UNCOMPROMISED DESIGN, UNMATCHED MATERIAL

Hyperion’s Additive Manufacturing process delivers complex geometries with the wear resistance of carbide, so you don’t have to compromise your design to gain the material advantages of cemented carbide.

Often called 3-D printing, additive manufacturing (AM) is the manufacturing of a part or component by adding layers in succession. This is the opposite of traditional manufacturing where items are made by removal via machining.

Hyperion Materials & Technologies has pioneered an AM process that delivers the wear resistance of cemented tungsten carbide even in components designed with complex geometries. Cemented tungsten carbide has long been prized for its balance of desirable characteristics such as hardness, toughness, and resistance to wear. A traditional constraint, however, is that historically it has been difficult to shape cemented carbide into complex geometries. The result of this constraint is that engineers had to make a decision: use the right material, but an imperfect design; or use the preferred design, but manufacture in a less-than-ideal material. Hyperion’s innovative new AM process eliminates this traditional constraint and allows for delivering the material advantages of cemented carbide, even in very complex designs.

Benefits of Hyperion’s Additive Manufacturing Process

- Manufacture production parts with complicated geometries
- Deliver the wear resistance, hardness, and toughness of cemented carbide
- Rapidly develop and test prototypes
- Small batch production of replacement parts or other unique components.
Partnering for Success

One of the biggest benefits of Hyperion’s Additive Manufacturing process is the partnership and collaboration that takes place when Hyperion and customers tackle application challenges. The customer brings their application insight and improvement goals, while Hyperion offers not just materials expertise but also knowledge of hard materials manufacturing. This expertise, combined with Hyperion’s AM capability, allows for innovative new solutions to current challenges.

The following are just a few examples of customer challenges that Hyperion’s AM capabilities have solved:

- Internal coolant channels to improve heat transfer and avoid thermal fatigue
- Internal complex geometries to ameliorate flow mechanics in fluid handling applications
- Geometries that cannot be obtained using conventional manufacturing techniques
  - External and internal geometries with and without asymmetric revolution shapes
    (Note: shapes that cannot be produced with a lathe machine)
  - External and internal geometries that cannot be created with 5-axis computer numerical control (CNC) machines
  - Rounded vertex without presslands
  - Progressive rounded edges and corners.

Developing Your Solution

If interested in discussing how Hyperion’s Additive Manufacturing process might help solve your application challenge, begin by contacting Hyperion to schedule an appointment with a materials expert. During that meeting, Hyperion’s experts will ask questions about your application, component design, tolerances, and challenges. The next step is then to provide you a prototype part printed at our state-of-the-art R&D and Manufacturing center in Barcelona, Spain.

To schedule a consultative discussion with one of Hyperion’s Additive Manufacturing experts or to find out more about how your business can benefit from the complex cemented carbide parts Hyperion’s AM process can produce, email Marketing@HyperionMT.com, contact your local Hyperion salesperson, or visit www.HyperionMT.com/Services/AM.