



積層製造用金屬粉末技術

Additive Manufacturing Metal Powders

簡介 Introduction

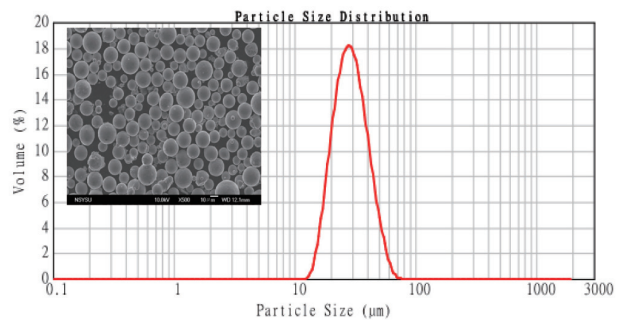
本材料係透過合金材料設計與合金熔煉、氣體流速與霧化參數控制，獲致高真圓度及流動性之金屬粉體，符合金屬積層製造粉體規格之需求。

Combining the design and preparation of alloy, control of gas flow rate and atomization parameters, high flowability alloy powders with spherical morphology have been successfully produced. The powders were proved to meet the requirement of additive manufacturing.

特色 Features

- 合金材料設計與真空熔煉
Alloy design & Vacuum melting
- 合金精煉與純化技術
Alloy refining & Purity control
- 霧化器優化設計
Gas atomizer design
- 氣體霧化技術
Gas atomization technology
- 金屬粉體後處理
Metal powder post-treatment

成果 Accomplishments



麻時效鋼粉體粒徑分佈
MS1 powder size distribution

規格 Specifications

粉體成份配置 Powder Composition
粉末含氧量 Oxygen Content <0.2%
成份組成符合 ASTM Conform to ASTM

粉體品質規格 Powder Quality Requirement
粒徑 Powder Size : $d_{50} \leq 30\mu\text{m}$
粉體真圓度 Shape Factor : Aspect Ratio ≥ 0.9
流動性 (Carr Index) : $\leq 16\%$

應用 Applications

- 麻時效鋼 / SKD11 冷作模具鋼 / SKD61 熱作模具鋼粉體：精密模具 / 異型水路模具
Maraging / SKD11 / SKD61 powder: Precision Molding / Conformal Cooling Mold
- 鈦合金粉體 (Ti-6Al-4V): 客製化醫材 / 航太特殊零組件 / 輕量化義肢
Ti-6Al-4V powder: Customized medical products / Aerospace special parts / Lightweight prosthesis
- 鋁合金粉體：航太特殊零組件 / 輕量化結構件 / 鞋模
Al alloy powder: Aerospace special parts / Lightweight structural components / Shoe production mold

