

Benefit from the expert driven developments and the research activities at the sealing department of the Institute of Machine Components of the University of Stuttgart

Surface/Lead Inspector

Precise and ultra-fast surface and lead measurement

Technical Data:

Size:

Width x Depth x Height 600x700x900 mm
Weight 70 kg

Optics:

Sensor type Heliotis H8m
Lenses WLI8x / WLI10x
Lateral resolution 1,5 μm / 1,2 μm

Possible part dimensions:

Max. diameter 200 mm
Max. length 380 mm
Max. weight 20 kg

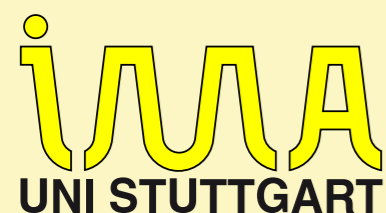
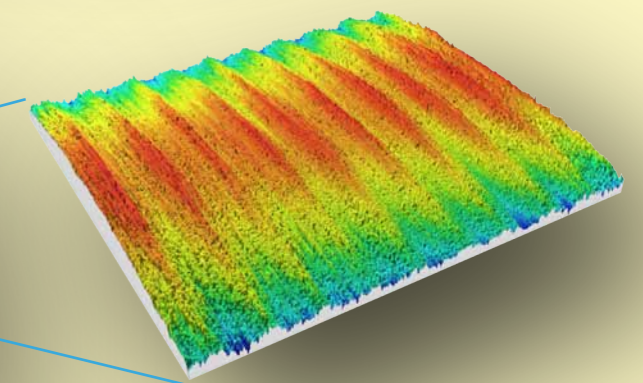
Additional dimensions on request

Available Measurement Methods:

Structure based lead measurement: *IMA-MicroleadAnalysis
3D-MacroleadAnalysis
Combined Micro- and Macrolead*

Macrolead: *Measurement acc. MBN31007-7*

Surface Roughness: *2D/3D Surface Measurement*



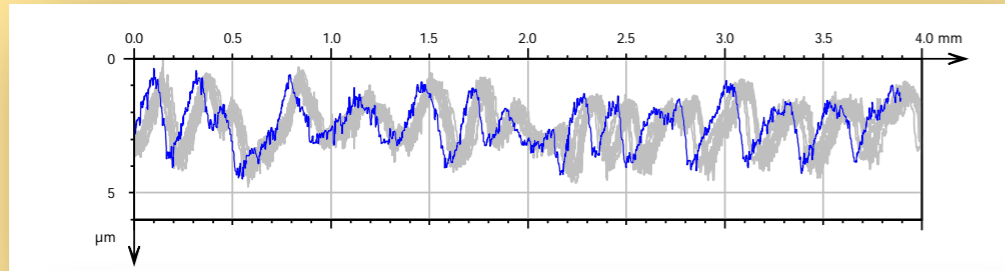
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2D/3D Surface Roughness Measurement

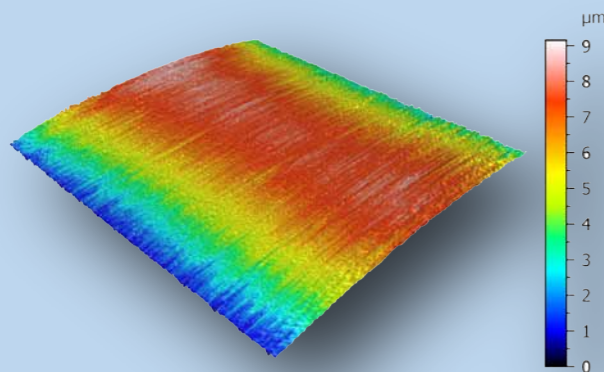
Precise 2D surface roughness analysis accord. to latest national and international standards (1)
(Example: KNT 4058/01 Roughness Standard - evaluation of 12 profiles)



Parameters	Value	Unit	Tolerance
Rz - Amplitude parameters - Roughness profile - ISO 4287 - Mean	3.08	µm	[2.80 µm, 3.61 µm] ✓
Ra - Amplitude parameters - Roughness profile - ISO 4287 - Mean	0.638	µm	[0.579 µm, 0.667 µm] ✓
Rmax - Amplitude parameters - Roughness profile - VDA 2006 - Mean	3.49	µm	[3.13 µm, 3.61 µm] ✓

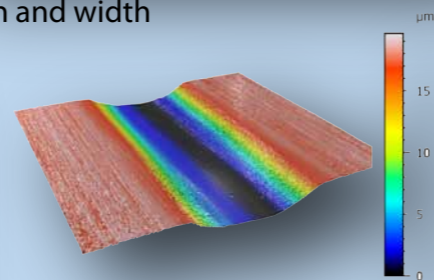
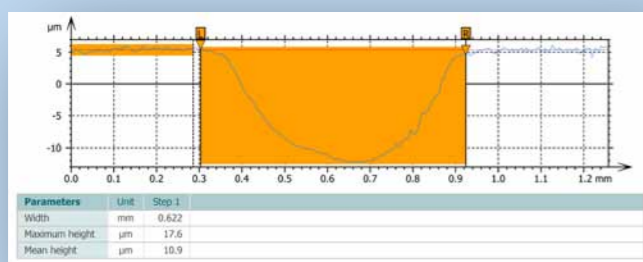
Precise 3D surface measurement and analysis (1)

3D surface roughness measurement accord. DIN EN ISO 25178



ISO 25178-2 - Primary surface			
<i>S-filter (λs): None</i>			
<i>F-operation: [Workflow]Surface, formremoved (LSP2)</i>			
Height parameters			
Sq	0.339	µm	Root-mean-square height
Ssk	-0.396		Skewness
Sku	3.83		Kurtosis
Sp	2.03	µm	Maximum peak height
Sv	1.93	µm	Maximum pit depth
Sz	3.96	µm	Maximum height
Sa	0.263	µm	Arithmetic mean height

3D measurement of shaft wear --> seal runnin track depth and width



Lead Measurement according to FVA 975 I

Published Guideline FVA 975 I from german research association FVA

- Clear, up-to-date overview of current technology and research in one glance
- Precise terminology and consistent wording for maximum clarity and reproducibility.
- A proven, uniform workflow that forms the reliable basis for consistent quality control for shaft lead.
- Illustrations of drawing annotations and measurement protocols for good and defective parts.
- Clear, practical guidance for systematic failure analysis on seal counterfaces.



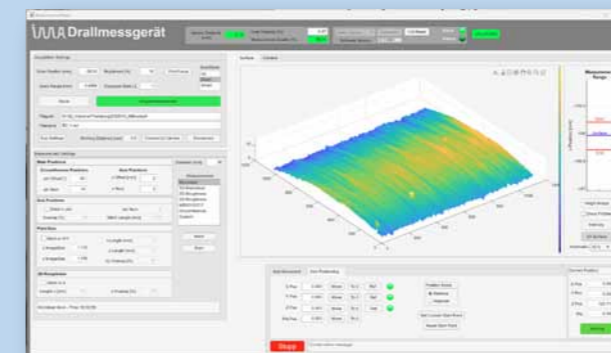
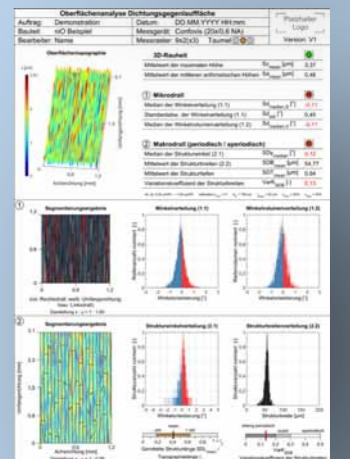
Ultra fast lead measurement of all methods as implemented in FVA 975 I

Lead measurement at cycle time!
Up to 8x faster than comparable measurement devices

IMA-Microlead®Analysis in **02:30 minutes**

3D-Macrolead und combined structurbased leadanalysis accord. to FVA975 I in **03:00 minutes**

Macrolead measurement accord. to MBN31007-7 (1) at shaft diameter 50 mm in **07:30 minutes**



Intuitive and easy to use measurement software

Customer individual developments possible

E.g. automation procedures for industrial applications close to manufacturing

(1) Analysis are performed with additional software Mountains Map (Digital Surf).