

Smart SLM-Testblock

Online-Testing

- Permanent measurement of sound velocities / determination of incremental sound velocity
- Measurement of the reflector amplitudes (relative to current backwall)
- Conclusions in view of microstructural homogeneity and local micro-porosity

Offline-Testing (e.g. with linear array)

- Sector scan -> information about anisotropy and texture
- Further: bi-axial testblock -> information about full 3D-texture



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Summary

- **Online surveillance using ultrasound** thru build-platform is feasible
- Observation of **surface dynamics** (backwall) during build-up is possible
- Characterization of material properties **layer-by-layer**
- Quantitative statements concerning **porosity** possible
- Fabrication of **test reflectors/model defects** (CDR)

Outlook

- Ultrasonic monitoring for control and reference procedures
- Surveillance using control specimens
- **Control of build-chamber!**

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