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HEAT SHRINK TUBING SIZES



What size heat shrink should you use? If you're new to heat shrink tubing it can be a bit confusing at first. Heat shrink has multiple different measurements that work hand-in-hand, and in this post, (and video), we want you understand what to look for to help you choose the right size heat shrink tubing.

HOW TO CHOOSE THE RIGHT HEAT SHRINK TUBING SIZE

Heat Shrink Tubing has a few different measurements that you need to know so you don't make a mistake when picking out a size for your application. The three main things to know are:

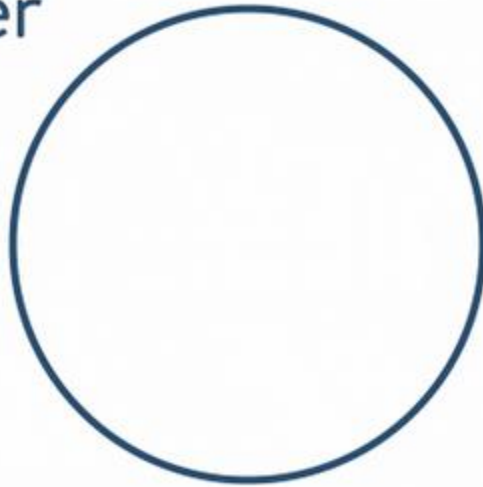
Inner Diameter

Shrink Ratio

Before & After Measurements

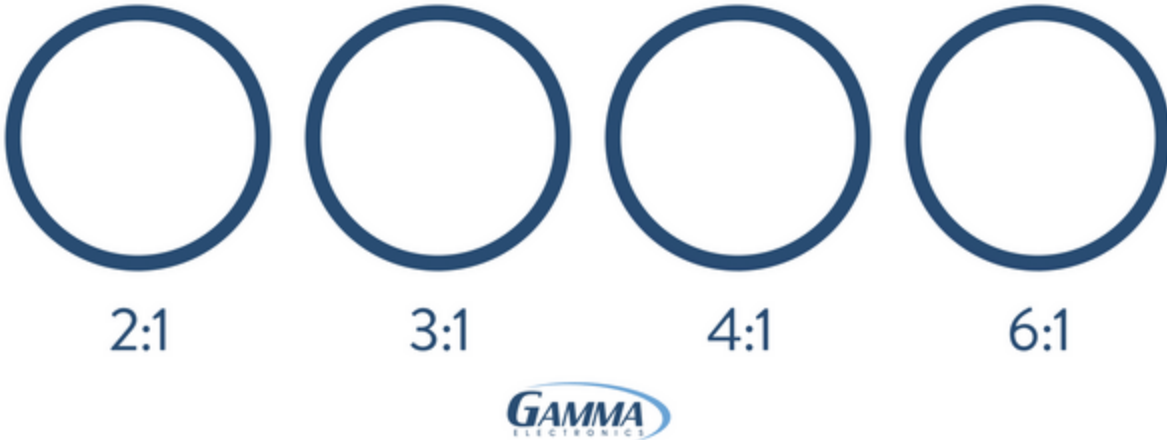
Inner Diameter is the actual measurement used to identify the size of heat shrink tubing. It is the length of the tubing from one side to another (or diameter), measured from the inside of the tubing. Heat Shrink tubing products are identified by the inner diameter measurement *before* the heat shrink is shrunk.

Diameter



Shrink Ratio refers to how much something shrinks and is a before & after measurement, (or ratio). A 2:1, (said “2 to 1”), ratio for example, would start 2 times larger than what it can shrink down to. Some common shrink ratios are 2:1, 3:1, 4:1, and 6:1.

Shrink Ratio Comparison



Before & After Measurements are exactly what they sound like: measurements of the heat shrink product before and after it has shrunk.

To make sure you purchase the correct size of tubing, you really need to mix and match knowledge from these three points, so let's explore that quickly. As we do that, we'll explore in a little more depth how knowing a bit about each of the above three topics proves helpful in choosing the right sized heat shrink tubing.

INNER DIAMETER

As stated above, **inner diameter** is what we use to identify the actual size of a tube. Let's say you have a hose you want to cover with heat shrink and the hose is about $\frac{3}{4}$ of an inch, (or 0.75 inches). You could quickly go look for $\frac{3}{4}$ inch heat shrink, but that would be a mistake. What you really want is heat shrink that starts larger than $\frac{3}{4}$ inch but ultimately shrinks down a bit smaller than $\frac{3}{4}$ inch. The reason for this is that you want the heat shrink to easily fit over what you are trying to protect to begin with, and to still shrink down tight to give you the performance from the heat shrink you need. So, in the case of a the $\frac{3}{4}$ hose, let's choose something a bit larger as our starting point and go with a 1-inch heat shrink tubing.

SHRINK RATIO

Next, **Shrink Ratio**. How far do you need the heat shrink to shrink? It is important to remember that shrink ratio is a ratio and not a size. Most heat shrink tubing sellers or manufacturers, (ourselves included), will typically categorize heat shrink by shrink ratio. For example, on our site, we have categorized our heat shrink products into 2:1, (said “2 to 1”), 3:1, 4:1, and 6:1 heat shrink tubing. So, going back to our 1-inch heat shrink tubing example, if we were to get 1 inch tubing in all these shrink ratios, they would all shrink down to very different sizes, as shown in the table below.

Shrink Ratio	Before Size	After Size
2:1	1 inch	0.5 inch
3:1	1 inch	0.33 inch
4:1	1 inch	0.25 inch
6:1	1 inch	0.167 inch

Going back to the example of a hose, we could likely use a 2:1 heat shrink tubing, sized at 1 inch, that will easily fit over the hose to begin with, but shrinks down smaller than $\frac{3}{4}$ of an inch. In truth, we could use any of the heat shrink tubing listed in the table above, but since the 2:1 works the others would just be over doing it.

BEFORE & AFTER MEASUREMENTS

You probably already noticed, but just above we used a table that showed us some **Before & After Measurements**. Whenever you are shopping for heat shrink tubing, you’ll find that the tubing has these before and after measurements available, often found in the tubing specifications, or in a data/spec sheet. Looking at these measurements is the best way to make sure

the tubing will fit over what you are trying to protect before shrinking, while still shrinking down tight once it has been shrunk.

We should mention, the way the data is listed in the table above is not how you will normally find the before and after measurements listed when you are researching heat shrink products. Typically, you can find the before and after measurements in a table in the specifications of the heat shrink or on a data sheet. However, they may not even use the terms “before” and “after.” On our heat shrink products, for example, we use the more technically correct terms of “supplied” and “recovered,” which essentially are the same as “before” and “after” shrinking.

You also won’t normally see multiple shrink ratios listed alongside one another as a comparison. What’s much more typical is to see all the sizes that one specific product is available in, alongside the sizes that those sizes shrink down to, as shown in the table below.

Gamma 2:1 Polyolefin Heat Shrink Tubing				
Tubing Size (inches)	Sizing Before (Supplied)		Sizing After (Recovered)	
	mm	inches	mm	inches
1/4	6.4	0.25	3.2	0.125
3/8	9.5	0.37	4.8	0.187
1/2	12.7	0.5	6.4	0.25
3/4	19.1	0.75	9.5	0.375
1	25.4	1	12.7	0.5
1-1/4	31.8	1.25	15.9	0.625
1-1/2	38.1	1.5	19.1	0.75
2	50.8	2	25.4	1

Before and After measurements will give you the best data available so you can make sure you’re choosing the right size heat shrink tubing. It’s key however, to

make sure you are getting an accurate measurement of what you are trying to protect, or all the information above could be considered nearly useless to you.

HOW TO GET AN ACCURATE MEASUREMENT

Almost always, heat shrink tubing is used to protect some other type of tubing, like a wire, cable, or hose. Assuming you are trying to put heat shrink onto some other kind of tube, you're going to need to get an accurate measurement of that tube. Just as heat shrink tubing uses diameter for its measurement, you're going to want to measure the diameter of what it is you are trying to protect, (in this case, the outer diameter). You can do this with a ruler or measuring tape, but the most accurate way of doing it is with a caliper, (shown below).



Calipers are incredibly accurate and make measuring things like diameters much easier. You can also find calipers fairly easily and inexpensively, (around \$10-15), although there are models that go much higher.

Whatever tool you use, you need to be thinking about the before and after measurement of heat shrink tubing when you measure. Does the heat shrink need to fit over something large when you first move it into place? And how small does it have to shrink down to once moved into place? For example, if you have a cable you want to put heat shrink onto, does the cable have a connector on the end that the heat shrink must fit over first? If so, the heat shrink might need to be larger than you first anticipate and could even result in you needing to opt for a higher shrink ratio tubing. You don't want the heat shrink to be too tight and difficult to move into place to begin with, so give yourself breathing room.

And, as mentioned previously, make sure the heat shrink tubing shrinks down a bit smaller than whatever you are placing it onto.

So, measure the largest part you need the heat shrink to fit over, and then the smallest part that it needs to also shrink onto. And try to get those measurements as accurate as you can. Once you have accurate measurements, you'll be able to, (with the information above), make sure you are choosing the right sized heat shrink tubing.

WHAT IF YOU CAN'T USE HEAT SHRINK TUBING?

Sometimes you might have something you are trying to protect that you just can't fit heat shrink tubing around. We've also had customers who cannot utilize heat guns or blow torches in certain environments, and they need an alternative option. Luckily, we offer solutions to help work around these issues.

If you have something that is an odd size or it is already installed and you can't easily slip heat shrink tubing over it, then you might want to look at our [FIX-105 tape](#), a heat shrinkable tape. Heat shrink tape gives you the benefits of heat shrink tubing without it having to be an actual tube. You wrap it and shrink it and don't have to worry about sizing issues.

You could also use our Self-Amalgamating Tape, or "Magic Tape" in many scenarios. We have customers use it for weatherproofing purposes all the time, so it really depends on your needs.

In other scenarios, we've had customers tell us they cannot use heat guns, blow torches, etc., in certain environments, but they still want a protective tubing. Our [Cold Shrink Tubing](#) is perfect in these environments/scenarios, as it does not require any heat, or even additional tools, to be installed.

CONCLUSION

Hopefully you feel like you now have a better understanding of how to choose the right sized heat shrink tubing for your needs. Is there something we missed? Have any additional questions? Let us know in the comments below!