Additive Screen Printing: Industrialized Additive Manufacturing Technology for Powdered Metallurgy, Ceramic Part Production

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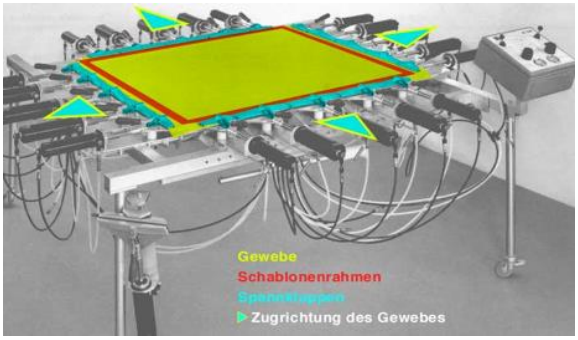
ABSTRACT:

Additive screen printing is a new approach to sinter-based additive manufacturing for industrial production. A new unique technology platform using conventional screen-printing techniques combined with high-speed precision optics and industrial handling automation enables mass production of industrial parts with ultra-fine structures using a wide range of metals, ceramics, and other materials. This paper outlines how the technology works and its capabilities as a proven high-volume production process.

INTRODUCTION:

The additive screen-printing process for forming 3D green body parts uses mature precision screen-printing techniques that have been widely used in the printed circuit, semi-conductor, and other high volume sectors for decades.



Screen mesh apertures are sized to match the powder particle seraphical size morphology of the build material. Additives are then introduced to the powder to form a paste which is screened onto a build tray to form a layer. Almost any material that is available in powder form can be used to make parts using this process.