

CASE STUDY: AMPLIFY ADDITIVE

EBM for Acetabular Cups

Challenge: Existing technology for orthopedic adhesion and fusion relies on sintered or sprayed coatings. The resulting pore sizes of traditional coatings range from 100-300 microns, well below the pore sizes many clinical studies have identified for optimal bone in-growth.

Solution: Additive manufacturing (AM) replaces traditional coatings with 3-dimensional lattice structures, which improve initial fixation and allow for faster fusion and bone in-growth. Lattice structures are designed for a clinically optimized pore size of 650 microns.

AM Results:¹



Up to 58% improved time to market

14-22 weeks with EBM technology, compared to 26-38 weeks with traditional manufacturing



Improved osseointegration

Optimal pore size is 650 μm , traditional coating pore sizes are only 100-300 μm , with EBM 400-800 μm pore sizes are achievable.

EBM Benefits:¹

The EBM process allows for maximum use of the build volume by stacking parts. Parts are removed by hand and have material properties exceeding ASTM standards (F2924, F3001).

54 cups

SINGLE BUILD SETUP



“Additive manufacturing is a clear winner as far as superior clinical outcomes for patients,” said Brian McLaughlin, CEO & Founder of Amplify Additive. “Hip cups are a great example where there is a significant improvement in initial fixation and bone in-growth, coupled with the reduction of supply chain, there are simply no questions about it.”¹

– Brian McLaughlin

President and founder at Amplify Additive

¹ <https://amplifyadditive.com/acetabular-cups/>