



How to calculate the volume of your tank

For volume calculations you will need basic and accurate dimensions of the vessel. For vertical flat bottom tanks you will need the outer diameter and height of the straight side. The formula for this calculation is :

$$\text{Volume (in USG)} = (\pi R^2 H) \times .004329$$

Where:

R= radius of the tank in inches

H= Height of tank straight side in inches

To find the radius of your cylindrical tank you can use a flexible tape measuring reel to get the circumference. To get the radius you will divide the circumference by π and then again by 2. For example, let us look at a standard 3000 gallon stock tank one of these in the picture. You would measure around the entire outside of this tank to get you circumference of about 320 inches. You then divide that 320 inch by π and you will have approximately 102 inches for the outer diameter of this tank. To get the radius you will then divide the diameter in half to give you the tank's outer radius.



Depending upon the accuracy required for the volume calculation you will also need to consider wall thickness into your radius value. Rotationally molded tanks have a tapering wall that is thicker at the bottom than it is at the top. This is done as head pressure increases with depth but for most applications it is not necessary to get this involved when calculating volume.

Measuring the straight side of you tank will provide you with the final number need to calculate the volume. Using a rigid tape measure, starting at the flat floor your tank sits upon, up to the bottom of your overflow fitting OR to the top of your straight side. Again depending upon the accuracy needed you may need to account for bottom thickness as well.

For this example the tank pictured had a straight side of about 110 inches. Using the above formula this tank hold approx 3029 USG of liquid.