

# The Best Way to Cut Flat Goods: Die Cutting vs Waterjet vs CNC

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Choosing the right cutting method is crucial when working with sheet rubber, whether you are slitting or cutting gaskets. Consistent quality requires proper cutting methods; an essential step to ensure each product performs to its full potential. There are three primary techniques used to cut flat goods: die cutting, waterjet cutting, and computer numerical control (CNC) cutting. Each method offers unique advantages depending on the application and material requirements.

## **Die Cutting**

Die cutting is one of the oldest and most traditional techniques, where sheets of material are stamped with a die to produce uniform products, similar to a cookie cutter. This method is particularly well-suited for large-volume production runs of items such as gaskets. There are two primary methods of die cutting: rotary and flatbed. The rotary method is ideal for thinner, more flexible materials like gaskets or films. The flatbed method is better suited for thicker or less pliable materials, such as thicker foam or rubber.

From both a distributor and supplier perspective, die cutting offers several advantages, including high precision, efficiency, and versatility. This precision is thanks to its standardized setup, its efficiency is due to the typical high-volume production and consistent repetition, and it has versatility in the design in which the materials are cut. However, die cutting does have limitations. It only allows for certain materials, and while design choices are versatile, there is no room for change once the die is created for production. Each gasket size requires a unique die, which creates the need for dedicated storage solely for housing these dies.

## **General CNC Cutting**

Computer Numerical Control Cutting (CNC) is a highly advanced and precise modern cutting method that uses computer-controlled machinery to cut materials with hyper-accuracy. CNC cutting can be conducted through many techniques, including plasma cutting, laser cutting, milling, routers, or waterjet. This cutting method ensures hyper precision, rapid results, versatility in both design and material options, and an even safer working

environment due to the removal of manual labor. The negatives of this method are higher up-front capital costs and additional maintenance considerations versus more manual methods.

## **CNC Waterjet Cutting**

Waterjet cutting is a specific CNC method which uses a high-pressure, high-velocity stream of water to cut through various materials. This technique can be used for materials which are sensitive to high temperatures since it does not generate any heat when cutting, or when very fine details are required since it does not impart any cutting force on the material. Its high precision makes waterjet cutting ideal for delicate applications and a wide range of materials.

There are two main types of waterjet cutting: pure water and abrasive waterjet cutting. Pure waterjet cutting uses solely water, making it ideal for soft materials like thin rubber and foam. Abrasive waterjet cutting uses both water and abrasive media to cut hard materials. Metal, plastics, or very thick rubber are good examples of materials well-suited for abrasive waterjet. Waterjet cutting can cut through extremely thick sheet rubber - cutting up to 2 inches thick and beyond, surpassing CNC and die cutting methods, which are generally limited to a maximum thickness of 1/2". *\*Waterjet does not require any blades or tooling, which can be considered an advantage to traditional CNC and die cutting \**

Whether you're using traditional die cutting, waterjet cutting, or CNC, selecting the correct flat goods cutting method is key to achieving precise and consistent results when working with sheet materials. Each technique offers unique advantages depending on the material and application, making the right choice essential for successful outcomes.

