

What is a setup charge?

Fundamentally, a setup charge is what gives us the ability to make your unique part.

A setup charge is a non-recurring fee that is charged to the customer to cover the costs associated with creating a new, custom part. Several stages of design and manufacturing are required to create molded rubber parts. These stages include the mold layout and design, which can be proprietary, as well as mold components, mold steel, machining, finishing, fitting and assembly, mold setup, and maintenance.

Mold Layout and Design: Engineers at Apple Rubber Products will review a part and design a mold to efficiently meet the customers cost, delivery, and quality requirements. Solidworks CAD software is utilized to create solid models of mold components in a virtual environment. These solid model files are then sent to our [in-house mold shop](#) where designs on the computer screen are turned into actual mold plates.

Mold components: Basic rubber molds are made up of between 10 and 100 individual components including mold plates, alignment pins and bushings, and hinges.

More complex molds like valve gated cold runner molds or flashless inserted transfer molds can have thousands of components.

Some molds require additional accessories to make them more efficient and operator friendly. These accessories can include loading boards, knockout boards, trim dies, and other associated fixturing. Mold accessories are included in the setup charge as they are an integral part of the manufacturing process.

Mold Steel: Different types of mold steel are used to manufacture molds. Simple prototype molds are made of a free machining steel which allows for their quick turnaround. Production molds are made from either pre-hardened mold steel or annealed steel, then hardened. Production mold steel is harder and more costly, but exhibits far less wear during longer manufacturing runs. We use only steel, not aluminum to create molds.

Machining: Mold plates and components are machined using either conventional or EDM techniques. Apple Rubber's [in-house mold shop](#) has the capability to produce most molds within our manufacturing facility.

Finishing: Some mold components require a particular surface finish. The as-machined component must be polished or media blasted to meet the customer requirements.

Plating: After mold components are machined and finished, they may be plated to reduce wear, inhibit corrosion, or reduce sticking. All mold components are not plated, as the plating process adds both cost and lead time to the mold build.

Assembly: All components must be fitted and assembled to create an operational mold. Many components require precision fits that must be maintained to ensure proper mold function.

Setup: Every new mold must be installed in a press. Then appropriate process parameters must be determined for this particular mold, press, and material combination. Basic settings include platen temperature, clamp force, cure time, and amount of rubber material.

Storage and Maintenance: Every rubber mold must be maintained to ensure it produces quality parts over time. Apple Rubber Products maintains our inventory of over 5000 molds through a preventive maintenance module within our centralized manufacturing package. Maintenance work orders are automatically generated and records are retained. Based on either time, or number of cycles, every mold is cleaned and reviewed for critical characteristics like alignment (registration), wear surfaces, and cavity integrity.

Lifespan: Many plastic molds are purchased with an accompanying SPI mold class that estimates the expected lifespan of the mold based on the details of its manufacture. Rubber molds, however, rarely come with a lifespan as the lifespan of a rubber mold can vary greatly depending on many factors, including:

- *Mold type:* Different types of molds can exhibit wear and tear in particular locations. Compression, transfer, flashless transfer, injection, and LIM molds all undergo different, unique stresses during the molding cycle which affects wear.
- *Cavity steel:* As the hardness and abrasion resistance of the cavity material increases, generally the expected lifespan increases, but so does the cost and lead time.
- *Inserts:* Molding rubber to metal or plastic parts is common. As metal and plastic are harder than rubber, the material being molded to can cause molds to wear more quickly than molds only processing rubber.
- *Type of rubber material being molded:* Some rubber compounds can be very abrasive. Additionally, some types of rubber can quickly corrode common mold steel.

All of the above factors are taken into account when designing a new mold. Even with this consideration, normal wear and tear is expected and is very difficult to predict. Experience has shown that many rubber molds are highly functional and produce acceptable parts after hundreds of thousands of cycles while others may last only tens of thousands of cycles. As molds are reviewed and wear is noted, the customer may be contacted about reworking current tooling or creating new tooling to replace worn tooling. Additional charges and associated lead times may accompany new or updated tooling.

Inactivity: Molds that have not been used for a period of 7 years will be considered abandoned and will be disposed of. Mold components will be made unusable and recycled as scrap metal. This disposal procedure is permanent. Should parts be required from a discarded mold, the customer will be required to pay a new setup charge with an associated lead time.

Exclusivity: The customer paying the setup charge has exclusive rights to the parts produced from the mold associated with that setup charge. No other customer has access to that mold without the written consent of the customer who paid the setup charge.

Identification: Every mold used at Apple Rubber is permanently marked to ensure the parts it produces are of the proper configuration. Additionally, customers may request that specific identifying features be added to a mold or die during its manufacture. Identifying features may include the customer name or part number, cavity number(s), or a specific customer supplied identification tag. Requests to add identifying features after the mold has been made will be reviewed and may carry an additional cost.

Destruction: The customer that paid the setup charge may request that a mold be destroyed. Mold destruction can take place by different means, generally the mold is cut in two. The destroyed pieces will be recycled and cannot be released to the customer. Digital photographs of the destroyed pieces can be sent to the customer if the request is made before the destruction takes place.

Proprietary Information: Apple Rubber Products creates rubber parts through the use of proprietary techniques. All information used by Apple Rubber to produce rubber parts, including, but not limited to: designs, data, trade secrets, formulas, specifications, material compositions, technical information, drawings, solid models, machining procedures, process parameters, and associated materials are proprietary, and as such cannot be shared, transferred, or sold. Apple Rubber does not sell molds.

Ownership: Apple Rubber shall retain ownership of all molds, tooling, and associated materials notwithstanding any charges or payments made by the customer. All molds, tooling, and associated materials are property of Apple Rubber and may not be removed from Apple Rubber premises. Any molds or tooling created or purchased on behalf of the customer, or which was specifically designed, converted, or adapted to manufacture the rubber product for the customer is owned by Apple Rubber, notwithstanding any payments made by the customer. Apple Rubber not sell molds.

Customer Supplied Tooling: In the event that a customer supplies the tooling, there may be a charge and lead time associated with the adaptation of this tooling to work with Apple Rubber equipment. Several customers have supplied molds, dies, and other types of fixtures, but none have been able to drop-in to our equipment. At a minimum, alignment features and bolt down locations are required. Costs associated with damage caused by shipping, handling, or adaptation shall be borne by the customer. All adaptation to the tooling will be permanent. Customer supplied tooling will remain property of the customer and can be returned to the customer, at customer expense, based on a written request, if the associated setup charges have been paid in full.

Alterations: The customer may request alterations to the mold which will alter the rubber part that it produces. Some alterations may require new molds. If an alteration is feasible, then it may have an associated cost and lead time which the customer is responsible for. Additionally, any costs associated with new or updated qualification are borne by the customer.

Approval: Setups are approved based on the parts they produce, not mold geometry. The combination of a specific mold and comprehensive process are required to produce a given part. A Perfect mold will not produce accurate parts without particular process parameters. Setups are a specific combination including a mold and a process.

Dissolution: Apple Rubber Products has been around since 1971 and has exhibited extraordinary stability and steady growth. In the unlikely event of Apple's voluntary or involuntary bankruptcy the associated tooling will be shipped to you, at your expense, upon your written request.