



Project „Flexible Assembly Processes for the Car of the Third Millennium (MyCar)“

Methodology Description (High Level)

Intelligent algorithm for rapid setup of new welding parameters



Tolerance Monitoring System

Combined hardware + software system for online and offline inspection of the welding spot quality.

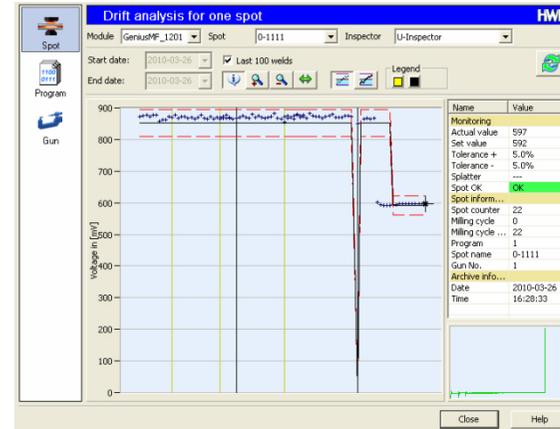
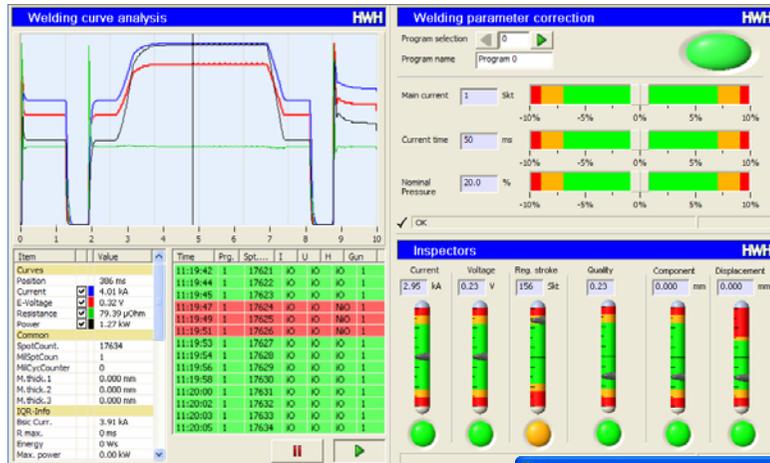
Tolerance Monitoring System benefits

- **Cost savings** due to a **drastic reduction** of manual chisel tests
- **Cost savings** due to **optimization** of maintenance intervals for welding electrodes
- **Optimization** and **easy failure detection** of welding process
- **Continuous documentation** of each welding process

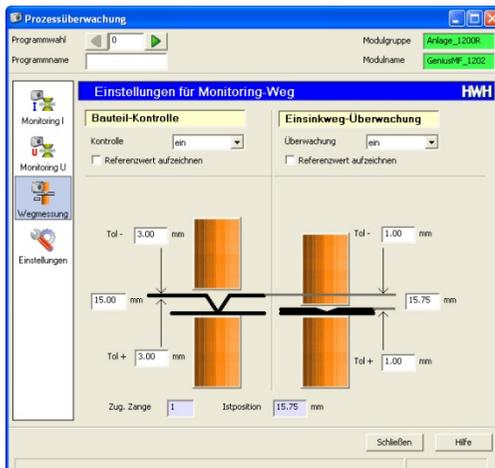
Tolerance Monitoring System advantages

- **Very easy system setup.** TMS and PMS are fully integrated into Harms & Wende Genius welding timer and Harms & Wende XPegasus programming software. No additional devices or software is needed.
- Provides **highly precise quality values** for each welding spot; Includes welding splash detection
- PMS provides **statistical analysis** of the welding process. Process drifts and electrode life cycle can be visualized.
- Allows **individual threshold** settings for alarms
- **Works hand in hand** with other Harms & Wende monitoring systems: Inspectors for monitoring voltage, current, displacement and regulation stroke are available
- Both systems work with constant current control (**KSR**) and Harms & Wende adaptive control (**IQR**)
- Applicable for two and three sheet welds for **all kinds of steel sheets**; Applicability for aluminum sheets under investigation
- **Stores detailed information** of each spot in system database → Provides also offline analysis of the production process.

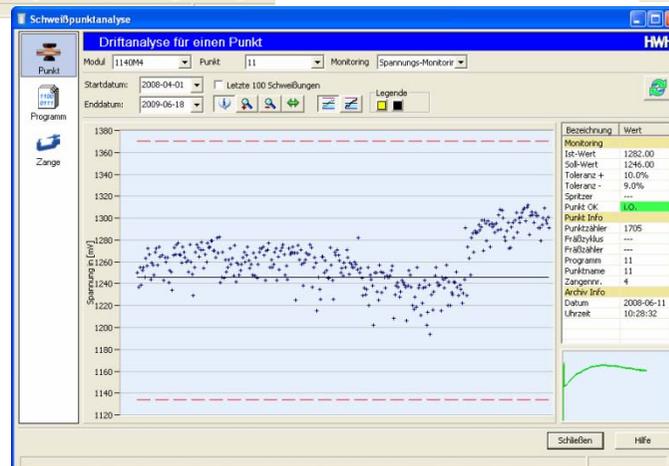
Tolerance Monitoring System User Interface



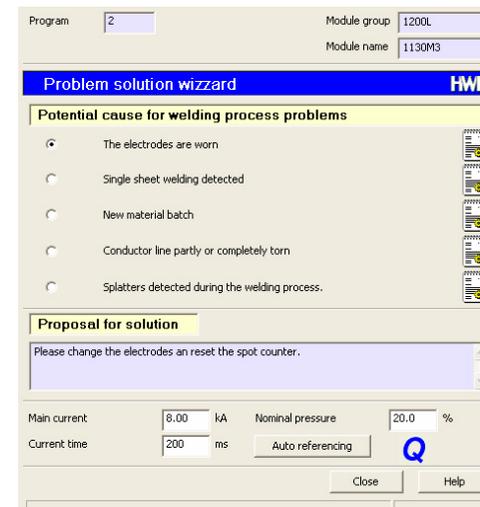
Drift monitoring (1)



Displacement measurement



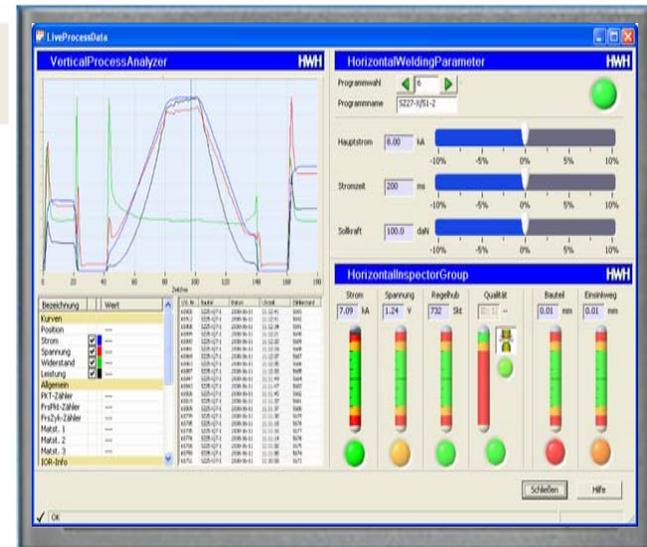
Drift monitoring (2)



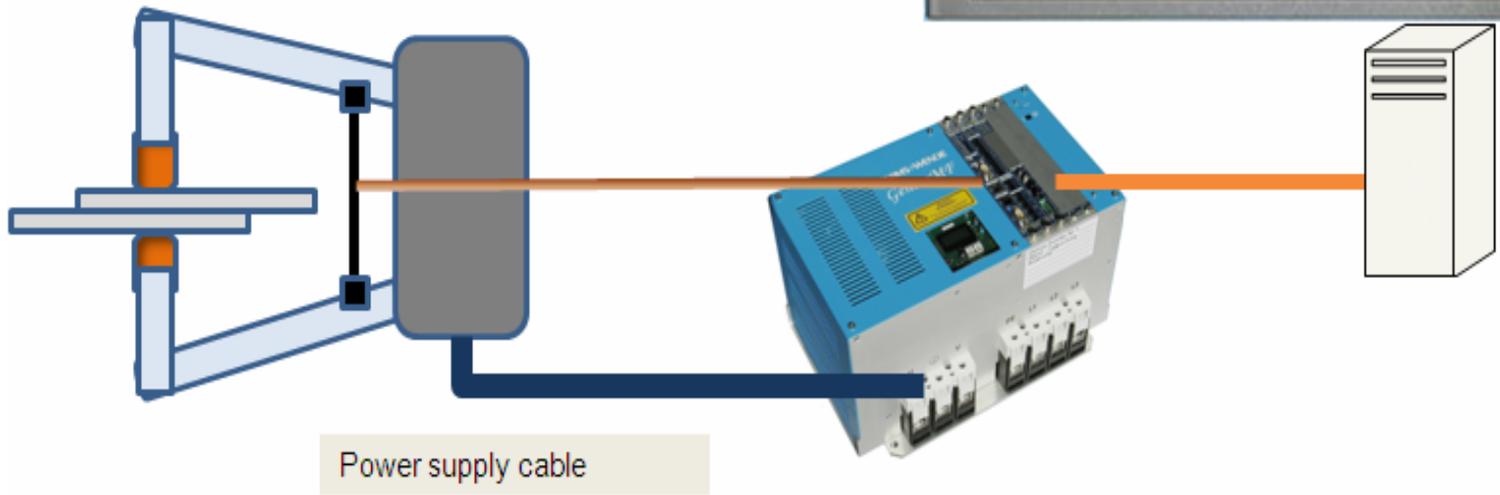
Manual process control

Tolerance Monitoring System integration

Harms & Wende XPegasus programming software



Welding gun with cable for voltage measurement



Power supply cable

Harms & Wende Genius welding timer