

VP II Frequently Asked Questions

1. How can I decide if the VP II will work in my fountain or application?

There are several factors to consider when deciding if the VP II pump is right for you.

First and most important is the physical size of the VP II pump. Do you have enough space for the pump? The pump is 2 $\frac{3}{4}$ " long, 1 $\frac{3}{4}$ " wide, and 2 $\frac{1}{4}$ " high. The pump also requires at least 2 inches of water depth in the reservoir to function properly.

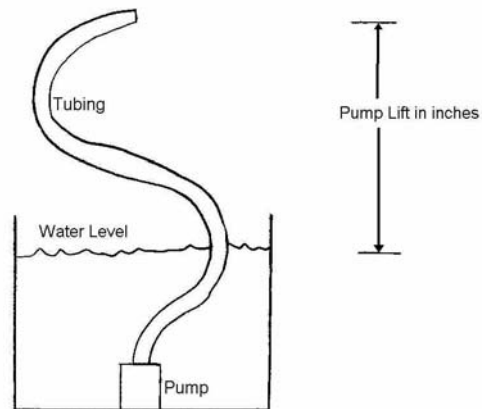
The second factor to consider is the size of the tubing that will be used. Most every fountain uses flexible tubing to transport the water to a point above the reservoir. From there, gravity brings the water back to the reservoir. Tubing is available in many English and Metric sizes. The critical dimensions of tubing are the inside diameter (ID), and outside diameter (OD). The VP II pump works best with 3/8" outside diameter tubing, which normally has an inside diameter of 1/4". The pump will also work well with tubing with an inside diameter of 1/2 ". Rigid tubing can also be used. Rigid or flexible tubing is readily available at most hardware stores.

The third factor is "lift" or "head". This is simply the difference in elevation between the level of water in the reservoir and the point at which the water exits the tubing. When calculating lift for your application, just remember that only the vertical movement of the water is a consideration. The pump does not expend any energy to move water horizontally. For more on pump lift, please see explanation and illustration below.

The VP II 2700 has a maximum lift of 24 inches.

The VP II 5600 has a maximum lift of 36 inches.

2. Can you explain “lift” as it relates to submersible pumps?



As shown in the above illustration, pump “lift” is simply the difference in elevation between the level of water in the reservoir and the point at which the water exits the tubing. Even though the water does move horizontally as it snakes its way through the tubing, only the vertical distance is used to measure the total “lift”.

Additionally, the size of the tubing will also impact the pump’s ability to “lift” the water. The general rule of thumb is the larger the tubing, the more work the pump will do to “lift” the water. The “lift” of the VP II pump was tested using 1/4” ID tubing.

The amount of battery power also impacts pump “lift”. The “lift” of the VP II pump was tested using maximum battery power which is 12 volts. More about batteries and battery power is listed below.

3. What is the relationship between battery power, voltage, and the VP II pump?

A typical single-use AAA, AA, C, or D cell battery is 1.5 volts.

A typical rechargeable AAA, AA, C, or D cell battery is 1.2 volts.

Typical battery holders are sold for 2, 4, 6, and 8 batteries. When batteries are grouped or arranged together in a single battery holder, the voltage is added together to calculate the total voltage. Using this formula, this chart represents the total voltage of different numbers of batteries.

# of batteries	<i>Total Voltage</i>			
	2	4	6	8
<i>single-use</i>	3	6	9	12
<i>rechargeable</i>	2.4	4.8	7.2	9.6

For instance, the above chart indicates that 6 single-use batteries in a 6 cell battery holder will produce a total voltage of 9 volts.

Why is this important? Since both models of the VP II pump are rated at a maximum of 12 volts, the charts indicated that 8 cells is the most cells that can be ganged together without exceeding the pumps maximum voltage of 12 volts. Since the VP II pumps are designed to work on a wide range of voltages, different flow rates can be achieved by using a different quantity of batteries. In simple terms, greater or fewer batteries equates to more or less water flow. All pumps are shipped with an 8 cell AA battery holder.

Important: AAA, AA, C, and D size batteries are the same voltage. For example, using 8 AAA batteries will produce the exact same water flow as 8 D batteries and both will produce the exact same water flow as a 12 volt automobile battery.

4. What can I do if the pump is delivering too much water flow?

Too much water flow is always a good thing. It is normally preferable to have too much water flow instead of not enough. Too much flow can be adjusted in several ways. The easiest solution is to use fewer batteries. For example, try 6 batteries instead of 8.

Battery holders are designed to be completely full in order to function. If you only put 6 batteries into an 8 cell holder, the pump will not work. The short term solution in this example would be to use 6 new batteries and 2 dead batteries or 7 new batteries and 1 dead one.

Once you determine the number of batteries that produce the best water flow, you can use a corresponding battery holder. Unfortunately, battery holders are only available in 2, 4, 6, and 8 cell configurations. If you discover that an odd number of batteries produce the best water flow, contact us for one of our dummy batteries. Our dummy battery is better long term solution than using a dead battery.

Contact us for additional solutions, suggestions, or battery holders.

5. What can I do if the pump is not delivering enough water flow?

Too little water flow is more difficult to correct than the opposite problem. The most obvious solution is to use more batteries, but remember that 8 batteries is the maximum.

Our VP II Model 5600 will deliver slightly more water flow than the Model 2700 but the difference is barely noticeable in most situations.

Using smaller tubing or restricting the end of the tubing will normally give the impression that the pump is delivering more water. This would be similar in principal to holding your thumb over the end of the garden hose.

It may be that your fountain or application is just not ideally suitable for battery power. Battery powered pumps do have limitations. For example, a battery powered pump can be designed to produce more power but run time is usually the sacrifice.

6. How can I increase the run time of the VP II?

Without a doubt, the most frequently asked question is about run time, or how long the pump will work before the batteries die. Battery size is everything when it comes to run time. Bigger batteries equal longer run times.

Here is a very simple example that will best answer this popular question. Please remember that each VP II pump is shipped with one AA 8 cell battery holder. Using good quality AA batteries, our VP II pump will run for approximately 12 to 15 hours. If we take the same VP II pump and connect it to 8, C size batteries, the run time would increase to 40 to 50 hours in a normal scenario. Please contact us for more information about battery holders or increasing the pump's run time..

We have never tried this but I am sure our pump would run several weeks on a typical automobile battery.

A computer back up battery is also an option for increasing run time. The nice thing about these batteries is the simplicity of hiding or recharging one larger battery instead of 8 smaller batteries. Please contact us for more information about computer batteries.