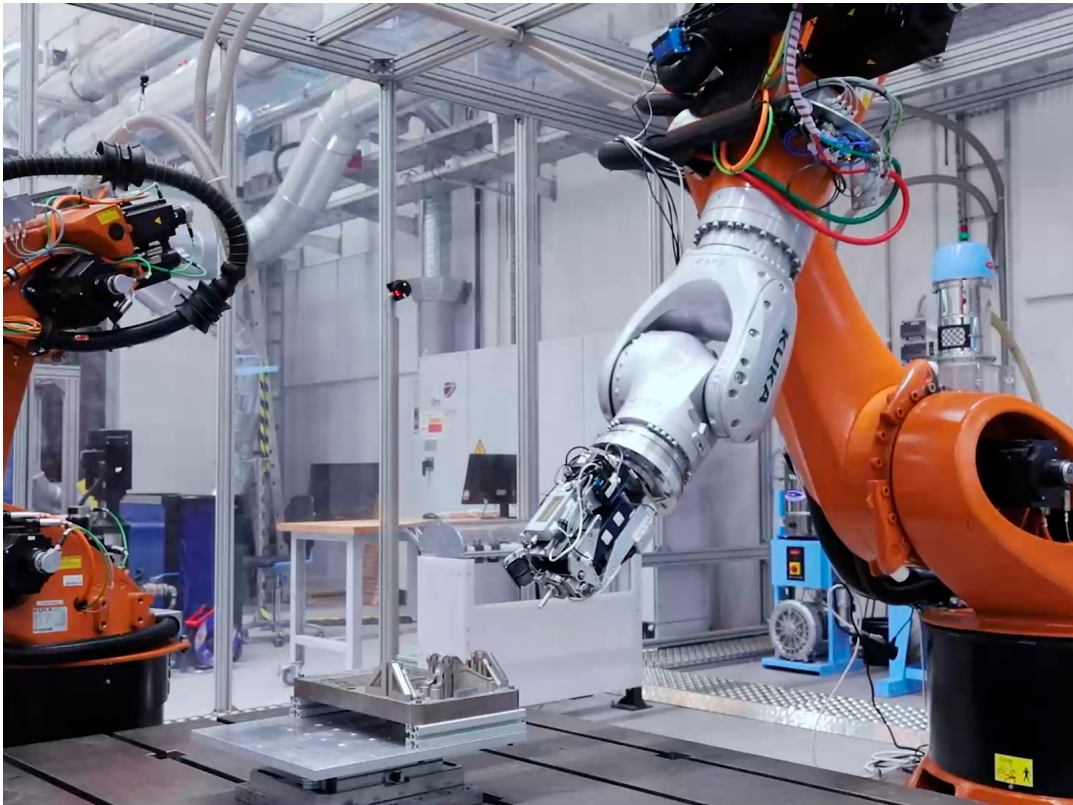


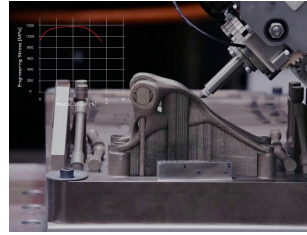
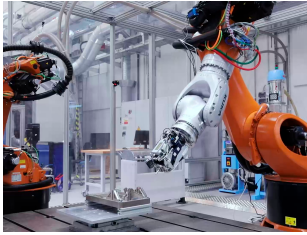
I3D INLINE

Process-near i3D® testing concept for inline quality assurance of additive and conventional components



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Local material data moves closer to production, QA and critical component zones - instead of arriving late in the laboratory process. With the i3D® Inline solution, the Imprint Test according to DIN SPEC 4864 / ASTM E3499 is seamlessly integrated into production-near quality assurance (QA). The test module is fully automatable and can be flexibly integrated into existing production and inspection lines – either via connection to a six-axis robot or as part of the FOERSTER NDT-COMBICELL. This enables direct access to local yield strength $R_{p0.2}$, tensile strength R_m , and stress-strain curves on the real component within the production environment. Inline QA with i3D® is particularly relevant for additive manufacturing. For 3D-printed components, process data, geometric defects, and local mechanical properties collectively determine the actual component quality.

By combining indentation testing with complementary inspection methods such as high-resolution process monitoring or μ CT analysis, a multi-stage quality profile is created that integrates local mechanical properties and defect information within the same inspection context. As a result, local deviations become visible at an earlier stage in the process and can be fed back more quickly into release decisions, process adjustments, or serial production decisions. Typical application areas include aerospace, automotive, and medical technology – wherever mechanical reliability and cost efficiency must be ensured simultaneously in series production and release environments.

YOUR ADVANTAGES AT A GLANCE

Process-integrated: Process-near i3D® testing instead of a late lab-only path

Flexible automation: Generally automatable – flexibly adaptable to different production and inspection environments

Robotic integration: Robot-supported integration (six-axis robot) without manual component re-clamping

System integration: Integration into the FOERSTER NDT-COMBICELL for combined non-destructive testing workflows

Direct component analysis: Local material properties directly on the additive or conventional component

Fast feedback: Faster feedback into incoming inspection, process monitoring and serial release

Wide application range: Suitable for additive manufacturing, component release and industrialization

NORMS

DIN SPEC 4864: Describes a standardized, minimally destructive testing method for determining flow curves and comparative characteristic values of metallic materials.

ASTM E3499: Is an international ASTM test standard for the indentation plastometry (IP) of metallic materials.

TECHNICAL INFORMATION

TEST METHOD:	Instrumented Imprint Test according to DIN SPEC 4864 / ASTM E3499 (i3D®)
DETERMINED VALUES:	Local yield strength $R'_{p0.2}$, local tensile strength R'_m , stress-strain curve
TESTING CONCEPT:	Inline / process near - integration into production cycles and component handling
AUTOMATION:	Generally automatable – connection to six-axis robot or integration into the FOERSTER NDT-COMBICELL
FOERSTER NDT COMBICELL INTEGRATION:	Embedding the i3D® test into combined non-destructive testing cells (e.g. with eddy current, magnetic flux leakage or hardness testing)
TYPICAL APPLICATIONS:	Additive manufacturing, incoming inspection, serial release, process monitoring
COMBINATION OPTIONS:	Indentation testing + high-resolution process monitoring + μ CT analysis
INDUSTRY FOCUS:	Aerospace, automotive, medical technology, defence, marine
SOFTWARE:	i3D® software with inverse FEM evaluation
DELIVERY FORM:	Project-based / customer-specific integration



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