

Introduction of THE MULTIPLE-ANGLE TOFD WEDGE

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High Density Poly Ethylene (HDPE)

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.

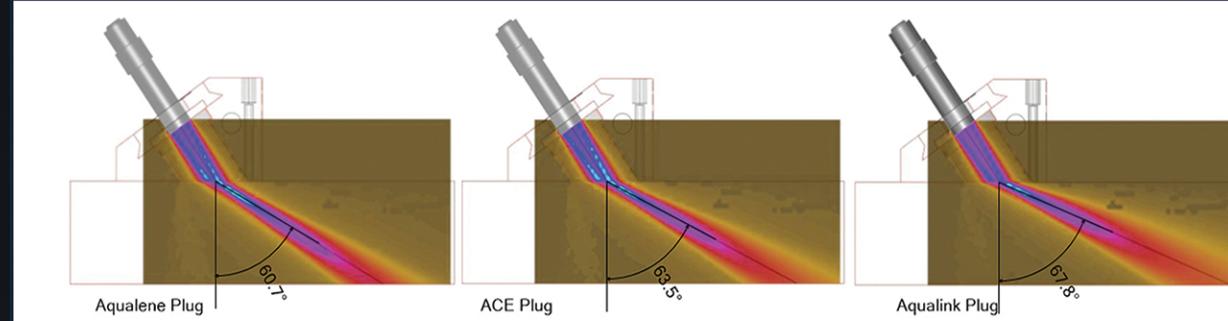


Innovation Polymers has designed wedges specifically for TOFD applications on HDPE. Interchangeable plugs made from Innovation Polymers' low velocity elastomeric polymers permit the user to select a refracted angle option best suited for the TOFD inspection at hand. These wedges are primarily intended 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 plugs are available in **ACE™**, **Aqualene™**, and **Aqualink™**.

- Standard plates are anodized aluminium with either **3/8-32** or **11/16-24** threaded opening for probes.

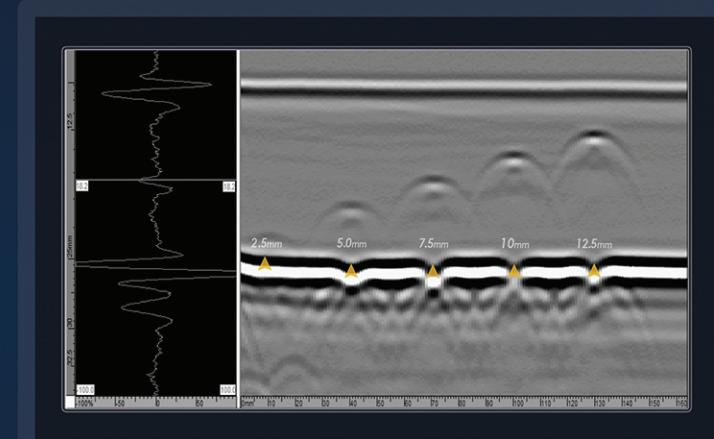
- Standard incident angle is **35°** on a flat contact surface.



Polymer	Aqualene 300	ACE 400	Aqualink 100
	Refracted Angle (°)	Refracted Angle (°)	Refracted Angle (°)
Velocity (m/s)	1590m/s	1540m/s	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

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.



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

- ▷ Supplied with irrigation nozzles
- ▷ Custom modifications are available
- ▷ Different incident angles available
- ▷ Threaded probe-plates and curvatures can be added

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