INSTALLATION INSTRUCTIONS

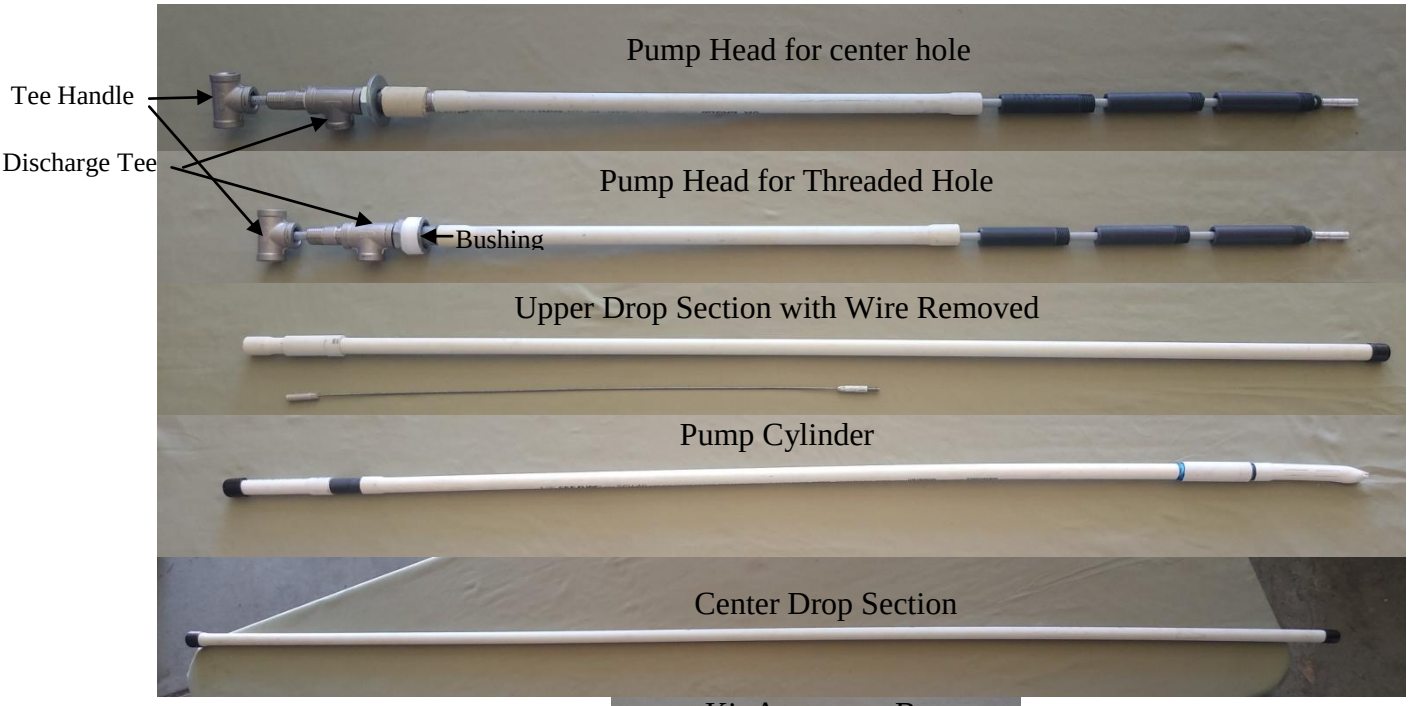
Well Seal or Cap with Threaded Holes

idahohandpump.com

Congratulations on the purchase of your Idaho Hand Pump! Thank you for placing your trust in us. We hope you find the same peace of mind that so many others have found with theirs.

Unpacking the pump:

Check your package to make sure you have all the following parts (you will have **one** type of pump head). You will have multiple Center Drop Sections to make up the length you ordered. If anything is out of order please contact us by email at IdahoHandPump@gmail.com or call (208-313-9407) and we'll make things right.



GETTING STARTED:
We highly recommend watching the assembly and installation video posted on our website or on **YouTube** as "Idaho Hand Pump - Installation thru thin cap". The process of cutting and threading a well seal is not shown, so follow your written instructions on going through the cap, but the video will still be very helpful.

IMPORTANT!! Before removing your well cap, turn off the power supply to the pump.
NOTE: You need to have ordered the correct Pump Head set up for this cap type to do this installation.

If not already done, loosen the compression bolts if possible. There are usually four. If the bolts are rusted tight, the seal may still be able to be pulled out but it may be difficult. It is advisable to pull the seal out if possible so you can to see what is below it. This may be impossible if it is an old seal with rusted bolts or if you have a pipe or hydrant coming out the center that is connected to your water system. **IMPORTANT!!** Only **loosen** the bolts, do not remove the bolts or nuts. If you take the bolts out, you may lose the bottom half of your seal down the well.

STEP 1: GOING THROUGH THE CAP

Option 1-Using the center hole:
Often the center hole is plugged only by a short pipe with a cap. If you are to use the center hole, remove the pipe with cap. Once the bolts are loosened it should be relatively easy to remove if it is not connected to anything below the cap. Proceed to Step 2.

Option 2-Install through a well seal or cap with a 1" or 1-1/4" pipe threaded hole:
Hint: Actual hole size for pipe threads are bigger. For example, a 1" pipe thread will actually be 1-⅜" hole.
If your cap or seal has a 1" or larger pipe threaded hole with a plug, and you can get the plug out, then just remove the plug and the pump should go directly in. You may need to cut out the rubber. Sometimes it takes some penetrating oil such as WD-40 and an impact wrench to remove a rusty plug. Proceed to Step 2.

Option 3-Drilling a hole in the cap:
If option 1 or 2 is not possible, you will need to drill a hole near the edge of the well seal cap. Use a **1/4"** drill bit straight up and down to drill a pilot hole. Create the hole close to the side of the casing but with enough room that you will be completely inside (not hitting) the casing when going through with the **full** hole saw. Using a **1 1/4"** hole saw with a pilot drill bit, place the drill bit of your hole saw in the hole you just drilled in your seal and saw through the top plate. Use a little cutting oil as needed. Remove from the hole saw the section of the plate you just cut and then drill through the rubber seal and remove it. **See Note 1**. Saw on down through the bottom plate. Thread the hole with a **1**" pipe tap (1 – 11 ½ NPT) using an impact wrench (easiest) or a regular wrench. Thread until it becomes difficult to turn (usually about ½ way down the tap). Take the tap out and test the bushing of the Pump Head to make sure the threads will start into the hole.

Note 1: If you are concerned about the bottom layer cut-out dropping into your well then you can place a magnet inside your hole saw on the last layer to catch the cut-out of the bottom plate.
Note 2: It may be easier to saw through the seal if it is out of the casing, but if you do, the layers should be lined up with a pipe through the hole in the center, and the bolts snugged up to keep everything in line. Do not over tighten and compress the rubber. Once you have the hole cut, replace the seal back in the casing but don't tighten bolts until after the pump is installed.

STEP 2: PREPARING PUMP HEAD

Locate the Pump Head. The small rubber ring holding the assembly together can be discarded. Remove the PVC handles and spout (gray 4" pieces) from the Pump Head assembly and set aside.

STEP 3: ASSEMBLING THE DROP PIPE

When you are ready to start assembly, you'll need to make sure you have adequate room to lay the pump out on the ground near your well. If you're assembling a long pump, it may be assembled in a loop but keep the bends wide so as not to over stress the PVC pipe. Once again, **we highly recommend watching the video on our website or on YouTube as** "Idaho Hand Pump - Installation thru thin cap."

1. Start by separating the Center Drop Sections (6'8") with red caps on one end into a pile being careful to keep the cap end down so the wires don't all spill out. Make sure you have the right number of sections for the depth of your well. It may help to remember that a combination of 3 center sections is equal to 20 ft.

2. The Idaho Hand Pump will be assembled starting from the bottom and working up. Locate the Pump Cylinder. It has a black cap on one end and a strainer at the other with a gray PVC piece close to the capped end. We recommend covering the strainer to keep debris out while assembling, but **BE SURE TO REMOVE THE COVERING BEFORE INSERTING INTO THE WELL**. Remove the six inch long PVC extension piece screwed into the gray piece on top of the cylinder by unscrewing it. DO NOT THROW IT AWAY! This part **may** be required later in the assembly (step 7).

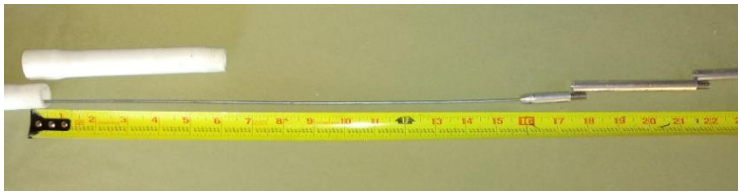
3. Join the Pump Cylinder and the female end of a Center Drop Section. This is done by first threading together the internal wire lift rods. Use 2 sets of pliers to screw the ends together tightly. Always apply Teflon tape to male PVC threads before threading a joint, clockwise direction. Thread the PVC pipe of the Pump Cylinder and the Center Drop Section together. Once the pieces are hand tight, take two pairs of pliers and tighten until snug (be careful not to over tighten.)
NOTE: There should be little or no threads visible when done correctly.

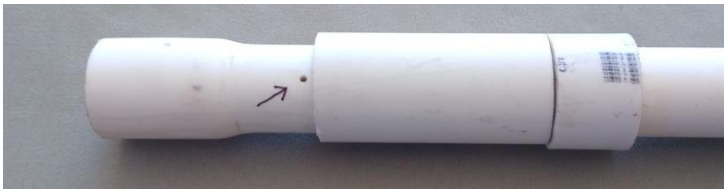
4. Remove the caps and apply Teflon tape to all the male ends of the Center Drop Sections. Thread the wire lift rods and PVC pipes together as previously done in step 3. Continue adding Center Drop Sections until the correct number are installed to reach your desired length.

5. Locate the Upper Drop Section (5 ft). It should be the only section left besides any unused center sections. It has a sliding piece of PVC on one end and is shorter than the Center Drop Sections. The wire lift rod in this section is much shorter than the PVC pipe for this section, unlike previous sections where the lift rod and PVC were the same length. Remove the wire lift rod from the pipe and join it to the wire lift rod of the last Center Drop Section, being careful not to bend the wire. Straighten the wire if necessary.

6. Pull the wire lift rod upwards out of the assembled pipes until it stops. Lay the Upper Drop Section parallel to the lift rod wire as if it were connected to the last Center Drop Section. Check to see how much of the wire rod is extending past the top of the Upper Drop Section. This measurement should be between 18 and 22 inches. Re-check to make sure that you've pulled the wire rod as far as it can go. If you've confirmed that the rod is topped out and you still don't have the wire rod extending at least 18 inches past the top, then you will need to attach 1 or more of the aluminum extension pieces included in your small accessory bag to get the length you need.
The end goal is to have a minimum of 18 inches and a maximum of 22 inches of rod exposed when you are done with this step. If this is the case then you can skip step 7.

7. If the wire rod is sticking out more than 22 in., you will need to thread the PVC extender piece that you removed in step 2 onto the top with Teflon tape and re-measure the rod. If the wire rod is under 18 inches long at this point, add aluminum extenders to get to the desired range; 20 inches of lift rod exposed is ideal. At this point, apply Teflon tape to male end of the Upper Drop Section and slide it over the wire lift rod. Screw it onto the last Center Drop Section. The short loose piece of PVC pipe on the bottom is there to cover a weep hole which allows the water to drain down below the frost line, without spraying on the casing. It is a good idea to make sure this 1/16" hole is clear of obstructions.





8. Join the fiberglass rod in the Pump Head and the wire lift rod in the Upper Drop Section by threading the fiberglass rod onto the exposed section of wire lift rod. Tighten as all other joints. Slide the pump head down along the fiberglass rod until you are able to thread the last two pieces of PVC together. Tape and tighten as all other PVC joints.

9. Push the fiberglass handle all the way down until it contacts the stainless nipple. To lessen the pressure, keep the pipes as straight as possible and you might have another person move and shake the pipes as you are applying downward pressure. If you have a very long pump and could not assemble it in a straight line, you may not be able to get the handle down. Do not exert too much pressure as you could bend the wire. If you cannot get it down, don't force, the handle should fall as it is installed. Lay the pump head on the ground about 10 feet from your well. (**Optional**: Tie the top of the pump to an extension stick such as a broom handle about 4 feet long to help hold up the last few feet as it goes into the well.) Fill a clean bucket with about 2 gallons of water and about 1/2 cup of bleach. For a clean installation you should use a clean rag dipped in the bleach water to wipe down the pump as it goes into the well. You may want to wear rubber gloves for the washing. Again, **please watch the YouTube** video that was recommended at the beginning "Idaho Hand Pump - Installation thru thin cap" to make sure you know how to properly insert the pump into the well in order to avoid sharp bends in the PVC. Sharp bends can break the PVC. You will need at least two people to install the pump. Now you are ready to install the pump in your well.

10. Person one needs to stay at the casing and feed in the pipe, wiping it down with the rag from the bleach water. The bleach may stain clothing, so dress accordingly. Person two should stand approximately 10 feet from the casing, pushing the pipes upward into a high arc. Aim for about 8 feet high, so that the pipe is coming straight down as it enters the casing. Don't raise it so high that the pipe flops around. **REMOVE THE COVER FROM THE FILTER** and begin inserting this end into the casing. If the pipe catches on an obstruction, you may need to shift the pipe up and down while rotating slightly back and forth to get through. Applying some downward pressure is ok. When person two gets to the pump head end, they should lift it with the extension stick or hold it high above their head to keep it entering the casing straight. Lower the pump and move to Step 4.
Note: If the pump needs to be removed for any reason, removal is the reverse process of this step (you don't have to wipe it as you take it out ☺)

*You may choose to use the black caps removed from the male ends of the pipes to cover your handle ends.

STEP 4: SECURING TO THE CAP

Option 1-Using the center hole:
Position the discharge where you want your water to come out. Hold the Discharge Tee in this position while turning the large nut below the Discharge Tee clockwise until the pump no longer comes out of the center hole when pulled.

Options 2&3- Using a threaded hole in the well seal:
Wrap the bushing threads with Teflon tap and thread the bushing into the hole until the Discharge Tee is pointing the direction you want your water to come out.

Using Your Newly Installed Pump:

1. Screw the PVC handles and spout into place on the Pump Head. If you've tightened down the Tee Handle, unscrew it from the nipple, then start to pump it up and down. Avoid banging the pump at the top and bottom of your stroke to avoid damage to the threads. You should feel it getting heavier after a few strokes as the water rises up the pipe. The water will rise about 2 to 3 feet per stroke so it will take a lot of strokes on a deep well before water reaches the top. The water may look dirty because inserting the pump likely knocked rust and debris off the inside of your casing and into your water.
NOTE: This is the only time you will need to pump this much before getting water. In the future it should only take three or four strokes to get the water to the top.

2. Turn the power back onto the electric pump and run a hose from an outside faucet (to flush any rust or debris knocked loose) until the water appears clean. This may take quite some time. Periodically collect some water using a white or clear bucket to check if the water is free from debris or color. If any remains, continue running the hose until you get a clear sample. Screw the handle assembly to the metal nipple when not in use and place the cap from the small accessory bag on the discharge to keep dirt and insects out.

3. After the water runs clear from your hose, you will want to pump your Idaho Hand Pump until you have cleared all the water that was in your newly installed pipe.

Troubleshooting:

-I'm caught on something
If the pipe catches on an obstruction while going in, you may need to lift the pipe up and down while rotating slightly back and forth to get through. There are several challenges you may face. Some drillers may install a narrower casing at the bottom and the pump could catch on the lip or in between the 2 casings. It may feel like you've hit something hard. You may feel resistance as you try to raise the pump and then it might jerk free. Raise it about 10 feet and twist it to get another angle and try again.

If it feels like you are pushing on something rubbery, you may have hit a torque arrestor. If you try to raise it, it may feel somewhat like it's caught on something. Again, try shifting and rotating the pump and raising and lowering it again. It is ok to apply some downward pressure to push through this tight section. If you can't get past the torque arrestor, you may have to call a pump installer to reposition it or remove it.

-Almost done…but it didn't all fit inside
If you have inserted nearly the whole assembly and you hit something soft, you may have miscalculated the depth of your well and hit the mud at the bottom. Measure how much is sticking out the top of your casing before pulling the pump up to check for mud or gravel in the filter. If the bottom is gravel, it may or may not be apparent that you hit the bottom. Remember that hitting a metal piece feels very hard, a torque arrestor feels somewhat rubbery, and the bottom can feel either firm or soft. If you have hit the bottom, you will need to remove one or more center sections. Remove sections according to how much pipe was still sticking out. Disassemble the Pump Head and Upper Drop Section and remove Center Drop Sections from the top of the assembly to get the correct depth. You will need to re-apply Teflon tape when you replace the Pump Head and Upper Drop Section. Wipe down with bleach again as you re-install the pump.

If you hit mud at the bottom of your well, you'll need to remove the Pump Cylinder at the bottom and clean it. Unscrew the Pump Cylinder from the gray PVC piece and pull it off, leaving the wire and pump in place. Set the filter end in a bucket of clean water and shake it up and down, causing water to come out the top. Dump the water out and repeat until clean. Re-apply tape, re-attach the PVC pieces and insert into your well again.

-I'm pumping, but I'm not getting any water
If you have a deep well, it will take a long time to bring the water to the top initially. The water rises about 2 feet per stroke, so a 200 foot well, for example, will require about 100 strokes to produce water. However, if you don't feel any weight increase after about 20 strokes, the pump is probably not deep enough to reach the water or there is a problem with the wire assembly. Remove the entire pump from the well casing. Unthread the Pump Cylinder to see if any water runs out of the pipe. The pipes may be wet even if you didn't reach the water because you wiped it down with the rag. If you don't have water run out of the pipe, add more Center Drop Sections, making sure to apply Teflon tape at each junction. If water does run out of the pipe, check that all the wire connections inside the pipes are properly fastened

-Water is not pumping clean out of my Idaho Hand Pump
Your water will likely be somewhat dirty to gross, initially. This is normal because of the disturbance it causes in the well when you install your hand pump. If you have pumped 10 or 15 gallons and still do not have clean water then you are likely at a depth in the well where the water isn't flushed. The freshest water will be next to your electric pump where it is circulated all the time. Usually this means you need to install one or more Center Drop Sections.

-I started pumping up and down and then it got stuck
You may have gone too deep in your well. If you are too close to the bottom you can pull sand or mud up into your pump and clog it. You'll need to remove the Pump Cylinder at the bottom and clean it. Remove your pump from the well and unscrew the Pump Cylinder from the gray PVC piece, leaving the wire and pump in place. Visually check for anything that would prevent the pump from freely moving up and down. If there is evidence of mud or sand, you will need to clean the Pump Cylinder and remove one or more Center Drop Sections. Set the filter end of the Pump Cylinder in a bucket of clean water and shake it up and down, causing water to come out the top. Dump the water out and repeat until clean. Remove sections to create proper depth. Re-apply tape, re-attach the PVC pieces and insert into your well again.