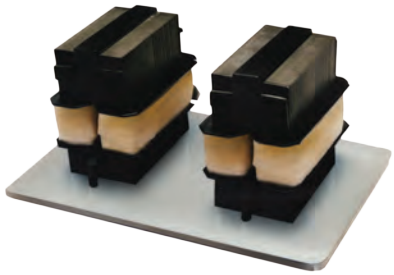
MAGNETOSTRICTIVE VS. PIEZOELECTRIC

OUR TRANSDUCER SEPARATES US FROM THE COMPETITION

MAGNETOSTRICTIVE - BLUE WAVE



- Performance properties NEVER degrade
- Silver-brazed transducers NEVER disbond
- Metal to metal bond; MORE EFFICIENT energy conversion
- Heavy duty (316L) diaphragms NEVER wear through (From Cavitation Erosion)
- Heavier mass; NOT susceptible to variable loads
- The ONLY Lifetime Guarantee in the industry!

PIEZOELECTRIC - THE COMPETITION

- Performance properties DO degrade
- Epoxied transducers DO disbond
- Epoxy bond DAMPENS energy conversion
- Light weight diaphragms DO wear through (From Cavitation Erosion)
- Lighter mass; Susceptible to load variations
- Not Even Close!

GUARANTEED FOR LIFE... NOT ONE HAS EVER FAILED!

SO WHY DOESN'T EVERYONE USE MAGNETOSTRICTIVE TRANSDUCERS? GREAT QUESTION!

Due to the higher cost of magnetostrictive technology and the high engineering skills required for its optimal application, most ultrasonic cleaning manufacturers employ the lower quality man-made piezoelectric transducers.

The ideal transducer efficiently converts electrical energy into mechanical vibrations without deterioration over time. Blue Wave's zero-spaced nickel magnetostrictive transducer is the only one which meets this requirement.

Blue Wave's transducer is further enhanced by permanent attachment to a thick stainless steel diaphragm. Bonding is achieved through a proprietary silver brazing process which forms a solid, permanent union. Because there is an all-metal joint between the transducer plate and the diaphragm, ultrasound transmission is unaltered. Furthermore, the silver brazed bond and nickel materials do not deteriorate with age - like that of the epoxy bonded, ceramic materials.

Another advantage of the thicker stainless steel diaphragm is that it will never wear through due to cavitation erosion like the thinner diaphragms used in piezoelectric models. This is important because the powerful "scrubbing" action of ultrasonic cavitation not only "scrubs" the item to be cleaned, but will cause cavitation erosion within the cleaning chamber, eventually wearing through thin tank walls and ultrasonic diaphragms.

One of the other factors that can affect energy transfer efficiency is the combined mass of the transducer and diaphragm. Unlike Blue Wave's heavy mass nickel transducers, ultrasonic cleaners with low mass ceramic transducers and thin diaphragms are very susceptible to load variations affecting their cleaning performance and efficiency.

Blue Wave magnetostrictive transducers package the best of all the above designs. They consist of individual stacks of nickel laminations, the ends of which are zero-spaced and silver-brazed to a stainless steel diaphragm. Enveloping each nickel stack are insulated coils of wire, each of which is powered at 30 kHz by a Blue Wave solid-state electric generator. This in turn vibrates the nickel stacks and diaphragm to 30kHz. This rugged design has never failed in service.

BLUE WAVE ULTRASONICS

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