

3 Tips For Protecting Your Plastics When Sawing

When working with plastics, the number one enemy is the buildup of heat. Unlike metals, plastics retain heat because of their insulative properties. When using high speed machinery to manipulate the shape of plastics, it is quite common for the plastic to melt at the point where contact is made with the cutting tool. By following three easy steps, you can reduce your chances of damaging the plastic material and having a successful cut.

1. **The Right Number of Teeth** – The general rule of thumb when cutting plastics is the thinner the material, the more teeth are required for a clean cut. When cutting thinner materials on a band saw, consider using a blade with 5 – 6 teeth per inch. Similarly, when cutting thin material with circular saws of 14 – 16 inches in diameter, a blade with 72 teeth is ideal. If your cuts are repetitive, you can stack the materials up to 4” in height assuming the saw is powerful enough to make the cut.

For thicker materials, you will need fewer teeth for a successful cut. When using a band saw, consider using a blade with 3 teeth per inch. Similarly, when cutting thicker materials with a circular saw, consider using a 16” blade with 40 teeth for the best results.

2. **Keep it Cool** – Because heat is a natural byproduct of the sawing process, you will need to pay special attention to your equipment and cutting technique. It is essential that your cutting tools have a pristine edge every time. Any dullness on the blade will reduce the saw’s ability to cut through the material and will require more time for the material to be cut. If the plastic is in contact with the blade for too long, there is a real risk of the material melting.

Similarly, pay attention to the speed of the blade and the feed rate when working with plastics. If you notice localized melting, either slow the speed of the blade (if possible) or increase the feed rate of the material.

3. **Keep it Sharp** – Despite the relative softness of plastics as compared with other materials, plastics are notorious for dulling blades. Be sure to regularly inspect your blades to ensure that they are sharp before cutting. Ideally, tungsten carbide blades would be used when cutting plastics because of their longer life and their ability to maintain an edge for greater lengths of time.

For optimal cuts, also consider using circular saw blades with a triple chip grind so that the width of the blade is greater than the width of the body of the blade. This will minimize the total surface area if the blade that is in contact with the plastic and will decrease the amount of friction and heat on the material.

For general cuts, rip and combination blades with a 0 degree tooth rake and a 3 to 10 degree tooth set are ideal for reducing friction and heat.

For more helpful tips, contact your local EM Plastic representative.