Soft tooling, Silicone Molds, RTV molds, Urethane Castings

Silicone Molds, Soft Tooling, Urethane castings:

Silicone Molds, also known as soft tooling and RTV molds (room temperature vulcanization or silicone rubber molding), are a great alternative to other tooling methods because they are fast, accurate, and low cost.

This is a great option when you need a spec-like material for multiple sets, in a short timeframe, for less than a traditional tool would cost.

Process: The process is simple. We build a master SLA pattern and use it to build a mold. Once the mold is complete, duplicates can be cast in a matter of days.

- This process utilizes a RP master
- The master must be sanded and polished to the surface finish required of the final part. This is critical, since the RP pattern will be used to create the mold and will reproduce any and all surface defects on the master, and in turn will transfer them onto the final molded parts.
- The master is then mounted in a pattern box and the thick liquid RTV is poured into the pattern box to cover the master completely.
- Degassing in the vacuum chamber is preferable at this stage to avoid trapped air bubbles caused by pouring.
- After curing, the RTV mould and the master are removed from the pattern box.

Advantages:

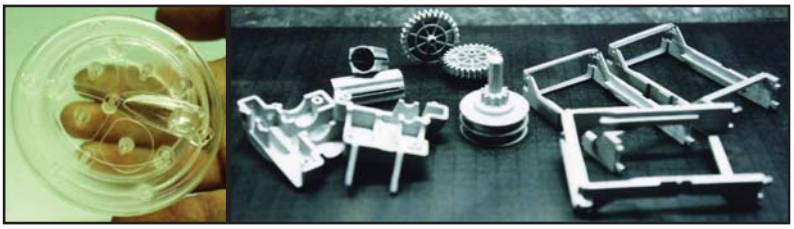
- fast tooling, normally 1 to 2 days to complete the mold.
- fine details can be captured
- great surface finish
- reliable process, this technology has been used by the industry for many years.
- Cost effective method for low volume runs ranging from a couple of pieces to over hundreds.

Over Molds:

RTV works wonderfully for insert molding or over molding. Two patterns are produced, one with the over mold and one without the over mold. Then, two rubber molds are produced, and the urethane is cast. The first part is cast into the rubber mold without the over mold. That part is then pulled from the mold and inserted into the rubber mold with the over mold. Then the over mold is cast around the existing cast part. Once that part is pulled, it has both materials cast to complete the two-part over mold.

Materials Options: Material can be chosen to match the hardness of your production material, from 10 shore A to 80 shore D, giving the prototype the same "feel" as a production part. Today's urethanes can withstand heat up to 220 degrees F.

- Polyurethane resins
- Polyesther
- Epoxy
- Silicone Rubber
- Tin-lead alloy (200 C)
- Pewter (230 C)
- Zinc alloy (400 C)
- ABS-like
- Lexan-like
- Polypropylene-like
- Santoprene-like
- Over molded
- Insert molded
- Clear/Tinted



Colors and Textures:

To prevent colors from chipping or flaking off, parts can be cast in color instead of painted. These colors can be matched by a Pantone number or a color chip. Texture is added to the SLA patterns so when the mold is created, the texture transfers directly to the mold. Different textures are available, and multiple textures can be placed on the same part for cosmetic purposes.