

Metal Casting Processes

The metal components required for industrial use today are formed using many divergent technologies, such as casting, forging, and machining. Here at Stainless Foundry, we make steel, stainless steel and high alloy castings by pouring molten metal into pre-formed molds, using both the sand and investment casting processes. Here is an explanation of how we make castings at Stainless Foundry & Engineering.

INVESTMENT CASTINGS

Disposable Pattern Method

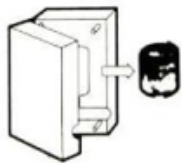
Description: Wax is injected into an aluminum die to form a pattern — an exact replica of the casting. Several wax patterns are attached to a wax sprue and the assembly is then dipped repeatedly (over a period of days) in a liquid ceramic slurry and coated with dry refractory sand. When a sufficiently thick shell is built up, the wax is melted out, leaving a **1-piece** ceramic shell mold. Molten metal is poured into the resulting cavity. The shell is removed after the metal has cooled and solidified.

Process Applications: Well-suited to high-volume intricate parts requiring a superior surface finish and close tolerances. Machining is often minimized. Process time is longer than for sand castings. Dimensional repeatability is very good.

Other Disposable Pattern Processes: Replicast and lost foam processes, where polystyrene foam is substituted for the wax to produce patterns.



1) Inject wax into die



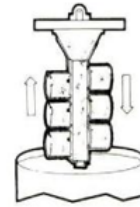
2) Remove wax pattern



3) Assemble patterns onto sprue



4) Dip or invest in slurry



5) Dip in sand



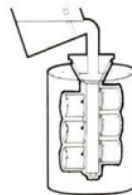
6) Harden into stucco shell mold



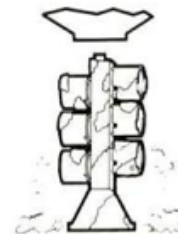
7) Melt wax out of shell mold



8) Heat shell mold to prepare for pouring



9) Pour molten metal into mold



10) Remove mold material. Prepare for cut-off



11) Completed casting ready to ship

