

Trends in the development of HIP:ing and HIP equipment

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Hot Isostatic pressing is an effective process to eliminate defects in powder based additive manufacturing parts or castings and generates a 100 % dense material which improves the fatigue properties as well as the ductility. With today's fast cooling possibilities with URC® and URQ® provided by Quintus Technologies' HIP units opens up new possibilities of thermal treatment under pressure of directly in the HIP cycle. For additively manufactured medical implants and aerospace components it is becoming more and more common to include the heat treatment directly in the HIP cycle.

The positive effects of including the fast cooling directly in the HIP includes:

- Uniform cooling through the workload
- Minimized thermal distortion
- Reduction in process steps which reduces cost per part

In addition to traditional HIP:ing for gas atomized powders, recent test and results show that it is possible to produce fully dense sinter PM components using water atomized powders and HIPing. For these components it is of high interest also to carburize directly in the HIP with the aim to case harden. Tests in Västerås have shown successful results of introducing other atmospheres which opens up new markets for the HIPing industry.