

Problem overview

Circle Grid Analysis (CGA) has long been the standard for monitoring die health. A major downfall of this tedious and time consuming method is the resolution of the data which is limited to the areas where measurements were collected. Conversely, the ARGUS formability solution can generate full panel knowledge allowing for crucial tool adjustments. It takes a fraction of the time and minimizes downtime due to failing tool.

Notes

The ARGUS formability solution utilizes an electrochemically etched circle grid and a high-resolution DSLR camera to render a full panel analysis featuring all the relevant metrics including the forming limit diagram. An image series of the part is collected and wirelessly transferred to the revolutionary ARGUS software where a 3D mesh is generated and analyzed with a few clicks of the mouse.

ARGUS was implemented into a stamping plant where it was able to detect splits in the panel that CGA had missed previously. This allowed the tool makers to precisely pinpoint the root cause of the problem and to remedy it with minimal downtime. The health of the die was then monitored with periodic measurements after the die maintenance to ensure the parts tolerances were holding specification.

This periodic data collection allowed for a time lapse study to exactly determine the

Test setup



mean time between failure (MTBF) of the tool. This allowed the maintenance team to be proactive and enact preventative maintenance practices which tripled the MTBF.

Conclusion

Optical metrology solutions such as the ARGUS formability tool, were proven to be effective for tool and die health monitoring that allowed for reduced failure rates.

For more information on this application, please contact Trillion Quality Systems, world leader in custom optical metrology application development.

Keywords: ARGUS, MTBF, Tool and Die, Circle Grid Analysis, High Resolution, Wireless Data Transfer

Figure 1



Figure 2

