

# AutoGrid<sup>®</sup> comsmart

## Quality Assurance by Strain Analysis

Strain measurement has become a valuable tool for monitoring deep drawing operations. Measured strain data are used to characterize the safety margin of the forming process. The comparison of actual strain values with the formability limit (FLC) of the sheet metal material provides essential information needed for assuring a stable and efficient deep drawing production flow. AutoGrid<sup>®</sup> measuring technology has been the proven solution for strain analysis in an industrial environment of a stamping plant. AutoGrid<sup>®</sup> comsmart provides an automated, user-friendly solution for application of high-precision photogrammetry. The autonomous measuring head guarantees convenient operation; it is battery powered and cable-free.



A single button trigger records a set of 4 synchronized cameras with 5 million pixels resolution. The data can be transferred online or stored for later transfer. An integrated display allows the visual image control in measuring mode.

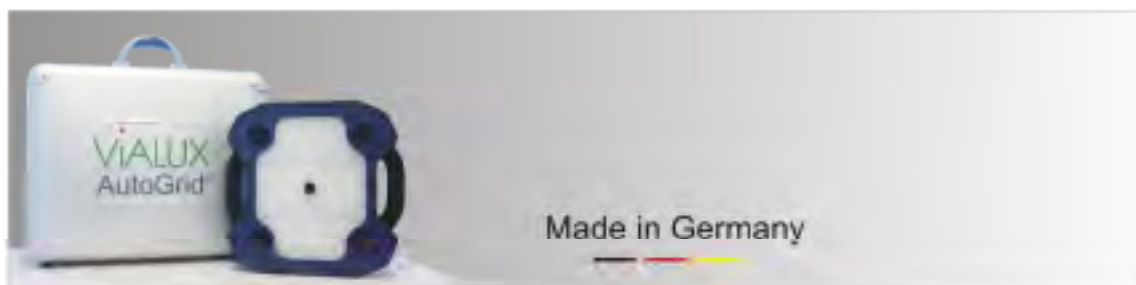
### AutoGrid<sup>®</sup> comsmart features:

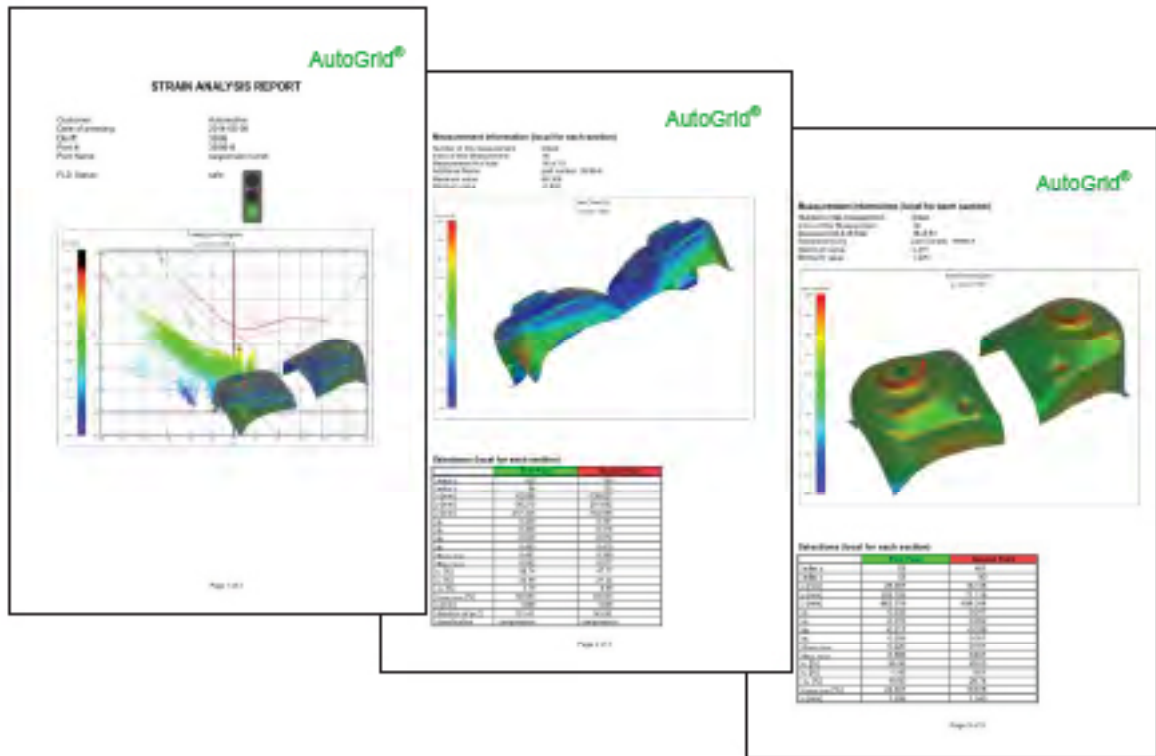
- Light weight and compact carbon housing
- 20 Millions of pixel in one single shot
- PC independent recording of stamped gridded parts
- Large LCD viewfinder with distance control
- Touch screen operator interface
- Integrated LED illumination
- Cable-free operation

### AutoGrid<sup>®</sup> comsmart is the solution for:

- Die launch, die tuning, die buyoff, die maintenance
- Stamping quality control
- Data trending for stamping process monitoring
- Engineering problem solving
- Validation of formability simulations

The AutoGrid<sup>®</sup> software performs automatically and fast image processing and strain calculation. Comprehensive visualization options are available and customized reports can be generated based upon templates. Using custom templates or existing template files for reports documenting the QA system generate automatically. Experimental strain analysis in sheet metal forming requires physical marking of the sheet before the forming process is applied.





## Specifications

Sensor configuration	Compact 4 camera system, 20 million pixels High-resolution camera lenses LED area flash
Framebuffer	Integrated RAM for 285 measurements
Sensor control	Embedded CPU, 5.8" TFT with touch screen
Electronic Viewfinder	Autofocus color camera
Distance control	Eye safe laser class 1
Operation	Handheld, cable-free,
Weight	2.9 kg
Size	315x315x80 [mm]
Operating Requirements	Operating temperature: 10 ... 35° C Storage temperature: -40 ... +70° C Relative humidity: 20%...93% noncondensing
Object size	390x340 mm <sup>2</sup> to m <sup>2</sup>
Calibration	Automatic
Recording time	1/2000 – 1/100 sec, automatic exposure setting
Evaluation time	1 min per 15.000 measuring points
Output	true strain $\phi$ , engineering strain $\epsilon$ , thinning, thickness safety strain, max. failure, v.Mises equivalent strain forming limit diagram (FLD) thinning limit diagram (TLD)
Data export	ASCII text, xls, AutoForm, Pam-Stamp, LS-Dyna, STL, AutoCAD
Reports	Report generator for single measuring projects Summary report generator for multiple measuring projects MS Office 2013 templates