Extrude Hone press release

November 19, 2018

TEM FOR SUPPORT REMOVAL UNVEILED AT FORMNEXT (IN COLLABORATION WITH EOS)

Support Removal, Additive Manufacturing, Finishing for Additive Manufacturing, AM, Thermal Energy Method, TEM, TEM for Support Structures, EOS, Support Structure Generation, Extrude Hone Additive.

At Formnext, Extrude Hone announced a new method to remove support structures in inaccessible spots… in a blink!

Formnext is possibly the biggest and most important Additive Manufacturing Trade Show worldwide. Among all the announcements made during the show, one gained great attention within the AM business community: Extrude Hone and EOS unveiled a thrilling collaboration aimed at addressing chemical-free, simultaneous and ultra-fast removal of Metal DMLS support structures.

The main reason behind AM's rapid growth is, in a word, competitiveness. Companies adopting AM gain a competitive advantage, which in many cases belong to new processes and products, enhanced by the freedom of design enabled by this technology. However, in many cases engineer's creativity is still constrained by post-processing issues. One example speaks for all: support removal in inaccessible, or hard to reach, areas.

The impeller depicted in Figure 1 for example would be a perfect fit for additive manufacturing but, until today, support structure removal in the twisted (inaccessible) channels made it an impossible build. Thanks to research and testing carried out jointly by Extrude Hone and EOS however, this isn't the case anymore!

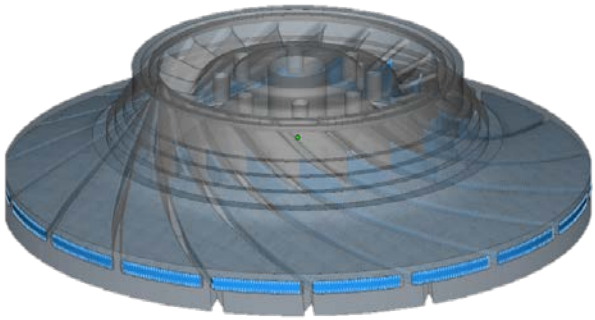

Figure 1: Complex ALM Impeller

Combining specially designed Support Structures by EOS' engineers, with an Advanced T.E.M. (Thermal Energy Method) process developed by Extude Hone, we were able to achieve impressive results. The part was post-processed with T.E.M. in a few milliseconds – for a total cycle-time below 10sec – and all support structures, in every single channel, were removed successfully.

A short (40min) cycle of Abrasive Flow Machining took the final roughness value down to an amazing 1.6µm R_a. This is not only interesting *per se* but becomes even more important if you think this part

could not be produced at all, with current technology offerings. Together with our partner, EOS we are pushing forward the boundaries of AM.

The TEM process, well-known in the industry for deburring, basically consists of a controlled ignition, which takes place in a contained and well controlled environment (Extrude Hone's TEM Equipment, labeled "T Series"). The way Extrude Hone controls how the ignition takes place, combined with the special geometry of the support structures generated by EOS' software, literally blows away all supports – and this happens so fast (in the order of milliseconds) that it doesn't harm the part nor change its mechanical properties in any way.

Extrude Hone is already well recognized as an industry leader for surface improvement and surface enhancement technologies in the AM industry, and is currently expanding its overall AM capabilities as well, including in house 3D Printing and now, complete support structures removal as well!

Extrude Hone Additive, our dedicated Business Unit for AM, offers top-notch solutions spanning from design to finishing - positioning itself as high-end one-stop-shop for the aerospace, medical, automotive and energy industries among others.

About Extrude Hone.

Extrude Hone® serves customers in many market segments, including automotive, aerospace, heavy industry, medical, and general engineering. From engineering to fully automated solutions, Extrude Hone supports its customers with edge blending, shaping and fine-flow tuning surfacing solutions through its engineered processes and state-of-the-art finishing technologies, delivering ultimate added value, and improving productivity and quality.

Extrude Hone offers customers access to AFM (Abrasive Flow Machining), ECM (Electrochemical Machining), ECM Dynamic, PECM (Precise Electrochemical Machining), COOLPULSE, and TEM (Thermal Energy Method) via our Technical Centers and Center of Excellence, ensuring our presence during all of the most critical feasibility tests and demonstrations – from the early design phases by producing small batches of components for prototyping through testing and supporting the ramping stage in our contract shops prior to the final delivery of state-of-the-art equipment. Our company offers first-class service around the world.

Contact us: help@extrudehone.com