Manufacturing Technology Centre

Measurement of Angled EBM Surfaces

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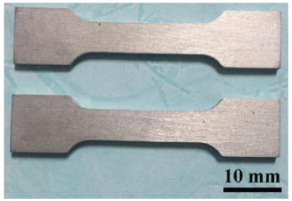
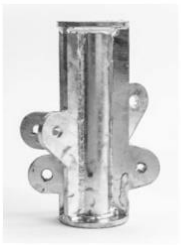
Introduction

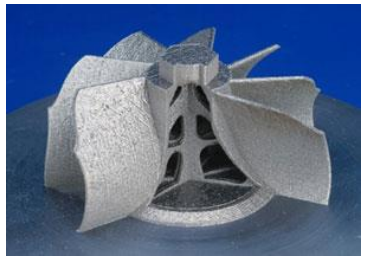
- Surface Finish Challenges in Additive
- Industry Relevance
- The MTC FlexiFinish Project
- Why Investigate Build Angle
- References
- Results (separate presentation)

Surface Finish Challenges in Additive Manufacturing

- Mechanical Properties
- Complex Shapes
- Rough Surfaces







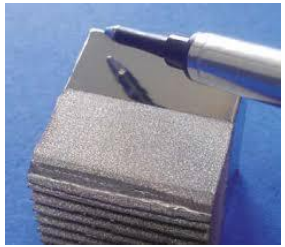


Image sources listed at presentation end

Industry Relevance

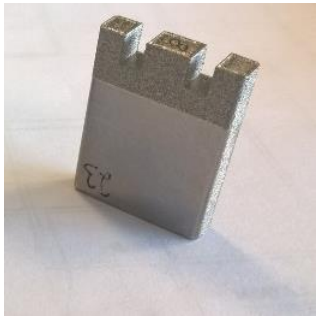
- Aerospace
- Medical
- Automotive

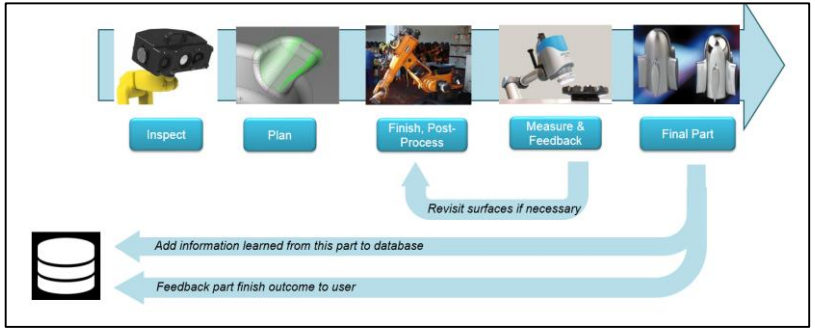
Image sources listed at presentation end

FlexiFinish Project

- Project kicked-off in June and aims to provide controlled, targeted finishing for complex additive parts;
- Laser polishing, linishing and shot peening processes;
- Initial and post-processed surface texture measurements using an Alicona SL;
- Part is delivered to finishing and inspection stations by using an IRB4600 robot.

Inspection within FlexiFinish

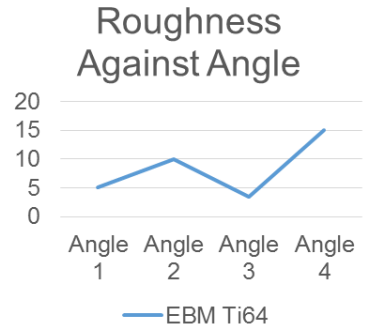


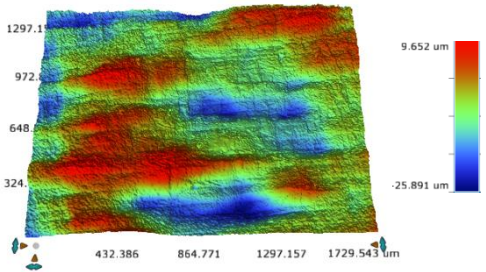


Acknowledgement to the FlexiFinish project

Why Investigate Build Angle?

- Database
  - Understanding link between Roughness and Angle;
- Complex shapes
  - Many of the case studies have overhangs and angled surfaces;
  - These surfaces will change in roughness and therefore change the processing choice;
  - We need to know how best to measure these in the FlexiFinish cell;
- Processes
  - What happens precisely to the surface when we post-process - can we learn to improve this?





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References

Images:

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