

Morel Industries

Complex Digital Core Cuts Lead Time in Half & Saves Thousands

Morel Industries lowered their scrap rate from 9% to 1% and shaved three weeks off of traditional lead time.



Customer Challenge

Morel Industries needed a solution to eliminate the human error in the assembly of core boxes used with traditional wood and sand patterns.

The Solution

Working with a local pattern shop with CAD knowledge and expertise, Morel was able to combine 3 cores into 1 printable ExOne core with vents and intricate geometry for their customer.

ExOne Competitive Advantage

Additive manufacturing offers shorter lead times, no core shift, reduced casting weight, no tooling for core required, reduced cost and reduced scrap rate.

Conclusion

With ExOne's digital printing process, 3 cores were combined into 1, decreasing the scrap rate from 9% to 1%. Lead times were reduced by 60% and costs were slashed by 85%.

About ExOne

ExOne digital part materialization uses three-dimensional printing to create complex molds and cores directly from CAD data for a variety of industries, with accuracies of ± 0.011 in. or ± 0.3 mm. The ExOne process achieves geometric complexity and scale unmatched using conventional casting techniques. The process produces accurate, uniform cores and molds rapidly, significantly reducing lead times.

ExOne operates facilities across the Americas, Europe and Asia.

Specifications

Customer: Withheld

Part: Exhaust manifold core

Batch Size: 30

Part Size: 4 x 8 x 28 inch

Material: Gray iron

Traditional Method

Unique wooden pattern for each core.
Hand setting to build core assembly.

Time: 5 weeks

Cost per Batch: \$8,000

ExOne® Sand Printing Method

Time: 2 weeks after CAD design

Cost: \$1,200