3D Printed Sand Molds
Typical Molding Process

1. One half of the pattern
2. Flask placed over the first pattern
3. One half the mould (cope)
4. Other half of the pattern
5. Flask placed over the second pattern
6. Other half the mould (drag)
7. Assembled molds
8. Casting through the gating system
9. The solidified casting
Binder Jetting

- Is an additive manufacturing process in which a liquid binding agent is selectively deposited to join sand particles. Layers of material are then bonded to form an object.
- The print head strategically drops binder into the powder.
- Next, either the job box lowers or the print head raises. Another layer of powder is spread and binder is added.
- Over time, the part develops through the layering of powder and binder.
Prototype Part

- 871 lbs
- 63” diameter
- Customer needed first article quickly to prove out concept and evaluate shrink characteristics before investing in production tooling
Naked Casting Analysis

- Identifies feeding zones

Modulus = 0.54 in

This area requires (12) 2 ½” x 14” Sleeved Risers

This area requires (11) 3” x 14” Sleeved Risers

Main Feeding Areas
3D Printed Mold Design

- 42 pieces of interlocking sand
Mold Design
Typical Large Format Mold Assembly
Ground and Machined
Machined and Painted
Thank you for your interest.

QUALITY • COMMITMENT • RESPECT • INTEGRITY • TEAMWORK