

New 3M Fused Silica Rapid Cast System saves time all the way down the production line

Innovative technology breaks the mold for investment casting, producing strong, thick shells in 35 to 50 percent fewer dips

ST. PAUL, MINN. October 22, 2018 –After decades of incremental improvements in slurry performance, the investment casting industry can now make significant strides to increase productivity and efficiency. Today, Ceradyne, Inc., a 3M company, introduces the 3M™ Fused Silica Rapid Cast System to help foundries build shells to their required weight in 35 to 50 percent fewer dips. The system represents a great leap forward for investment casting, enabling foundries to produce more parts in less time within their existing plant footprints.

“Shell production is the most time and space consuming operation for investment casting companies, and until now, there wasn’t an efficient solution to address it. The 3M Fused Silica Rapid Cast System changes the game,” said Chris Whitehouse, engineer specialist at Ceradyne. “From shell build to final knockout, the new system makes investment casting faster and more cost-effective.”

“We already had a great shell system in place, but the 3M Fused Silica Rapid Cast System cut the number of our dips from three down to two,” said Brad DeSplinter, vice president and general manager of Texas Precision Metalcraft (TPM), who worked with Ceradyne to test the system during development. “I am confident if we had four, I would have been able to still get to two.”

Comprised of 3M™ Fused Silica Rapid Cast Flour and 3M™ Rapid Cast Accelerator, the system allows for a new level of slurry thickness control. Its unique thixotropic properties provide precise flow into tight areas, while simultaneously building shell bulk to reach required shell weight with fewer dips. Frequent liquid adjustments due to evaporation or shell “soak-back” is also a thing of the past. This system requires fewer liquid level adjustments to achieve consistent shell thickness compared to traditional fused silica systems.

Other key benefits of the system include:

- **Increased capacity per square foot.** The advanced fused silica shell system reduces the number of slurry dips. This allows investment casters to send parts through the shell room more quickly, increasing shell production within their existing footprint.
- **Fast, clean shell knockout.** Beyond improved shell build, with this system, castings can be deshelled more quickly and cleanly, improving productivity.
- **Reduced caustic cleaning time and cost.** The better knockout can help reduce caustic or blasting time, potentially reducing the number of parts that require cleaning.

“With 3M’s Fused Silica Rapid Cast System, on average, we were able to cut coats in half. This allowed us to reduce lead time by roughly 30 percent,” stated Andy Bomberger, engineer manager at Tech Cast.

3M™ Fused Silica is an established product line in the investment casting industry, proven in helping foundries achieve the close-tolerances and hardworking components needed for aerospace, automotive, construction, energy and many other industries. The launch of the Fused Silica Rapid Cast System represents a continued commitment to support the most exacting industries by advancing their innovation and efficiencies.

For more information on fused silica from Ceradyne, Inc., for use in the investment casting industry, visit 3M.com/RapidCast.

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