



ASAME Technology LLC
strain measurement solutions

Grid Pattern Analyzer

(GPA-100 Model)

Quick Strain Data Collection

Flexible Data Display

Forming Limit Curve Tools

Advanced Equation Editor

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GRID PATTERN ANALYZER (GPA-100 MODEL)

DESCRIPTION: The Grid Pattern Analyzer (GPA-100) is a computerized, video camera-based system that automatically measures surface strains on stamped parts. The GPA measures one grid element, such as circles or squares, at a time and offers a variety of benefits, including the measurement and analysis of strains at critical areas on stamped parts, and the production of forming limit curves.

PROCEDURE: A pattern of circle and/or square grids is applied to an undeformed blank. The sheet metal or plastic part is then stamped. With the knowledge of the original undeformed grid size, the GPA-100 can measure the strain on the part to within $\pm 2.0\%$ strain ($\pm 1.5\%$ under low strain and good grid conditions). Strains are automatically calculated with the press of a button and plotted instantaneously on a forming limit diagram.

CAPABILITIES: The GPA software provides a variety of data analysis tools for quick, accurate strain analysis. The user-friendly system provides a comprehensive graphical display of the major and minor strains with options to view thickness, effective or safety strains. Forming limit curves can be created and edited. Signature plots can also be displayed to help analyze the effects of a particular forming process. The GPA-100 is a completely portable system when used with a laptop computer. An external power supply is not required, as it runs directly from the computer. This truly portable configuration enables easy off-site measurement, measurement of large parts, and the ability to spot check parts from press lines.



Standard stand-off tubes come in three sizes to enable measurement across smaller or larger corner radii.



The GPA is a hand held system that uses a standard USB video camera with a close up lens and a specially designed lens assembly and viewing set.

The GPA is shipped with all necessary software, the camera, lens assembly, and documentation. A desktop or laptop computer and printer may be requested for an additional cost. Recommended computer: Pentium IV running Windows XP, with two available USB ports.

HARDWARE

- Camera: 640x480 USB
- Length: 131.5 mm (5.2")
- Width: 63.5 mm (2.5")
- View size diameter: 7.0 mm (0.3")
- Brass lens assembly

LENS STAND-OFF TUBE SET (TRANSLUCENT MATERIAL)

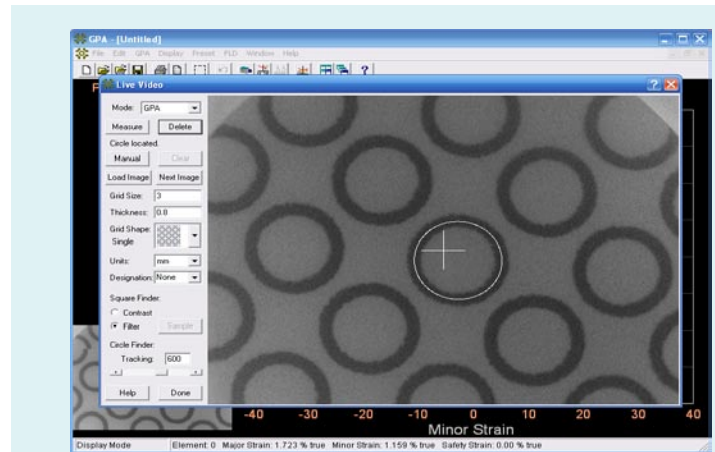
- Interchangeable tubes for the brass lens fitting to enable measurement across small and large corner radii
- Standard tube: 20mm diameter opening
- Narrow tube: 7mm diameter opening
- Wide tube: 30mm diameter opening

SOFTWARE

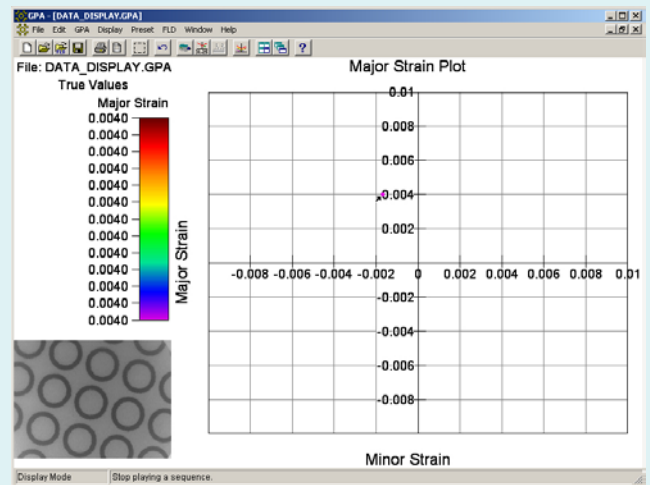
- GPA System Software
- User friendly menu driven system
- Measurement time < 2 seconds
- Measurement error $\pm 2.0\%$ ($\pm 1.5\%$ under low strain and good grid conditions)
- Automatic strain calculation
- Forming Limit Diagram display
- Integrated measurement, display & analysis

REQUIRED EQUIPMENT

- Desktop or laptop computer (Windows XP)
- 2 USB ports



GPA Live Video Dialog



GPA Data Display Window

MEASUREMENT CAPABILITY Isolated circles (A) are the easiest to measure with the GPA-100. The next easiest geometries that can be measured are squares (B), and butted circles (C). Although other variations (D, E, F, G, H) can be used to measure surface strains, they may require user-assisted location of the grid lines or edges.

