Glue-Spraying Powder Additive Manufacturing Technology

MIRDC

Apply 3D Printing technology to improve the manpower shortage in conventional casting industry, technology succession. With innovation, further increase competitive advantages in rapid development for domestic industries.

Introduction

➢ Traditional sand casting requires additional molds and development time and cost, and cannot integrally form sand cores (needs assembly of several parts). It is not easy to develop complex products, and there are limits to draft angles.

➢ 3D sand mold casting printing and forming does not need mold rollover. The integrally formed sand core has thick walls and shallow sand core structure, effectively solving the shortcomings of difficulties removing sand core and higher gas content that come with traditional sand cores.

➢ It forms sand molds with complex shapes, without the limitation of draft angles, greatly reduces the development cycle and lowering cost by 50%.

Honors / Patents

➢ Qualified in Additive manufacturing and products with integrated structure (patent number I558930), 3D printing device that can conduct reciprocating spray molding (patent number I606915), 5 patents of Taiwan, the US and China.

Industrial Application / Case Studies

Effectively win the orders and proofing opportunities for outer shell of off-road vehicle gearboxes

Stamping die for lightweight upper and lower fuel tank sheet metal

Specifications:
➢ Forming size: ≧2,000x1,000x1,000 mm
➢ Additive thickness (per layer): 0.25~0.4 mm
➢ Additive speed: ≧15 mm/hr
➢ Printing resolution: ≧200/300 dpi
➢ Types of sand: Silica, artificial, ceramic and others
➢ Types of binder: Furan resin, phenolic resin

Application of 3D printing in double-suction impellers of chemical pumps saves by 50% in the development cycle and cost of traditional sand mold assembly

Product design → Case design → Direct printing of sand core and mold → Casting / products → Impeller polishing

3D printing relief painting prototype

Reproduction of FRP colored relief paintings