Frequently Asked Questions about the Hydra-Drill

What is the DeepRock Hydra-Drill?

The Hydra-Drill is a lightweight, low cost, highly portable water well drilling system.

How does it work?

The Hydra-Drill is a small top-head rotary drilling rig powered by a 4, 5.5 or 6HP gasoline power head and a 3HP or 5HP gasoline re-circulating pump (mud pump). The Hydra-Drill uses the method of drilling referred to as "mud rotary" drilling. The power head engine turns the drill stem which has a drill bit screwed onto the end.

As the drill bit drills down into the earth, the mud pump re-circulates a drilling fluid down the drill stem and out the drill bit. This drilling fluid is pushed up the bore hole and flows into a mud pit.

The mud pit is a simple pit dug into the ground, or made of some type of container, for the purpose of settling the heavier cuttings from the drilling fluid. The drilling fluid is made up of plain water mixed with drilling additives.

The two common types of drilling additives are Quik-Gel and EZ-Mud. Quik-Gel is finely powdered bentonite clay and EZ-Mud is a liquid polymer. It is highly recommended that you always use these drilling additives and both are available from DeepRock.

After the cuttings (soil, sand, clays, etc., that are flushed up out of the bore hole) flow into the mud pit, the heavier cuttings settle out of the drilling fluid and the mud pump pumps the drilling fluid back down into the bore hole to repeat this process. The mud rotary method of drilling is very common and is the same drilling method the oil drilling rigs use.

Is it hard to drill with the Hydra-Drill?

The drilling process is simple. Anyone who can operate any type of outdoor power equipment can drill with the Hydra-Drill. One person can drill with the Hydra-Drill, but a two or three person drilling crew is better. Complete drilling instructions are included with each Hydra-Drill and our Customer Service Department is only a toll-free telephone call away.

How deep will it drill?

We have a Hydra-Drill package that will drill to depths of 300 feet (90 meters). Water is found at less than 300 feet in most places in the world.

What diameter will it drill?

The smaller Hydra-Drill packages will drill a 4 inch (100mm) bore hole designed for a 2 inch (50mm) casing. The larger packages will drill up to an 8 inch (203mm) bore hole for a 6 inch casing. The rule of thumb is to drill a 2 inch larger diameter bore hole than the diameter casing you plan to use.

Where should I drill?

This is a very common question. You want to drill down into a naturally occurring aquifer. An aquifer is simply a formation of highly porous material, usually coarse sand and gravel, sometimes fractured rock that is saturated with pure water. This water usually enters the aquifer at a higher elevation from rainfall or snow melt that percolates downward until it reaches the aquifer. It then moves through the aquifer laterally at a slow rate. These aquifers extend hundreds or even thousands of miles. These aquifers occur at reasonable depths almost everywhere in the world. Contrary to popular belief, an aquifer is not a narrow underground river where it is necessary to drill at a very specific site. The best place to drill is the most convenient location for your well.

How deep will I have to drill?

Most aquifers usually are found at less than 300 feet. The best indication of the depth of the aquifer in your area is the depth of the existing wells of your neighbors. If you have neighbors who have drilled wells it is very likely you will find water in the same depth range. Remember though, if the well was commercially drilled it is common for the commercial driller to have drilled deeper than was really necessary.

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How will I know when I have hit water?

Most water bearing formations, known as aquifers, are simply formations of coarse sand and gravel. These types of formations are very porous and saturated with water. One of the best

ways to determine when you have hit water is to check the cuttings being flushed out of the bore hole while drilling. When coarse sand and gravel are being flushed up, there is an excellent chance you are in water or very close. Another thing to watch for is a marked decrease in the temperature of the drilling fluid as it flows out of the bore hole. An aquifer is a constant 64-65 degrees and this ground water will mix with the drilling fluid and lower the temperature. The drilling fluid could also become much thinner and sometimes you will lose circulation when you hit water.

Will it drill rock?

The Hydra-Drill is a light-weight drilling rig and will perform best in favorable drilling conditions such as normal soils and clays. The more heavy duty Hydra-Drill packages will handle many types of rock well. Many types of rock, such as sandstone or shale, can be drilled fairly quickly. Harder types of rocks will result in a slow drilling speed but we have some special bits that are recommended to drill harder rock. If the rock is extremely hard and a substantial depth is required to be drilled, then the Hydra-Drill may not be feasible.

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Why should I buy the Hydra-Drill instead of having the well commercially drilled?

Good question! It is our experience that in many parts of the country the cost of having just one well drilled costs more than the Hydra-Drill. Remember, the Hydra-Drill will drill many wells and the purchase cost can be spread over several wells or over several years. Even if one well is drilled you still have the Hydra-Drill to sell or rent to your neighbors. It is not unusual to recoup 65% to 75% of the purchase price on the used market.

Is it legal for me to drill on my own property?

In most areas the restrictions that apply to professional drillers do not apply to someone who wants to simply drill a well on his own property for his own use. Many areas have what is known as a homeowner's exemption which allows people to drill on their own property. If this question is a concern we recommend you check with your local authorities. We also recommend you be sure they understand that you plan to drill only on your own property and do not plan to drill on a commercial basis.

Should I have the water tested?

We recommend you have the water tested. In most cases if the water is pumped from a natural aquifer, it is pure and drinkable water, but have it tested to make sure.