

ARGUS Fact Sheet

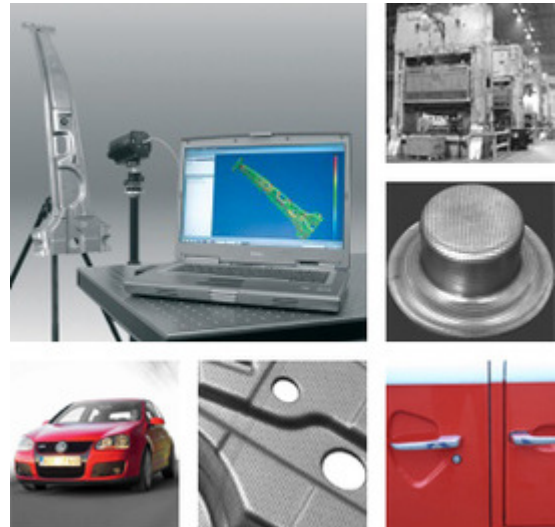
ARGUS - Optical Forming Analysis

The optimization of sheet metal forming processes, considering the right material choice and tool optimization, is a decisive factor for competitiveness, particularly in the automotive industry.

The optical 3D forming analysis system ARGUS supports such optimization processes with precise results of the forming distribution of components.

The results from the ARGUS system provide full-field information about:

- 3D coordinates of the component's surface
- Form change (major and minor strain)
- Thickness reduction
- Forming Limit Diagram (FLD)



All results are presented in a fine resolution mesh created from the determination of the 3D coordinates and reflecting the surface of the measured object. In the Forming Limit Diagram the measurement results are compared to the material characteristics of the blank (Forming Limit Curve) to determine critical forming areas.

The measuring system operates independent of the forming process and provides full-field results with high local resolution, for small as well as for large components. It is used to analyse components made from flat blanks, tubes or other components manufactured by an internal high pressure forming process (IHPF).

The optical forming analysis using ARGUS has become a proven tool for evaluating forming processes. The unique possibility to measure complex sheet metal parts with a high scanning density opens up new aspects for the verification of forming simulations.

ARGUS is the solution for...

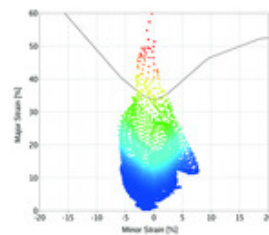
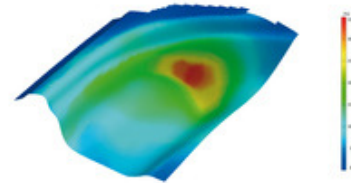
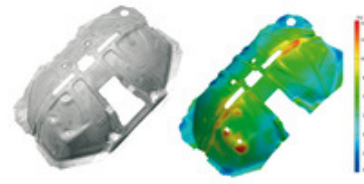
- Detection of critical deformation areas
- Solving complex forming problems
- Optimization of forming processes
- Verification of tools
- Verification and optimization of numerical simulations

Verification of FE simulations

As part of complex process chains, optical measuring systems have become important tools in industrial sheet metal forming processes in the last years. Together with the numerical simulation of forming they have significant potential for quality improvement and optimization of development time for products and production.

ARGUS strongly supports the verification of FE-simulations.

The import of FE result datasets allows performing numerical full-field comparisons to FE simulations for sheet metal parts. Thus finite element simulations can be optimized and are getting more reliable.



CAD data integration

ARGUS provides an import interface for CAD data which are used for 3D coordinate transformations and 3D shape deviation calculations. The import interface handles following formats:

- Native: Catia v4/v5, UG, ProE
- General: IGES, STL, VDA, STEP

Complete workflow in one software application

The entire measuring, evaluation and documentation process is carried out within the integrated ARGUS Software. The ARGUS software supports the ARGUS System. The full potential of the available hardware is used to capture and evaluate the measuring area efficiently and with high accuracy.

Technical Data

The ARGUS systems are available in different configurations in order to provide an optimum solution for each measuring task in forming analysis.



System Configurations	ARGUS 2M	ARGUS 5M	ARGUS 12M
Camera Resolution (px)	1600 x 1200	2440 x 2050	4280 x 2840
Measuring Area	100 mm ² up to m ² Freely adjustable	100 mm ² up to m ² Freely adjustable	100 mm ² up to m ² Freely adjustable
Measured Points	typ. 10 000 to 1000 000	typ. 10 000 to 1000 000	typ. 10 000 to 1000 000
Strain Range (%)	0.5 up to >300	0.5 up to >300	0.5 up to >300
Strain Accuracy (%)	up to 0.1	up to 0.1	up to 0.1
Calibration	Self-calibrating	Self-calibrating	Self-calibrating
Wireless Image Capture	-	-	•
Sensor Dimensions (mm ³)	90 x 70 x 120	43 x 45 x 106	300 x 170 x 115
Weight (kg)	0.7	0.25	2
High-End PC	•	•	•
Laptop	•	•	•