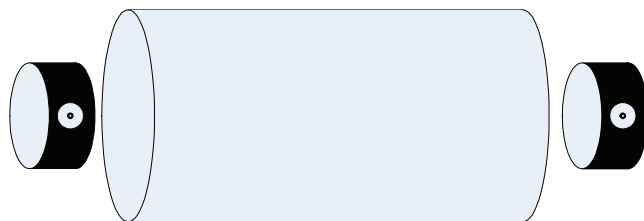


Shear Wave Transducer Application Update

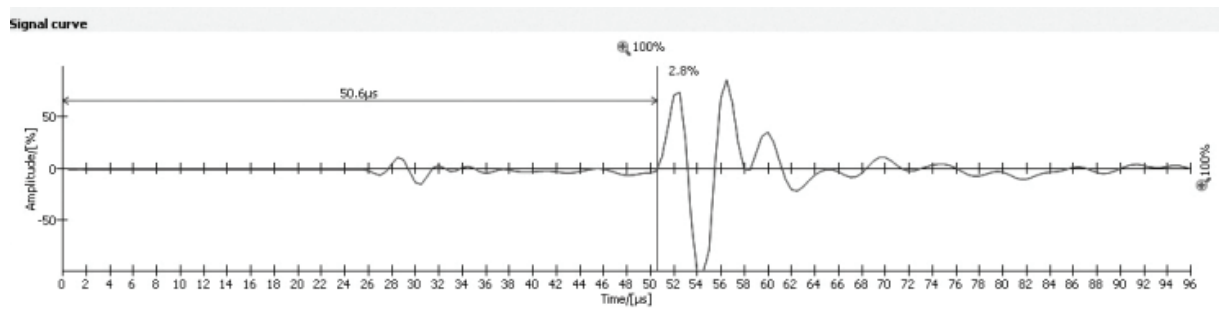
Please note the following issue when using shear wave transducers.

Correct Transducer Alignment

When carrying out a measurement with shear wave transducers it is imperative that the two transducers are correctly aligned. This is because the shear waves are generated in one plane only.



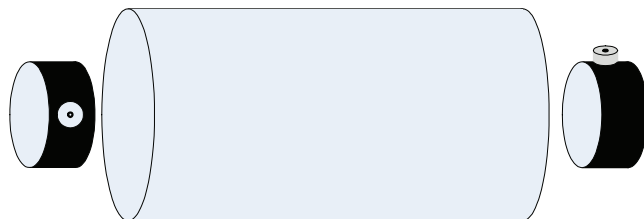
BNC connectors aligned should give a typical signal as shown below



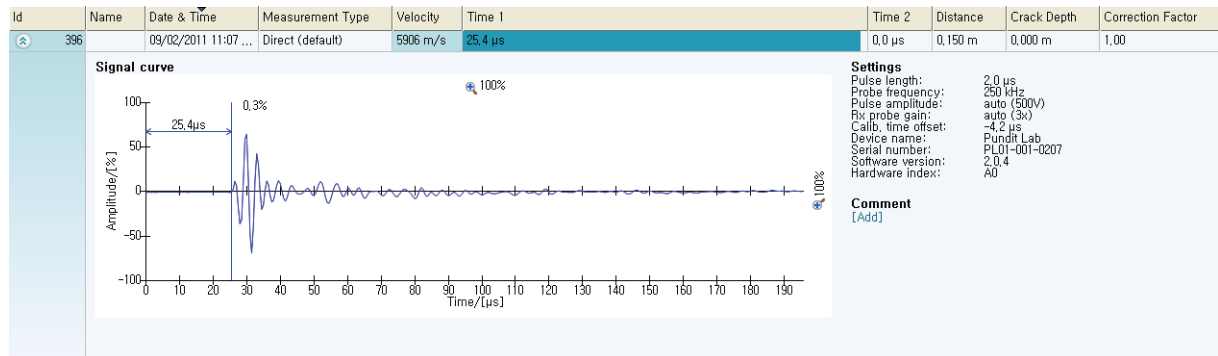
Clear P-wave signal at around 25 μs , stronger shear wave signal at around 50 μs
Typical signal

Misaligned Transducers

The worst case occurs when the transducers are aligned at right angles to each other as shown below.



In this case the shear wave signal is not picked up at all by the receiver transducer.



The P-wave signal arrives at around 25 μ s. The S-wave typically has a transmission time approximately twice as long as the P-wave. (This is of course material dependent, but it is a good guide line.) In this example it can be seen that there is a weak signal around 50 μ s, that is probably the shear wave, however it is too weak due to misaligned transducers.

Recommendations

- If possible, always measure the P-wave first. This will give an indication of where to look for the S-wave (roughly twice the P-wave transmission time).
- Check the transducer alignment, by lining up the BNC connectors.
- Try rotating the receiver transducer through 90°. This will allow you to see the shear wave component increasing and decreasing.