

# Foundry Process at CyberLock

All casting products are made and manufactured in the foundry at CyberLock's headquarters in Corvallis, Oregon. The foundry is composed of various machines whose purpose is to shape metals into CyberLock product parts. The process of casting melted aluminum into a mold is a 16 ½ hour cycle that uses in-house melting furnaces, kilns, and other machines. CyberLock uses the *Lost Wax Process* to mold metals into precise shapes and sizes. This well-known process is the oldest metal casting technique, dating back to the Bronze Age. The simplicity and versatility of this process allows CyberLock to manufacture a wide range of products with accuracy and precision.



The process begins by creating a wax model with the exact measurements and dimensions of the CyberLock component. Next, with careful preparation, the sides of the flasks are taped so the satin cast cannot escape through its porous sides. Flasks are containers with holes in the bottom that allow the wax to melt out from inside the mold. The mold, which is made of satin cast, is mixed with 70-degree water at precise measurements until it is a thick, creamy consistency. Then, the satin cast is placed into a vacuum chamber to remove any air bubbles that could disrupt the shape of the mold. The mold and wax contained inside the flask are then placed in a de-wax machine that will apply heat over a period of time until the wax is drained and dissolved, leaving behind only the hollow mold. After removal from the de-wax machine, the flasks are moved to bake-out ovens to excrete any left-over residue and moisture. Flasks are then taken out of the bake-out ovens and prepared with a splash ring, ensuring the melted aluminum will not overflow or spill out. The flask is placed under the pour spout, where liquified aluminum is ready to fill the hollow mold. Lastly, the flasks are set aside until the aluminum is solidified in the desired form and the investment is removed from the mold.

The *Lost Wax Process* receives its name from the fact that the wax is destroyed by the end of the process and is only used once to make the mold. This foundry process is used on a variety of different CyberLock products, with the only procedural change being the shape of the mold that the wax and metal will fill.