# Introducing the multiple-angle TOFD wedge

High Density Poly Ethylene (HDPE) pipe is becoming a popular substitute for steel pipe. Varieties of polyethylene used in industry can have an acoustic velocity range from about 2100m/s to about 2600m/s. Using PMMA or polystyrene as a refracting wedge material could result in very little refraction or even negative refraction. Elastomeric materials designed by Innovation Polymers range from approximately 1025m/s to about 1600m/s, ensuring positive refraction for all applications on polyethylene.

Innovation Polymers has designed wedges specifically for TOFD applications on HDPE. Interchangeable plugs made from Innovation Polymers' low velocity elastomeric polymers permits the user to select a refracted-angle option best suited for the TOFD inspection at hand. These wedges are primarily intended for the TOFD inspection of high density polyethylene butt fusion joints. The modular concept consists of a standard housing, replaceable plug inserts and a threaded plate to accommodate different sized probes up to 12.5mm (0.5 inch) diameter.

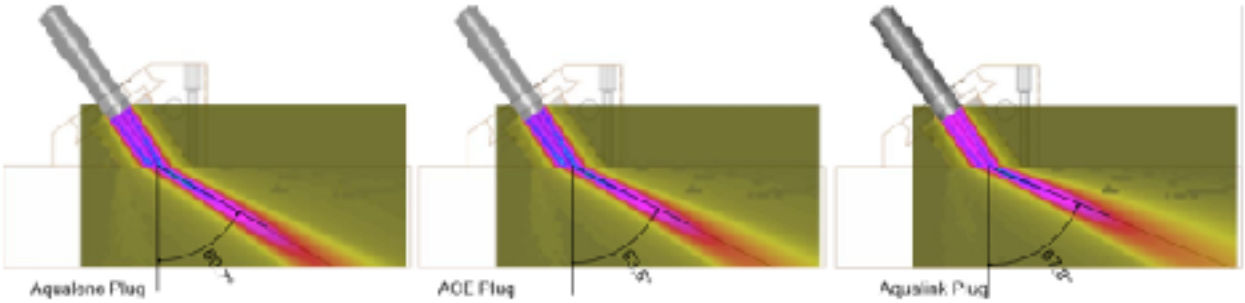

- Standard plates are anodized aluminium with either 3/8-32 or 11/16-24 threaded opening for probes.
- Standard incident angle is 35° on a flat contact surface.
- Standard plugs are available in ACE™, Aqualene™, and Aqualink™.

The standard materials provide refracted angles based on the polymer tested. User determines the best plug material, based on the polymer tested, its thickness, and the Probe Centre Spacing (PCS) for the desired depth of the beam crossing point.

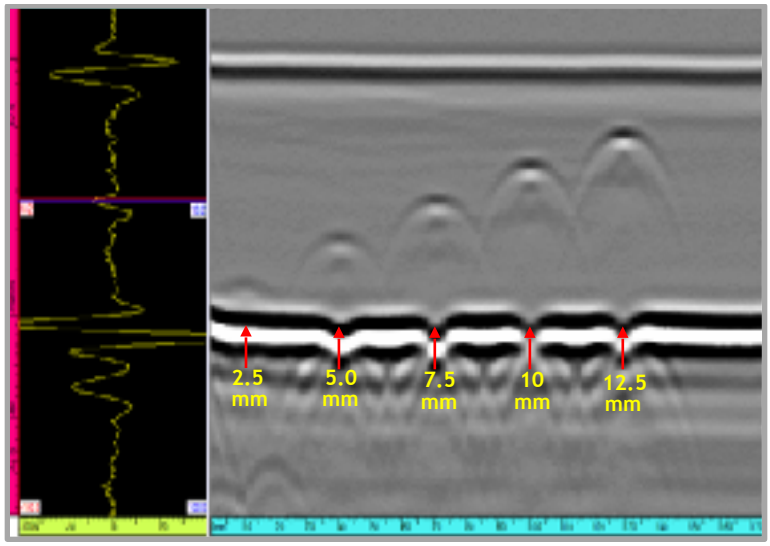
INNOVATION POLYMERS
519-741-0550

| Polymer Velocity (m/s) | Refracted Angle (°) Aqualene 300 1590m/s | Refracted Angle (°) ACE 400 1540m/s | Refracted Angle (°) Aqualink 100 1480m/s |
|---|---|---|---|
| 2000 | 46 | 48 | 51 |
| 2100 | 49 | 51 | 54 |
| 2200 | 53 | 55 | 58 |
| 2300 | 56 | 59 | 63 |
| 2400 | 60 | 63 | 68 |
| 2500 | 65 | 69 | 76 |
| 2600 | 70 | 76 | Internal Reflection |

*Plug options on HDPE with acoustic velocity 2400m/s*




Supplied with irrigation nozzles. Custom modifications can be made to accommodate different incident angles for the holder, different size of threaded probe-plates and curvatures can be added to the holder to better adapt the wedge holder to curved surfaces.




*Scan of 25.5mm HDPE plate (2530 m/s) with ACE™400 insert. PCS=82mm. Five 10mm long Vee notches*

INNOVATION POLYMERS
519-741-0550