



Rubber Molding Methods Explained

All rubber molding methods rely on a combination of heat and pressure to transform uncured rubber into precisely-molded components. The three primary rubber molding methods are: compression molding, transfer molding, and injection molding.

Each rubber molding method follows the same basic workflow: rubber is heated and forced into a mold cavity or cavities where it conforms to the intended geometry. During the molding process, raw rubber is vulcanized or “cured.” Curing transforms unpliant raw rubber into a material that can deform under stress and return to its molded shape. The three most common processes for rubber molding are compression molding, transfer molding, and injection molding.

Compression Molding

In compression molding, a compression press, forces top and bottom platens together via a hydraulic cylinder or ram. In this process, raw rubber “preforms” are placed in open, heated mold cavities. The mold is closed, and the pressure of the press forces the rubber to conform to the shape of the mold cavities. Heat and pressure are maintained until the rubber has cured to create the finished part.

Transfer Molding

In transfer molding, heated raw rubber is forced into a closed, heated mold. As the compression press closes, the rubber is forced from a chamber, or “pot,” through sprue or feed holes in the top of the mold into the mold cavities. Once filled, the heated mold cavities cure the rubber, creating a finished part.

Injection Molding

In injection molding, heated material is forced into a mold using a screw and piston system. Injection presses offer significantly more control over all process parameters, including material temperatures at various points in the process and the speed and volume of the material introduced into the mold. Injection molding offers a number of benefits, especially for high volume, complex, or precision parts.

