

# What is Centrifugal Rubber Mould Casting or Spin Casting?

## SPIN CASTING

Today many metal parts manufacturers produce components through the process of casting. They use molds to help shape molten metal into a desired form. Spin casting has become one of the most popular, generally low-cost ways to cast metals with low melting points accurately.

## ABOUT SPIN CASTING

During spin casting, also known as "centrifugal rubber mold casting" or "CRMC", a manufacturer typically creates a low-cost, accurate mold by allowing liquid silicone rubber to solidify around an object placed within a circular container. Vulcanization hardens the mold. The removal of the item intended for replication creates detailed "negative space" for the creation of an accurate casting.

The manufacturer completes the mold and attaches it to a central axis to permit centrifugal motion during the casting process. Today the use of spin casting represents a comparatively low cost alternative in many industrial settings to standard die casting and injection molding. The silicone molds will eventually degrade, but they sometimes permit reuse for nearly 1,000 times.

## THE SPIN CASTING PROCESS

Most spin casting rubber molds consist of two sections, an upper mold which serves as a lid and a lower mold capable of holding molten casting materials. After the manufacturer vulcanizes these rubber molds to harden them and enhance durability, typically a skilled mold-maker uses a sharp knife or scalpel to create a sprue, and an associated network of channels and gates.

Casting occurs after the manufacturer affixes the set of circular molds to a central industrial turntable in a commercial spin casting machine and pours molten metal or thermoplastic into the mold through the sprue in the top of the mold. The liquid then gradually solidifies into a desired shape as the mold revolves around its central axis.

At the conclusion of the casting process, the manufacturer simply removes the cast part and prepares the mold for re-use. Additional finishing may occur after the separation of a cast part (or parts) from the attached gates and channels.

## SPIN CASTING EQUIPMENT

Spin casting does not involve the use of extensively tooled molds. Widely popular among hobbyists, it usually occurs at comparatively low temperatures. Consequently, in most production settings this casting process does not require the use of extensive specialized items of equipment. Some necessary tools include:

### A SPIN CASTER

Most commercial spin caster machines provide rotating industrial turntables. Either front loading or top loading, this equipment allows a metal parts manufacturer to provide centrifugal motion during the casting process.

### A VULCANIZER

A vulcaniser will compress silicone molds consistently over the course of several hours, permitting spin casters to harden and cure molds. Vulcanization causes the rubber to become less sticky. Historically, vulcanisers heated rubber in a sulfurous environment. Today many manufacturers rely upon vulcanizing silicone which will vulcanize at room temperatures without the direct application of heat.

### A MELTING FURNACE

A melting furnace and materials for pouring ladled molten metals enable hobbyist and small commercial spin casters to utilize metallic raw materials with low melting points. A melting furnace with control mechanisms for regulating melting temperatures and metal cooling greatly assists this casting process.

## MATERIALS AND APPLICATIONS

Today most manufacturers employ raw materials with comparatively low melting points during the process of spin casting. Thermoplastics, pewter and some zinc alloys have obtained popularity for this purpose.

Many applications exist for spin cast metal components. For instance, manufacturers have generated numerous decorative items, fashion accessories, medallions and even industrial components in this way. Specific examples of metal parts commonly produced through spin casting include: fishing lures and weights, toys, game pieces, trophies, buckles, medals, and decorative emblems. Some manufacturers routinely employ this comparatively low-cost process to generate certain metal components for machinery, too.

One application of spin casting deserves special recognition. This process frequently assists companies in developing models and prototypes very rapidly. It permits the generation of re-usable molds and will allow an enterprise to commence the production of items in limited quantities much faster than some other prototyping processes.

## ADVANTAGES OF SPIN CASTING

What advantages does spin casting offer metal parts fabricators? This process has achieved popularity around the world in some manufacturing settings because it provides important benefits.

Spin casting permits the generation of parts comparable in many cases to components produced through die casting or injection molding. Unlike those two processes, however, spin casting typically relies upon re-usable molds formed from vulcanized silicone rubber, not durable metals. Although this mold fabrication material won't withstand massive production runs, manufacturers usually create spin casting molds at a significantly faster rate of speed since the molds do not require extensive tooling or finishing. During die casting and injection molding, fabricators gain the advantage of a longer potential mold lifespan, but sacrifice rapid prototyping benefits associated with spin casting.