



## How to Choose The Right Size of Filter for Your Pool

Choosing the right size pool filter for your pool is not always a simple task, but it is crucial to ensuring that your pool stays safe, clean, and open. The first step when picking the right sized pool filter is picking the right size pool pump.

### Choose the Right Size Pump

Many people err on the side of caution and purchase a pump that is far bigger than what they need. This can be a costly mistake. Larger pumps are more expensive, and may increase your energy bill compared to an appropriately sized pump. Worse, a pump that is too large can overpower your filter system. A pump that is too small may lack the power needed to effectively pump and filter your pool. This can lead to a buildup of bacteria and algae.

### Choose the Right Size of filter

Even if you have the right sized pump, if you choose a filter that is too small, the pump will generate too much pressure, causing the filtering material to break down and rendering the filter ineffective. The pressure build-up caused by small filters causes pressure to build up in your pump, and in some cases this has resulted in explosions, or serious damage to your pump.

The correct sized filter and pump should be able to fully cycle all of your pool water in about eight hours. This simple guide will show you how to find the right sized pump and filter for your pool.

### Step 1: How Much Water Does Your Pool Hold?

The first step to picking the right size pool filter is determining how much water your pool actually holds. This is a relatively easy process if you have a nice simple rectangular pool, but gets progressively difficult the more intricate your pool layout is. Broadly speaking however, there are four pool shapes: rectangular, round, oval, and kidney. To determine the size of your pool there are some simple formulas to use.

**Pool depth:** Regardless of the shape of your pool you'll need to calculate the average pool depth. To do this simply find the deepest part of the pool, and the

shallowest part and find the average between them. If the deep end is 12 feet and the shallow end is 4 feet, then the average depth would be  $12+4 = 16$  and  $16 \div 2 = 8$ .

**Rectangular pools:** You'll first have to measure the length and width of your pool. Remember that old formula from elementary school:  $A=L \times W$  (Surface Area= length x width)? Use it to find the surface area.

Next, find the average depth of your pool. Multiply the average depth by the surface area to find the total volume. Or, wrap it all into one formula:  $L \times W \times D = V$ . This is the volume of your pool. If your pool is "L" shaped then break it into two (or more) rectangles and calculate the volume of each, then add the volume together.

**Round pools:** Determining the surface area of your round pool requires a slightly more complex formula. Surface area (SA) = pi (which is 3.14) x the radius squared ( $r^2$ ). So your formula looks like this:  $SA = 3.14 \times r^2$ . Then calculate the average depth of your pool, and multiply it by the volume.

**Oval pools:** Oval pools are a bit trickier, you'll have to measure the longest diameter, shortest diameter, and average depth and use this formula: longest diameter x shortest diameter x average depth = volume.

**Kidney shaped pools:** You'll have to find the longest width, shortest width, and length of your pool. Then calculate the volume with the following formula: Volume = (longest width + shortest width) x length x average depth.

## **Step 2: Turn Cubic Feet into Gallons**

Once you have calculated the volume of your pool in cubic feet, multiply that figure by 7.48 – which is how many gallons there are in one cubic foot.

## **Step 3: Gallons Per Minute**

Once you have calculated your total pool capacity in gallons you need to calculate the gallons per minute that you will want your pump to handle. Remember that most pool owners look to run their pump for no more than 8 hours. So that means you need to determine how many gallons per minute you need. First divide your pool's volume (in gallons) by 8, this will give you gallons per hour. Then divide that number by 60, because there are 60 minutes in an hour. The average pool is about 20,000 gallons which means that  $20,000 \div 8 = 2,500$  GPH (gallons per hour), and 42 GPM (gallons per minute).

For commercial pools, or other heavily used applications you ideally want to be able to run your pool 4 times within 24 hours, meaning you want a total pump in 6 hours or less.

#### **Step 4: Feet of Head**

You need to take into consideration the piping between the pool and the pump (called the feet of head). The more head you have, the more that GPM will decrease. You'll also have to take into consideration any fixtures and valves in the piping as well. You should at least have a rough estimate of how many feet of piping are between your pool and pump.

#### **Step 5: Choose Your Pump**

Once you know your GPM and feet of head you can start searching for the right pump. Most pump manufacturers and retailers will provide a chart indicating the pumps GPM capacity based on different foot of head lengths. It is always better, once you know your pool's capacity and pump requirements to buy a *slightly* larger pump.

#### **Step 6: Choose Your Filter Size**

Your pool filter size is directly related to the size of your pump. Too small and the filter could break, and your pump could burn out. There are less risks associated with buying a filter that is too large than one that is too small, so keep that in mind while finding your filter. Then match your filter to *at least* the pumping capacity of your pump, so if your pump is good for 42 GPM, get a filter that is rated for 42GPM or more.

#### **Additional Factors to Consider**

You should also take into consideration a number of other factors. If you have waterfalls, spas, or other water features then they will add to your pools total GPM needs. If you have a very large pool (with a GPM that is more than 60) then you may not only need a larger pump, but also 2" diameter pipes which can handle up to 100 GPM.

**If you have further questions, feel free to contact one of our Customer Service Specialists at [customerservice@poolsuppliescanada.ca](mailto:customerservice@poolsuppliescanada.ca).**