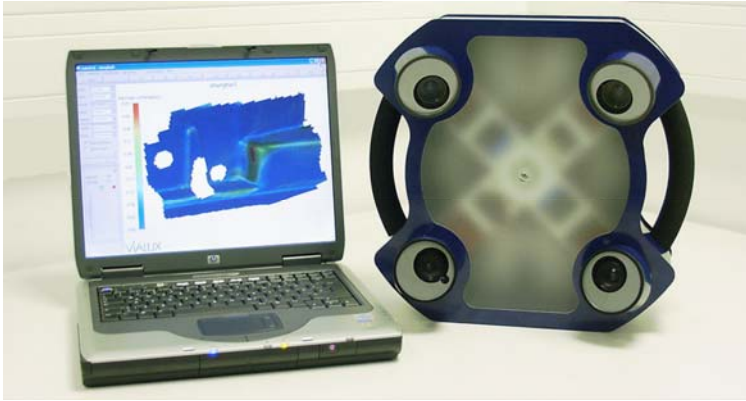


AutoGrid® compact

Dedicated Solution for Shop Floor Measurements



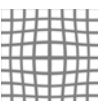
ViALUX presents the AutoGrid® *compact* measuring head targeting the needs in day-to-day shop floor testing. Based upon customer's feedback, the needs of sheet metal industry are comprehensively fulfilled.

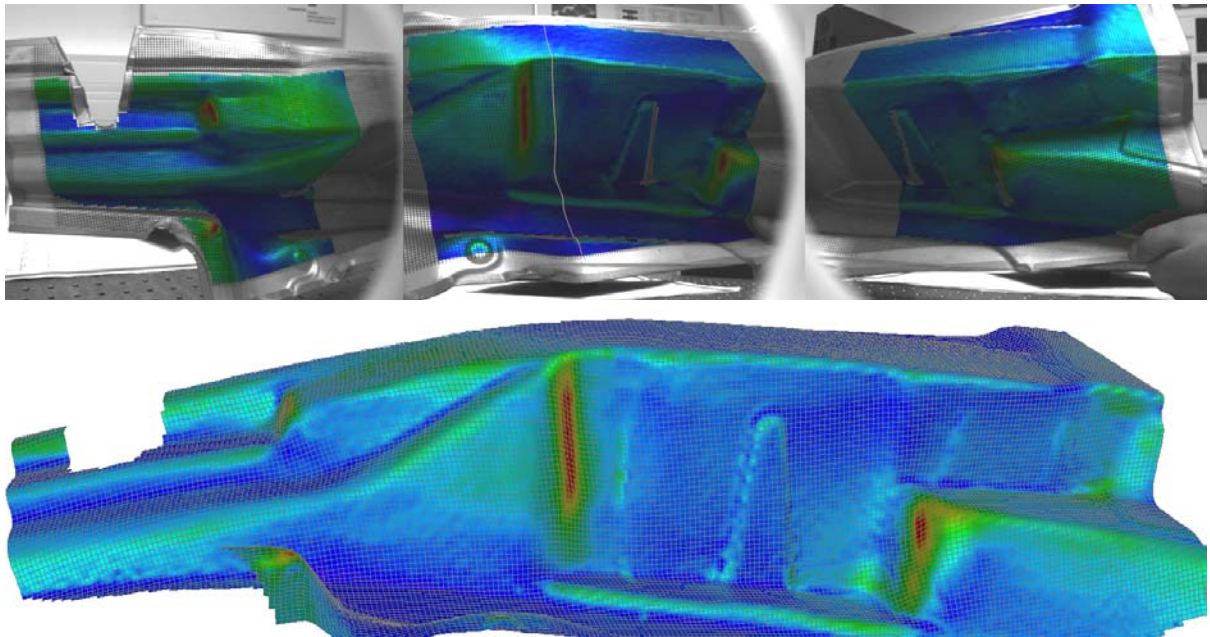
AutoGrid® *compact* serves for the whole process chain from tooling and tryout to production monitoring and quality assurance. The underlying principle is the 3D

measurement of initially squared grid patterns on a sheet after the forming process. The new AutoGrid® *compact* model of the system family has been recently developed in order to meet common user requirements for high mobility and flexibility combined with robustness and ease of use - therefore enabling full-field strain measurements on the factory floor. Employing latest camera technology, the new solution is completely based upon mobile computing, and the use of standard laptop computers provides a maximum of mobility.

Four cameras are rigidly placed inside the measuring head allowing for instant measurements without any setup and calibration stages. The operator makes handheld recordings by pressing the REC button just when pointing onto the object region of interest - and 4 CCD cameras are triggered to take the photogrammetric view. The object working distance is indicated by a laser and the high brightness LED illumination switches automatically during the recording. The convenient AutoGrid® user interface provides software control of exposure time and camera gain settings.

The AutoGrid® *compact* system takes advantage of high-resolution cameras recording 5.7 million pixels in total per snapshot. In connection with high-quality optics the system is able to take an area of up to 0.5* 0.4 m² where up to 12.000 grid points can be rapidly evaluated in one picture set. Single measurements can be easily stitched together yielding the analysis of whole components without size limitations. In addition, the measuring head has been designed to firmly fit into a box meeting the international flight-cabin case dimensions.





Specifications

Measuring head	4 progressive scanning CCD cameras 1392 (H) x 1040 (V) active pixel with f=8 mm Schneider Kreuznach high quality measuring lenses; PC connection and power supply via a single 5 m cable using the firewire interface; size: 370*345*150 mm ³ ; weight: 5kg convenient transport box meeting the international flight-cabin case dimensions																																		
Computer	brand mark first class laptop PC with worldwide service, incl. laptop case (alternatively midi tower PC and TFT monitor on demand)																																		
Environment	temperature: operating 10 ... 35° C, non-operating: -40 ... +70° C humidity: 20%...93% non-condensing																																		
Software	Microsoft Windows XP Professional full compatibility with Microsoft Office applications and other standard software																																		
Measuring volume	about 500*400*200 mm ³ per image set (other volumes on demand)																																		
Field of data	up to 12.000 measured points per single measurement; combined measurements without size limitation																																		
Calibration	fixed optical setup maintaining long term calibration; automated, robust self-calibration procedure (3 min) using certified calibration gauge																																		
Measuring time	3-5 min for a complete analysis of one image set																																		
Results:	3D shape: coordinates x,y,z [mm] at grid line crossing points; engineering strain ϵ [%], true strain ϕ , v.Mises equivalent strain, thinning [%], thickness [mm], safety strain, max. failure																																		
Accuracy (rms)	<table border="1"> <thead> <tr> <th>field of view [mm³]</th> <th>grid [mm]</th> <th>Points per image set</th> <th>Δx [mm]</th> <th>Δy [mm]</th> <th>Δz [mm]</th> <th>$\Delta \epsilon$</th> </tr> </thead> <tbody> <tr> <td>500*400*200</td> <td>2.0</td> <td>> 12.000</td> <td>0.01</td> <td>0.01</td> <td>0.02</td> <td>0.5 %</td> </tr> <tr> <td>500*400*200</td> <td>2.5</td> <td>> 10.000</td> <td>0.01</td> <td>0.01</td> <td>0.02</td> <td>0.3 %</td> </tr> <tr> <td>500*400*200</td> <td>5.0</td> <td>> 6.000</td> <td>0.01</td> <td>0.01</td> <td>0.02</td> <td>0.1 %</td> </tr> </tbody> </table>							field of view [mm ³]	grid [mm]	Points per image set	Δx [mm]	Δy [mm]	Δz [mm]	$\Delta \epsilon$	500*400*200	2.0	> 12.000	0.01	0.01	0.02	0.5 %	500*400*200	2.5	> 10.000	0.01	0.01	0.02	0.3 %	500*400*200	5.0	> 6.000	0.01	0.01	0.02	0.1 %
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Graphs	3D surface display using original object grid for direct result mapping to object color encoded presentation of strain and thickness as texture on the 3D object 2D data profiles along user defined curves forming limit diagram (FLD) with various FLC's and auxiliary lines interactive tool for the creation of FLC's from strain data sets automatic MS-Word FLD reports based on free editable templates																																		
Export	graphs: printer, clipboard, *.bmp, *.tif, *.png, *.jpg, *.vrml, *.ps, *.eps data: ASCII, MS-Excel, AutoForm, Pam-Stamp, *.stl, AutoCAD, LS-Dyna																																		

