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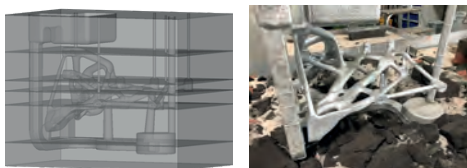
# Streamlining Mold Design and Production Processes through Stack-Mold Casting

## High productivity additive manufacturing for complex and large geometries

Additive mold manufacturing requires careful design with a focus on reducing machine downtime by job preparation complexity. Stack mold design divides the mold into blocks with a defined space between the outer wall and the casting for automated job preparation and easy cleaning. The design also simplifies post-print production, such as unpacking and inspection.

### Conventional mold design

A different approach to conventional mold design can be used to reduce the complexity of mold cleaning. Traditionally, mold parting lines follow assembly patterns, must avoid undercuts, and include draft angles to prevent problems during mold manufacturing. This approach results in commonly seen core package designs consisting of cope, drag, and core.



Stack-mold design (left) and actual casting (right) of a topology-optimized structural part.

### Reliable cleaning is essential

The stack design simplifies post-press production steps such as mold unpacking, cleaning, and visual inspection. Loose and sticky sand must be removed during cleaning, and mold cavity surfaces must be inspected to prevent defects. The stack design facilitates mold cleaning by creating open cavities that are easily accessible from both sides, and compressed air cleaning can clean cavities and undercuts. The unpackaged stacks take up less space in the factory and can be stacked without damaging the mold cavity due to their structural integrity and shared contact surfaces.

The individual segments can be produced using a variety of manufacturing techniques. A combination of CNC machining and additive manufacturing can be selected to maximize economic factors.

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