

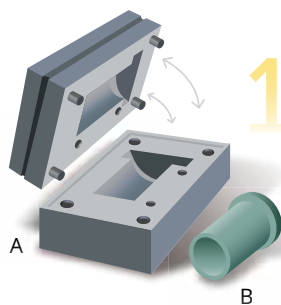
The Investment Casting Process

Investment casting is a manufacturing process that can be traced back over 5,000 years to ancient Egypt and China. It is utilized to cast a wide variety of items, including high-quality, high-performance industrial parts. At PPCP, we utilize investment casting to produce a diverse range of parts up to 250 pounds. A wide variety of alloys can be used, from steel and aluminum to highly specialized materials. PPCP's castings serve many industries and applications.



The Process

In the investment casting process, a wax pattern is coated with a ceramic material, which, when hardened, adopts the internal geometry of the desired casting. In most cases, multiple parts are cast together for efficiency by attaching individual wax patterns to a central wax stick called a sprue. The wax is melted out of the pattern – which is why it is also known as the lost wax process – and molten metal is poured into the cavity. When the metal solidifies, the ceramic mold is broken off, leaving the near net shape of the desired part. Finishing, testing and packaging complete the process.

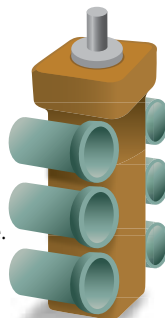


1 Tooling and Pattern Making

A tool is built to customer-provided specifications (A). Cold wax is then injected into the tool to create a wax pattern/prototype (B) that will hold precise dimensional requirements in the final casting.

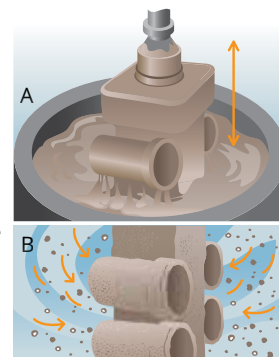
2 Pattern Assembly

The wax patterns are assembled onto the sprue.



3 Dipping and Coating

Successive layers of ceramic (A) and stucco (B) are applied to the sprue assembly to form a hard shell.



4 De-Waxing and Firing

The molds are flash-fired to remove the wax and sprue materials and then heated to 1,800° and placed on a sand bed, ready for pouring.



5 Casting

Molten metal, up to 3,000°, is poured into the hollow mold and then cooled.

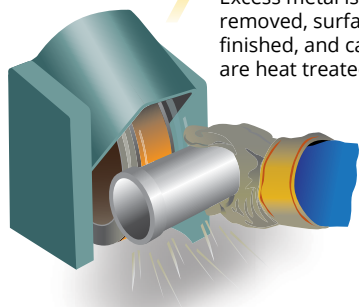


6 Knockout

The ceramic shell is broken off, and the individual castings are cut away.

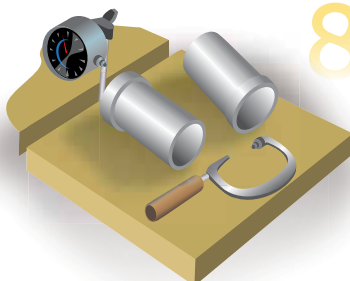
7 Finishing

Excess metal is removed, surfaces are finished, and castings are heat treated.



8 Testing and Inspection

Castings undergo thorough testing and inspection to ensure that they meet dimensional tolerances and specifications.



9 Packing and Shipping

Castings are securely packaged for shipping to the customer.



Made in the USA

PPCP PENNSYLVANIA
Precision Cast Parts
People. Process. Performance.

PPCP is an industry-leading manufacturer of top-quality investment castings committed to delivering excellent quality, superior value and an exceptional customer experience. PPCP has the experience, technical expertise and quality-assurance processes to consistently and reliably deliver an extensive range of casting sizes up to 250 pounds using an array of specialized alloys.

