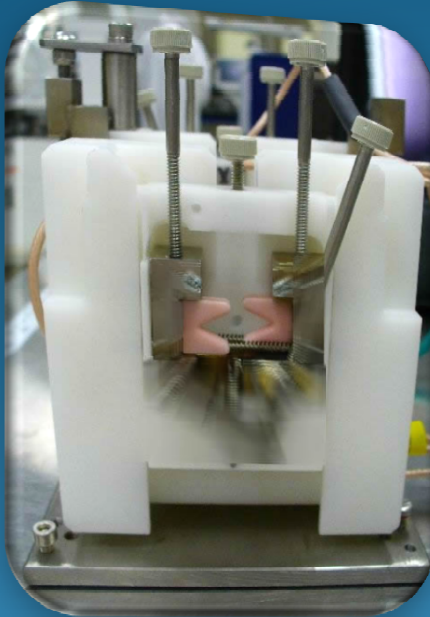




Monolithic Industries

STREAM-GUIDE™ ULTRASONIC TUBE WALL THICKNESS ZUMBACH A5CF-4K UMAC FIXTURE GUIDES

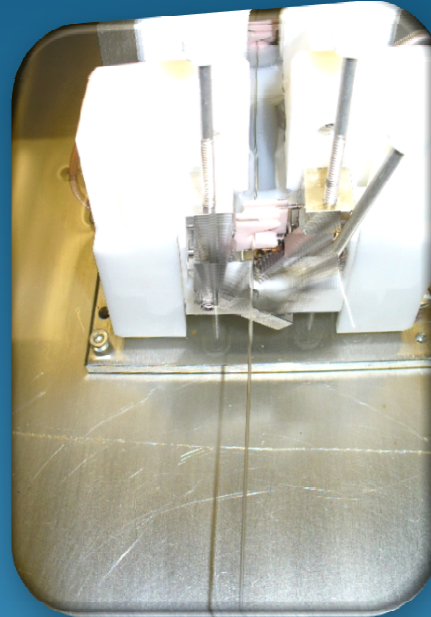


STREAM GUIDE: MAKES ULTRASONIC TUBE WALL MEASUREMENT MORE RELIABLE

- A drop-in fixture design for the A5CF-4K Zumbach UMAC ultrasonic sensor fixture
- Ensures precision alignment of the tube in the center of the ultrasonic wave field
- Tube position in the field is critical to accurate wall thickness measurement

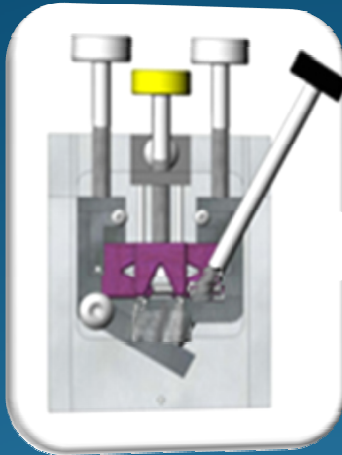
STREAM-GUIDE FEATURES

- Polished ceramic guides
- Stainless steel, Delrin, and ceramic materials
- Precision controls allow full range adjustment of tube:
 - Left, right, up and down
- Micro precision movement on both ends of Zumbach A5CF-4K fixture
- Standard model can accommodate tubing up to 0.125 inch diameter tubing



ELIMINATES NEED FOR GUIDE BLOCKS

- Standard model accommodates size range of tubing diameters from 0 to 0.125 inch. (Larger tubes can be accommodated)
- No need to machine expensive, multiple alignment block sets

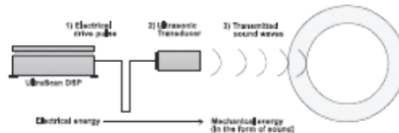


2009 MODEL

- Provides third guide for greater positioning accuracy

Ultrasonic Wall & Concentricity Measurement Principle

UltraScan DSP sends an electrical drive pulse and the transducers convert that energy into an ultrasonic sound wave.



The Ultra Scan DSP calculates the wall thickness as:

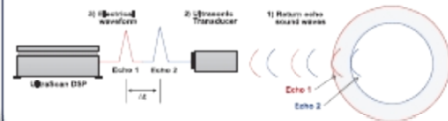
$$\text{Wall} = (\Delta t \cdot s) / 2$$

Δt = time between echoes

s = speed of sound through the material'

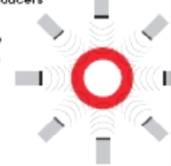
*The DataPro 3000 and 5000 controllers provide a feature that allows the UltraScan DSP to determine the speed of sound through the material on line.

Echoes are sent back to the ultrasonic transducers from the walls of the tube and the transducers convert that energy into an electrical waveform.*



Multi-Point Wall & Concentricity

Using multiple transducers provides full measurement of the product. This allows the calculation of concentricity and the determination of the minimum and maximum wall thickness.



- To attain correct and consistent wall thickness measurement, the tube must be kept centered in the ultrasonic field
- It must be kept centered at a tolerance 10-15% of the outer diameter of the tube you are measuring. This becomes critical when using only four sensors for measurement
- Field centering is critical when measuring 0.001 to 0.005 inch wall thicknesses

Traditional Drilled Guide Blocks:

- Expensive
- Difficult to machine precisely for small tubes
- Do not assure critical alignment
- Do not accommodate diameter changes during string up and process changes



Re-thinking Extrusion...

WWW.MONOLITHICINDUSTRIES.COM

Oceanside CA - USA 1-888-987-6844

Info@MonolithicIndustries.com