

NanoSteel Launches 3D Printable Tool Steel: New Case-Hardening Steel Designed for Laser Powder Bed Fusion

NanoSteel®, the leader in nanostructured steel materials, today announced the launch of its first product for the laser powder bed fusion additive manufacturing process.

BLDRmetal™ L-40 is a case-hardening steel powder that provides high hardness and ductility (case hardness >70HRC, 10%+ core elongation) and prints easily on standard commercial equipment. This alloy provides superior performance to M300 maraging steel and is an alternative to difficult-to-print tool steels such as H13. Expanding the potential use of 3D printing in a wide variety of hard materials markets, BLDRmetal™ L-40 is designed to be used for parts including tools, dies, bearings and gears.

The capabilities of BLDRmetal™ L-40 were demonstrated by printing an 8-inch roll thread die set, which outperformed dies machined from D2 and M2 tool steels. “We tried nearly every combination of material and conventional CNC machining process to create our dual-thread die sets, none of which could cut or grind the complicated dual-thread geometry,” said Mark Doll, President and CEO of Perfect Lock Bolt America Inc., the only manufacturer of dual-thread fasteners in North America that are resistant to self-loosening. “The NanoSteel solution delivers exactly what we are looking for, including excellent surface finish, flexibility, as well as strength and hardness for maximum die life. This is a welcomed technological innovation to the fastener industry. We have been pleased with our testing and are slated to start production this year.”

NanoSteel developed this high hardness alloy through rapid iterative development at CFK GmbH, an industry-leading 3D printing service provider, whose expertise was instrumental in developing the die from concept to finished part. “For us, the most important attributes of NanoSteel’s BLDRmetal™ L-40 are that it is easily implemented and creates crack-free high hardness components, which sets it apart from the many other tool steels we have tested” said Dr-Ing. Christoph Over, CEO at CFK. “We are proud to be a preferred printing service provider for NanoSteel, which will allow us to continue to offer the most valuable products to our customers.”

“Launching BLDRmetal™ L-40 after successfully producing the roll thread dies ensures the commercial viability of the new alloy for customers investigating the use of additive manufacturing,” said Harald Lemke, Vice President and General Manager of NanoSteel Engineered Powders. “We don’t stop at material design, but create joint solutions with our customers, facilitating the process from material selection and prototyping to fully qualified production parts.” Building off earlier products for binder jet printing, NanoSteel continues to expand its product family for additive manufacturing.

About NanoSteel NanoSteel is an advanced materials company specializing in the design and commercialization of patented steels with exceptional mechanical properties. Current focus areas are sheet steel for automotive lightweighting applications and metal powders for 3D printing. Founded in 2002, NanoSteel is a privately held company funded by investors including GM Ventures, Lear Corporation and SPDG. For more information, visit www.nanosteelco.com or follow us on Twitter @NanoSteelCo.