

Mexico-based foundry Fundidora Morelia and pattern shop PSSI collaborate using large-format pellet extrusion 3D printing on the Atlas® to reproduce iconic pieces of local art

Using the latest in production additive manufacturing and 3D scanning techniques, patterns for the historic vases were produced quickly and cost effectively.

History

Fundidora Morelia (FM) is a family-owned steel foundry with more than 40 years of experience specializing in the casting of ferrous alloys. Proveedora de Servicios y Suministros Industriales (PSSI) is a new enterprise part of FM and founded in 2016. FM and PSSI utilize several 3D printers, including a Titan Robotics® Atlas 3D printer, CNC routers, 3D laser scanning, CAD modeling and the latest testing techniques to create high-quality patterns.

The small town of Cochuco, located in the state of Michoacan, Mexico, is well known for its history and craftsmanship, where local artisans most notably manufacture giant clay pots by hand.

3D Printed Pattern



"As a family from Michoacan and as an enterprise based in Morelia, we are very proud of our culture and traditions, and we wanted to make a tribute to our artisans and their renewed arts and crafts," said Alonso Alvarez of PSSI.

FM and PSSI commissioned a joint effort to reproduce two of the iconic giant vases, bridging the industrial and artisanal sectors of the region.

Process

PSSI conducted the reverse engineering process by 3D scanning the original pot and creating 3D-printable CAD models of the cope and drag patterns for casting. PSSI 3D printed the large patterns using pellet extrusion on the Atlas and hand finished the parts with body filler and sanding for a smooth finish.

FM cast the model in steel and stainless steel and gave a blued and a mirror polished finish to each one. The time to produce the patterns was cut in half with 3D printing compared to traditional methods of CNC machining the patterns. Total, it took 1.5 days to create the patterns with 3D printing due to lights-out manufacturing on the Atlas. Keeping costs competitive, 3D printing the patterns also required half of the personnel compared to traditional pattern making methods.



CHALLENGE:

Produce large, custom patterns for unique casting project without the longer lead times of traditional pattern-making methods, while keeping costs competitive.

SOLUTION:

Leverage Titan's large-format Atlas 3D printer with high-throughput pellet extrusion to quickly and cost effectively produce the custom patterns.

RESULTS:

Time to produce patterns cut in half due to lights-out manufacturing enabled by 3D printing, as well as reduced labor required to make patterns.

DETAILS:

Print Time: 13 hours
Feedstock: PETG Pellets
Material Weight: 88 lbs total
Nozzle Size: 2mm
Layer Height: 1mm