

### **1.10.7. MONITORING OF RESISTANCE SPOT WELDING BY AE**

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Resistance spot welding is frequently used welding method in a mass production like: electric industry, production of white goods and production of body assemblies in automotive industry. Selected welding parameters often cause excessive input that assure better reliability of full penetrating welds even in the case of deviations of sheet thickness, surface conditions and deviations of electrode tips due to heat and mechanical damage influences. Excessive energy inputs lead to excessive heating of welded material that can cause unwanted expulsions and electrode tips damages. It shows up that in such cases we get unwanted surface appearance of welded pieces at excessive energy consumption with negative environmental influence and more expensive process. This is why users want different sensors systems to monitor and control the welding process to attain optimal conditions. The research was conducted with welding inverter that is as a rule used in robotized RSW particularly in automotive industry. Research results confirm possibility to evaluate RSW process state based on analyses of continuous AE signals during current flow. Comparison of AE during welding of mild steel and high strength steel that are frequently used for the production of automotive body parts, was conducted. Continuous signals were analyzed in time and frequency domain.