FOERSTER

I3D WLI PRO

High-end-platform of the i3D® series with fully automated Imprint Test for the determination of mechanical material properties

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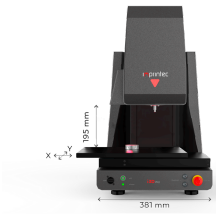

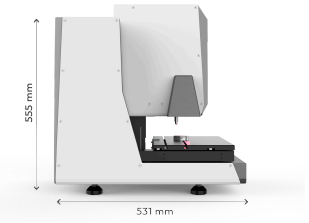

High automation and maximum data depth for local material characterization in laboratory, R&D and QA. The i3D® WLI Pro is the high-end platform of the i3D® series for the fully automated determination of local mechanical material properties. The system utilizes the Imprint Test method in accordance with DIN SPEC 4864 and ASTM E3499 and delivers local yield strength ($R^{I}_{p0,2}$), local tensile strength (R^{I}_{m}) as well as stress–strain curves – directly from the test indentation and without the need for a conventional tensile specimen. Equipped with a precise XY cross table, an integrated overview camera, and a Z-axis positionable measuring head, the system enables reproducible scanning of grids, lines, and point sequences.

This allows for efficient multi-sample screening, weld and heat-affected zone (HAZ) testing, as well as component analysis with a high density of measurement points in a continuous, automated workflow. In standard mode, the measurement time is approximately 72 seconds per point. With the optional Superspeed module, cycle times of around 20 seconds per point can be achieved. An optional, integrated white light interferometer (WLI) is available for 3D measurement of indentations and surface topography. Data evaluation is performed using the powerful i3D® software, based on inverse FEM calculations, ensuring precise and reliable material characterization.

YOUR ADVANTAGES AT A GLANCE

Fully automated standard testing: Fully automated high-throughput testing according to DIN SPEC 4864 / ASTM E3499 without tensile specimen

Precise multi-point positioning: XY cross table and Z-axis positionable measuring head for reproducible multi-point programs

Documented point placement: Overview camera for documented point placement and visual control

Hight testing speed: Standard cycle approx. 72 s/point; optional Superspeed mode from approx. 20 s/point

Optional 3D-Topography: Optional integrated white light interferometer (WLI) for 3D indentation and topography analysis

Material property determination: Inverse FEM evaluation via i3D® software – local $R^{I}_{p0,2}$, R^{I}_{m} and stress-strain curves

Wide range of application: Ideal for multisample screening, weld/HAZ testing, parameter studies and component analysis

NORMS

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

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

TECHNICAL INFORMATION

TEST METHOD:	Instrumented Imprint Test according to DIN SPEC 4864 / ASTM E3499 (i3D®) - without tensile specimen
DETERMINED VALUES:	Local yield strength $R^{I}_{p0,2}$, local tensile strength R^{I}_{m}, stress-strain curve
MEASUREMENT TIME (STANDARD):	approx. 72 seconds per measurement point
MEASUREMENT TIME (SUPERSPEED, OPTIONAL):	from approx. 20 seconds per measurement point
AUTOMATION:	Motorized XY cross table, Z-axis positionable measuring head
VISUALIZATION:	Integrated overview camera for point selection and documentation
OPTIONAL MODULES:	White light interferometer (WLI) for 3D measurement, Superspeed mode, software packages
SOFTWARE:	i3D® software with inverse FEM evaluation

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