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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