CASE STUDY

A COOLER (AND FASTER) METHOD FOR MANUFACTURING PLASTIC INJECTION MOLDS

A CASE STUDY ON HOW OMNI MOLD LTD. MADE THEIR INJECTION MOLD CORE INSERTS MORE PRODUCTIVE AND COST EFFICIENT WITH NIKON SLM SOLUTIONS' ADDITIVE MANUFACTURING TECHNOLOGY.

OMNI MOLD™
A Sunningdale Tech Company

Nikon SLM SOLUTIONS

From caps on plastic medical vials to tamper-proof food containers, there are thousands of niche components that are used every day by people, companies, and institutions for very important and often life-saving work. These parts require not just the right design, they also need to be produced repeatedly with high precision and at scale. One way of achieving this is with injection molds.

Omni Mold Ltd., based in Singapore, is an injection mold-making company that specializes in highly complex molds and high precision production. Founded in 1989, they are leaders when it comes to innovating the mold production of parts for several key industries, including healthcare, nutrition, automotive, and many more.

HOT PROBLEM...

Recently Omni Mold was faced with the problem of Inefficient cooling in one of their mold core inserts. The existing mold used a conventional cooling system with a spiral-shaped sub-core. The cooling was uneven and caused overheated spots that led to the deformation of the molded part. Various solutions were considered to address this hotspot challenge, including longer molding cycle times to resolve the dimensional and warpage issues.

Ultimately, though, it was the flexibility and freedom of design offered by additive manufacturing that led to an innovative solution to the problem.

...COOL SOLUTION

By investing in a SLM® 280 2.0, Omni Mold was able to completely reimagine the cooling channel within their mold inserts through laser-fast additive manufacturing AM enables the manufacture of complex parts, in this case, replacing the spiral shape with a conformal cooling channel that targets the hotspot areas and improves cooling efficiency within the injection mold. This allows for uniform cooling across the entire product, thereby improving overall part quality, minimizing distortion and shortening the cycle time during production.

Conventional

Empowered by SLM®280 Twin Laser System

Through much internal testing and development, Omni Mold is now capable of producing hybrid inserts to cater to their customers' requirements - all with a shorter lead time and lowered costs. The numbers speak for themselves: The total print time was reduced by 88.75% from 120 hours to 19.5 hours for a full print using a hybrid printing method. The molding cycle time was also reduced by 44%, from 45 seconds to 25 seconds.

> **It opens up new possibilities with design freedom.**
>
> **-Simon Tan,** Chief Technology Officer, Senior VP

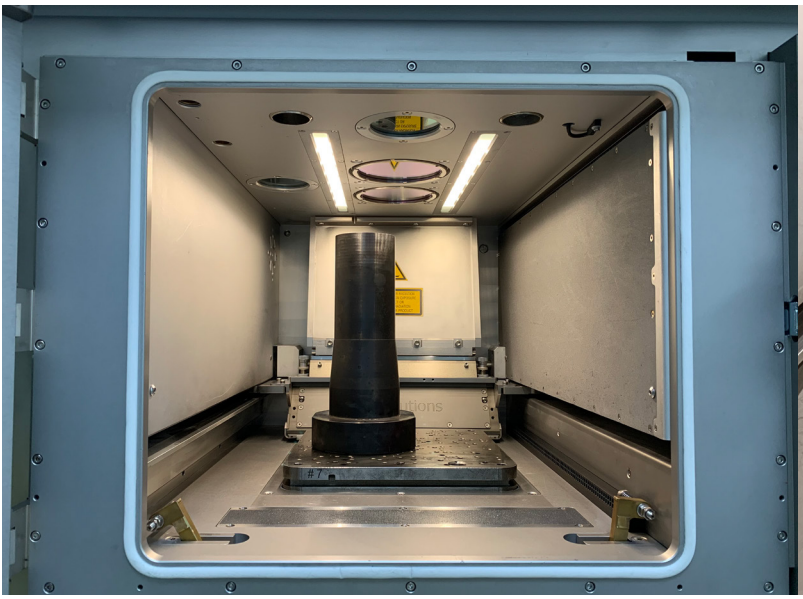
MAGIC AM MACHINE

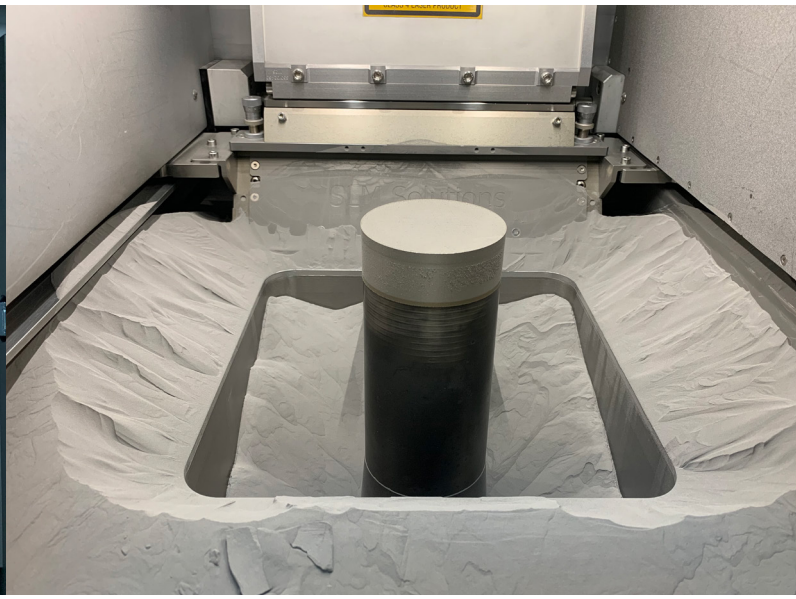
The SLM® 280 2.0 is powerful, robust, and versatile. Its multiple lasers and closed-loop powder handling make it ideal for medium to high volume metal additive manufacturing part production and prototypes. Multi-laser systems can achieve build rates 80% faster than a single laser, and patented bi-directional powder recoating minimizes manufacturing time by reducing the number of passes required to lay fresh powder during a build.

The SLM®280 2.0 has proven time and again how it can completely revolutionize how industries manufacture their tools, parts, and components.

From aerospace to commercial goods, it enables a production process that is fast, precise, scaleable, repeatable, and often much more cost effective.

Design freedom is an additional benefit: On top of the flexibility of standard AM processes, Nikon SLM Solutions' proprietary Free Float technology makes the imagination the only limit to what can be produced on its machines, empowering industries and people to significantly improve their work.





OMNI MOLD

Omni Mold is an ultra-precision plastic injection mold making company in Singapore specializing in highly complex and high cavitation molds. Their state-of-the-art facility is equipped with advanced computer software and machine tool hardware.

Together with proven track records and an exceptional team, they are positioned to meet the requirements of the most stringent customers in the global arena, in sectors such as Medical, Pharmaceutical, Health-care, Nutrition / Food Packaging, Information Technology, Office Automation, Automotive and Consumer Electronics.

NIKON SLM SOLUTIONS

Nikon SLM Solutions is an integrated solutions provider and metal additive manufacturing partner. The company takes a vested interest in customers' long-term success with metal additive manufacturing. Robust Selective Laser Melting machines optimize fast, reliable and cost-efficient part production. Nikon SLM Solutions' experts work with customers at each stage of the process to provide support which elevates use of the technology and ensures their return on investment is maximized. A publicly traded company, Nikon SLM Solutions Group AG is headquartered in Germany, with offices in Canada, China, France, India, Italy, the United States.

Further information is available on
www.nikon-slm-solutions.com