Save time all the way down the line.

In the investment casting process, shell production takes up the most time—and the most space. The 3M™ Fused Silica Rapid Cast System is engineered to help you cast more parts in less time, without expanding your footprint.

1. Tooling Die and Wax Pattern
   - A die is made to spec and injected with molten wax. The wax pattern is removed from the die.

2. Pattern Assembly
   - Multiple wax patterns are assembled on a sprue or “tree,” where the branches are ingates.

3. Ceramic Shell Build
   - The assembly is first dipped in a ceramic slurry.
   - Then stucco is applied by holding the tree under a shower of ceramic sand or dipping it in a fluidized bed.
   - This process is repeated, building up successive layers until the desired shell thickness is achieved. The molds are then left to dry.

4. De-waxing and Firing
   - The wax is melted out of the ceramic shell in a flash fire oven or an autoclave. The shell is then “dead burned” to prepare for casting.

5. Casting
   - Molten metal is poured into the hollow ceramic mold. The tree is then cooled.

6. Knockout
   - The ceramic shell is knocked off the tree, exposing the precision-cast metal parts.

7. Caustic Cleaning or Blasting
   - Castings can be knocked out more quickly and cleanly from shells made with the 3M fused silica rapid cast system.
   - High-temperature caustic fluid or high-pressure water blasting is used to clean off any remaining ceramic material trapped in tight corners of the metal parts.

8. Grinding and Finishing
   - The individual castings are cut off the sprue, and the gates are ground off. The parts are then ready for surface finishing, heat treating, testing and inspection.

Where can you save time?
Look for the stopwatch icon to see where the 3M™ Fused Silica Rapid Cast System can help you speed up production!

Cut the number of dips by up to 35–50% with the 3M fused silica rapid cast system!

Better knockout can help reduce caustic or blasting time, and may even reduce the number of parts that require cleaning.

Ready to knock out more parts in a day’s work? Learn more at 3M.com/fusedsilica
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