

HIP for AM - Optimized material properties by HIP

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Additive Manufacturing (or 3D-printing) is the newest technology to mass produce small to medium-size parts with high tolerances and quality for many industries, i.e. Automotive, Medical, Dental and Aerospace.

However, even after the final sintering residual pores exist within the material. To remove these pores, Hot Isostatic Pressing or HIP is the obvious choice. By applying a HIP step, pores will be eliminated and the density will increase to virtually 100% of theoretical density. This pore elimination will improve the strength, ductility and especially the fatigue properties of the material and residual stresses will also be eliminated.

Today, it is possible to combine HIPing and heat treatment in a specifically designed HIP equipped with Uniform Rapid Quenching (URQ®) or Uniform Rapid Cooling (URC®). This paper will describe the process and benefits of HIP of 3D-printed parts together with the possibilities and advantages of combining the HIP process and heat treatment in a Rapid Cool HIP.

Please choose topic

Materials

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