

# Casting your own parts

Resin Casting

Feb 23, 2013

# Casting your own parts

- Why?
- Materials and Costs
- Masters
- Molds
- Casting
- Production

# Casting your own parts




- Why cast your own parts??
  - Create large number of detail parts at minimal cost
  - Can duplicate commercial parts if using for yourself, but not for resale (illegal)
  - Can create unique part of something not available commercially
  - A new skill you can learn and master

# Casting your own parts

- What does it cost?
- Material:
  - Silicon Rubber for molds
  - Mold release
  - Casting resin
- Suppliers:
  - Alumilite ([www.alumilite.com](http://www.alumilite.com) )
  - Micro Mark ([www.micromark.com](http://www.micromark.com) )

# Casting your own parts

## Alumilite Silicon Rubber for Molds

Product	Mix Ratio (by Weight)	Mixed Viscosity (cps.)	Open Time	Demold Time	Shore Hardness	Available Colors	Tear Strength (ppi)	Vacuum Required	MSDS	Buy Now
<b>Tin Cure (Condensation) Silicones</b>										
<b>QuickSet</b>										
	10:1	18,000	30 min.	8-18 hrs.	40-50 A	Tan	20	No	<a href="#">MSDS</a>	<a href="#">Buy</a>
Quick setting general purpose rubber that does not require vacuuming and is great for making simple one and two piece molds.										
<b>Alumilite's High Strength 2</b>										
	10:1	18,000	1 hrs.	18 hrs.	20-23 A	Pink	145	No	<a href="#">MSDS</a>	<a href="#">Buy</a>
Alumilite's High Strength 2 silicone mold making rubber yields the highest tear strength of all of our silicones and is great for 2 piece molds and parts with undercuts as it has good flexibility.										
<b>Alumilite's High Strength 3</b>										
	10:1	15,000	1 hrs.	18 hrs.	8-10 A	Pink	115	No	<a href="#">MSDS</a>	<a href="#">Buy</a>
Alumilite's High Strength 3 silicone mold making rubber yields a very high tear strength and is the most flexible of all of our silicones and is great for parts that have drastic undercuts. It is also used to make 1 piece molds for parts that usually require 2 piece molds eliminating the need to clean up unwanted seam lines.										

# Casting your own parts

## Alumilite mold materials

Product	Cost	Notes
Alumilite Quick Set 1 lb	\$27.50	Great general purpose rubber
Alumilite High Strength 2 1 lb	\$27.50	Great for 2 piece molds and parts with undercuts as it has good flexibility
Alumilite High Strength 3 1 lb	\$27.50	Most flexible, is great for parts that have drastic undercuts. Also used to make 1 piece molds for parts that usually require 2 piece molds.



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## Micro Mark mold materials

Product	Cost	Notes
Rapid 2 lb	\$39.50	General purpose rubber
High tear strength 28 oz	\$45.95	Use for 2 piece molds and parts with undercuts as it has good flexibility and strength

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## Alumilite Resin Material

Product	Available Colors	Mix Ratio (wt. or Vol.)	Open Time	Demold Time (100 gr. Mass)	Mixed Viscosity (cps.)	Shore Hardness (ASTM D-2240)	Tensile Strength (ASTM D-638) (psi)	Temp. Resistance
<b>Casting Resins - Rigid</b>								
<u>Alumilite Regular</u> 	Tan or Black	1:1	90 sec.	5-8 min.	190	75 D	6,000	250 F
Provides users with an extremely tough, high temperature resistant, rigid urethane that is incredibly easy to use.								
<u>Alumilite White</u> 	White	1:1	2.5 min.	5-15min.	90	72 D	4,700	140 F
Provides users with an extremely user friendly rigid urethane that has good overall physical properties and a beautiful cosmetic white appearance.								
<u>Alumilite Clear</u>	Clear	1:1 by wt.	7 min	45-90 min	450	80 D	7,020	140 F
Alumilite Clear is our most optically clear resin that is great for a wide variety of clear casting applications. It gives you a beautiful crystal clear cast piece with superior polishability. New name, same great product. Recommended for industrial use.								

Product	Cost	Notes
Alumilite Regular 28 oz kit	\$30.25	Extremely tough, high temperature resistant, rigid urethane that is easy to use



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- Micro Mark Materials

Product	Cost	Notes
CR-600 32 oz kit	\$35.75	General purpose resin with longer pot life and demold time
CR-900 26 oz kit	\$40.25	High strength casting resin, 20 min pot life and 16 hour demold time

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- Other Materials

- Both Alumilite and Micro Mark resin “kits” include small, graduated cups for measuring the correct amount of materials, as well as stirring sticks.
- Mold Release
  - Alumilite UMR – 12 oz can, \$12.00 for rubber to rubber
  - Corn Starch – Rubber to resin
  - Dixie cups
  - Materials to make mold boxes, masters
  - Modeling clay

# Casting your own parts

- Masters

- Can be commercial parts if for own use

- If unique make your own Master

- Similar to “scratch building”

- Make sure all surface imperfections are eliminated as mold will reveal all imperfections and repeat them in all cast parts

- Can include details like weld beads, rivets, bolt/nut/washers

# Casting your own parts

# Casting your own parts

- Silicon Rubber Molds
- Single part molds
  - Use for parts where one surface is not to be seen
  - Visible surfaces either are tapered or the mold is tear resistant
- Molds of Two or more parts
  - Use for 3D parts or where there is a significant undercut.

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- Procedure:
  - Working with silicon rubber is messy
  - Use a plastic spoon to dip it out of container
  - Fill 1 oz plastic container provided with material
  - Dump into a paper cup
  - Add as much more as needed for mold
  - Then add appropriate amount of catalyst using the scoop provided
  - Stir very well, then stir again very well

# Casting your own parts

- Examples of Masters and Molds
- Some commercial parts that you might want to use as masters to cast your own

# Casting your own parts

2 part molds

The masters:

Jim Overman found these on Ebay. The manufacture is now out of business so only old stock is available. To cast replicates require a 2 part mold, a first for me.

Here are the steps I took:



# Casting your own parts

- Stronger silicon rubber material for undercuts in 2 part mold
- Most single part molds can use regular rubber
- Standard Alumilite resin kit
- Alumilite UMR – 12 oz can – important in 2 part molds to prevent second rubber layer from integrating into the first layer

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- Some materials:



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- After cleaning up the flash, you have 4 replicas of the original product