SUCCESS



WAVEFORM CONTROL TECHNOLOGY

Surface Tension Transfer[®] (STT[®])

STT on Sheetmetal

BMW Manufacturing Corp. solves a distortion problem with Lincoln Electric's STT.

- PROBLEM -

On the BMW X5, sealing the joint between the rear post and roof with torch brazing caused unacceptable distortion. MIG brazing occasionally resulted in a burn through that could not be repaired without distortion. MIG brazing occasionally threw bronze spatter onto the roof that was difficult to repair.

- SOLUTION -

Welding with Lincoln Electric's STT and .035^{°°} SuperArc[®] L-56 (AWS ER70S-6) eliminates distortion, burn through and spatter.

- RESULTS -

BMW uses STT welding to seal the X5 post to roof joint, and now STT welds X5 tail light housings and windshield frames.



BMW Manufacturing Corp. – X5 Sports Activity Vehicle

he BMW Manufacturing Corp. plant in Greer, South Carolina produces some of BMW's most popular models including the new Z4 Roadster (which has replaced the Z3 Roadster) and the X5 Sports Activity

Vehicle. When setting up a manufacturing line to produce a new model. BMW manufacturing engineers solve process problems on pre-production cars as they move down the new line. One such process problem involved the sealing of the joint between the rear window post (also known as the "Cpost") and the roof.

BMW torch-brazes certain welded auto body joints to seal against rain and wash water. However, the C-post-toroof joint on the X5 could not be torch brazed because high heat input caused

BMW now STT welds the X5 C-post to the roof with no distortion, no burn through and no spatter.

distortion in the roof. BMW engineers investigated MIG brazing with siliconbronze electrode using inverter power sources with pulse capability. They found the process difficult to control with occasional burn through. A mixture of steel and bronze weld metal surrounded the burn through requiring high heat input to repair resulting in roof distortion.

Lincoln Electric's Technical Representative recommended Lincoln's STT process for MIG brazing with silicon-



bronze electrode. Burn through was eliminated though an occasional bronze spatter ball would require removal by BMW metal finishers down the line.

Lincoln then suggested MIG welding with STT and Lincoln .035" L-56 steel electrode (AWS ER70S-6) that BMW has used in other welding applications since the plant began production in 1994. Significantly, BMW would be welding with STT just 1/4" from the roof. A demonstration proved that this combination would work.

BMW now STT welds the X5 C-post to the roof with no distortion, no burn through and no spatter. BMW has expanded use of Lincoln's STT to weld other X5 joints including taillight housings and windshield frames.

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Featured Lincoln Products

Invertec[®] STT II

The STT II combines high frequency inverter technology with advanced Waveform Control Technology in place of traditional short-arc GMAW welding. The STT II's precise control of the electrode current during the entire welding cycle significantly reduces fumes, spatter and grinding time. In addition, the unit offers independent control of wire feed speed and current.





.035" SuperArc[®] L-56 wire

SuperArc L-56 is a low carbon, high manganese, and very high silicon wire that features our exclusive no-flake copper coating for better arc starting characteristics and longer contact tip life.

WHAT IS NEXTWELD?

The challenges facing industrial fabricators today are increasingly difficult. Rising labor, material, and energy costs, intense domestic and global competition, a

dwindling pool of skilled workers, more stringent and specific quality demands.

Through our commitment to extensive research and investments in product development, Lincoln Electric has established



an industry benchmark for applying technology to improve the quality, lower the cost and enhance the performance of arc welding processes. Advancements in power electronics, digital communications and Waveform Control Technology[™] are the foundation for many of the improvements.

NEXTWELD brings you a series of Process, Technology, Application and Success Story documents like this one. NEXTWELD explains how technologies, products, processes and applications are linked together to answer the important questions that all businesses face:

- How can we work faster, work smarter, work more efficiently?
- How can we get equipment and people to perform in ways they've never had to before?
- How do we stay competitive?
- How do we maintain profitability?

NEXTWELD is the future of welding but its benefits are available to you today. Ask your Lincoln Electric representative how to improve the flexibility, efficiency and quality of your welding operations to reduce your cost of fabrication.

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