

1-3 piezo-composite transducer



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	150 kHz to 650 kHz
Typical -6 dB bandwidth	25 to 60 % 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.

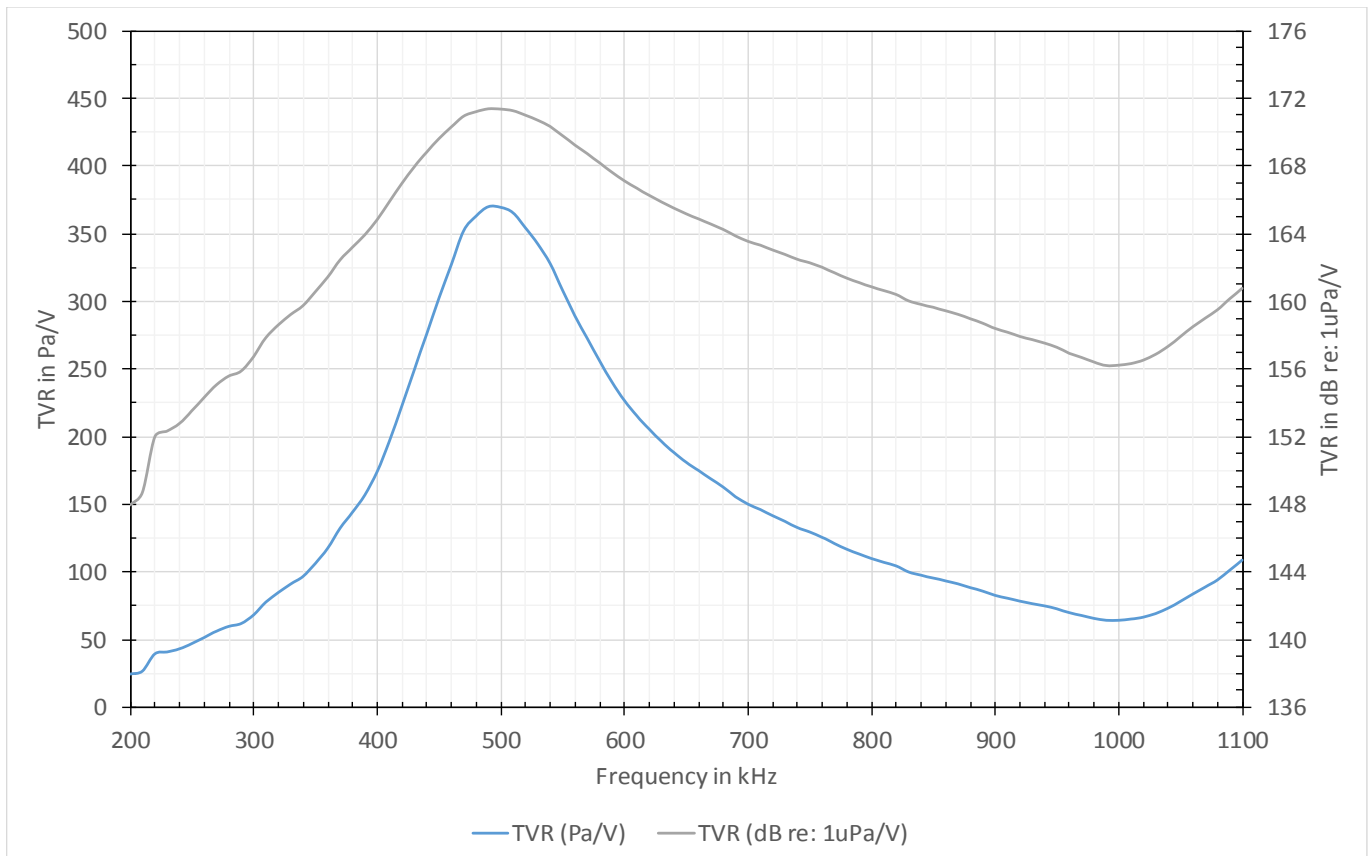


Figure 1 –Transmit voltage response @1m of a 500 kHz centre frequency 1-3 piezo-composite transducer

All information is based on results gained from experience and tests, and is believed to be accurate but is given without acceptance of liability for loss or damage attributable to reliance thereon as conditions of use lie outside the control of Precision Acoustics Ltd or Acoustic Polymers Limited.