

Многоярусные преобразователи для проекторов акустической мощности

Техническое описание

По вопросам продаж и поддержки обращайтесь:

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Ultrasonic Transducers for Sonar

Through our extensive track record supplying the Commercial and Defence Marine industry we have well developed capabilities to supply transducers for typical marine applications. These are generally designed to specific customer specifications and can be supplied in both small and high volumes. Our underwater transducer testing facilities enable us to verify and characterise acoustic performance.



Stacked Transducers for Acoustic Power Projectors

Stacked transducers (also known as Langevin or Tonpilz transducers) are used to achieve the maximum power from a relatively small transducer.

Piezoceramic rings are pre-stressed in a stacked transducer which is designed to project acoustic energy in one direction.

Designs with fundamental frequencies ranging from about 10 KHz to 100 KHz can be designed. For higher frequencies harmonic frequencies can be used.

These transducers can be supplied in an over-moulded or sealed housing for mounting on underwater vessels.

Fish Finder and Depth Sounder Transducers

Wide bandwidth sonar fish finder transducers have a short ring down time. This allows the user to distinguish between objects close together within the transducer's field of view, for example, being able to distinguish fish close to the sea bed. Additionally, it is possible to use more advanced imaging algorithms such as Chirp algorithms (requires driving with a frequency sweep) or Synthetic Aperture Focusing Techniques (SAFT). Using the higher frequency will increase the target resolution further. The low frequency mode is still available for better deep-water performance and the high frequency

mode is available for the higher resolution. The wider bandwidth these two modes offer also offers some increase in options.

Possible transducer designs include through-hull, in-hull, side-scan or transom mount designs. We design these transducers to operate at either single frequencies or we can provide dual frequency / beam designs for operation in a wide range of depths.

Our latest transducers include designs using 1-3 composite to achieve broadband performance.

Pre-Stressed Fibre Wrapped Tubes

The glass fibre wrapping increases their reliability under high-drive conditions. The process increases the maximum tensile stress, which in turn increases maximum drive voltage. The risk of ceramic failure through excess tension – a common problem with standard Piezoceramic tubes – is significantly reduced.

Our fibre-wrapped pre-stressed Piezoceramic tubes offer high coupling and low energy loss, making them ideal for use in high-energy 360° projectors for sub-sea defence and commercial sonar applications.

Monolithic PZT ceramic tubes & multiple tapered PZT ceramic segments

Small tubes (up to 100mm) are usually manufactured using a monolithic PZT ceramic tube. Larger tubes (up to 500mm) are constructed with multiple tapered PZT ceramic segments. Our high coupling and low loss materials are always the basis of a high efficiency tube.

Our designs are tested in our in house underwater testing facility which is used to characterise projector acoustic beam shapes as well as receiver sensitivity.

Hydrophones

Our Piezoceramic tubes, discs or plates are the basis of these designs which are assembled and overmoulded to suit the exact requirements.

1-3 Piezo composite transducers can be designed and manufactured with superior performance than can be achieved with conventional monolith Piezoceramic components.

Key aspects that can be achieved are increased bandwidth for broadband operation, improved directivity and elimination of unwanted modes of vibration.

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