can change throughout the year, so make sure your pipe is long enough to accommodate this change.)
- Use plenty of clean water when priming. Because the plunger is made of leather and will expand as it absorbs water, let the plunger absorb water for a few hours and try again.
- Make sure you are not trying to lift the water more than 20' (measured from the water surface to the spout).
- Keep in mind that, as you move to higher elevations, the distance water can be lifted is reduced. At sea level and under ideal conditions, these pumps will lift to a maximum of about 20', but higher elevations will reduce the lift.
- If you are running the pipe horizontally, you will need to deduct one foot of lift for every 50 feet of horizontal distance.

## Notes:

- Leather seals are always best preserved with oil, which may cause an oily film or smell during the first few weeks of use.
- The length of the pipe does not make the pumping any different, only the level of the water.
- Never use foot valve unless you protect pump from freezing.
- Pumps will self-drain if handle is left in up position and foot valve is removed. (except the Oasis plastic pumps)
- Save money by using plastic pipe instead of steel
- Always use closed top pumps for outdoor pumps to keep your well water clean and free of debris.
- Your Health Department may require a sealed system. These keep water sanitary. Check local requirements.

## MAINTENANCE

### Replacing the Cup Leather

- Loosen the cap screw on the pump cap and lift the plunger assembly out of the pump.
- Unscrew the cup leather holder
- Remove old cup leather and put on new cup leather.
- Screw leather cup holder back into original position.
- Reinstall plunger assembly and cap
- Insert cap screw and tighten.

### Replacing the Valve Leather

- Remove one of the cap screws located at the base of the plunger body and loosen the other cap screw.
- Remove the pump body (Key No. 8) from the pump base
- Remove the check valve from the valve leather
- Remove old valve leather. Clean any old leather off of column and base.
- Position the raised end of check valve at the attached/hinged end of valve leather.
- Reattach check valve to the valve leather with the screw, nut and washer.
- Position new valve leather with check valve on base.
- Reattach pump body to the base by reinstalling and tightening the capscrews, washers, and nuts.