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.