

Prototype Casting Specialists



RCT Printed Sand

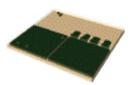


 Computer generated models describe the mold geometry to a Rapid Prototype sand printing machine



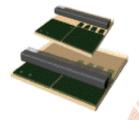
1. Print Selectively disp

Selectively dispense binder using inkjet printing technology.



2. New layer

The build platform is lowered by a set increment.



3. Spread

Spreads a new layer of pre-mixed quartz sand.



4. Repeat

Repeat Steps 1-3, until the mold or core is built.



5. Finishing

Unbound sand is removed. Metal parts are cast.

Rapid Casting Technology (RCT) offers unprecedented flexibility to produce complex, finely detailed, patternless castings. While reducing production costs and time to market, RCT eliminates the need for physical tooling to produce a casting. By removing the constraints of hard tooling, this allows extreme casting design to become a reality.

RCT Process



- Data Import
- Product Design Validation
- Gating Design
- Mold Package Construction
- Core Model Validation
- Casting
- Casting Inspection & Validation



Data Import



ATD can accommodate most of our customers CAD formats.

Native CAD formats are always preferred, but other acceptable export formats include STEP, Parasolid, & Iges.

Native preferred formats:

- •Catia V4 & V5
- ·NX
- •SDRC Ideas / NX Ideas
- •Pro E
- Solid Edge

Non-native preferred formats:

- •STEP
- Parasolid
- •IGES

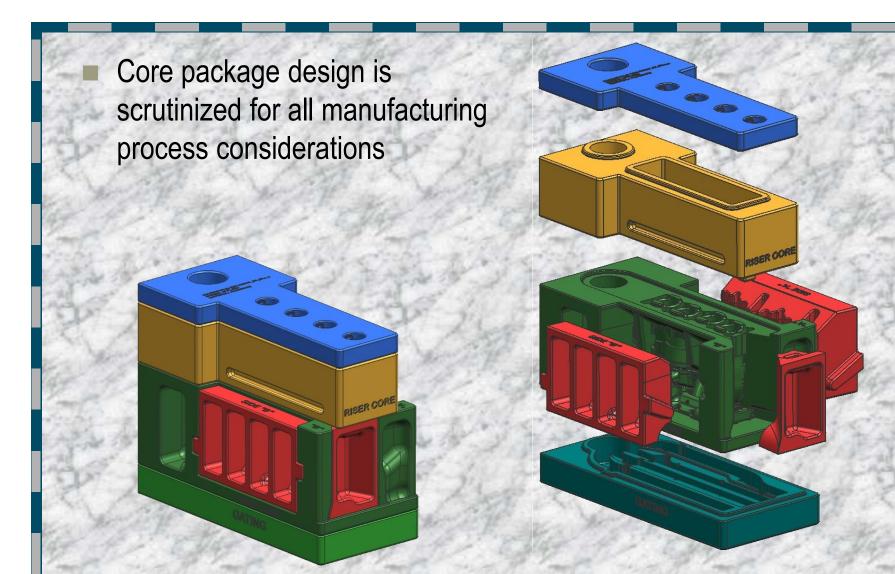
Gating Design



Simulation & analysis up front verifies the gating design even before the core package construction finalized. Flansed Time = 0.2001Temperature(C) Fluid Fraction 701.5715 689.3572 677.1429 664.9286 652.7144 640.5001 628.2858 616.0715 603.8572 591.6429 579.4286 567.2143 **Temperature EKK** CAPCAST CAPCAST EKK Iso: 0.0000 Solidification Time 75.0000 68 7500 62.5000 56.2500 50.0000 43.7500 37.5000 31.2500 25.0000 18.7500 Velocity Solidification CAPCAST CAPCAST

Mold Package Construction Advanced Technology & Design

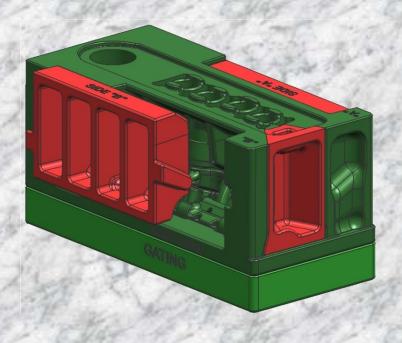




Core Model Validation



- Electronic simulation of the core assembly
- Core location & clearance





Casting



 Close communication with the foundry help to coordinate product realization

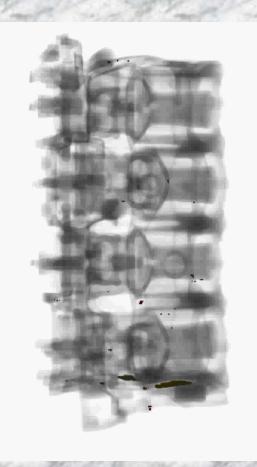






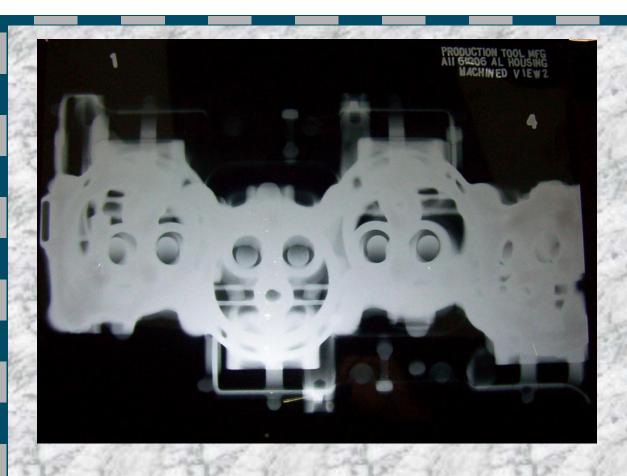
 Sample castings are inspected for process problems (core shift/breakage, porosity issues)





CT Scanning inspections for internal & external defects





X-Ray inspections for internal shape defects



To insure that only acceptable variances occur, sample parts are compared back to CAD models.



