SonicSniffer+

Non-contact ultrasonic frequency meter

For routine inspection of power ultrasonic equipment.

Don't fly blind! The SonicSniffer+ will allow you to establish an operating frequency baseline for ultrasonic welding equipment and detect frequency shifts, which indicate the need for preventive maintenance. Routine readings alert that something is not right possibly avoiding equipment failure and saving expenses with new converters, boosters and horns.

How it works

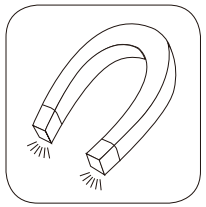
The SonicSniffer+ measures the frequency based on the ultrasound emitted by the horn. Simply place it close to the horn on the production floor and read the result on the display screen (the equipment may be under a continuous or intermittent operating mode).

Technical specifications:

Frequency range:	From 1 to 80 kHz with 10 Hz resolution
Uncertainty:	± 8 Hz for signals with duration ≥ 0.35 ms
Noise immunity:	≥ 105 dB in the range from 0 to 5 kHz
Measurement distance:	From 1 in (2.5 cm) to 4 ft. (1.2 m)
Memory:	01 (the last effective result)
Size - weight:	3/8 x 3/16 x 1/16 in - 1.6 oz. (50 g)

Non-contact

Light and handheld



Magnetic fixing

The SonicSniffer+ provides:

- **High technology with excellent benefit-cost ratio.**
- **Reduction of maintenance costs.**
- **Reduction of equipment downtime.**

WORLD-WIDE 2 YEAR WARRANTY

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Guide to predictive and preventive maintenance of acoustic stacks

Source of inconvenience and loss, faults in ultrasonic welding equipment can be reduced by predictive and preventive maintenance of the ultrasonic stack (see the step-by-step procedure below). In general, faults are related to interfaces wear, bolt tightening loss, cracks and/or parts wear. These problems leads to a gradual shift on the acoustic stack operating frequency, which can be early detected by SonicSniffer+.

In the most complex cases or when the objective is to manufacture converters, boosters and/or horns, using the TRZ Transducer and Horn Analyzer is highly recommended. For more information about the TRZ and related equipment, please visit the ATCP Physical Engineering website: www.atcp-ndt.com.

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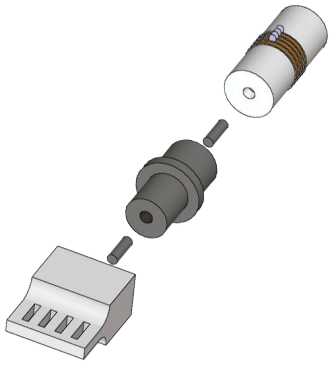
1 Frequency inspection

Bring **SonicSniffer+** close to the horn operating under no-load condition to measure the frequency. For high-quality welding equipment, deviations higher than ± 50 Hz or ± 0.25 % with respect to operation baseline indicate the need for preventive maintenance. For equipment in general, the assessment can be based on prior knowledge of the operating parameters of each device whose characteristics should be monitored and recorded during its use.

The most important symptom of problems related to the acoustic stack is the shift of its operationg frequency. This shift may come from poor coupling between the parts, loss or lack of tightening, wear, and/or the presence of cracks. Predictive and preventive maintenance can solve part of these problems without specialized technical assistance, preventing severe faults and reducing corrective maintenance and new purchasing expenses.

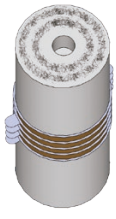
2 Interfaces inspection

Once detected a significant frequency shift, disassemble the acoustic stack for the interfaces inspection. Use proper tools and be careful about deforming or scratching the parts during the disassembly process.



The contact surfaces between the converter and the booster and between the booster and the horn must be flat, parallel and scratch free. The presence of regions without effective contact leads to higher losses, heating and efficiency decrease.

Poor contact between the surfaces is also evident when dark wear rings occurs around the clamping bolt. These wear rings should be removed by polishing (step 3).

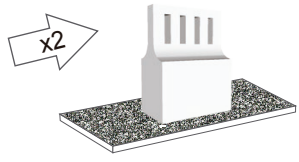


If the interface of any part is too irregular and/or presents severe flatness loss, the problem should be corrected by machining and retuning it employing the TRZ Transducers and Horn Analyzer.

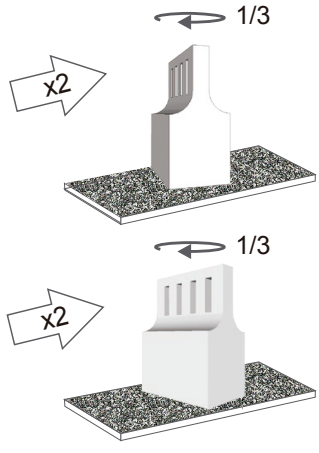
3 Reconditioning

To recover the interfaces, use a sandpaper n° 600 pasted onto a clean and flat surface (a mirror is a good base).

Carefully pass the component in one direction on the sandpaper twice. Take great care to prevent the piece tilt during this operation, the loss of flatness will compromise it. Do not apply pressure; the pressure exerted by the very weight of the piece is enough.



Perform a second and a third cycle, by rotating the work piece 120° about its axis after each cycle, always two times per cycle.



Repeat this process until the contact surface is fully recovered. Note: The material removal can increase the part frequency by a few Hertz.

4 Reassembly

First, clean the parts by eliminating any dust, oil and grease off the surfaces, on the threads as well as on the holes where the bolts will be inserted.

Apply a thin film of high temperature grease at the interfaces to maximize coupling and avoid them to freeze, but never apply any lubricant to the threads of the bolts or holes. Lubricants on these regions will make parts to become loose during the operation leading to decoupling, frequency decreasing and overheating.

Then put back the horn and the booster bolts (replace if worn or damaged). To tighten, use a torque wrench set to the specifications of the acoustic stack manufacturer. In the case of missing this specification, consider the suggestions of the table below:

Bolt	kgf-m
M8	**0,8**
⅜" - 24	**1,1**
½" - 20	**1,8**

Finally, put the acoustic stack parts together (converter + booster + horn) using proper tools. To tighten, use a torque wrench set to the specifications of the table below:

Frequency	kgf-m
40 kHz	**1,5**
20 kHz	**2,3**

Reinstall the acoustic stack in the welding machine and test it for frequency with the SonicSniffer+. The frequency shift must be reduced, otherwise there may be a more serious problem caused by cracks or wear.

For additional technical and scientific information, please, check the ATCP Physical Engineering website.

For more Information, please visit our website: **www.atcp-ndt.com**