



DURATHERM
Heat Transfer Fluids

Expansion Tanks: How Big Should They Be?

Fluids expand when they're heated, and all heat transfer systems need to account for this. Expansion tanks do just as their name suggests – they give that expanded fluid a place to go. But how do you determine the correct size for the tank?

First you need to know the Delta T. In this case, it's basically the difference between your starting temperature and your desired system temperature. Multiply that by the fluid's coefficient of thermal expansion.

So if you're heating the fluid from an ambient temperature of 70°F to 300°F, the Delta T would be 230. For this example we'll use [Duratherm 450's thermal expansion rate](#) of 0.0564%/F. So the formula would basically look like this:

- **$(300^{\circ}\text{F} - 70^{\circ}\text{F}) \times 0.0564 = 12.972$** (expressed as a percentage)

Let's say in in this case your system capacity is 100 gallons. That means you'd need an expansion tank to hold an additional 13 gallons because based on the formula above, your volume has increased to 113 gallons.

One more thing to keep in mind when sizing your tank: as a rule of thumb, it should typically be 1/3 full when cold and about 1/2 full when hot.

We hope this information is helpful but if you have any questions or comments, please [let us know](#).