Additive Fatigue Study 2.0

Making Fatigue Performance more Predictable: Phenomenon-Driven Fatigue Design for Metal Additive Manufacturing – Titanium

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In Additive Manufacturing, post-processing is a major source of uncertainty in both fatigue performance and cost This study links critical influences and key phenomena to the fatigue properties of PBF-LB metal components. The goal is to improve predictability and define process chains.

Additive Fatigue 2.0: Why this new study?

Instead of focusing only on surface finishing methods, the new Additive Fatigue 2.0 Study examines the most relevant drivers influencing the fatigue performance along the whole post processing chain. The study investigates the fundamental mechanisms behind fatigue life for PBF-LB metal components.

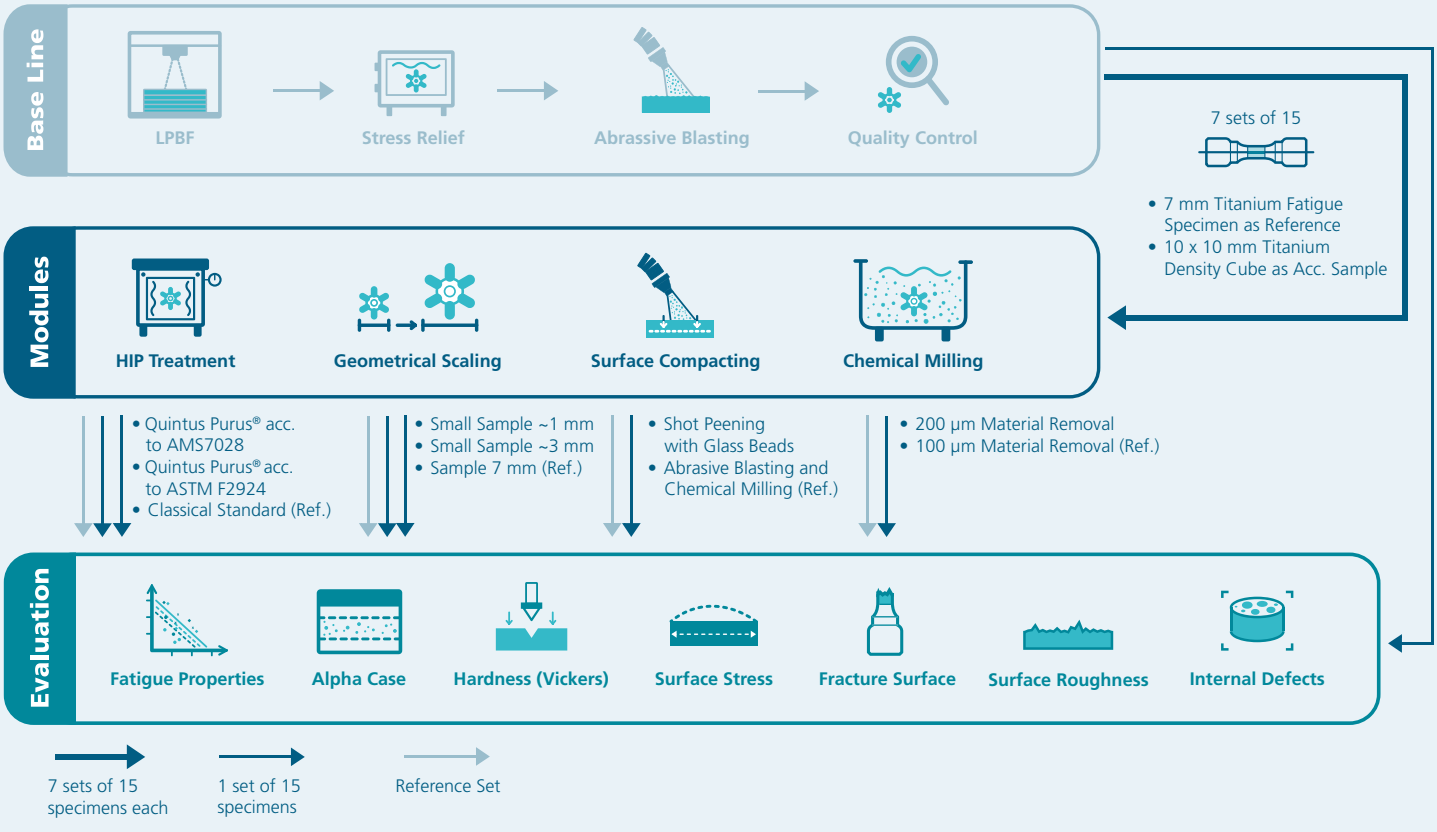
Join now for early bird benefits!

Ensure the test matrix reflects your use cases: Contribute to the study design by prioritizing surface states and load cases that match your productive applications.

Early access and exclusive discussions with the study authors: Receive and employ preliminary findings long before the full study is released and discuss the results with our AM experts.

Key questions addressed:

- How does heat treatment (as built, HIP and stress-relief) influence alpha case build-up and therefore hardness and fatigue properties?
- How does compacting the material surface with shot peening influence subsurface residual stress and fatigue life?
- How much does the geometry (thin vs. bulky) influence the final mechanical properties?



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Next Steps

For early bird terms, timelines, and component inclusion in the test program, contact **surface.finishing@iapt.fraunhofer.de.**