



ASAME Technology LLC
strain measurement solutions

ASAME 2D Model

Real Time Strain Measurement

Flexible Data Display

Forming Limit Curve Tools

Advanced Equation Editor

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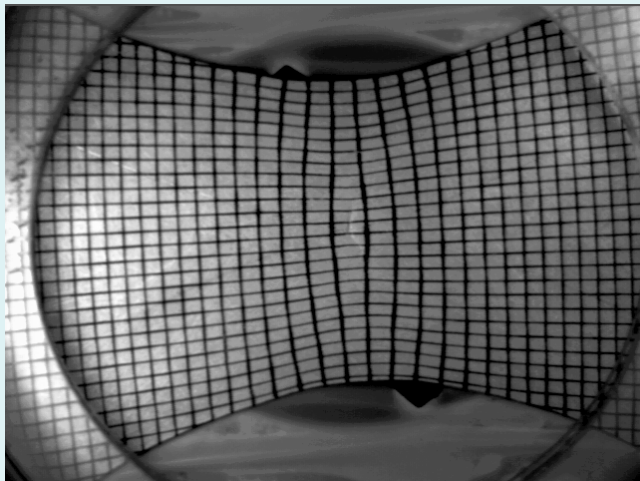
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ASAME 2D MODEL

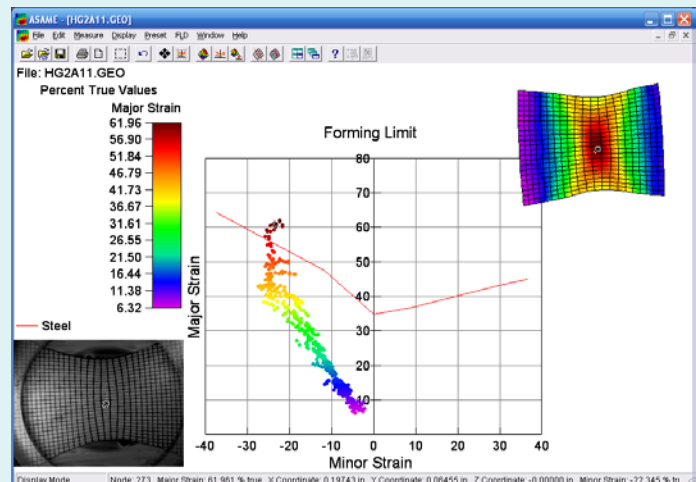
DESCRIPTION: The 2D Model is designed for making surface strain measurements on flat metal and plastic formed parts that have had a grid of squares applied to the undeformed surfaces. The system is used both for tension testing and measuring in-plane strain in other metal forming processes.

PROCEDURE: A pattern of square grids is applied to an undeformed blank. Data are collected by photographing an area on a part undergoing deformation or a previously deformed part. The grid on the part is located in two-dimensions in the photograph, and based on the system calibration, the coordinates of the grid are computed. Strain data are calculated based on the difference between the initial grid size (usually an undeformed grid) and the deformed square grid. The 2D Model also contains an automatic processing feature that can fully process many square grids. The system also features A/D inputs that can track a variety of values, such as press load, and store the values with each measurement. Values from the A/D inputs can also be used to determine when to take photographs and measure strain.

CAPABILITIES: The display features include color strain distribution diagrams, section line plots, and forming limit diagrams. In addition to the powerful display features, an image of the measured region is stored along with all process variables and any additional user input, providing complete documentation of a measured part in one package. The ASAME 2D model is useful for determining the stress-strain curve of a material and the material properties, such as strain hardening exponent, anisotropy index (r-value), earring tendencies, etc.



ASAME 2D Model Photograph:
sheet material gridded and formed



ASAME Data Display: FLD

TYPICAL APPLICATIONS

Measure in-plane surface strain during tensile testing

Produce stress-strain curves where specimens undergo large amounts of deformation

SOFTWARE

Custom measurement, display & analysis software

Measurement sequencing via A/D input

Automatic strain calculation

Part image cataloging

2D color strain contour

Full featured equation editor

PERFORMANCE

Maximum squares or circles per measurement: 600

Manual measurement time: 3-10 minutes

Automatic measurement time: less than 1 minute

Measurement accuracy: $\pm 1.5\%$ strain

(includes an assumption of an estimated $\pm 0.5\%$ error in the undeformed grid, a non-system factor)

SYSTEM COMPONENTS

High-resolution USB camera (1024 x 768)

Maximum image capture rate of 30 Hz

Minimum field of view: 8 cm by 10 cm

Maximum field of view: 30 cm by 40 cm

Lenses: 75 mm C-mount lens with extension tube set

Power Supply: 120V or 220V (must be specified)

USB-based data acquisition board or a PCI-based board (customer selects type)

Professional tripod

*computer/monitor not included with system purchase

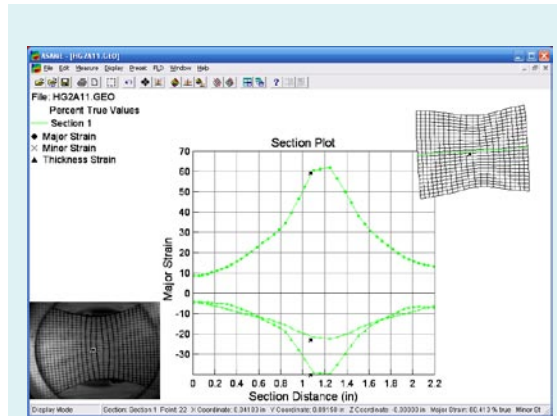
MINIMUM COMPUTER SPECIFICATIONS

Standard Intel Duo or AMD Turion desktop or laptop

2GB SDRAM, 100GB harddrive, DVD drive

Three available USB 2.0 ports

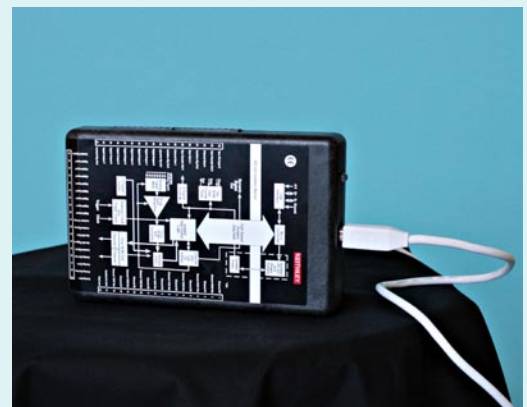
Windows XP (32-bit)



ASAME Data Display: Section Line Plot



ASAME 2D Model camera, lens, and tripod



ASAME 2D Model data acquisition device