"Laser-FALCOMEYE" holographic gauge-camera sees DEFORMATION and visualizes STRESS DISTRIBUTION

by digital-holographic interferometry

If you are interested, we would like to invite you to a personal TEA to our development laboratory!

(because, in our experience, only on an interactive dicourse is possible to confront the new measurement needs and the new opportunities) PRODUCT MANAGER

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REFERENCES Our cooperating partners or customers at the following measurement examples





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Bending deformation measurement steps - to illustrate holographic interferometric deformation measurement

Holographic reconstruction: loaded final state



Bending deformation (of large model object) - to illustrate holographic interferometric deformation measurement



I/B. LOAD-CARRYING CAPACITY (also from deformational STRESS CHANGE)

- 2. Homogeneity against inhomogeneity
 - a. Compressed homogeneous block (I II.)



Strain distribution of a compressed homogeneous aluminum block

- near-ideal deformation homogeneity for Young-modulus measurement

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I/B. LOAD-CARRYING CAPACITY (also from deformational STRESS CHANGE)

- 2. Homogeneity against inhomogeneity
 - a. Compressed homogeneous block (I II.)



Strain and stress distribution of a compressed homogeneous aluminum block - near-ideal deformation homogeneity for Young-modulus measurement

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I/B. LOAD-CARRYING CAPACITY (also from deformational STRESS CHANGE)

- 2. Homogeneity against inhomogeneity
 - a. Compressed homogeneous block (I II.)



Strain distribution of a compressed homogeneous aluminum block - non-ideal deformation homogeneity for Young-modulus measurement



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I/B. LOAD-CARRYING CAPACITY (also from deformational STRESS CHANGE)

- **1.** Search and qualification of critical points
 - a. Compressed drilled block



Strain distribution of a compressed drilled aluminum block

- with critical area around the edge of the drill-hole ⁹



I/B. LOAD-CARRYING CAPACITY (also from deformational STRESS CHANGE)

1. Search and qualification of critical points

a. Compressed drilled block



Strain and stress distribution of a compressed drilled aluminum block - with critical area around the drill hole



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I/A. DEFORMATION / DISTORTION

1. Clamping

a. Lathe chuck (I – II.)









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I/A. DEFORMATION / DISTORTION

1. Clamping

a. Lathe chuck (I – II.)





Deformation of a flat, drilled aluminum disc clamped in a lathe chuck:

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I/A. DEFORMATION / DISTORTION

1. During manufacturing

b. Deposition welding



Deformation of a steel block during deposition welding and etching /measuring the deformation of the <u>backside</u>/¹³



I/A. DEFORMATION / DISTORTION

2. During manufacturing a. Drilling (I – II.)



Deformation of the drill-hole and the surrounding area in wrought steel



I/A. DEFORMATION / DISTORTION

2. During manufacturing

a. Drilling (I – <mark>II/a.</mark>)



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Deformation of the drill-hole and surrounding area near a welding seam /exactly as in a sheet pulled in one direction.../



I/A. DEFORMATION / DISTORTION

1. During manufacturing a. Drilling (I – II/b.)



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Deformation of the drill-hole and surrounding area in the middle of a welding seam /NOT exactly as in a sheet pulled in one direction: inhomogeneity!/ ¹⁶



- u_x is continuous at the strain gages



I/C. LOAD TRANSFER (also from deformational STRESS CHANGE)

2. Fixed contact

b. Bonding (I-II.)

Deformation varies greatly under the strain gage(!)





Strain distribution of a bonded strain gage

- with inhomogeneous surface strain and bending ¹⁸

NON-METALIC EXAMPLES



I/A. DEFORMATION / DISTORTION

3. Tracking in time of the deformation

b. Subsequent swelling of rock core







Swelling deformation components in "FOOT" position 6 hours after lift out - in function of time (over 25 minutes)



I/A. DEFORMATION / DISTORTION

3. Tracking in time of the deformation

a. Shinkage of molded plastic plate





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Following in time the schinkage deformation of molded plastic plate after molding (0 \rightarrow 7 days)



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I/A. DEFORMATION / DISTORTION

3. Tracking in time of the deformation

a. Shinkage of molded plastic plate



Following in time the schinkage deformation of molded plastic plate after molding (0 \rightarrow 3 hours)