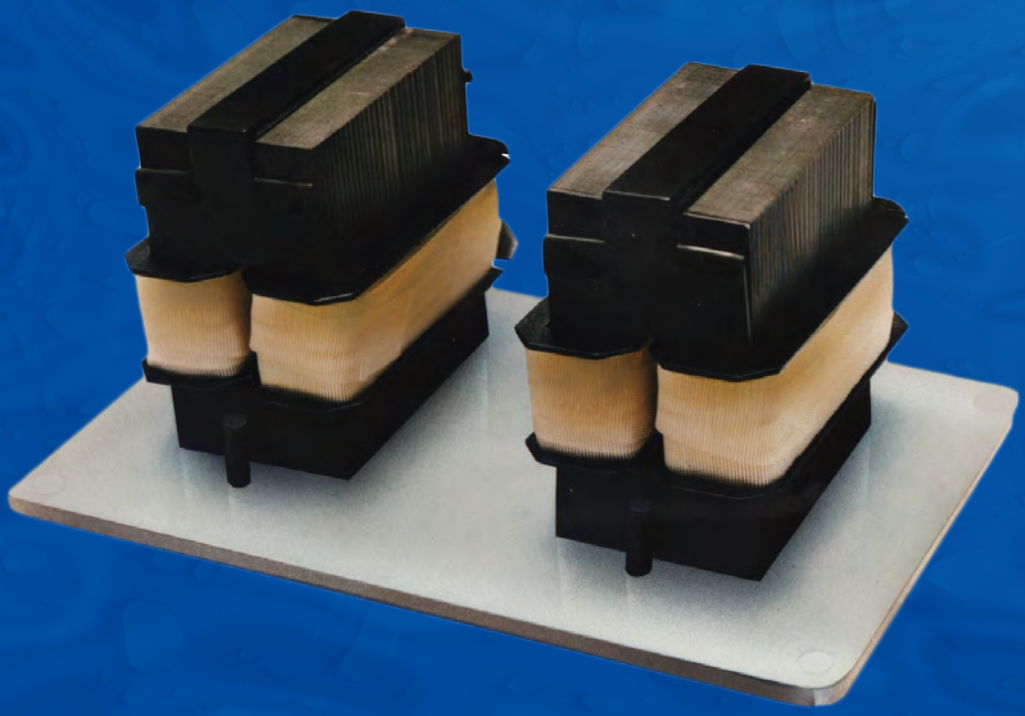
BLUE WAVE ULTRASONICS

THE INDUSTRY'S MOST RELIABLE MAGNETOSTRICTIVE TRANSDUCERS



PROVEN SOLUTIONS. ENGINEERED EXCELLENCE.

BLUE WAVE ULTRASONICS

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209 W 76TH STREET, DAVENPORT, IA 52806
PH: (800)373-0144 | (563)322-0144
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MAGNETOSTRICTIVE TRANSDUCERS

1) Transducer Nickel Laminations

2) Laminations Ready For Oxidation

3) Completed Magnetostrictive Transducer Ready for Brazing to Diaphragm

HOW THE INDUSTRY'S MOST RELIABLE TRANSDUCER IS MADE.

Magnetostrictive Transducers are known for their ruggedness and durability in industrial applications. Zero-space magnetostrictive transducers consist of nickel laminations attached tightly together with an electrical coil placed over the nickel stack. When current flows through the coil it creates a magnetic field. This is analogous to deformation of a piezoelectric crystal when it is subjected to voltage. When an alternating current is sent through the magnetostrictive coil, the stack vibrates at the frequency of the current.

The nickel stack of the magnetostrictive transducer is silver brazed directly to the resonating diaphragm. This has several advantages over an epoxy bond. The silver braze creates a solid metallic joint between the transducer and the diaphragm that will never loosen. The silver braze also efficiently couples the transducer and the diaphragm together, eliminating the damping effect that an epoxy bond creates. The use of nickel in the transducers means there will be no degradation of the transducers over time; nickel maintains its magnetostrictive properties on a constant level throughout the lifetime of the unit.

Magnetostrictive transducers also provide more mass, which is a major factor in the transmission of energy into the solution in the ultrasonic tank. Zero-space magnetostrictive transducers have more mass than piezoelectric transducers, so they drive more power into the tank, and this makes them less load-sensitive than piezoelectric systems.

A radiating diaphragm that uses zero-space magnetostrictive transducers is usually 5 mm (3/16 in.) or greater in thickness, eliminating any chance for cavitation erosion wear through. Heavy nickel stacks can drive a plate of this thickness and still get excellent pressure wave transmission into the aqueous solution.

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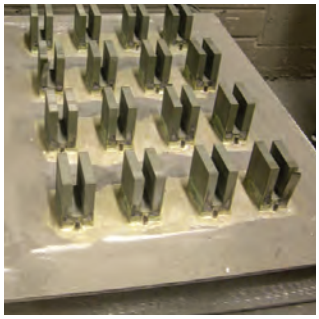
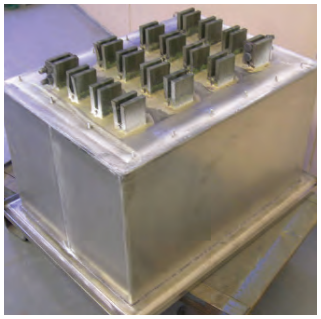
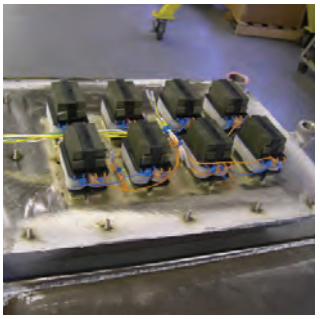
4) Diaphragm Assembly After Silver Brazing Transducers To Radiating Plate



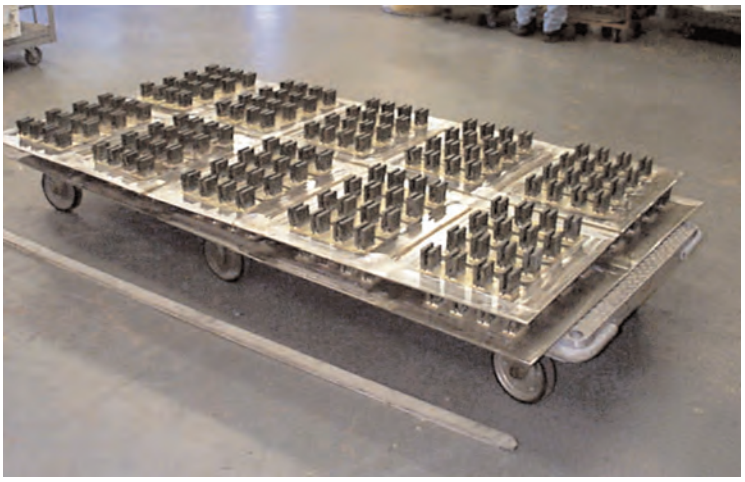
5) After Removal of Oxidation from plate



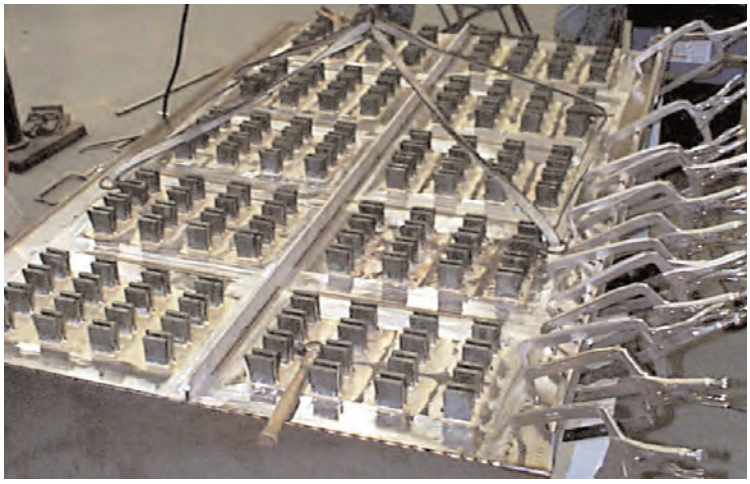
6) Completed Diaphragm Assembly Welded in as Tank Bottom (Model DI-1825)



7) Completed with Coil Assemblies



7) Diaphragm Assembly Ready for Welding into Tank Wall



8) Diaphragm Assembly Tack Welded to Tank

9) Completed Tank & Diaphragm Assembly

10) Completed Transducer Assembly with Coils

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