



3D / AM
WMF 2018

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Hexcel Corporation

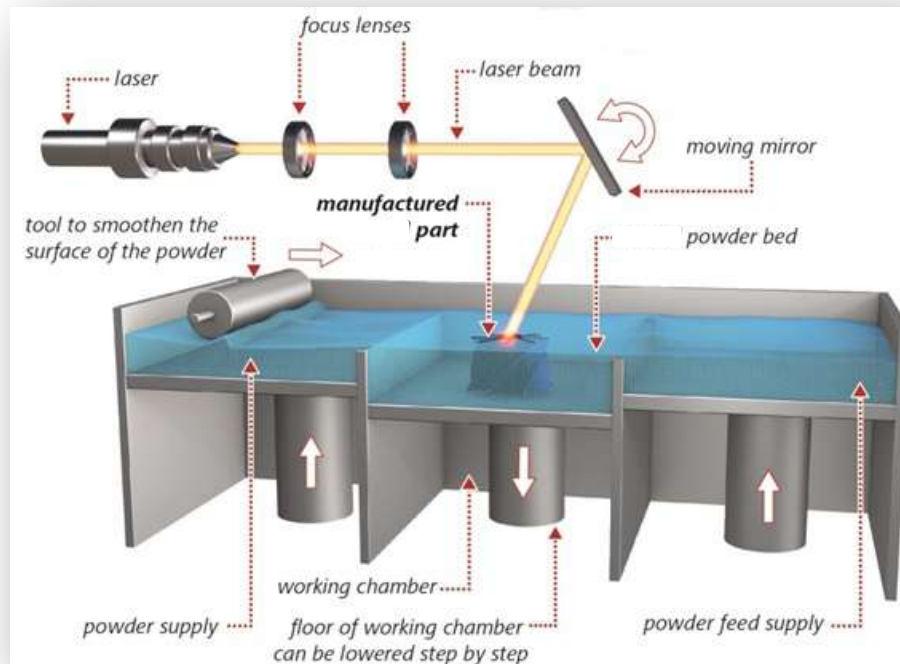
A350 XWB upper wing cover
The longest composite part ever!



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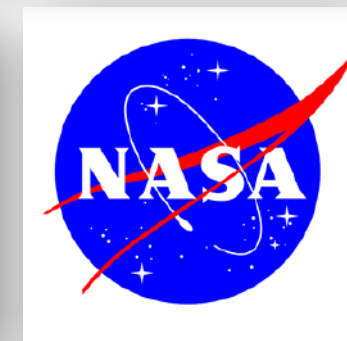
Composites, by definition, are additive manufacturing

HexAM™ Additive Manufacturing Technology



Space & Defense Qualification

- B-Basis HexPEKK™-ESD
 - 2,600 data points
- Space Allowable HexPEKK™-N
 - 800 data points
- Multiple machines
- Two material suppliers
- Published Report



Freedom for Design

Production

EXCLUSIVE-Boeing's space taxis to use more than 600 3D-printed parts

Alwyn Scott
Friday, 3 Feb 2017 | 7:00 AM ET



 REUTERS



Commercial Qualification

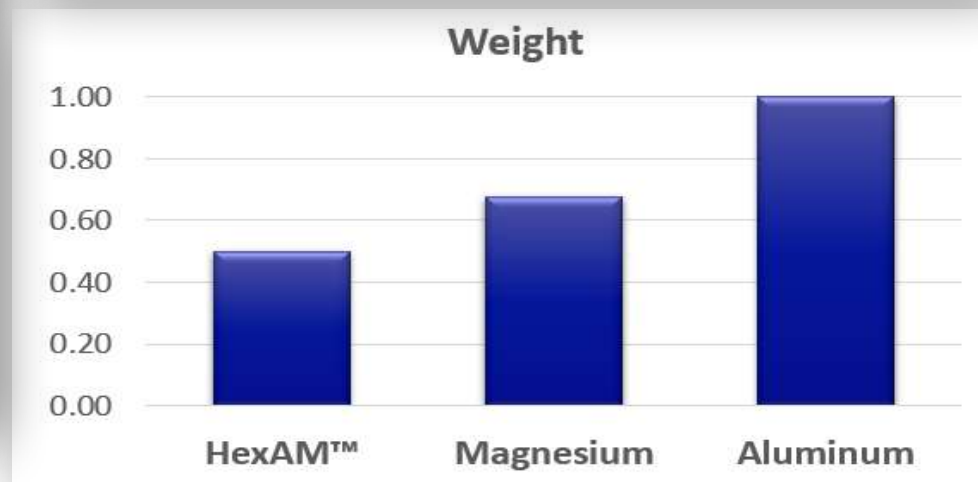
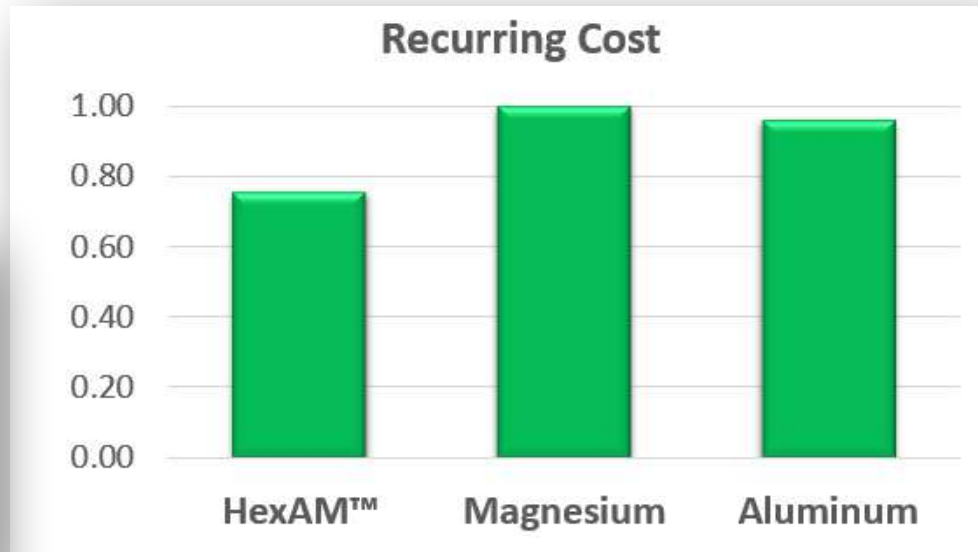
- Allowables Program Complete
 - 3,100 data points
- Production Audit Complete
 - Quality Management System
 - Manufacturing Systems
- Prime Approved PCD
- Specification Near Release



A qualified material database is a Must

Value Proposition

NRE Savings



Faster to market

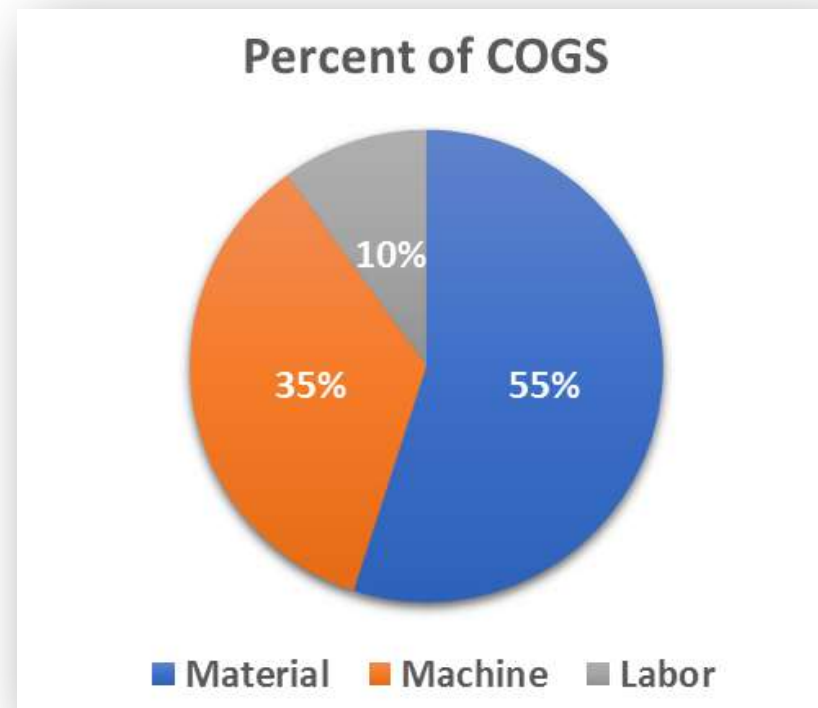
Crossing Moore's Technology Adoption Chasm



Cost a key enabler for technology adoption

Commercial Adoption

- Required Industry Initiatives
 - Reduced cost of Capital equipment
 - Reduced equipment operating expense
 - Lower cost of raw materials



Affordability coupled with the intrinsic attributes of AM will drive adoption

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