Artist uses additive manufacturing to replicate beauty and quality of fine art sculpture

Figuration Studio, run by two fine art sculptors, used a black additive manufacturing material from DSM to capture the intricate detail of a sculpture and reproduce it in multiple sizes. Somos® WaterShed Black has cut the cost and time it takes to make reproductions of fine art.

Customer
Figuration Studio

Challenges
- Loss of detail when reproducing fine art
- Traditional 3D printing material weak, produced poor artwork models
- Time and effort needed to finish 3D printed parts

Solution
- Somos® WaterShed Black
- InterPro 3D printing expertise

Benefits
- Makes fine art reproduction fast and easy
- Preserves the integrity of an artist's original work
- Makes it simple to replicate a sculpture in any size
- Reduces time and effort needed for reproduction processes
- Removes the need to paint printed parts
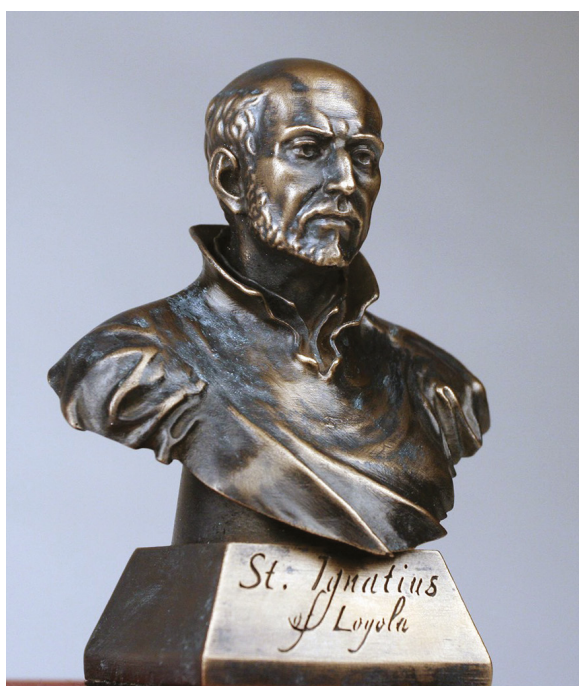
Original figure in bronze

Figure reproduced in Somos® WaterShed Black

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"3D printing allows us to create a sculpture by hand in a traditional way and then capture the work digitally forever. Then it can be reproduced at any scale with high detail and economy, as well as adding things like lettering and a base. Models of artwork printed in Somos® WaterShed Black are very strong, very smooth and highly detailed and are a huge advantage in creating superior quality sculpture reproductions."

Jeremy Leichman, Sculptor at Figuration Studio

Challenges

Only highly skilled artists can create original pieces of art that are unique and of immeasurable value. Consequently, people often want to have copies of the artwork they admire, especially sculptures. But reproducing a sculpture is difficult, time consuming and labor intensive, especially if multiple sizes are needed.

Figuration Studio in New York is run by two fine art sculptors who make temporary and permanent art installations. The studio was commissioned to sculpt the head of a saint for a religious institute in the United States. In addition to a full-size version of the original artwork cast in bronze, small-scale reproductions in various different sizes were needed to sell to institute members and the general public.

3D printing enabled Figuration Studio to produce a model of the sculpture, creating a master pattern for making molds. These molds are used to make the final reproduction in bonded bronze. The problem was traditional 3D printing materials were not reproducing artwork accurately, requiring hours of finishing and painting before being used to make the molds.

Jeremy Leichman, one of the sculptors at Figuration Studio who created the saint figure head, said, "Although we were using 3D printing to improve processes, we still had to contend with weak models made with materials that barely withstood the rigors of mold making and needed a ton of post-print hand work."

Solution

InterPro, a service bureau focused on helping clients solve their prototyping and manufacturing challenges, introduced Figuration Studio to a material recently developed by DSM called Somos® WaterShed Black. This material offers up to 50 percent faster processing speeds than alternative black resins, renders a true black color direct from printer, requires less post-print processing and has a smooth surface finish. The material is ideal for reproducing artwork because it is strong enough to withstand the rigors of an art studio yet can still replicate fine detail. Figuration Studio also uses Somos® WaterShed XC 111222, a clear material.

InterPro worked with Figuration Studio to produce several 3D printed models of the sculpture in different sizes from a CAD file created from scanning the original work. Dan Straka, InterPRO President, said, "Some

fidelity is often lost between original artwork, CAD and printed part; a bit like recording a VHS tape over and over again. We were excited about the capabilities of Somos® WaterShed Black. It is very good for artistic applications because it's strong, accurate and you don't have to paint it. Also, it comes from DSM's stable family of additive manufacturing materials."

Benefits

Somos® WaterShed Black enabled Figuration Studio to reproduce fine art sculptures in multiple sizes and at a faster rate without compromising the quality of the original work.

Leichman said, "With Somos® WaterShed Black, all detail is immediately apparent, whereas you need to prime other materials. We do touchup work to refine the printed model and the DSM material is less brittle and easier to carve."

Figuration Studio has used Somos® WaterShed Black to create several miniature printed models of the saint figure head. Figuration Studio uses these to make molds from which it can produce a range of final, bound bronze mini sculptures in sizes ranging from 4.5 inches to 9 inches tall.

Before using additive manufacturing, Figuration Studio had to make a physical mold to create different sized reproductions. These molds need to be retained in case someone wants a reproduction in a specific size, but they can deteriorate over time. Instead of having a physical mold library, Figuration Studio now has a digital 3D model library of its artwork. Additive manufacturing makes it quick, easy and low cost to produce any size reproduction on demand.

Leichman says, "We will always have the traditional method for making reproductions, but it is fantastic to have materials like Somos® WaterShed Black that make the process so much easier."

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