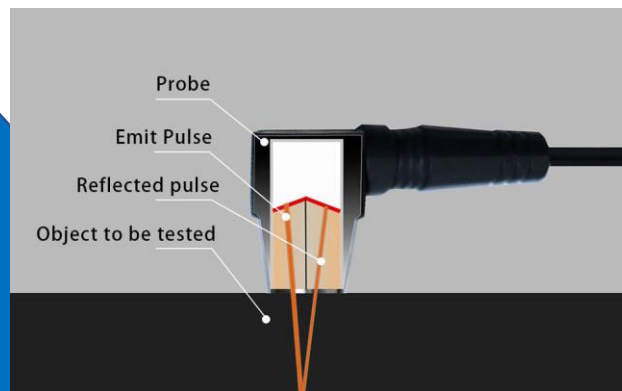


## ULTRASONIC THICKNESS GAUGING (UTG)



Ultrasonic Thickness Gauges are precise tools that measure material thickness, especially metals, using sound waves without causing damage. They work by sending high-frequency waves through a material and measuring the time for them to return, calculating thickness based on sound speed.

Ultrasonic thickness gauges offer versatile measurement capabilities across a wide range of engineering materials. From metals and plastics to composites, ceramics, and glass, these gauges facilitate non-destructive measurement without the need for cutting or sectioning. However, materials like wood, paper, concrete, and foam pose challenges due to their limited transmission of high-frequency sound waves, making conventional ultrasonic gauging less effective for these substances.



Three methods are commonly used to measure the time interval representing a sound wave's travel through a test piece. Mode 1, the most prevalent, measures the time between the excitation pulse and the first echo, adjusting for instrument delays. Mode 2 measures from surface echo to backwall echo, while Mode 3 tracks successive backwall echoes.