esa business incubation centre
Hessen & Baden Württemberg

M.A.T.

Additive Manufacturing of Metals and Ceramics

M.A.T. is an Additive Manufacturing (AM) solution for the production of complex geometries made out of metals and ceramics. With the M.A.T., 3DCERAM utilizes the Fused Filament Fabrication (FFF) technique to produce ceramic and metallic parts with a 3D-printer working with special filaments. The 3D- printed parts are then eliminated of any non-metallic or non-ceramic component (binder) with the help of heat treatment at high temperatures, yielding pure and resistant parts suitable for all engineering applications in a matter of days. This cost-effective technique is suitable for a number of metals and ceramics, including metal-ceramic or ceramic-ceramic composites, and is capable of producing parts with high relative density.

Stainless Steel 17-4PH Specifications:

- **Material: 17-4PH Stainless Steel**
- **Bulk density (g/cc): 7.6**
- **Yield strength, Rp0.2 (MPa): 680**
- **Ultimate Tensile Strength, Rm (MPa): 880**
- **Standard for the tensile testing: DIN EN ISO 6892**
- **Elongation at Break (%): 5.8**
- **Vicker's Hardness: 257 HV 10**
- **Standard hardness testing : DIN EN ISO 6507-1**