

## 1-3 piezo-composite transducer

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Precision Acoustics Ltd are pleased to be able to offer a range of 1-3 piezo-composite transducers. Conventional bulk piezo-ceramics tend to require physical large transducers once the operating frequency is below 1 MHz. 1-3 piezo-composite transducers overcome some of these limitations and enable devices operating below 1MHz to be a more compact size. All 1-3 piezo-composite transducers from Precision Acoustics Ltd are bespoke to the customer's requirement and are designed using our in-house model. This enables devices to be optimised for a range of different operating parameters including: operating frequency, bandwidth and efficiency.

## BASIC INFORMATION

All our 1-3 piezo-composite transducers are bespoke; they are designed to meet the specific measurements requirements of each individual customer. The table below provides an indication of the range of values within which we can design a transducer. Please contact Precision Acoustics Ltd with your specification.

Sensor material	1-3 Piezo-electric composite
Active element diameter	20 mm to 67 mm
Nominal centre frequency	0.15 MHz to 1.0 MHz
Typical -6 dB bandwidth	25 to 55 % of centre frequency
Case material	316L Stainless steel or polymer
Front face	Rho-C matched or rigid resin wear plate

## TRANSMIT VOLTAGE RESPONSE

Figure 1 shows the Transmit Voltage Response (TVR) of a 44mm diameter 500 kHz centre frequency 1-3 piezo-composite transducer evaluated at 1m. This transducer was optimised to provide a compromise between transmit and receive capability and has moderate damping and a -6 dB TVR bandwidth of approximately 50% of centre frequency.

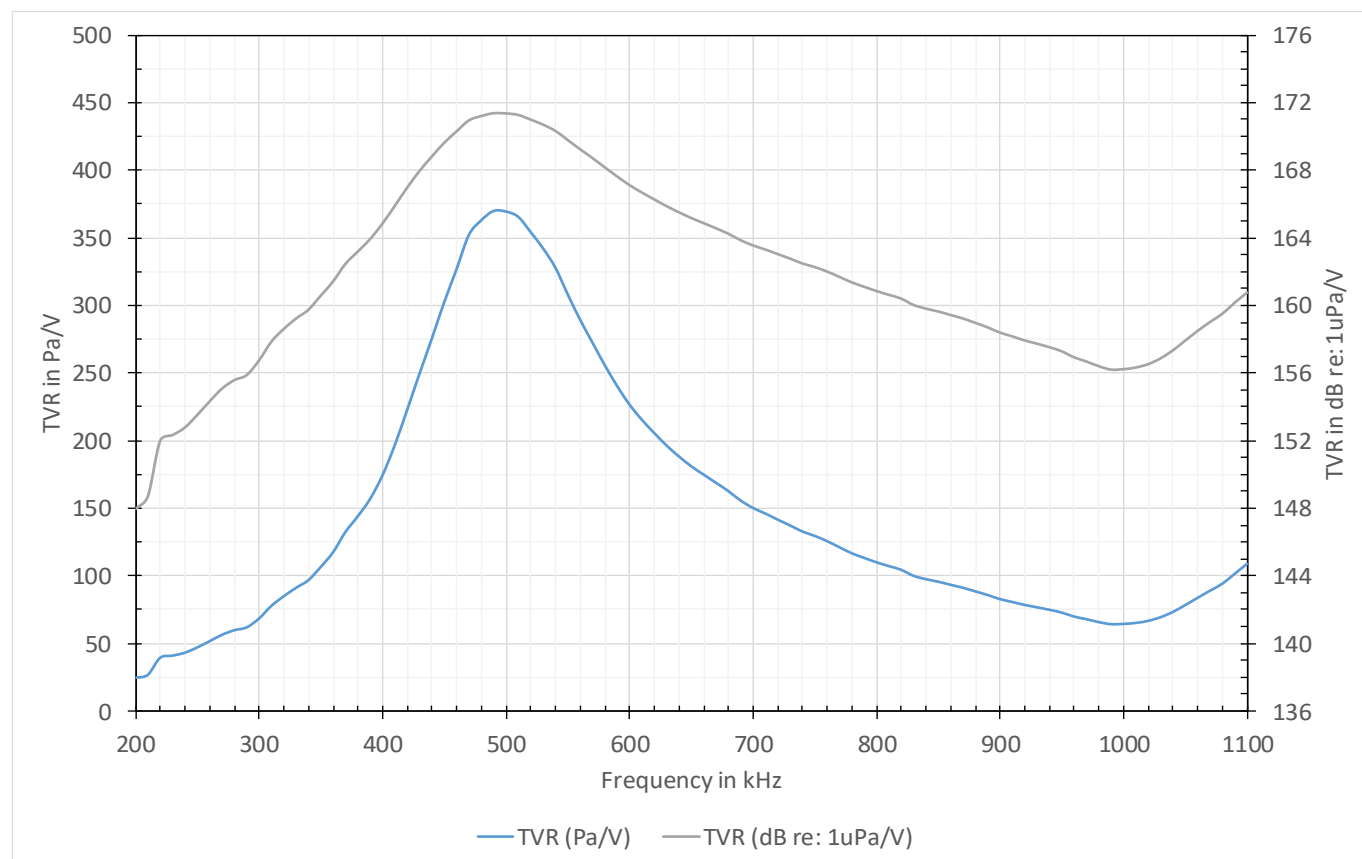


Figure 1 – Transmit voltage response @1m of a 500 kHz centre frequency 1-3 piezo-composite transducer.

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