

Speed 3D Mold Co., Ltd.

Reduced Lead Time and Cost While Ensuring High Accuracy and Quality

ExOne® 3D printing technology reproduced damaged impeller with high efficiency.



Customer Challenge

Due to cracks and corrosion resulting from cavitation, the customer needed to replace a vertical pump impeller. The pump was over twenty years old and no longer in production. Without available spares, the customer urgently needed an identical replacement part while working with a limited budget.

The Solution

Additive manufacturing using ExOne® binder jetting technology to print a complete sand mold package in less than one week. This precise and efficient process ensured highly accurate blade orientation, minimizing post-casting machining time.

The ExOne® Competitive Advantage

Significantly faster production time, reduction in costs and the ability to ensure quality and accuracy when providing castings.

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. (± 0.3 mm). The ExOne® process achieves geometric complexity and scale unmatched using conventional casting techniques without the need for a physical pattern. The process produces accurate, uniform cores and molds rapidly, significantly reducing lead times.

ExOne operates facilities across the Americas, Europe and Asia.

Specifications

Customer: Speed 3D Mold Co., Ltd.

Part: Vertical Pump Impeller

Part Size: 50" diameter (1,270 mm)

Weight: 1,984 lbs (900 kg)

Material Cast: Bronze

ExOne® Sand Printing Method

3D Sand Mold Printing and Casting

Print Media: Silica Sand/Furan Binder

Layer Thickness: 0.011 in. (0.28 mm)

Production Time: 6 weeks

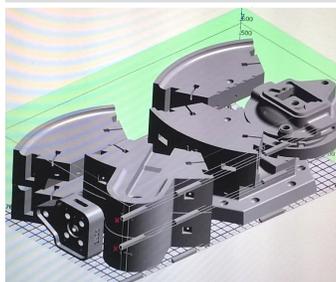
Cost: \$50,000 USD

Traditional Method

Casting using Pattern-Based Mold

Time: Approximately 12 months

Cost: \$80,000 USD



CAD Rendering



Mold Package

To learn more, contact: www.exone.com