

ARAMIS Fact Sheet

ARAMIS - Optical 3D Deformation Analysis

ARAMIS helps to better understand material and component behaviour and is ideally suited to monitor experiments with high temporal and local resolution.

ARAMIS is a non-contact and material independent measuring system providing, for static or dynamically loaded test objects, accurate:

- 3D surface coordinates
- 3D displacements and velocities
- Surface strain values (major and minor strain, thickness reduction)
- Strain rates



ARAMIS is the ideal solution for...

- Determination of material properties (R- and N-values, FLC, Young's Modulus, etc...)
- Component analysis (crash tests, vibration analysis, durability studies, etc...)
- Verification of Finite Element Analysis

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ARAMIS is the unique solution delivering complete 3D surface, displacement and strain results where a large number of traditional measuring devices are required (strain gauges, LVDTs extensometers ...).

The same system setup is used for multiple applications and can be easily integrated in existing testing environments.

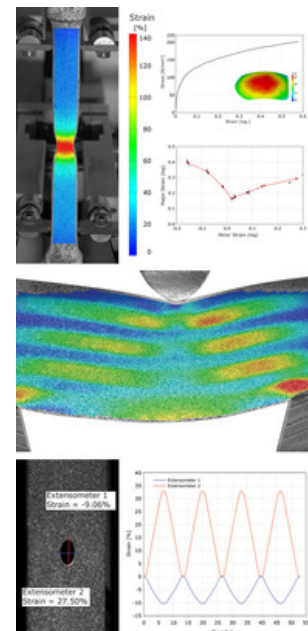
CAD data integration

ARAMIS 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

Real-time data processing



The ARAMIS software provides real-time results for multiple measurement positions from the test objects surface.

These are directly transferred to testing devices, data acquisition units or processing software (e.g. LabView, DIAdem, MS Excel, etc.) and are used for:

- Controlling of testing devices
- Long-term tests with smallest storage requirements
- Vibration analysis
- 3D Video Extensometer

Verification of FE simulations

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

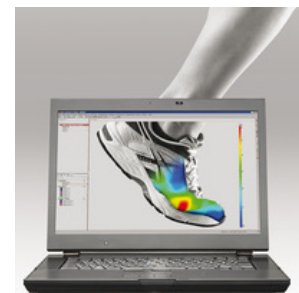
ARAMIS strongly supports the full-field verification of FE-simulations. Determining material parameters with ARAMIS helps to evaluate and improve existing material models. The import of FE result datasets allows performing numerical full-field comparisons to FE simulations for all kind of component tests.

Thus finite element simulations can be optimized and are getting more reliable.

Complete workflow in one software application

The entire measuring, evaluation and documentation process is carried out within the integrated ARAMIS Software.

The full potential of the available hardware is used to capture and evaluate the measuring area efficiently and with high accuracy.



Technical Data



System Configurations	2M	5M
Frame Rate (Hz)	up to 15 (29)	up to 15 (29)
Camera Resolution (pixel)	1624 x 1236	2448 x 2050
Measuring Area	mm ² to > m ²	mm ² to > m ²
Strain Measuring Range (%)	0.01 up to > 100	to 0.01 up to > 100
Strain Measuring Accuracy (%)	up to 0.01	up to 0.01
Ring Buffer	•	•
Image Memory	uses PC RAM	uses PC RAM
Tool Free Mounting	•	•



System Configurations	2M	5M
Integrated Cable Guide	•	•
Positioning Pointers	1 or 3	1 or 3
Illumination	integrated	integrated
High-End PC Notebook	•	•
Control Device	Sensor Controller	Sensor Controller
Operating Temperature	5-40°C	5-40°C
Specimen Temperature	typ. -100°C up to +1500°C	



System Configurations	4M	12M	HS
Frame Rate (Hz)	up to 60 (480)	up to 24 (367)	up to 500 (4000)
Camera Resolution (pixel)	2352 x 1728	4096x3072	1280 x 1024
Measuring Area	mm ² to > m ²	mm ² to > m ²	mm ² to > m ²
Strain Measuring Range (%)	0.01 up to > 100	to 0.01 up to > 100	to 0.01 up to > 100
Strain Measuring Accuracy (%)	up to 0.01	up to 0.01	up to 0.01
Ring Buffer	•	•	•
Image Memory	uses PC RAM	uses PC RAM	uses PC RAM
Tool Free Mounting	•	•	•
Integrated Cable Guide	•	•	•
Positioning Pointers	1 or 3	1 or 3	1 or 3
Illumination	integrated	integrated	external
High-End PC Notebook	•	•	•
Control Device	Sensor Controller	Sensor Controller	Sensor Controller
Operating Temperature	5-40°C	5-40°C	5-40°C
Specimen Temperature	typ. -100°C up to +1500°C		

Additional configurations

On request, there is a special High Speed configuration available, with frame rate up to 5000Hz (1000000Hz) and camera resolution up to 1024 x 1024 pixels.