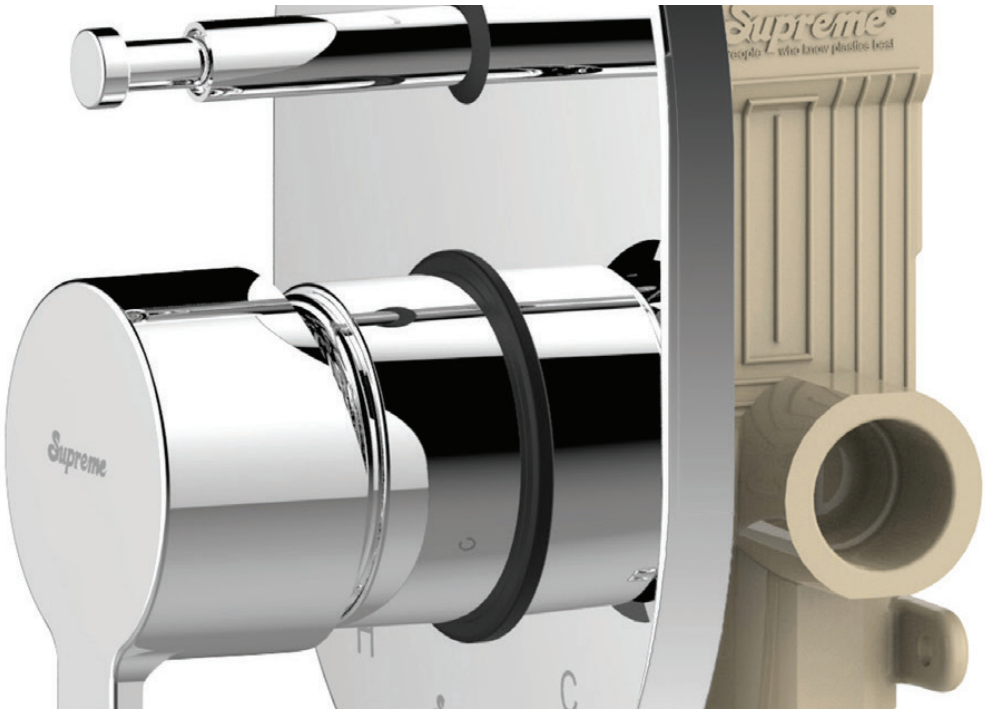
A Faster way to Better Products:

Supreme Industries Speeds the Development Cycle with 3D Printing



"The 3D printer has helped us reduce cost of error, time to market, and identify design flaws at an early stage."

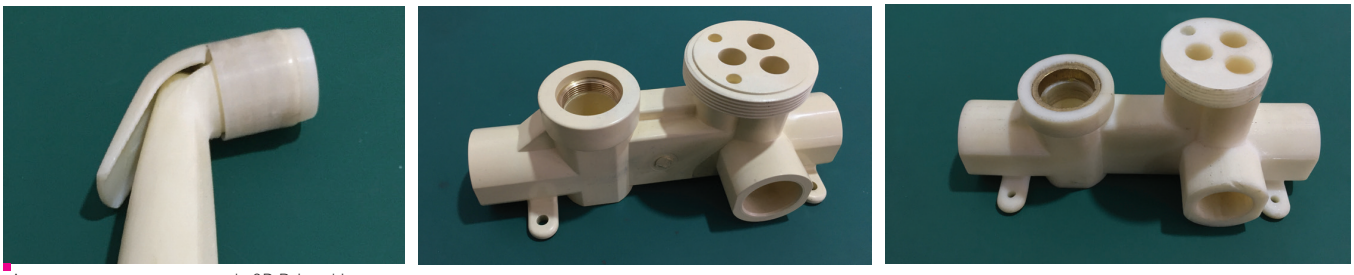
Aniket Suryawanshi – Executive Product Designer – Supreme Industries

Founded in 1942, Supreme Industries Limited (Supreme) is a leader in India's plastics industry. The company handles a volume of over 320,000 tons of polymers annually, which makes it the country's largest plastic processor.

Supreme offers a wide range of plastic products with a variety of applications in molded furniture, storage and material handling products, PE (Polyethylene) films and products, performance films, industrial molded products, protective packaging products, composite plastic products, and many more.

Using Technology to Improve the Prototyping Process

Supreme's new product development initiatives are key to its success. The company relies on cutting-edge technology for a fast product development cycle, ensuring that time-to-market deadlines and product quality benchmarks are always met. Prior to 2015, the company resorted to manual prototyping during product development. But this method posed a unique set of problems in terms of time, cost, and quality. Manual prototyping is prone to human error, and necessitated rework in many instances. This increased product development time and cost estimates, Upsetting the company's time-to market targets.



A prototype water spray nozzle 3D Printed in ABS material to validate the nozzle size and flow capacity to withstand the speed of water.

To avoid the unpredictable nature of manual prototyping and add stability to the process, Supreme moved to standardize its prototyping efforts. The company also wanted to maintain design confidentiality by keeping product design in-house. To achieve these objectives, the company invested in 3D printing, which also promised to reduce product development time and cost, and improve quality. To select the appropriate 3D printer, the Supreme Design Center team established specific criteria. 3D printed parts needed to be tough, have a smooth finish and fit seamlessly with mating parts.

Preventing Prototyping Obstacles

Since the installation of Stratasys uPrint SE Plus 3D printer, Supreme's design department uses it extensively to fulfill various prototyping needs. The team uses 3D printing for design verification, marketing approvals of new products, and assistance in mold and tool development. By printing dimensionally and geometrically precise prototypes, the 3D printer also improves internal communications and client demonstrations.

For example, the marketing team printed a diverter part in ABS material to use for promotional activities and demos with clients. Diverters are used in bathroom fittings to mix hot and cold water. In another example, the R&D department 3D printed scaled-down versions of monobloc chairs to whether they stack with each other. The models also helped confirm the chairs are safe by ensuring they do not have sharp edges that could hurt users. Additionally, the team 3D printed a water spray nozzle prototype to validate the size of the nozzle and the maximum speed of water it can withstand.

Supreme uses ABS material for all its prototypes as it gives the required strength for functional testing. Also, the marketing team can easily demonstrate these prototypes to their clients and better explain product functionality.

The printed parts are accurate and display fine product features, key benefits for proving the product's intended fit and function. The team also uses the 3D Printer to make butterfly valves, furniture parts and taps. They subject all printed parts to stringent functional tests for performance validations.

These stacking monobloc chair models were 3D printed in ABS material to check the viability of the design.

With in-house 3D printing, Supreme has been able to utilize the machine with ease and speed. On average, the team prints a prototype only in three hours, which used to take three days through the manual process. With the hassle-free, fast, and user-friendly 3D printing process, the team saves 90 percent time and produces durable, high-quality parts ideal for product design validation.

For Aniket Suryawanshi, Executive Product Designer at Supreme, the 3D printer has been a valuable addition. "The 3D printer has helped us reduce cost of error, time to market, and identify design flaws at an early stage."

The Time comparison between 3D Printing and Conventional Prototyping Methods

Method for prototyping	Time
Past (Without 3D printer)	3 Days
Present (With 3D printer)	3 Hours
Savings	**90% (overall)**