So you want to install a submersible pump in your water well. If you collect the proper information about your well, there should be no reason that you could not install your own submersible water pump.

The first thing to determine is the well depth. If you do not have a well report from the well drilling company, you can take a fishing pole with lots of line, attach a sinker to the line, and drop it down to the bottom of the well and mark the line. Pull it up and measure the line up to the mark from the sinker, and you have an accurate well depth of _____ft.

Next, remove the sinker, and place a small bobber on the fish line. Drop this down until it hits the water level and mark the line. Pull it up and measure from this mark down to the bobber, and you now have the static water level in_____ft. Static water level is the distance from the top of the well, down to the water level. When your well was drilled, they penetrated a water supply in an aquifer. The aquifer is under pressure from the earth compacting onto the aquifer. Your well is like a straw, and the water in the aquifer pushes up until it meets the atmospheric pressure. That is where your water will set all the time.

When they drilled your well, they should have told you how many gallons per minute of water your well produces in_____ gallons per minute. This is the amount of water coming into the well, which keeps your static water level from pulling down during pumping. If your well does pull the static water level down, that is called drawdown, and represents the level loss when pumping at a specific number of gallons per minute.

If you do not have the well production in gallons per minute, you can do a simple open discharge flow test. At your pressure tank, usually you will have a boiler drain that has connection for a garden hose. Connect the garden hose and start drawing water until you know that the pump is running, and not just water coming from the pressure tank. Have 5-gallon pails set up to pump into, in multiples that should allow at least 1 minute of running. Watch your watch until the seconds reach the top of a minute and start filling pails. You will continue to fill pails until 1 minute has elapsed, and then you will quit. The open discharge quantity of water you pumped into the pails in 1 minute will give you a good idea of the performance of your pump.

Do you have to go uphill once you get to the top of the well? If so, we need to know the number of feet of straight up rise we need to overcome_____. How long is your run from the well to where you will pump the water_____? How far from the well is the meter that supplies the electric power for your pump system_____?

Once we have the above information, we can select a pump, based on the well production. After you get your pump and well supplies selected, it is time to move on to preparing to install the pump in the well. If you have a well that is 300' or less in depth, there is no reason that you could not install your own pump system. Even deeper can be done, but it may require extra preparation and ability.

If you decide that you are going to use rigid pipe, either galvanized steel pipe or PVC threaded drop pipe, you will need to build a tripod that can support the pipe and pump while installing it in the well. We suggest that you get 4 pieces of 2" galvanized steel pipe in 21' lengths. Cut one of the 21' lengths into three 7' lengths, and have the ends rethreaded. Thread the 7' pieces onto the 21' lengths and place a 2" galvanized steel tee on the top of each 28' leg. Run a chain through the tees and padlock it. This will give you a sturdy tripod that can support the weight of your pump and pipe while you are installing the pump into the well. You will need to use some sort of lifting mechanism to control lowering the pipe into the well. This can be a block and tackle, a chain fall, or a small winch that can be controlled by a remote control to lift or lower the pipe.

Next you will need to get tools that will hold the pipe at the top of the well, while you are putting the next length of pipe onto it. This is called a pipe holder. If you are using galvanized steel pipe, we have a ranchers pipe holder that can hold 1" up to 2" galvanized steel pipe. This pipe holder is load rated for up to two thousand # of non-shock weight. You will also need to have a pipe elevator to support the pipe while lowering it into the well. We have a ranchers pipe dog, which has a loop that goes around the pipe and has an eccentric wheel with teeth that bites onto the galvanized steel pipe. The rancher's pipe dog is not rated, so you must be sure not to subject it to more than it can handle. These tools are ONLY for steel pipes. DO NOT USE THESE TOOLS ON PVC PIPE, since the tool may make the PVC pipe squeeze and it may slip and fall to the bottom of the well. When you choose PVC drop pipe to install into the well for your pump, you will need specialized tools to hold the pipe and lower it into the well. We recommend the Kwik Klamp pipe holder for holding your PVC or steel pipe at the top of the well. This tool can be used on either steel or PVC, and has fine serrates on the gripping jaws, so that it will hold firmly and not damage PVC pipe. You will also need a pipe elevator that goes around the pipe, just below the coupling, to support the pipe while it is being lifted or lowered into the well. We have pipe elevators that are economy drop pipe elevators for up to 1200# of weight. These are ideal for use with PVC drop pipe, since they go around the pipe below the coupling, have a pin that holds the hinged unit shut, and a 1/4" chain that has a 1250# test rating. When you hook the chain into your lifting mechanism, it gives you a secure way to support the PVC drop pipe while lowering your pump and pipe into the well. Remember that these tools are an investment. Eventually you will have to pull the pump back out of the well for service or replacement, and these tools will be needed at that time too.

and diffusers are made from space age plastic material designed to give you many years of service.
Most people need about 10 to 15 gallons per minute to support their home water use. These smaller gallon per minute series pumps will have an 1-1/4" female thread in the top of the pump. When using PVC drop pipe, we recommend using a metal nipple in the top of the pump, and then converting over to the PVC drop pipe. This is because the threads in the stainless-steel top casting of the pump are so sharp that they can cut new threads on PVC pipe. This could allow you to push the pipe down far enough to prevent the flat washer check valve, which is installed into the top of the pump, from opening. This flat check valve is standard in 5 gallons per minute up through 27 gallons per

minute pumps. Larger pumps will have a 2" thread, and no check valve is factory installed in those models. Even with the factory installed flat check valve, the manufacturer suggest that you place a check valve within 25' of the top of the pump, and again every 6 to 7 lengths of pipe, ie: about every 120' to 140'. We now also stock check valves in stainless steel. At the top of the pump, you should install a TA48 torque arrestor that acts like a shock absorber to prevent the pump from hitting the casing wall when it starts. We also have the TA482 for use with pumps that use 2" drop pipe.

Flint & Walling 4-inch submersible water well pumps are available in 5 gallons per minute through 85 gallons per minute pump series. These F&W pumps have stainless steel end castings, and stainless-steel pump shell. The internal impellers and diffusers are made from space age plastic material designed to give you many years of service. Most people need about 10 to 15 gallons per minute to support their home water use. These smaller gallon per minute series pumps will have an 1-1/4" female thread in the top of the pump. When using PVC drop pipe, we recommend using a metal nipple in the top of the pump, and then converting over to the PVC drop pipe. This is because the threads in the stainless-steel top casting of the pump are so sharp that they can cut new threads on PVC pipe. This could allow you to push the pipe down far enough to prevent the flat washer check valve, that is installed into the top of the pump, from opening. This flat check valve is standard in 5 gallons per minute up through 27 gallons per minute pumps. Larger pumps will have a 2" thread, and no check valve is factory installed in those models. Even with the

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Once you have selected the pump model you need for your water well system, you will need to select submersible pump wire. The proper sizing for pump wire is to take the distance from the meter to the well, plus the depth you will install the pump into the well, and based on the horsepower of the pump you have selected, you will choose the proper size submersible pump wire to use in the well.

The top of the pump will require a heat shrink splice kit to connect the motor power leads to the submersible pump wire. The heat shrink splice kit makes a watertight connection for in the water. Installing it requires you to strip the ends of each wire, both on the motor and the submersible pump wire. Slide a heat shrink tube over each wire and connect the wire on the motor to the pump wire with a stakon. This is a metal tube that is crimped onto the wires to make a connection. Next slide the shrink tube over the stakon, and heat it with a lighter or small torch, traveling the heat back and forth until the heat shrink tube shrinks down and oozes out the ends around the wire. You will probably think that the stakon is going to come out through the side of the heat shrink tube, because it shrinks down that much, but it won't.

The size wire you selected is also the size needed for UF burial wire coming from the metered power to the well. At the top of the well, usually you will use a metal spice box where you can make connection between the submersible Pump wire and the UF burial wire. The splice box is called a bell box. It is 4" wide and 4" high with five 1" conduit openings. Plugs are provided for a couple of the openings that you do not use. The BB44 bell box allows you to make your connection from power to the pump wire. It also gives you an excellent place to route your pump safety rope, to make it secure incase something comes loose in the well.

Most water wells discharge below ground through a pitless adapter, however some do come out the top in areas where freezing is not a concern.

Pitless adapters are installed below the frost line, in the side of your well casing. We have both brass pitless adapters and stainless steel pitless adapters. The pitless adapter is installed in the well casing and has a piece that installs onto the top of your water well drop pipe. When you lower the final length of drop pipe into the well, you slide the pitless adapter top piece into the receiver that installed in the well casing. This makes a water tight connection between the pump discharge pipe, and the distribution pipe going away from the well to your home.
On top of your casing, you use a pitless well cap. The cap has a conduit opening on it to route the pump wire and safety rope, out of the well and
into the bell box.

Your Franklin Electric Control Box that starts your Franklin
Electric submersible pump motor, should be located in the house where it is protected from the elements. The control box has a capacitor and relay to start and run your submersible pump motor. The control box comes with a complete submersible pump.

Bladder style pressure tank bladder type pressure tanks are designed to give you worry free stable pressure for your home. Tanks work with a 20 psi pressure variance between the on and off where the pressure switch calls for the pump to turn on and to turn off when the tank is full.

Pressure tanks need to be selected based on the performance of your water well pump. If your pump is pumping 12 gallons per minute, you will need to select a pressure tank that is large enough to give a minimum of 12 gallons of draw down, or usable water before the pump must start again. Draw down is the usable water able to be removed from the tank before the pressure drops to the cut in pressure for the pressure switch. Whatever pressure switch is used, the tank should have 2 psi less pressure in the tank top, before pumping any water into the tank, than the switch start setting. We highly recommend that you NEVER ADJUST the pressure switch from the factory settings. Once you adjust it, there is very little chance you can readjust it to the proper settings. Larger pressure tanks never hurt your performance but will give you extra draw down capacity to assure you have a more even usable pressure in the house, before the pump needs to come on.

We offer a fitting kit that consist of the long tank cross that goes back in under the tank to make connection. The tank cross has two 1/4" female taps on the top, one for the pressure gauge, and one for the 1/4" x 3" nipple that you mount the pressure switch onto. The front of the tank cross has 2 openings which are used to place a boiler drain into, which has a hose thread on it. The other opening is for a pressure relief that is designed to blow off excess pressure if the pump should not shut off and builds up pressure to 100 psi, which is the maximum operating pressure for the pressure tanks. There is also a check valve included for the incoming side of the tank cross, coming from your pump.
We also now have Stainless Steel fitting kits to plumb your pressure tank with stainless. The have the added feature of a union on the tank tee leg that goes to the pressure tank. This allows easier disconnection from the pressure tank.

Sometimes, you will have a well drilled, and it will not produce very many gallons of water per minute. This creates a real problem for your submersible pump. You never want to run out of water and run the pump dry. This causes premature wear and can ruin your pump. We have 2 systems designed to protect you pump from running dry. The first system is made by Franklin Electric, and it is called PumpTec. PumpTec is a unit that goes into the power line between power and the control box for your pump. The only drawback to the PumpTec is that is does not activate until your pump is already out of water. PumpTec operates on the principle of amperage loss. When you run out of water, the pump starts pumping air. This allows the submersible pump motor to run faster with no load, and the amperage drops. PumpTec can be set to stay off for a period of 2 minutes to 1-1/2 hours, before allowing the pump to turn back on. This is to allow the well to recover from running low on water.

The other system we offer is BW controls. This is a box with a relay that wires in between power and the control box. Three electrodes are hung into the well from the

BW control. One is a liquid ground electrode, and it goes down the well to below the pump, so it is always in the water. The next electrode is placed in the well, just above the pump. This electrode is the cutoff electrode, which turns off the power, prior to running the pump dry. The third and upper electrode is the reset electrode, and is set higher in the well, but always below the static water level for your well. The water well level must recover to this level before the relay will reset and allow power to return to the control box to start the motor. The BW system is a little more expensive and is not as simple to install as the PumpTec is, but we feel that is offers better protection for your pump.