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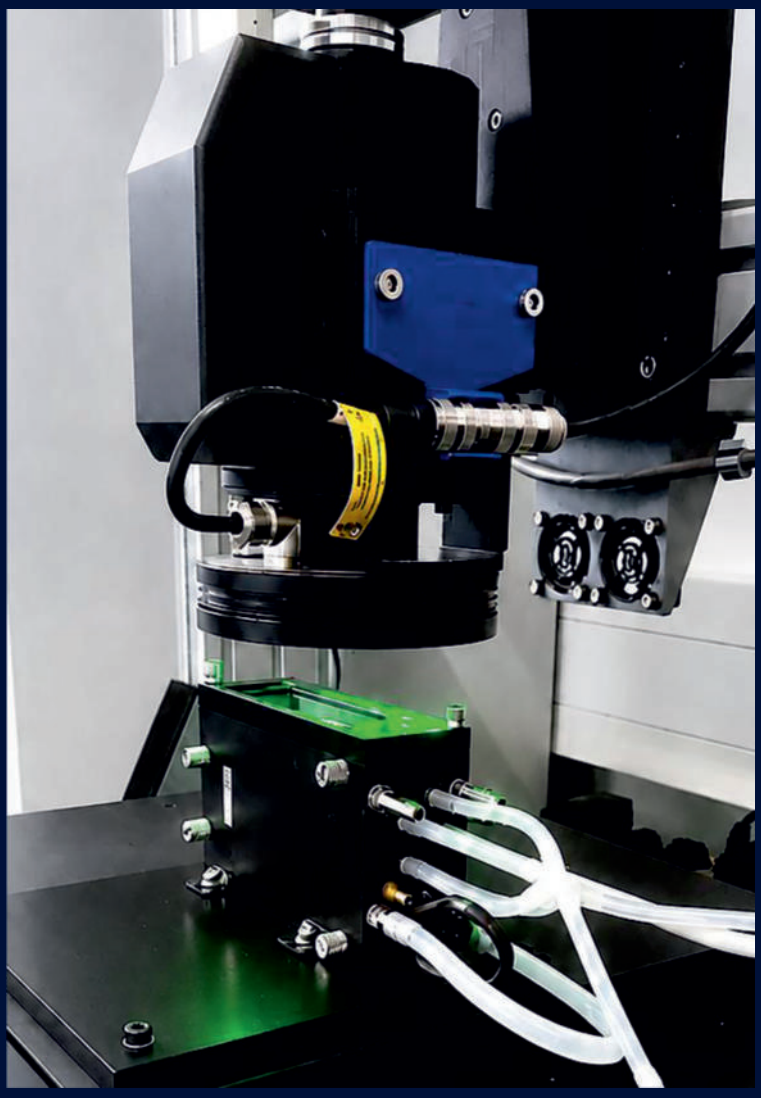
microDAC® TL
Datasheet

microDAC® TL is a camera-based measurement system with an integrated thermal chamber for the precise analysis of thermomechanical deformations in microelectronic systems. Thanks to optimized in situ image acquisition and individually controllable temperature profiles, the system enables automated measurement sequences with synchronized image capture over a temperature range from -40 °C to 300 °C.



Thermomechanical analysis of complex multi-material systems

Non-contact measurement of system components without surface preparation

Flexible measurement workflows tailored to specific applications

In-plane deformation field analysis:
Top-View and Cross-Section

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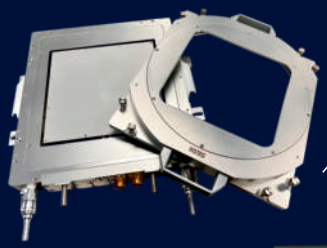
Technical Specification

System		
Type	Stand-alone system for non-contact thermomechanical deformation analysis using DIC	
System scope	Gantry system with thermal chamber, optical precision measurement system including Z-axis motor unit, motorized XY positioning stage, controller, LN_2 cooling system with pump, PC with Software: VEDDAC Control and VEDDAC 7	
Dimensions	From 60 x 60 x 80 to 100 x 100 x 80	cm (L x W x H) cm (L x W x H) depending on requirements
Weight	max. 120	kg
Power Supply	230 50	VAC Hz
Protection class	IP20	
Ventilation medium	Air	
Cooling medium	LN_2 to be provided by the customer	
Software	VEDDAC control and VEDDAC 7	
Measurement		
Measurement principle	Optical deformation analysis for heating and cooling operation: motorized camera system with telecentric optics and ring illumination (wavelength: 520–550 nm) positioned above the thermal chamber	
Specification	In-plane deformation measurement in multiple individually definable ROIs	
Field of view	From 4 x 4 mm² to 30 x 30 mm²	
Measurement procedure	User-guided via VEDDAC Control	
Measurement analysis	User-guided via VEDDAC 7	
Reference standards	VDI/VDE 2626 DIN EN ISO 9513	ASTM E2208 ASTM E83
Measurement signal and method	Grayscale image information; Digital Image Correlation (DIC)	
Detectable displacement **DIC strain resolution**	≥ 100 ≥ 0,005	nm %
Measurement parameters		
Thermal chambers	Top-View and/or Cross-Section configuration	
Temperature range	-40 … 300	°C
Heating rate	1 … 25/50	K/min
Cooling rate	1 … 10/30	K/min
Control accuracy	± 0,01	K
CTE-resolution	± 0,2	ppm
Thermal chambers: specimen support platforms		
Top-View	50 x 50 x 10 mm or 100 x 100 x 10 mm (L x W x H)	
Cross-Section	60 x 5,5 x 50 mm (L x W x H)	

Key Features:

- User-guided thermomechanical testing and analysis in one integrated system
- Flexible, application-specific automated measurement workflows
- Determination of in-plane strains and Coefficients of Thermal Expansion (CTE)

Thermal chamber configurations by Instec Inc.



Top-View

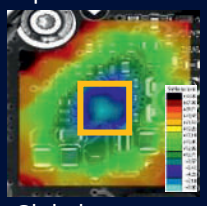
Cross-Section

Examples of suitable specimen types:

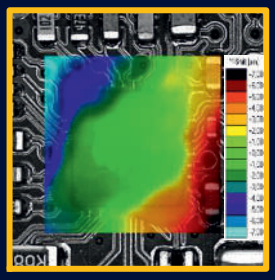
- Electronic systems, PCBs with electronic components
- Metals, Alloys, Polymers
- Composite materials, Substrates
- Pads, Foils and Plates

DIC-Software VEDDAC 7:

Top-View

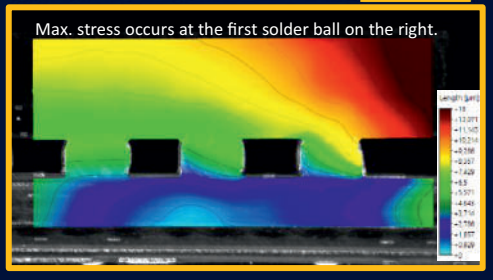


Global



Local

Cross-Section



Version 08/2026: All specifications provided in this datasheet are preliminary and subject to change.