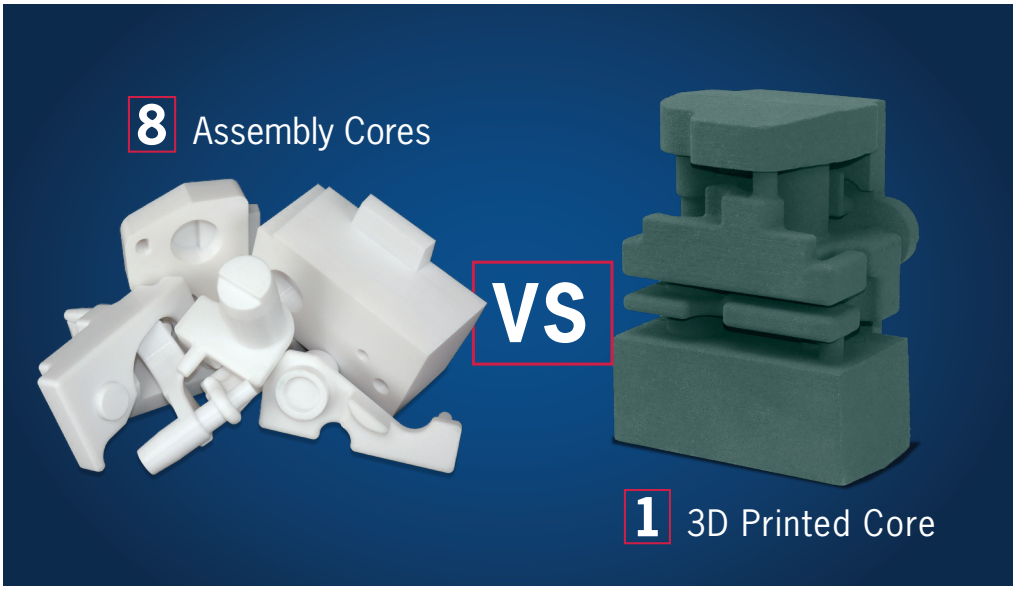
Assembly NOT Required

How Humtown consolidated eight conventionally produced cores into one 3D printed core, eliminating tooling, countless skilled hours of assembly and human error.

May 29, 2024



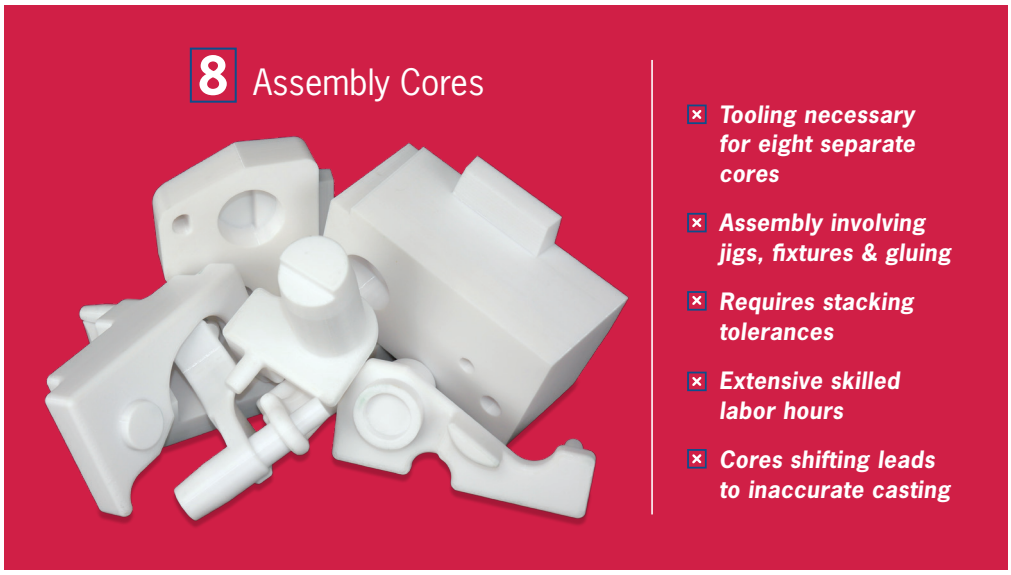
BORN ASSEMBLED: Eight separate conventionally produced cores vs. one 3D printed core that requires no assembly. 3D sand printed cores are revolutionizing the metal casting industry.

Anytime you design a part for your assembly that isn't purchased off the shelf, a foundry is necessary to produce a metal casting of that part. It sounds simple enough, but they can't start pouring metal until sand cores and molds for your casting are created and manufactured; and you can't make those cores until the tooling has been developed in a pattern shop. Tooling alone is a laborious process that can take weeks or months depending on how complex your design is. 3D sand printing will get your foundry the sand cores it needs to get your casting production underway fast; but as Humtown has discovered, the additive process also has added the benefit of core consolidation.

What does core consolidation mean, and how does it help an OEM get its product to market faster? With conventional sand core manufacturing, a complex design can't be cast as one piece for numerous reasons, for instance the amount of draft that is necessary to pull the sand core from the mold after processing. Because of the limitation of the conventional process, a complex core design would need to be broken up into multiple elements. Each core would then

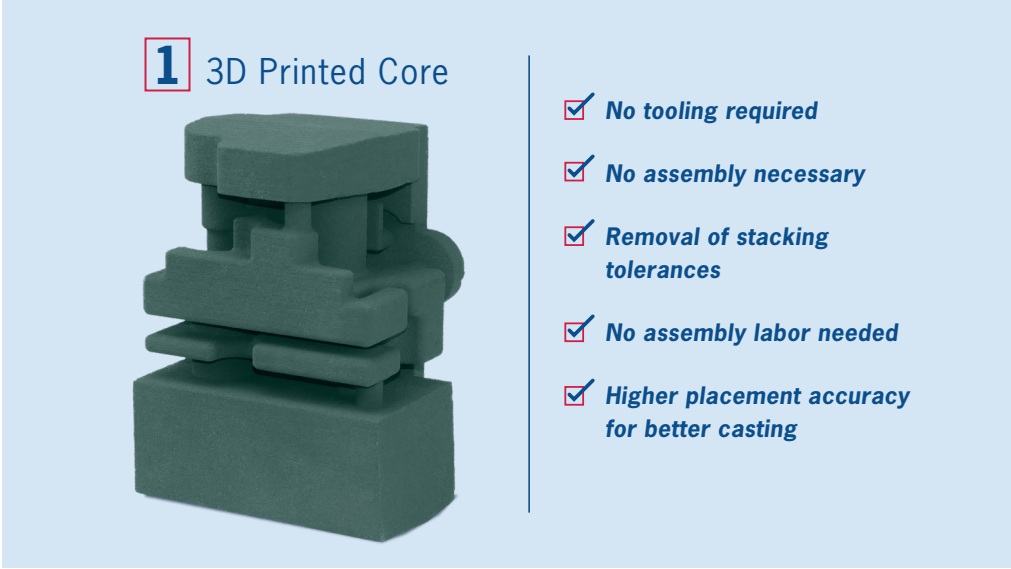
need to be made individually, requiring tooling to be made for each one, and then assembled before it could be placed in a sand mold for casting. This was a huge concern for one of Humtown's clients on a past project.

A foundry had a problem – their project was going to require 8 different cores to be produced and then assembled. Not only was this project going to require the production of 8 different sets of tooling for 8 different cores, but it was also going to involve assembly steps that included jigs, fixtures and the gluing together of all 8 components. An assembly this complex was likely going to lead to extensive skilled labor hours and a very lengthy production time. The glue and fit of the cores were also added areas of concern due to the high level of variability and scrap which were inevitable during the casting process. That's why this foundry turned to Humtown Additive.



A PUZZLING CHALLENGE: Producing this sand core the conventional way required a lot of work.

Humtown's no-assembly cores were a no-brainer for this project. Through our 3D sand printing, we were able to print one core that consolidated all 8 components. Not only did this completely eliminate all of the assembly that would have been required, but it skipped over all of the time that would have been spent making the tooling. Now, the foundry could concentrate on what it does best, creating the metal castings that its OEM desperately needed to not only finish their assembly, but achieve Speed to Market.



A 3 DIMENSIONAL SOLUTION: Beyond the fact that the core pieces could be consolidated from eight to only one, 3D printing also comes with a host of other benefits.

For our customer, switching to Humtown Additive's 3D sand printing had the following benefits:

- Consolidated 8 conventional cores to 1 3D printed core.
- Eliminated the need for any tooling.
- Removed all gluing tolerances.
- Increased accuracy of component placement.
- Eliminated extensive skilled labor assembly hours.
- Produced a better casting with less scrap.

Not only did the 3D printed cores perform better during the casting process, but the cores were produced in 75% less time and for 20% less cost — proving that 3D sand printed cores and molds can be much more cost effective than conventional means.

All preconceived notions of additive manufacturing being just for the prototyping process and being far too expensive for mass production have been shattered by Humtown Additive — and its full fleet of 3D sand printers. The commercialization of 3D sand printing is here, and it has revolutionized the foundry industry. The higher level of complexity of today's designs, coupled with the competition to get your product to market has made 3D printing essential to every OEM assembly. **If you want to have your product ACHIEVE SPEED TO MARKET, make sure your foundry contacts Humtown Additive today.**

Humtown
Always innovating.

330.482.5555 | humtown.com | mail@humtown.com