

Summaries of the Research Studies Regarding Meta-Lax Technology as used *During Welding to Reduce Distortion* Conducted by Applications Technologies Corporation

Purpose

To investigate using Meta-Lax technology “*during welding*,” known as Meta-Lax Weld Conditioning (MLWC) and Pulse Puddle Arc Welding (PPAW), by an independent research organization, for the purpose of verifying the following:

- If MLWC/PPAW can be shown to reduce distortion compared to normal welding;
- If so, what are the “optimum” parameters needed to achieve maximum distortion control; and
- If by using Meta-Lax technology can the welder increase travel speed.

Three metals were tested : 1020 hot rolled steel; 6061-T6 aluminum; and 304 stainless steel.

Summary of the STEEL Report:

- *“Results indicate that optimal PPAW can reduce distortion as much as 95% compared to welds conducted without the use of PPAW.”*
- *“The optimization study verified that Bonal’s recommended setting provided the least amount of angular distortion.”*
- *“This provides additional verification that the methods prescribed by Bonal are valid and can lead to distortion mitigation.”*
- Welds produced with PPAW at a 25% increased weld travel speed exhibited a 67% reduction in weld distortion compared to welds produced at normal speeds without PPAW.

Summary of the ALUMINUM Report:

- *“Welds produced using the PPAW and preferred parameters provided reduced distortion by approximately 50% compared to welds produced without PPAW.”*
- *“The first trend to note is that all welds produced using the PPAW technology had less distortion than welds produced without the use of PPAW.”*

Summary of the STAINLESS STEEL Report:

- *“Welds produced using PPAW and preferred parameters exhibit reduced distortion by approximately 26% compared to welds produced without PPAW.”*
- Parameters as recommended by Bonal produced optimum results for weld distortion control.
- *“The manual welds conducted with PPAW have less distortion [34%] than the manual welds conducted without PPAW.”*
- Manual welds produced using PPAW at a 25% increased weld travel speed exhibited 27% less distortion than welds produced without PPAW.

Meta-Lax technology is a patented process which uses sub-harmonic vibrations. Meta-Lax processing is a development of and available through Bonal Technologies, Inc.

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