

## **Latest Developments in the Use of HIP for Additive Manufacturing**

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### **Abstract**

Hot Isostatic Pressing (HIP) has been used to remove shrinkage porosity and internal defects in cast products for many years, predominantly to improve mechanical properties and fatigue resistance. Recently, there is increasing focus on the Additive Manufacturing (AM) process for demanding applications where internal defects and porosity are a concern.

Post processing using HIP is now being used to shorten process times using a combination of HIP, Solution Heat Treatment (SHT) and Aging to automate and make processes leaner, leading to cost reductions and productivity increases whilst reducing scatter in material properties.

This paper will present solutions to many issues with quality assurance seen by OEMs for critical components, along with cost savings realised through speeding up of production lines.

**Keywords:** Additive Manufacturing, AM Market, Heat Treatment, Aging, HIP, Hot Isostatic Pressing, Mechanical Properties, Reduced Cycle Time, Combined HIP and Heat Treatment, Post processing, Lean Manufacturing

