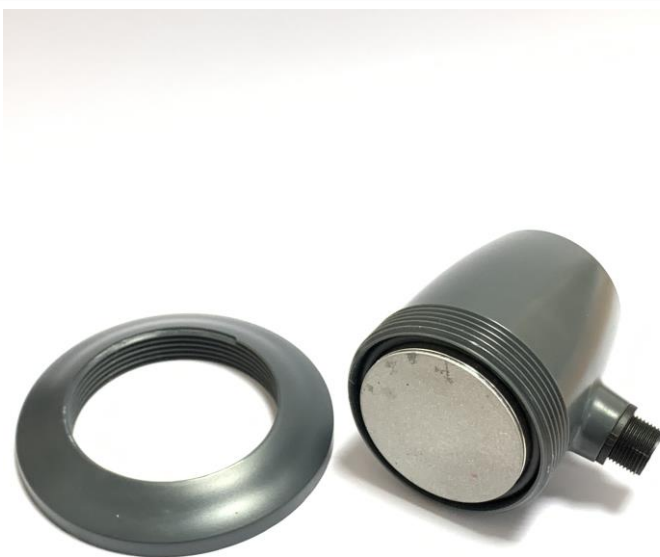


**SonicPRO** Ultrasonic Protection System

## INSTALLATION MANUAL



Transducer and plastic mounting ring installation onto flat surfaces of GRP, Carbon Fibre, Steel and Aluminium.



# CONTENTS

Important information ..... page 1

Transducer positioning ..... page 2

Guidance notes before installation of mounting ring ..... page 2

Transducer and mounting ring installation ..... page 3

Cabling ..... page 5

Final checks ..... page 5

Maintenance and Routine Checks..... page 5

# IMPORTANT INFORMATION

The ultrasonic transducers are fitted on the inside of the hull or inboard surfaces of the sea chest box or box cooler, therefore it is not necessary to penetrate these structures. The system can be installed with the vessel in or out of the water.

The SonicPRO system has taken several years of careful research and develop to optimise and make it fully effective. **PLEASE READ AND FOLLOW THESE INSTRUCTIONS CAREFULLY.** This system must be installed in accordance with the instructions in this handbook. Failure to do so could result in poor product performance, personal injury or damage.

**WARNING: Risk of injury.** Ensure appropriate tools are used and safety gear worn when undertaking the installation.

**WARNING: Risk of electrical shock.** Ensure the power supply is isolated during the installation. Electrical work for DC and AC voltages should be carried out by a competent and qualified person.

**WARNING: DO NOT** operated the system for more than 5 MINUTES without transducers being installed and in contact with material to dissipate its energy.

**IF IN DOUBT SEEK PROFESSIONAL ADVICE**



## TRANSDUCER POSITIONING

When positioning transducers, consideration should be made for the length of cable supplied that connects the transducers to the control unit.

*Extension cables are available if required in 4, 8 and 10m lengths. Custom lengths by special order.*

### **PLEASE NOTE:**

**The total combined transducer cable length in the system must not exceed 75m.**

## GUIDENCE NOTES BEFORE INSTALLATION OF MOUNTING RING

Correct installation of the mounting ring and transducer is critical to the systems successful operation. The direct and effective contact of the transducer face transmits the signal into the object / structure allowing the sound waves to resonate.

### **Guide notes:**

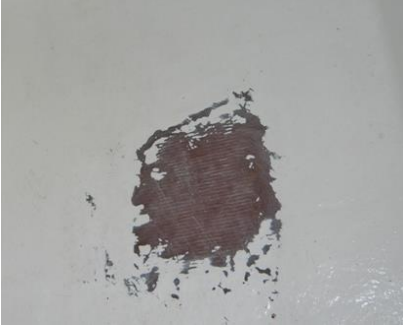
- a) You are looking to achieve 100% flat contact of the transducer face to the material surface. So the better you prepare the surface, the better the effect.
- b) Ensure your chosen position is not difficult to work on. It is critical to make a good job of the, rather than making a poor effort due to working restrictions.
- c) Ensure the surface is prepared flat and smooth before welding the mounting ring.
- d) Ultrasound does not transmit through air, the supplied silicone grease allows any minor air pockets between the transducer face and the contact surface to be expelled.
- e) The transducer face must make a direct scratch contact to the surface. Too much silicone grease will prevent this.
- f) Do not over tighten the transducer, but ensure they are tightly turned in.

**Failure to follow the installation procedures correctly, will reduce the resonance and reduce the effectiveness of the system.**

# TRANSDUCER INSTALLATION

## Preparing the Hull, Sea Chest Box or Box Cooler for transducer mounting ring.

### Stage 1 *image: prepared GRP surface*



### Stage 1 - Preparing the surface.

Carefully prepare the location of the transducer using an 80grit sand paper and sanding block. An electric sander can also be used. If the surface is very uneven, starting with a 40 grit paper will make it easier. Prepare a **flat and smooth** surface. With GRP (fibreglass), sand down to the laminate removing any coating such as gel wash or other bilge paint. For steel and aluminium remove any coating to expose the bare metal.

**The mounting ring should sit absolutely flat on the prepared area.**

### Stage 2 *image: sanding ring flange*



**Clean the whole area with acetone and make sure it is dry and free from grease and dust.**

### Stage 2 - Preparing the mounting ring.

Abrade the underside of the ring flange thoroughly using 80 grit sand paper to achieve a rough surface to aid the adhesion.

*Keep the flange surface free from grease and water.*

### Stage 3 *image: applying the epoxy*



### Stage 3 - Bonding the transducer ring.

Using rubber gloves to protect your hands, mix a good quality epoxy (i.e. Araldite Rapid set) and apply a layer of about 2.0mm thickness to the underside of the ring flange. *Too much may result in excess epoxy entering into the centre contact area and prohibit the transducer face making contact!*

Locate the ring onto the prepared area of the hull and hold it firmly down until it feels secure. To avoid the ring moving from its position, tape down.

Leave for 24 hours to allow the epoxy to set before fitting the transducer.

*image: Mounting ring bonded onto GRP. The inner contact area is free of debris and excess epoxy.*



## Fitting the transducer into the mounting ring.

- Check for any debris or excess epoxy inside the ring area that would prevent the transducer face making direct contact to the hull or structure being protected.
- Apply a small amount of silicone grease (supplied) to the transducer face. Spread over the entire face to form a fine layer of approximately 0.5 to 1.0mm thickness.
- Slowly turn the transducer down into the ring using only fingertip pressure until it stops where the face has come into contact with the surface.
- After 30 minutes or so when any trapped air has escaped through the threads, it may be possible to turn the transducer in a little more to ensure contact has been achieved.
- Connect the transducer cable.
- Cover the surrounding prepared surface with a suitable bilge paint, flow coat or other coating.

*image: silicone grease is applied to the transducer face. This forms a gasket to eliminate any small air pockets.*



*image: transducer installed onto GRP surface.*



## CABLING

### CABLE LAYOUT

Plan the cable layout for the transducer cable. All cables should be adequately secured, protected from physical damage and excessive vibration. Route cables through conduits for additional protection.

**DO NOT CUT AND RE-JOIN TRANSDUCER CABLE.** If it is necessary to run a transducer cable through a bulkhead, a 20mm drill bit or hole saw should be used to accommodate the plug. Always check the other side of the bulkhead before drilling to ensure it is clear and safe avoiding damage to other items. Use a rubber grommet to protect the cable from chaffing around the area of the hole.

**DO NOT COIL SURPLUS TRANSDUCER CABLE.** Coiling up cable can affect the output. Lay excess cable out over its own length and tie together.

## FINAL CHECKS

1. Check the transducer is screwed in tight.
2. Check the transducer cable is secure and any excess cable has not been coiled up.

## MAINTENANCE / ROUTINE CHECKS

The SonicPRO system does not require any maintenance, but it is recommended transducers are inspected from time to time.

- Check the transducer is in good and undamaged condition.
- Check the transducer remains tight in its fitting.

## NOTES

Ultrasonic Antifouling Ltd

Arena Business Centre, Holyrood Close, Poole, Dorset, BH17 7FJ. England

**T:** +44 (0) 1202 606 185    **E:** [info@ultrasonic-antifouling.com](mailto:info@ultrasonic-antifouling.com)

**[www.ultrasonic-antifouling.com](http://www.ultrasonic-antifouling.com)**