

WHEEL CONSTRUCTION

There is a good variety of ways of constructing wheels. Most alloy wheels are made in either one, two or three piece construction types. One piece is just what it says, a wheel made in a mold as a single piece. Two piece wheels are made of two separate pieces (center and barrel) that are usually welded or bolted together. Three piece wheels are made of three separate pieces. They have a center, and inside rim half, and an outside rim half. They are bolted together using the highest quality fasteners.

Manufacturing method is very important in the overall quality and performance of a wheel. Here are the most common types of manufacturing techniques employed:

Most modern wheels are constructed using either steel or aluminum. Steel wheels are generally heavier than aluminum wheels, and are made in two pieces. Aluminum wheels can be constructed in multi-piece or one-piece and can be made in one of the following ways: casting, rim rolling, or forging.

TYPES OF WHEEL CONSTRUCTION OPTIONS:

Cast Wheels

Cast wheels are formed using a mold to achieve shape and form. Molten metal is poured into the mold. As the metal cools, it hardens into the shape of the wheel. There are different ways to cast wheels, and each has a slightly different effect.

Gravity Casting

Gravity casting is just what it sounds like. Molten aluminum is poured into a mold and gravity is used to create the force needed to fill the mold and achieve the desired shape. This simplifies the casting process, allowing for lower costs. The aluminum will not be as densely packed as in other casting processes, so a gravity cast wheel will likely be a little heavier in order to achieve the same level of strength.

Low Pressure Casting

Low pressure casting is the process where molten aluminum is rapidly pumped into the wheel mold. This process increases density and reduces the development of pores or cavities, allowing for a lighter, stronger wheel than a gravity cast wheel without a huge increase in cost. Because of these benefits, low pressure casting is very common.

Forged Wheels

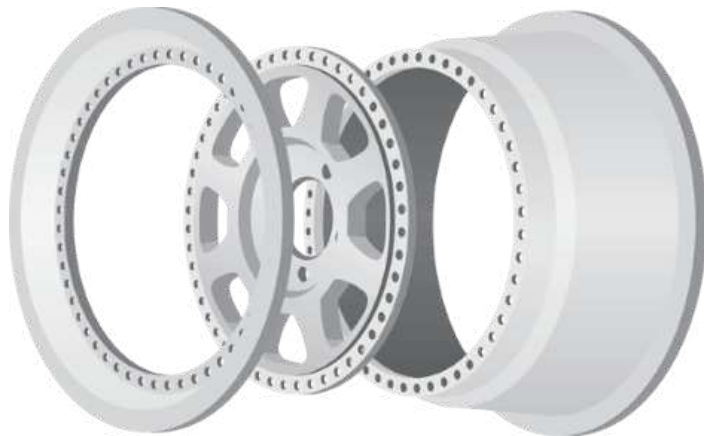


Forged wheels are generally considered the best in one-piece wheel construction. This is because they achieve the lightest weight with the greatest strength. Forging is the process of using a solid billet of aluminum and shaping it under extreme heat and pressure. This process leads to the greatest density providing a lighter, stronger wheel.

Rim-Rolling Wheels

Rim-rolled wheels are made using a low-pressure casting that is then spun on a specialized machine. This machine heats the outer portion of the cast section and uses rollers to shape the rim to achieve the desired width and shape. The combination of the applying heat and pressure then spinning the material, creates a rim with strength similar to a forged wheel at a lower price point. Resulting in a light and strong wheel at a reasonable cost, the rim-rolling process is commonly used to produce OEM wheels for limited edition high performance vehicles.

Multi-Piece Wheels



Multi-piece wheels are made up of two or three separate parts. These parts can be made using the same or varying methods of construction already mentioned. The rim section(s) and center section are formed separately and then attached together either by welding or bolts.

CHOOSING NEW WHEELS

When choosing a new set of wheels, you may want to be aware of these construction processes and their benefits and costs. The final deciding point is often style preferences. There are many different things that influence a wheel's style. One of the most common appearance differences is a wheel's finish. Some finish options include painted, polished, chrome, machined, and any combination of these. From wheel color to construction, this has been a small glimpse into the vast world of wheels.